A comparison study of cognitive restructuring + in vivo exposure versus in vivo exposure in the group treatment of agoraphobia.

Shawn S. Steggles
University of Windsor

Follow this and additional works at: https://scholar.uwindsor.ca/etd

Recommended Citation

This online database contains the full-text of PhD dissertations and Masters' theses of University of Windsor students from 1954 forward. These documents are made available for personal study and research purposes only, in accordance with the Canadian Copyright Act and the Creative Commons license—CC BY-NC-ND (Attribution, Non-Commercial, No Derivative Works). Under this license, works must always be attributed to the copyright holder (original author), cannot be used for any commercial purposes, and may not be altered. Any other use would require the permission of the copyright holder. Students may inquire about withdrawing their dissertation and/or thesis from this database. For additional inquiries, please contact the repository administrator via email (scholarship@uwindsor.ca) or by telephone at 519-253-3000 ext. 3208.
NOTE TO USERS

This reproduction is the best copy available.
A COMPARISON STUDY OF COGNITIVE RESTRUCTURING + IN VIVO EXPOSURE VERSUS IN VIVO EXPOSURE IN THE GROUP TREATMENT OF AGORAPHOBIA

by

Shawn S. Steggles

M.A. University of Windsor, 1981

A Dissertation
Submitted to the Faculty of Graduate Studies through the Department of Psychology in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy at the University of Windsor

Windsor, Ontario, Canada
1987
ABSTRACT

Agoraphobia is the most pervasive and serious of all the phobic disorders. Marks (1969) reported that agoraphobics represent between 50%-60% of all phobic clients seen by practicing mental health professionals. The syndrome includes fears of leaving home, being in closed spaces, shopping, and traveling especially when alone. There is much fear generalization throughout the course of the disorder, and numerous other symptoms are commonly present, including panic attacks, tension, dizziness, frequent depression, depersonalizations and obsessions.

The purpose of the present investigation was to determine whether in vivo exposure treatment of agoraphobics could be made more efficient by incorporating cognitive restructuring procedures into the behavioral treatment. Thirty-two adult subjects, were recruited through the clientele of the outpatient department at the Foothills Hospital, Calgary, Alberta, and from announcements in local media of a program to treat agoraphobia. Subjects were randomly assigned to either the in vivo exposure group (noncognitive group; n = 12), the in vivo exposure + cognitive restructuring (cognitive group; n = 11) or the waiting list control group (n = 9). Subjects in the two therapy groups received 12 weekly group therapy sessions lasting approximately two hours each. The waiting list control group did not receive any treatment at this time.

A multifaceted assessment procedure including, a) a measure of frequency of panic attacks, b) measures of general anxiety, c) measures of phobic anxiety, d) measures of
phobic avoidance, including a behavioral avoidance test, e) a measure of global distress, f) a measure of treatment expectations, and g) a fear questionnaire, were administered to all three groups. These were administered before treatment began (pretreatment assessment), after 11 weeks of treatment (intermediate treatment assessment) and after the completion of treatment (posttreatment assessment).

Results of the present investigation clearly suggest that in vivo treatment of agoraphobia could not be made more efficient by incorporating cognitive restructuring into the behavioral treatment. Multiple measures of change yielded no significant improvement in phobic symptomatology for subjects in the waiting list control group. The lack of change in the control group contrasted with the improvement obtained in the two therapy groups. Both therapy groups were accompanied by marked and significant reduction in phobic symptomatology as measured on the following scales: (a) Watson and Marks rating scale of phobic anxiety, (b) Watson and Marks rating scale of avoidance and (c) Behavior avoidance test. The two therapy groups displayed a consistent but nonsignificant trend toward improvement on ten of the remaining eleven measures. There was no evidence to indicate that the noncognitive or cognitive groups differed significantly from one another on any of the dependent measures.

The results of the present study essentially corroborated the findings of Emmelkamp et al. (1986), Emmelkamp & Mersch (1982), Last et al. (1984), Mavissakalian et al (1983), and Williams and Rappoport (1983). Comparisons with relevant research, reasons for the lack of therapy differences, methodological concerns, theoretical implications and suggestions for future research were discussed.
ACKNOWLEDGEMENTS

I am grateful to the members of my dissertation committee — Professors Robert Fehr (Chairperson), Neal Holland, Dave Reynolds, Pat Taylor and Nick Spanos — for their continued help and advice in the implementation and presentation of this research.

Thanks also to Bill Ross for introducing me several years ago to the problem of agoraphobia and its treatment, to Neal Holland for introducing me to cognitive-behavior therapy approaches (amongst others), and to Hank Stam for his statistical advice and editorial comments.

On a more personal note, I especially appreciate the long and enlightening conversations with Bob Fehr. His ideas have both challenged me to think and have provided excellent feedback in shaping my ideas and views of life. His support and encouragement through some difficult times has been very important.

And finally, to my wife Donna, she has always encouraged me to pursue my academic career and her interest and involvement in my work and life has been unwavering. Thank you, dear, for your support, understanding and faith in my ability.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>11</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>ix</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>x</td>
</tr>
</tbody>
</table>

## CHAPTER

### INTRODUCTION

Overview of Agoraphobia Syndrome.................. 2
Theories of the Acquisition of Phobias
   1. Two factor theory: Classical and operant conditioning........................ 5
   2. Cognitive models.................. 8
Behavior Therapy for Phobias
   Effectiveness of Behavior Therapy for Phobias........................................ 10
   Effectiveness of Behavior Therapy for Agoraphobics................................. 11
Cognitive Therapy for Phobias
   Overview........................................ 17
   Effectiveness of Cognitive Therapy for Phobias........................................ 22
   Effectiveness of Cognitive Therapy for Agoraphobics
      1. Use of Cognitive Modification Alone............................................ 23
      2. Cognitive Modification with In Vivo Exposure.................................. 26
Cognitive Restructuring as a Treatment Procedure: Rationale
   1. Common Maladaptive Thinking Patterns............................................... 30
   2. Effect of Thinking Patterns on Behavior............................................ 33
(2) "General Anxiety" Hypotheses
Hypotheses 2ab (1): State Anxiety Score from the State-Trait Anxiety Inventory .................. 72
Hypotheses 2ab (2): Anxiety Dimension of Brief Symptom Inventory ................................. 74

(3) "Phobic Anxiety" Hypotheses
Hypotheses 3ab (1): Phobic Anxiety Dimension of Brief Symptom Inventory .................... 77
Hypotheses 3ab (2): Obsessive-Compulsive Dimension of Brief Symptom Inventory ............. 79
Hypotheses 3ab (3): Watson and Marks (1971) Rating Scale of Phobic Anxiety .................. 80
Hypotheses 3ab (4): Agoraphobic Cognitions Questionnaire ........................................ 83
Hypotheses 3ab (5): Body Sensations Questionnaire ................................................ 86
Hypotheses 3ab (6): Self-Report of Anxiety on the Behavioral Avoidance Test .................... 89

(4) "Behavioral Avoidance" Hypotheses
Hypotheses 4ab (1): Watson and Marks (1971) Rating Scale of Avoidance ......................... 91
Hypotheses 4ab (2): Behavior Avoidance Test .......................................................... 93

(5) "Global Distress" Hypotheses
Hypotheses 5a and 5b: Global Distress Measure from the Brief Symptom Inventory ............... 96

Subsidiary Hypotheses
(1) "Treatment Expectations" Hypothesis .............................................................. 98

(2) "Fear" Hypotheses
Hypotheses 2ab (1): Total Phobia Score on the Marks and Mathews Fear Questionnaire ...... 99
Hypotheses 2ab (2): Agoraphobic Score on the Marks and Mathews Fear Questionnaire ...... 101

IV DISCUSSION .................................................................................. 104

Review of Hypothesis Testing .......................................................... 104
Comparisons with Relevant Research ............................................ 110
Lack of Therapy Differences ....................................................... 114
Cognitive Restructuring ............................................................... 117
Methodological Issues
1. Sample Size ........................................................................ 121
2. Subject Attrition .................................................................. 124
3. Sensitivity of Dependent Measures ...................................... 125

vii

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject Demographics</td>
<td>47</td>
</tr>
<tr>
<td>2. Summary of Therapy Procedures</td>
<td>48</td>
</tr>
<tr>
<td>3. One Way Analyses of Variance on Pretreatment Scores for All Dependent Measures</td>
<td>62</td>
</tr>
<tr>
<td>4. Means and Standard Deviations for Dependent Measures</td>
<td>66</td>
</tr>
<tr>
<td>5. Significance of Treatment, Session, Interaction, and Simple Main Effects for Dependent Measures</td>
<td>70</td>
</tr>
<tr>
<td>6. Summary of Hypothesis Testing</td>
<td>106</td>
</tr>
<tr>
<td>7. Correlation Coefficients for Self-Report Measures</td>
<td>188</td>
</tr>
</tbody>
</table>
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Subjects' Mean Self-Reported Frequency of Panic Attacks at Pre-, Inter- and Posttreatment</td>
<td>69</td>
</tr>
<tr>
<td>2.</td>
<td>Subjects' Mean State Anxiety Score from the State-Trait Anxiety Inventory at Pre-, Inter- and Posttreatment</td>
<td>73</td>
</tr>
<tr>
<td>3.</td>
<td>Subjects' Mean Score on Anxiety Dimension of Brief Symptom Inventory at Pre-, Inter- and Posttreatment</td>
<td>76</td>
</tr>
<tr>
<td>4.</td>
<td>Subjects' Mean Score on Phobic Anxiety Dimension of Brief Symptom Inventory at Pre-, Inter- and Posttreatment</td>
<td>78</td>
</tr>
<tr>
<td>5.</td>
<td>Subjects' Mean Obsessive-Compulsive Score from the Brief Symptom Inventory at Pre-, Inter- and Posttreatment</td>
<td>81</td>
</tr>
<tr>
<td>6.</td>
<td>Subjects' Mean Score on Watson and Marks Rating Scale of Phobic Anxiety at Pre-, Inter- and Posttreatment</td>
<td>82</td>
</tr>
<tr>
<td>7.</td>
<td>Subjects' Mean Score on the Agoraphobic Cognitions Questionnaire at Pre-, Inter- and Posttreatment</td>
<td>85</td>
</tr>
<tr>
<td>8.</td>
<td>Subjects' Mean Score on the Body Sensations Questionnaire at Pre-, Inter- and Posttreatment</td>
<td>87</td>
</tr>
<tr>
<td>9.</td>
<td>Subjects' Mean Self-Report of Anxiety Score on the Behavior Avoidance Test at Pre-, and Posttreatment</td>
<td>90</td>
</tr>
<tr>
<td>10.</td>
<td>Subjects' Mean Score on the Watson and Marks Scale of Avoidance at Pre-, Inter- and Posttreatment</td>
<td>92</td>
</tr>
<tr>
<td>11.</td>
<td>Subjects' Mean Score on the Behavior Avoidance Test at Pre-, and Posttreatment</td>
<td>94</td>
</tr>
<tr>
<td>12.</td>
<td>Subjects' Mean Global Severity Index Score from the Brief Symptom Inventory at Pre-, Inter- and Posttreatment</td>
<td>97</td>
</tr>
<tr>
<td>13.</td>
<td>Subjects' Mean Total Phobia Score on the Marks and Mathews Fear Questionnaire at Pre-, Inter- and Posttreatment</td>
<td>100</td>
</tr>
</tbody>
</table>
Subjects' Mean Agoraphobia Fear Score on the Marks and Mathews Fear Questionnaire at Pre-, Inter- and Posttreatment
CHAPTER I
INTRODUCTION

Agoraphobia is the fear of experiencing overwhelming anxiety in various public places, e.g., elevators, airplanes, crowded stores, traveling, or busy streets. A central theme with agoraphobics is that of feeling trapped where immediate escape from the feared situation is not thought to be possible. Agoraphobia is the most pervasive and serious of all the phobic responses and has been reported to be very difficult to treat (Goldstein & Chambless, 1978). Although this problem has long been reported to be very resistant to treatment, interventions which involve interaction with the actual feared situation ("in vivo exposure") have been reported to be effective (e.g., Emmelkamp & Wessels, 1975; Hafner & Marks, 1976).

Theorists and therapists (e.g., Beck & Emery, 1979) working in the field of agoraphobia, noting the debilitating thoughts and thinking styles of their clients, have suggested that cognitive therapy may be effective in changing such thinking patterns and subsequently succeed in reducing phobic behavior. Only two studies (Williams & Rappoport, 1983; Emmelkamp & Merch, 1982) have examined the integration of cognitive restructuring with in vivo exposure for agoraphobics and then examined the treatment outcome. Both studies suggested an equivalence of treatment methods, however, both studies were methodologically flawed and deserve replication and extension with design
Improvements. Despite the above two studies, there is reason to think that such a combined approach may enable people to utilize more effectively cognitive interventions.

The purpose of the present study was to determine whether in vivo exposure treatment of agoraphobia could be made more efficient by incorporating cognitive modification techniques into the treatment. It is hypothesized that in vivo exposure combined with cognitive restructuring will be superior to in vivo exposure in treating the debilitating problem of agoraphobia.

Initially, the agoraphobia syndrome will be described. Subsequent sections will examine the theories of acquisition of phobias, behavioral and cognitive treatment approaches to phobias and to agoraphobia in particular. The rationale for the cognitive therapy procedures and a brief description of these techniques will be outlined. A statement of the purpose of this study and the hypotheses to be tested will conclude the introductory chapter.

**Overview of Agoraphobia Syndrome**

The term "agoraphobia" was first coined by Westphal, a German psychiatrist, who, in 1871, published a manuscript, Die Agoraphobe, which described the experiences of three males who had intense anxiety when walking across open spaces or through empty streets. His account was cited by Errera (1962):

"Impossibility of walking through certain streets or squares, or possibility of doing so only with resultant dread of anxiety ... no loss of consciousness ... vertigo was excluded by all patients ... no hallucinations or delusions to cause this strange fear ... agony was much increased when the particular streets dreaded were deserted and the shops closed. The patients experienced great comfort from the companionship of men or even an inanimate object, such as a vehicle or a cane. The use of beer or wine also allowed the patient to pass through the feared locality with"
comparative comfort. One man even sought, without immoral motives, the companionship of a prostitute as far as his own door ... Some localities are more difficult of access than others; the patient walking far in order not to traverse them ... Strange to say, in one instance, the open country was less feared than sparsely housed streets in town. Case 3 also had a dislike for crossing a certain bridge. He feared he would fall in the water. In this case there was also apprehension of impending insanity.

In two cases, the onset of the disease had been sudden; in the third, the fear had been gradually increasing for a number of years. (p. 332)

Today, over one hundred years later, agoraphobia remains the most disabling of phobias (Goldstein & Chambless, 1978). While agoraphobia is often defined as a fear of open spaces, this is really a misnomer since agoraphobics typically exhibit a wide variety of avoidance behaviors including an inability to enter closed spaces, and of shopping, traveling, and entering social situations, especially when alone. There is much fear generalization to additional stimuli throughout the course of the disorder, and numerous other symptoms are commonly present, including panic attacks, tension, dizziness, frequent depression, depersonalization, and obsessions.

The Diagnostic and Statistical Manual, 3rd ed. (American Psychiatric Association, 1980) contains two categories, "Agoraphobia with Panic Attacks" and "Agoraphobia without Panic Attacks," both described as follows:

The essential feature is a marked fear of being alone, or being in public places from which escape might be difficult or help not available in case of sudden incapacitation. Normal activities are increasingly constricted as the fears of avoidance behavior dominate the individual's life. The most common situations avoided involve being in a crowd, such as on a busy street or in crowded stores, or being in tunnels, on bridges, on elevators, or in public transportation. Often these individuals insist that a family member or friend accompany them whenever they leave home.

The disturbance is not due to a major depressive episode, Obsessive Compulsive Disorder, Paranoid Personality Disorder, or Schizophrenia. Often the initial phase of the disorder consists of recurrent panic attacks.
... The individual develops anticipatory fear of having such an attack and becomes reluctant or refuses to enter a variety of situations that are associated with these attacks. (p. 226)

The DSM-III describes "panic attacks" as follows:

Panic attacks are manifested by the sudden onset of intense apprehension, fear, or terror, often associated with feelings of impending doom. The most common symptoms experienced during an attack are dyspnea; palpitations; chest pain or discomfort; choking or smothering sensations; dizziness, vertigo, or unsteady feelings; feelings of unreality (depersonalization or derealization); paresthesias; hot and cold flashes; sweating, faintness; trembling or shaking; and fear of dying, going crazy, or doing something uncontrolled during the attack. Attacks usually last minutes; more rarely, hours .... panic (anxiety) attacks .... (may) occur at times unpredictably, though certain situations, e.g., driving a car, may become associated with a panic attack. (p. 230)

These panic attacks are typically accompanied by a sense of doom and fear that one is dying of a heart attack or stroke, is going crazy, or is going to faint, or lose control in some way as to be publicly humiliated. Agoraphobics seek to flee when such attacks occur, and fear and avoid any place where flight to safety is likely to be prevented. It is for this reason that a number of authors (Goldstein & Chambless, 1978; Weekes, 1976) have proposed that agoraphobia is primarily a "fear of fear", with the fear of places being secondary.

The prevalence of agoraphobia in the general community has been estimated at 6.3/1000 (Agras, Sylvester & Ollieux, 1969). The proportion of psychiatric patients who are diagnosed phobic is about 2-3% (Terhune, 1961), and of these, the majority are agoraphobic. The majority of patients who present themselves for either psychiatric or psychological treatment for agoraphobia also suffer from panic attacks (Johnson, 1985).
A prominent characteristic of this syndrome is that approximately two-thirds of patients are women (Marks, 1970; Terhune, 1949). The majority are married and tend to marry at ages comparable to normal populations (Marks & Gelder, 1965). Most authors have claimed that agoraphobics are not unusual in intelligence, education, religion, ethnic groups, socioeconomic status or occupation (Fensterheim & Beer, 1977; Marks, 1969; Weekes, 1976).

Agoraphobia normally begins in young adult life (18-35 years). Marks (1970) and Bowen and Kohout (1979) report two peak ages of onset, at about 20 years and at about 30-35 years. Most research reported indicates that agoraphobics seek treatment in their thirties, although the time from onset to professional contact varies considerably (Marks, 1970). A more detailed description of the agoraphobic syndrome can be found in a number of excellent reviews (Chambless & Goldstein, 1982; Mathews, Gelder & Johnston, 1981).

Theories of the Acquisition of Phobias

The discussion which follows briefly examines theories for the acquisition of phobias. These theories fall into two broad classifications, learning theories and cognitive models.

1. Two factor theory: Classical and operant conditioning

The most influential pre-1970 formulation of phobias in learning theory terms is the two-process or two-factor theory (Eysenck & Rachman, 1979; Mowrer, 1960), in which the two 'factors' involved are classical and instrumental conditioning procedures. Central to two-factor theory is the claim that avoidance behavior is acquired and maintained "by the intermediation of fear" (Mowrer, 1960, p. 25).
Mowrer (1960) proposed that all fears are initially acquired through Pavlovian (classical conditioning) processes, and are maintained as a result of operant-conditioned learning. In the classical conditioning component, the phobic situation (or, more accurately, the environment in which phobic behavior is manifested) has acquired the potential to evoke anxiety, a conditioned response (CR), through pairing with a noxious unconditioned stimulus (UCS). Reiss (1980) summarizes the concepts in this way.

Initially neutral stimuli become conditioned elicitors of fear when experienced in temporal contiguity with such aversive events as conflict, trauma, pain, and confinement. A phobic stimulus is regarded as a conditioned stimulus (CS), acquired fear is regarded as a conditioned response (CR), and aversive events are regarded as reinforcing stimuli and as unconditioned stimuli (USs). (p. 381)

The acquisition and maintenance of avoidance responses are attributed to negative reinforcement (instrumental) contingent upon avoidance of the feared object or situations. Escaping the CS, or phobic situation is negatively reinforced by anxiety-reduction. Because of this, escaping becomes established as a habitual response to the phobic surroundings, and more important the escape behavior curtails exposure to the CS. Brief exposure to the CS is likely to be insufficient to promote extinction of the CR, and, furthermore, anxiety-reduction becomes correlated with new environments that may assume the connotation of safety. Avoidance of the CS in the first place, another prominent feature of phobic behavior, equally protects the CR from extinction. Sidman (1966) summarizes the sequence of events as follows:

The literature on avoidance behavior consists largely of a series of variations on a single theme; The subject is first made anxious through a process of Pavlovian conditioning; his avoidance behavior is reinforced when it terminates or reduced the conditioned anxiety state. (p. 448)
The most significant support for classically conditioned acquisition of fear generally is derived from experiments with laboratory animals (see reviews by Broadhurst, 1960, 1972; and Wolpe, 1958). There have been a few reported instances of conditioned fear responses in humans, however, it has been difficult to demonstrate this phenomenon in the laboratory (Rachman, 1977). Supporters of the operant conditioning theory justify their position by reporting on the successful use of learning schemes based on this theory with both animals and humans (e.g., Blackman, 1974). However, the success of techniques based on a particular theory do not necessarily demonstrate the validity of the theory. In fact, there are serious objections to the validity of both the Pavlovian theory of fear acquisition and the operant conditioning theory of avoidance behavior.

A number of objections to Pavlovian theory include (a) the difficulty in demonstrating that the CS is not a discriminative stimulus (i.e., a signal that the UCS may occur) rather than a stimulus that has acquired response-evoking properties in itself (e.g., Herrnstein, 1969); (b) the finding that extinguishing of fear responses does not necessarily occur, as predicted by the theory, upon repeated presentations of the CS in the absence of any externally-occurring traumatic events (e.g., repeated exposure to being away from home without harm has little effect upon agoraphobics' fears of such exposure); (c) the fact that the theory seems to require a concept of equipotentially: that is, that any stimuli coinciding with the elicitation of fear could become a CS and this clearly does not happen; (d) that patients with strong fears often deny that any traumatic event was associated with acquisition of the fear, and that some phobics have never been exposed to the situations they fear. A fuller discussion of the shortcomings of classical conditioning theory is considered beyond the scope of this essay, but the interested reader is directed to Rachman, 1977.
A number of deficiencies of the operant model of avoidance maintenance are that (a) people often choose to confront stimuli they fear rather than avoid them; (b) avoidance is not necessarily associated with anxiety nor with reinforcement (Bolles, 1972; Rachman, 1976); (c) the theory does not explain nor predict behavior, since "Reinforcement" is defined as "those contingencies which modify behavior," and so the theory becomes tautological: A person avoids because reinforcement is contingent upon the avoidance response; the contingency is reinforcing because the person is observed to avoid. As in the case with Pavlovian conditioning, a discussion of the inadequacies of the operant model is considered beyond the scope of this essay, however, the interested reader is directed to Bolles, 1972.

2. Cognitive models

Other models have been suggested (Bandura, 1977; Bolles, 1972; Rachman, 1977; Reiss, 1980) for fear acquisition, that are purported to be more adequate theoretically. These models have received some experimental support. Bolles (1972), Reiss (1980), Bandura (1977), and Rachman (1977) all stressed the cognitive aspects of fear acquisition and modification. Bandura (1969) has already demonstrated that fears may be acquired vicariously through modeling and other symbolic means. Bolles (1972) proposed that processes underlying operant conditioning paradigms are more adequately described by an expectancy model, in which two kinds of expectancies are learned: that certain responses are likely to lead to certain consequences. Bolles (1972) suggested that avoidance responses to CSs are more adequately explained by considering the informational value of the CS (that an unpleasant event is likely to follow) than by theorizing that escape from the CS has become
Inherently reinforcing.

Reiss (1980) extended the expectancy concept to Pavlovian conditioning by pointing out the importance of the informational value of the stimuli which become CSs, and suggested that subjects respond to the expected appearance of the UCS rather than to other properties acquired by the CS. Reiss (1980) proposed an expectancy model of phobias. Assumptions of this model are that, (a) classical conditioning is a form of stimulus-expectancy learning, and (b) the laws governing the acquisition of expectancies and CRs are essentially the same. There are, then, according to Reiss (1980) four processes in the acquisition of a phobia:

1. The acquisition of “initiating (danger) expectancies”. These expectancies of physical or social danger can result from cognitive learning, associative learning, covert conditioning, observations from models, or a combination of these factors.

2. The acquisition of “anxiety expectancies” through in vivo or covert experiences.

3. Initial avoidance, which at least sometimes occurs via negative reinforcement.

4. The persistence of avoidance by means of self-regulatory processes.

Bandura (1977) has elaborated a cognitive model of behavior change which proposes that performance-based treatments for phobic disorders decreases fear and avoidance behavior by increasing perceived self-efficacy. Self-efficacy may be defined as an individual’s expectations of personal effectiveness in dealing with the particular feared situation. The level of perceived self-efficacy, or expectations of personal effectiveness, may be derived from four major sources: (1) behavioral experience, (2) vicarious experience, (3) verbal persuasion and exhortation, and (4) level of physiological arousal (from which the individual judges his or her ability to deal with the situation). Bandura...
(1977) has interpreted his and other research findings, with phobic subjects, as supporting the position that information gathered from all four sources including cognitive ones is seen as contributing to the success of performance-based treatments. The self-efficacy model has received some empirical support from studies with snake phobics (Bandura & Adams, 1977), acrophobics (Bourque & Ladouceur, 1980), and agoraphobics (Bandura, Adams, Hardy & Howells, 1980), but further work is needed to provide adequate support for the theory.

To summarize, more recent theories proposed to explain acquisition, maintenance, and reduction of fear in humans have given strong emphasis to cognitive processes. Some of these theories have been briefly presented for the readers' interest. These more recent theories seem to have greater explanatory and predictive power than the older, two-factor theory, but experimental support for them is just beginning to be reported.

Behavior Therapy for Phobias

The discussion which follows examines some of the evidence regarding the therapeutic efficacy of behavior therapy, as it pertains to phobias in general, and as related to agoraphobia in particular.

Effectiveness of Behavior Therapy for Phobias

Since the early 60's, a large body of literature has been devoted to the behavioral treatment of phobic disorders. Several critical reviews of the research have appeared that have attempted to unify the findings in this area, and it has been suggested that the therapeutic element common to successful treatments of phobias is exposure to phobic (feared) situations (Marks, 1978; Mathews, 1978; Mavissakalian & Barlow, 1981). The
term “exposure treatments” has been proposed by Marks (1978) and utilized to signify all treatment strategies that involves exposing the phobic client to the threatening real-life situation for extended periods of time.

Exposure treatments have been conducted in a variety of ways, over the years, differing, at least procedurally, on several important dimensions. Marks (1978) has summarized the varieties of approach to the phobic stimulus in exposure treatments, and has concluded that some of the more common ways in which treatments vary include, imagined versus live (in vivo) exposure, and therapist-assisted versus self-exposure. Different combinations of these variables have resulted in a number of different treatment strategies all of which have been shown to be relatively effective when incorporating some form of exposure to fear-eliciting situations (Mavissakalian & Barlow, 1981).

The single common thread that unifies all of the above mentioned treatment strategies may be found in the concept of exposure. It appears clear that exposure of phobics to feared situations results in fear reduction, and there is some indication that direct or live confrontation with phobic stimuli may be most effective in facilitating this goal.

Effectiveness of Behavior Therapy for Agoraphobics

The application of behavioral treatments with agoraphobics has been investigated in a large number of studies with encouraging results overall. Among the behavioral procedures that have been studied with agoraphobics include systematic desensitization (Gelder & Marks, 1966; Gelder, Marks & Wolff, 1967), Imaginal flooding (Marks, Boulougouris & Marset, 1971; Gelder, Bancroft, Gath, Johnston, Mathews & Shaw, 1973), successive approximation (Agras, Leitenberg & Barlow, 1968; Crowe, Marks, Agras & Leitenberg,
1972), self-observation (Emmelkamp, 1974; Emmelkamp & Ultee, 1974), group in vivo flooding (Hand, Lamontagne & Marks, 1974; Stern & Marks, 1973; Teasdale, Walsh, Lanshire & Mathews, 1977; Watson, Mullett & Pillay, 1973) and participant modeling (Bandura, Adams, Hardy & Howells, 1980). Each of the treatment procedures mentioned above involve exposing the phobic individual to the feared situations. The various treatments differ mainly in terms of certain parameters of exposure namely, mode of presentation (imaginal vs. in vivo), intensity (graded vs. ungraded), and mode of facilitation (therapist aided, partner aided, or self-directed).

Taken together, the studies cited above provide overwhelming support for the efficacy of behavioral methods in treating those suffering from agoraphobia. With few exceptions in vivo exposure procedures have been demonstrated to be superior to imagery-based therapy procedures (Chambless & Goldstein, 1982; Mathews, Gelder & Johnston, 1981). In fact, Marks (1975) concluded that "real life exposure is the most powerful therapeutic factor so far identified" (p. 93).

A number of the studies cited above are particularly relevant to the use of in vivo exposure for agoraphobics. Five of these studies are worthy of more detailed review, as they illustrate the usefulness of behavioral treatment and indicate the type of methodology typical of research in the field.

(1) One of the earliest studies to examine the efficacy of behavioral treatment for agoraphobics was conducted by Gelder, Marks, Wolff, and Clarke (1967). This study used agoraphobics, social phobics, and single-situation phobics to compare the outcome of three forms of treatment: individual psychoanalytic psychotherapy, group psychoanalytic psychotherapy, and individual behavior therapy. Treatment time parameters were 1 hour.
per week for 50 weeks, 1 1/2 hours per week for 80 weeks, and 1 hour per week for 36 weeks, respectively. Approximately half of the subjects were agoraphobics. Subjects in the behavior therapy condition received systematic desensitization and graduated in vivo tasks to be carried out between sessions. Outcome was assessed using rating scales completed by patients, therapists, and assessors. After 6 months of treatment, patient ratings of improvement on “main phobia” were significantly better for the behavior therapy group than for the other two groups, and behavior therapy was better than group therapy on therapists’ and assessors’ ratings on “main phobia.” These differences had disappeared by the 12th month assessment (at which the psychotherapy groups had received 3 months’ additional treatment compared to the behavior therapy group). By the end of treatment there was some indication that the two individual treatments were better than the group condition, but the individual treatments were not distinguishable from one another. Since the behavior therapy group received less treatment than the psychotherapy patients (36 hours versus 50 hours), the behavioral treatment was more cost effective.

(2) Crowe, Marks, Agras, and Leitenberg (1972) compared Imaginal flooding, systematic desensitization and “shaping” or “reinforced practice” in a cross-over study of fourteen phobics including four agoraphobics. The shaping procedure required the subjects to approach the actual feared situation in graduated steps, with instructions to turn back as soon as he/she became anxious. The therapist delivered social reinforcement in the form of praise for improved performance. This is the first report of a well conceived and executed in vivo procedure for agoraphobics. Each subject received one block of four sessions of each treatment in random order. Sessions were held twice weekly and the duration of exposure (real or Imaginal) was 40 minutes per session. Both behavioral measures and symptom

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
ratings were used in the assessments, which were made prior to treatment and after each treatment block.

On the behavioral test the shaping condition was found to be significantly better than systematic desensitization, while flooding was in an intermediate position and did not differ significantly from either of the other two treatments. No differences were found among conditions on the rating scales. Comparing the agoraphobics to the single-situation phobics, no differences were found in response to the three conditions. For the agoraphobics the order of effectiveness of the treatments was the same on all measures (shaping—flooding—systematic desensitization), while for the single-situation phobics no consistent order was found. The authors justifiably conclude that for agoraphobics, shaping seems to be especially worthy of further study.

(3) Emmelkamp and Wessels (1975) compared flooding in vivo versus flooding in imagination versus a combination of the two procedures with 19 agoraphobic subjects (18 females and 1 male). Subjects were matched on duration of symptoms and amount of time they were able to walk around on the street alone. Three groups were generated. The first received four sessions of flooding in imagination, and the third received four sessions of a combination of flooding in imagination and flooding in vivo, and then each subject carried out eight sessions of in vivo exposure with minimal therapist contact. Assessments were made at pretreatment, after the first four sessions, at posttreatment, and at follow-up. Both behavioral tests and rating scales were used. Treatments were performed in subjects' home, and the home was the starting point in the exposure conditions.

At the intermediate assessment subjects in the two conditions which included in vivo exposure showed gains on the behavioral test and on most ratings of anxiety and avoidance,
while subjects in the imaginal treatment reported reduced anxiety but showed no change in avoidance behavior. The in vivo exposure condition was superior to the combined treatment on many variables, and the combined treatment was superior to the imaginal-only condition on therapist ratings only. At posttest, after all groups had eight sessions of in vivo exposure, no differences were found between the groups, and all groups showed significant improvement on most measures. In vivo exposure was clearly shown to be superior to imaginal flooding.

(4) Emmelkamp, Kuipers, and Eggerant (1978) used a cross-over design in which twenty-one agoraphobics were exposed to “cognitive restructuring” and prolonged real-life exposure. Each technique was implemented in a group context. Patients were randomly distributed among four groups, two of which received cognitive restructuring, and the remaining two of which had in vivo flooding; after five 2 hour sessions, each group received the alternate treatment for the same number of sessions. Assessments were made pretreatment, at cross-over, posttreatment, and 1 month after treatment, and consisted of a behavioral test, self-report inventories, and rating scales completed by the patient and an independent clinician.

In general, all four therapy groups showed improvement from pre- to posttest on almost all variables. Prolonged exposure produced significantly more improvement than cognitive restructuring on a behavioral test and on many self-report and rating scales. Results of the assessment at 1-month follow-up were almost identical to those immediately posttreatment. In vivo exposure was generally, consistently, and significantly superior to cognitive restructuring.

(5) McDonald, Sartory, Grey, Cobb, Stern and Marks (1979) provided support for
the effectiveness of systematic exposure without the presence of a therapist. Nineteen agoraphobic outpatients were randomly assigned to a self-exposure homework condition or a nonexposure discussion condition. Subjects in both conditions met individually for 20–30 minutes on four different occasions over a six-week period. In the self-exposure condition, therapists helped subjects plan their self-exposure activities, while subjects in the non-exposure control participated in general discussions with the therapist on life difficulties. Results revealed a small but statistically significant superiority of the self-exposure condition on subjects' ratings of phobic severity and assessor's ratings of target problems. The authors conclude that such self-exposure can be of benefit to agoraphobics.

The ultimate test of any treatment approach is its ability to induce desired changes which endure over time. In regard to this ability, the great majority of studies that include follow-up information after any form of treatment indicate that gains are stable over periods of from 1 month to 4 years. Subjects as a group neither continue to improve much nor fall back to a significant degree, but remain at about the level of functioning they had achieved at the end of treatment. In summary, a review of the literature reveals that treatment of agoraphobia by in vivo exposure to the feared situations has produced the most beneficial outcomes in general.

Several workers have studied ways of optimizing the exposure approach. Group treatment has been found to be at least as effective as individual work and a more efficient use of therapist time (Hafner & Marks, 1976; Hand, Lamontagne & Marks, 1974; and Teasdale, Walsh, Lancashire & Mathews, 1977). It also may be possible to increase the efficiency of the in vivo exposure by combining it with another form of treatment, cognitive
restructuring. Only two studies (Williams & Rappoport, 1983; Emmelkamp & Merck, 1982) have examined the integration of cognitive restructuring with in vivo exposure and then examined the treatment outcome. Both studies suggested an equivalence of treatment methods, however, both studies were flawed and deserve replication and extension with design improvements. Despite the above two studies there is reason to think that such a combined approach may enable people to utilize more effectively cognitive interventions.

Cognitive Therapy for Phobias

The discussion which follows examines some of the theory and development of cognitive therapy and the evidence relating to its therapeutic efficacy, as it pertains to phobias and phobia-related issues in general, and as related to agoraphobia in particular.

Overview

Since the 1960s, cognitive and cognitive-behavioral interventions have become popular in the treatment of a variety of clinical disorders. Such disorders as anxiety (e.g., Beck, A.T., 1976; Melchenbaum, D.H., 1972; Melchenbaum, D.H., et al., 1971), depression (e.g., Beck, A.T., 1976; Hollon, S.D., & Beck, A.T., 1979), assertion (e.g., Kazdin, A.E., 1974; Linehan, M.M., 1979), anger (e.g., Beck, A.T., 1976; Novaco, A.E., 1974), eating disturbances (e.g., Kelly, A.H., & Currant, J.P., 1976; Leon, G.R., 1979), and pain (e.g., Spanos, N.P., & Barber, T.X., & Lang, G., 1974; Spanos, N.P., & Brazil, K., 1984; Spanos, N.P., Horton, C., & Chaves, J.F., 1975; Stam, H.J., McGrath, P.A., & Brooke, R.I., 1984 (a); Stam, H.J., McGrath, P.A. & Brooke, R.I., 1984 (b)) have been the subject of extensive experimental and clinical research. This trend toward the use of cognitive and cognitive-behavioral interventions with clinical disorders is also evident in the treatment
of phobias, in which cognitive treatment strategies have been used occasionally either alone
or in conjunction with behavioral exposure-based techniques.

The significance of maladaptive cognitions in the genesis of anxiety reactions and
maintenance of anxiety disorders has been discussed by several cognitive and
Specifically, they have proposed that catastrophic or irrational thoughts play a critical role
in mediating maladaptive physiological-emotional and behavioral responses.

Within a cognitive-behavioral framework, cognitions are generally viewed both as
cover responses to certain stimulus situations and, subsequently, as the stimuli themselves
that elicit physiological and behavioral responses. In phobic disorders, specific maladaptive
cognitions are thought to elicit fear and anxiety, both prior to and during contact with phobic
stimuli. Such thoughts generally center on the physiological change accompanying anxiety,
avoidance of or escape from the phobic situation, or anticipation of a catastrophe, it serves
to escalate physiological arousal, resulting in avoidance/escape behavior. These maladaptive
cognitions are conceptualized as primarily responsible for the maintenance of fear and
avoidance patterns characteristic of phobic disorders.

It is important to note that the proposed role of maladaptive thoughts in the fear
process does not negate, necessarily, the etiological significance of automatic or conditioned
fear responses within a learning theory or conditioning model or phobic disorders.
Exposure to feared situations may trigger negative self-statements based on prior learning
experiences and past memories, which then bring on or increase physiological activity and
avoidance/escape behavior.

Given the hypothesized mediational role of maladaptive thoughts, fear reduction is
thought to occur as a consequence of decreasing these self-verbalizations (Beck, 1976;
Ellis, 1962; Goldfried & Davison, 1976; Mahoney, 1974; Meichenbaum, 1977).
Specifically, decreases in maladaptive cognitions are thought to reduce the physiological component of fear which, in turn, eliminates avoidance/escape behavior, since such behavior no longer serves its initial purpose (i.e., avoidance of subjective distress or panic).

Although numerous cognitive interventions have been developed and utilized over the years, most of these treatment approaches are based on the theorizing of Ellis (1962), Beck (1976), and Melchenbaum (1977). In addition to underlying the importance of cognitive processes, each of these individuals has endorsed specific procedures for altering maladaptive cognitions. According to Ellis' (1962) "rational-emotive therapy," Beck's (1976) "cognitive therapy," and Melchenbaum's "self-instructional training" (1977) may all be subsumed under the category of "cognitive restructuring" since they all attempt to modify directly specific thoughts and beliefs believed to be mediators of arousal.

According to Ellis (1962), certain core irrational beliefs are conceptualized as being at the root of most emotional disorders. Maladaptive cognitions consonant with these irrational beliefs are seen as responses to real-life experience, and are viewed as leading to emotional distress. For phobias some of these beliefs are that "they must not approach feared objects or situations and that it is horrible if they do," "it is awful or catastrophic when they don’t perform well and/or are not approved of by others as they should or must be," "they should or must get what they want (and should not or must not get what they don’t want) and it is awful or catastrophic if this does not happen, and that they “must not experience the kind of exceptionally painful (phobic) reactions.” It’s awful to feel that uncomfortably anxious. I can’t stand that amount of inconvenience" (emphases Ellis’, Ellis, 1979, p. 162-164). Ellis proposes that people avoid situations because of their extreme assessment of the consequences. He tries to convince them to relabel their arousal as
"Inconvenient" rather than "awful," that they can stand it, and that they will overcome the anxiety with practice. Ellis also emphasizes the need for in vivo exposure and discusses its incorporation in altering cognitions.

A second approach to cognitive restructuring has been discussed by Beck (Beck, 1976; Beck & Emery, 1979). Like, Ellis, Beck maintains that certain patterns of irrational cognitions lead to emotional distress and "neurotic" behavior. Beck and Emery (1979) note that phobics often overestimate the likelihood that a situation is dangerous to them, frequently remind themselves of the dangers they fantasize, often imagine catastrophic outcomes as the ones likely to occur, attend too much to their level of arousal, assume that even slight arousal justifies their appraisal of the situation as dangerous, and do not effectively consider coping strategies or positive outcomes. Beck and Emery (1979) consider these to be cognitive errors, and suggest a dual approach to dealing with these. Verbal interventions are used to help the person become sensitive to, question, and alter the self-defeating cognitive processes currently in use. In vivo work is conceived of as another way of testing (challenging) faulty beliefs and expectations and is considered to be a form of cognitive therapy in that its purpose is cognitive change (rather than reconditioning).

Meichenbaum's (1977) orientation has considerable similarity to that of Beck and Ellis. In his approach, self-verbalization or "self-talk" is viewed as the precipitant for a wide range of emotional and behavioral disorders. In the case of anxiety reactions, the aim of treatment is to have clients become aware of their negative or irrational thought patterns when anticipating or confronting an anxiety-producing situation, and to change these thoughts by substituting more adaptive, coping self-statements. Clients are encouraged to develop their own idiosyncratic coping statements through a skills development approach, and behavioral experience often is incorporated into the treatment package. This self-instruction approach provides some security because they have a plan of action and
don't feel helpless, (b) guides their behavior in such a way as to make successful coping with task demands more likely, and (c) interferes with anxiety engendering cognitions which usually occur in the situation. Meichenbaum (1977) also suggests that people can become effective at dealing with stressful situations through "stress inoculation training," which includes an educational phase during which the problem is conceptualized and coping strategies worked out, a rehearsal phase during which the client practices ways of using the coping devices, and an applications phase in which he masters the use of coping devices by applying them during exposure to a variety of stressors (Meichenbaum, 1977).

Beck and Ellis have arrived at their views largely as a result of their clinical work, and systematic study of the theoretical underpinnings of the systems, and of their treatment efficacy, have been slow in coming. Bandura's views, in contrast, have developed out of the behavioral research literature and rest on a solid data base. Bandura also strongly favors a cognitive mediational model of behavior change, but argues that in most cases a performance-based treatment is the best way of altering cognitions. He considers phobic arousal resulting from real or symbolic stimulation as occurring because of the meaning attached to each stimuli, rather than as a result of a classical or operant conditioning process. Bandura (1977) recently proposed "perceived self-efficacy" as a major organizer of many of people's cognitive and behavioral processes. He suggests that avoidance behavior, obsessive worrying, physiological arousal, nightmares, etc., occur in phobics because they perceive themselves unable to cope with some situation or stress they are threatened with. As they learn coping mechanisms and find themselves able to use them, all the phobic manifestations disappear. He suggests that the reason both exposure therapy and other forms of therapy are successful with phobics is that in one way or another they increase the person's perceived self-efficacy.

---

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Effectiveness of Cognitive Therapy for Phobias

Cognitive restructuring procedures have proven to be successful in the treatment of small animal phobias (D'Zurilla, Wilson & Nelson, 1973; Melchenbaum, 1971; Wein, Nelson & Odom, 1975), test anxiety (Holroyd, 1976; Melchenbaum, 1972), speech anxiety (DiLoreto, 1971; Melchenbaum, Gilmore & Fedoravicus, 1971; Thorpe, 1975) and interpersonal anxiety (Kanter & Goldfried, 1979). Despite the fact that all of these investigations were analogue studies with students as subjects, at least two of them, both involving comparisons with systematic desensitization, are worth examining in detail.

Melchenbaum, Gilmore and Fedoravicus (1971), in a controlled outcome study, found that cognitive restructuring (based on Rational Emotive Therapy) was as effective as systematic desensitization in the treatment of speech anxiety and more effective than desensitization with subjects who suffer anxiety in many varied social situations as opposed to those subjects for whom speech anxiety was confined to formal speech situations. This finding is relevant to the treatment of agoraphobia insofar as agoraphobia anxiety is also experienced in many varied situations as opposed to being situation-specific, defined in Melchenbaum's study as confined to formal speech situations.

Kanter and Goldfried (1979), in a clinical outcome study comparing the relative effectiveness of rational restructuring and self-control desensitization in the reduction of interpersonal anxiety, found that when compared with waiting list controls, rational restructuring was significantly more effective on a greater number of variables than was desensitization. The clearest findings emerged on the self-report measures revealing that rational restructuring was significantly more effective than desensitization in reducing state anxiety, trait anxiety, and irrational beliefs. There was a greater tendency for the cognitively-oriented treatment to result in generalization of anxiety reduction to nonsocial situations. This finding is similar to Melchenbaum's and both researchers' comments.
indicate that cognitive restructuring might have greater generalizability in reducing anxiety than systematic desensitization. If this finding is valid, then one of the unique contributions of cognitive restructuring with the agoraphobic whose fear of fear is so widespread, might be in changing cognitions about anxiety which can then be generalized and emitted in any anxiety-eliciting situation, whether or not the situation has previously been labelled as phobic or nonphobic.

Effectiveness of Cognitive Therapy for Agoraphobia

1. Use of Cognitive Modification Alone

The first published study to examine the application of cognitive modification techniques for the treatment of agoraphobia was conducted by Emmelkamp et al. (1978). In this experiment, he compared cognitive restructuring versus flooding in vivo in a cross-over design with 21 agoraphobic outpatients. Each treatment condition consisted of five group sessions, each lasting two hours. The cognitive restructuring treatment comprised the following three components: (a) relabeling, i.e., helping each subject understand the nature of his/her responses to phobic situations, (b) pinpointing irrational beliefs related to agoraphobic situations and (c) self-instructional training designed to train subjects to emit more adaptive self-statements. Flooding in vivo involved remaining in phobic situations until anxiety declined. Approximately 90 minutes of the 2-hour session was spent in exposure. Assessment consisted of a behavioral measure, self and observer ratings of anxiety and avoidance, and various mood and anxiety scales. After each group had experienced both treatments, they both showed significant improvement on most measures. Exposure proved superior to cognitive restructuring on many of the behavioral, anxiety, and avoidance measures. Cognitive restructuring as the first treatment resulted in benefit on only one anxiety and two avoidance scales, and as the second treatment
showed no benefit on any behavior, anxiety, or avoidance measure. The exposure treatment, whether given first or second, resulted in improvement on almost every scale. Results of an assessment conducted at 1-month follow-up were almost identical to those immediately posttreatment. In vivo exposure was generally, and significantly superior to cognitive restructuring.

Despite findings which point to the superiority of prolonged exposure in vivo over cognitive restructuring, Emmelkamp et al. (1978) offer an interesting interpretation of these findings which emphasizes once again the role and importance of cognitions in therapeutic change. They suggest that giving a form of treatment a name is not the same as elucidating the therapeutic process involved.

Whether the treatment ‘cognitive restructuring’ does actually produce a modification of cognitive processes is a debatable point. On the other hand, the effects of prolonged exposure in vivo could at least partly be explained in terms of cognitive restructuring. During treatment with prolonged exposure in vivo clients notice, for example, that their anxiety diminishes after a time and that the events which they feared, such as fainting or having a heart attack, do not take place. This may lead them to transform their unproductive self-statements into more productive ones: ‘there you are, nothing will go wrong with me.’ A number of clients reported spontaneously that their ‘thoughts’ had undergone a much greater change during prolonged exposure in vivo than during cognitive restructuring. It is possible that a more effective cognitive modification takes place through a procedure which is focused directly on such a change. (Emmelkamp et al., 1978, p. 40)

Ellis (1979), in an article written to comment on the conclusions of the Emmelkamp et al. (1978) study, endorsed their cognitive interpretations of the prolonged exposure in vivo treatment. In an attempt to draw lessons from Emmelkamp’s study in order to improve the efficacy of cognitive restructuring in treating agoraphobia, he postulated a new cognitive-behavioral construct which he calls discomfort anxiety (DA), and defines as
emotional tension that results when people feel: (1) that their comfort (or life) is threatened, (2) that they should or must get what they want (and should not or must not get what they don't want), and (3) that it is awful or catastrophic (rather than merely inconvenient or disadvantageous) when they don't get what they supposedly must. Ellis claims that discomfort anxiety underlines the avoidance behavior of agoraphobics and that it exists as both a primary and a secondary disturbance. He explains it thusly:

Agoraphobics first tend to make these cognitive demands on themselves: 'I must not experience any discomfort or handicap when I am in open spaces, buses, or similar situations; and it is terrible if I do!' With this absolutistic demand that they wrongly label themselves as being afraid of these situations instead of (more accurately) as being afraid of the discomfort they will probably feel when they approach such situations. They are not truly afraid of the open spaces or the buses, but of their own reactions to the spaces or the buses. Once they actually do 'become frightened' (actually, frighten themselves) about the spaces or the buses, they then as a secondary symptom, 'fear or the underlying discomfort of being frightened.' (Ellis, 1979, p. 3)

In addition to proposing a theory of discomfort Ellis (1979) expressed some concerns about the methodology of Emmelkamp et al's (1978) study. One of these concerns was that Ellis felt that 10 hours of cognitive restructuring might not be sufficient to produce significant cognitive and/or behavioral change. Emmelkamp et al. (1978) in his discussion section acknowledged this criticism.

Emmelkamp et al. (1978) make some interesting comments in that they state that with cognitive restructuring, a transfer gap often proved to exist between practicing during the treatment sessions and applying the new forms of behavior in real life situations. Although most of the clients after some practice with cognitive restructuring, were able to think productively when imagining phobic situations, they found it more difficult to make use of productive self-statements in real life situations.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The effect of cognitive restructuring might be increased if this procedure was combined with real life exposure in phobic situations. In the clinical use of rational-emotive therapy, for example, use is often made of in vivo homework assignments (Ellis, 1962). To what extent a combination of cognitive restructuring and exposure in vivo by itself is, however, a question which requires investigation. (Emmelkamp et al., 1978, p. 40)

Ellis (1979) agrees wholeheartedly with Emmelkamp et al.'s (1978) suggestion of combining in vivo + cognitive restructuring. In fact, Ellis (1979) comments:

Pure cognitive restructuring works relatively poorly for almost any kind of a phobia – as I have always tried to make clear. For unless phobic individuals act against their irrational beliefs that they must not approach fearsome objects or situations and that it is horrible if they so, can they really be said to have overcome such beliefs?

A number of other authors (D'Zurilla et al., 1973; Woodward & Jones, 1980; and Beck & Emery, 1979) also suggest that a combination of cognitive restructuring with in vivo techniques might prove useful.

2. Cognitive Modification with In Vivo Exposure

The first study which has examined the effectiveness of a combination of cognitive restructuring and prolonged exposure in vivo for the treatment of agoraphobia was conducted by Emmelkamp and Mersch (1982). In this study, which was basically a replication and extension of Emmelkamp et al.'s (1978) earlier study, three treatments were compared in a between group design: (1) cognitive restructuring (8 sessions), (2) prolonged exposure in vivo (8 sessions), and (3) a combination of cognitive restructuring (3 1/2 sessions) and prolonged exposure in vivo (4 1/2 sessions). Treatment consisted of eight 2-hour group sessions, held three times a week. Assessments were conducted at pretest, posttest, and follow-up on the following measures: (1) Behavioral Avoidance
Test (BAT), (2) Phobic Anxiety and Avoidance Scales, (3) the Fear Survey Schedule (FSS), Internal-External Locus of Control Scale (I-E), Self-Rating Depression Scale (SDS), and Adult Self-Expression Scale (ASES). At the posttest, prolonged exposure in vivo and the combined procedure (self-instructional training plus exposure in vivo) were superior to cognitive restructuring on phobic anxiety and avoidance measures and on the behavioral measure, although the difference between exposure and cognitive restructuring on the latter measure was nonsignificant. At 1-month follow-up, however, the differences between the treatments partly disappeared, due to a continuing improvement in the cognitive restructuring condition and a slight relapse in the exposure in vivo condition. Thus, although the short-term effects were similar to the results of the Emmelkamp et al. (1978) study, in the long run cognitive modification alone was about equally effective. Self-instructional training did not appear to enhance the effects of exposure in vivo.

The significant improvement of the cognitive restructuring condition between pretest and follow-up on depression, locus of control, and assertiveness is particularly interesting. The improvements found on these questionnaires suggest that cognitive restructuring led not only to improvements on the target behaviors (i.e., phobic anxiety and avoidance) but to generalized behavior changes. Of course, the present data do not permit drawing definite conclusions, but they certainly do warrant further studies into the use of cognitive interventions strategies for the treatment of agoraphobia. In their discussion section Emmelkamp and Mersch (1982) state:

Cognitive therapy conducted over a longer time interval might prove to be more effective than when conducted in a short period. One week of cognitive restructuring led to clinically insignificant results (Emmelkamp et al., 1978), whereas after 2 months cognitive restructuring clearly led to clinically meaningful improvements in the present study.
One can not help but speculate as to whether a longer period of cognitive restructuring treatment (e.g., 16 or 24 weeks) would result in more significant cognitive and behavioral changes in the agoraphobic. Another area of concern, which Emmelkamp and Mersch (1982) acknowledged, was the lack of instruments for the assessment of cognitions. Adequate assessment of faulty cognitions is necessary for a better understanding of the therapeutic processes involved in cognitive restructuring, exposure in vivo, and any combination of the aforementioned. It would have been interesting if Emmelkamp and Mersch (1982) had attempted to assess cognitions of their different treatment groups. Such an assessment might have proved informative.

In another study Williams and Rappoport (1983) sought to determine whether cognitive therapy techniques would favourably combine with behavioral practice in helping overcome strong fears. Following a no-treatment baseline period, twenty agoraphobics with severe fears of driving received eleven hours of individually guided practice at driving alone. Ten of the subjects were also given cognitive techniques to use on each approach attempt. Measures of approach behavior, anxiety, self-reported avoidance, self-efficacy, and thinking gathered at assessment points preceding and following treatment revealed that the only difference between the groups at any time was the greater use of cognitive strategies by "cognitive therapy" subjects following treatment. Similarly, measures of performance during treatment indicated an intergroup difference only in the number of cognitive coping strategies employed. Despite the documented utilization of the cognitive techniques while driving, the combination treatment failed to show significantly greater improvement compared to practice alone. However, neither treatment produced major behavioral gains in the study.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Because the form of in vivo practice employed in Williams and Rappoport's (1983) study required that subjects reach a very low level of subjective anxiety before performing the next driving task in the treatment hierarchy, the cognitive interventions could only have augmented outcome by helping subjects reach low anxiety quickly. However, the cognitive group did not differ from the non-cognitive group in anxiety experienced during treatment. It is possible that a cognitive intervention carried out in the context of a behavioral treatment that encouraged subjects to progress as quickly as they were able irrespective of anxiety would be of some use in directly promoting performance efforts, and therefore would increase treatment effectiveness.

One of the concerns expressed about Emmelkamp's work (Emmelkamp et al., 1978; Emmelkamp & Mersch, 1982) was the relatively short treatment time and this same complaint could be directed to Williams and Rappoport's (1983) work. Eleven hours of treatment time might not be sufficient to produce significant cognitive change. Perhaps the number of sessions as well as the duration of treatments was too limited, resulting in restricted opportunities for subjects to learn, integrate and practice their new coping skills in the natural environment. However, since Williams and Rappoport (1983) targeted their interventions to one particular aspect of agoraphobic, that is driving fears, perhaps the treatment time was sufficient. Since, Williams and Rappoport (1983) have chosen one specific fear that is often expressed by agoraphobics, one wonders whether the results of their study would be the same with another fear (i.e., walking outside alone).

The design of this study prevents the reader from obtaining information about the generalization of treatment efficacy beyond the fear of driving. Whether cognitive restructuring combined with in vivo exposure would be superior to in vivo exposure in
reducing other fears, or whether an increase in treatment time would prove the combined treatment more efficient can not be answered, but these are questions which warrant further investigation.

Williams and Rappoport (1983) included in their assessment package measures of self-efficacy and cognitions. This was a commendable effort that provided some useful information. Future use of such measures should prove valuable in illuminating effective treatment strategies and theoretical proposals.

Cognitive Restructuring as a Treatment Procedure: Rationale

Cognitive restructuring refers to any therapy procedure which places primary emphasis on the role of cognitive behavior change in therapeutic improvement. One of the fundamental therapeutic goals of cognitive therapy is to change maladaptive expectations, attitudes, and beliefs that an individual holds about themself and their surroundings. It is the direct focus on cognitive mediational responses that identifies cognitive restructuring procedures and distinguished them from treatment procedures which focus on other response classes such as the physiological or the behavioral.

1. Common Maladaptive Thinking Patterns

Some of the more common thinking patterns of agoraphobics which are maladaptive and which serve to perpetuate the phobic condition have been enumerated by various authors (e.g., Lazarus, 1971). Some of these maladaptive patterns have been briefly outlined in a previous section. A more detailed account of these patterns is detailed below. These patterns include (a) dichotomous, or black and white thinking, (b) negative anticipation, (c)
Irrational thinking, (d) over-generalization, or absolutistic thinking, and (e) inaccurate probability.

(a) **Dichotomous**, or black and white thinking, refers to thinking patterns which represent extreme polarities such as "I always panic in supermarkets" or "I'll never feel comfortable in supermarkets again." Prior to some attempt at cognitive restructuring, the individual who thinks in black and white is often incapable of using qualifiers like maybe or perhaps, convinced that the world is as polarized as he perceives it to be.

(b) **Negative anticipation**, refers to the "what if" syndrome, typical of agoraphobics who are incapable of imagining anything occurring in the future but the worst possibilities.

Negative anticipation is a particularly pathological thinking pattern which often becomes so pervasive that the agoraphobic is constantly concerned with avoidance of and escape from all noxious stimuli. Ellis (1979) claims that while agoraphobics always anticipate discomfort, it is because of their low discomfort tolerance that they seek to avoid the discomfort they anticipate whenever possible.

(c) **Irrational thinking**, refers to concepts from the individual's irrational belief system, taken from Ellis' rational-emotive therapy (RET). Ellis (1962) maintains that psychological problems arise from individuals' misperceptions and mistaken
cognitions about what they perceive. These beliefs are classified as irrational because they are not likely to be supported (i.e., confirmed) by one's environment. Ellis (1962) holds that certain core irrational ideas, which have been clinically observed are at the root of most emotional disturbances.

According to the theory behind cognitive restructuring the extent to which a person tends to label situations in accord with one or more of these irrational beliefs will strongly determine his maladaptive emotional responses and ineffective behavior. It should be stressed, however, that it is unlikely that individuals consciously or deliberately tell themselves any of these statements when they are actually in a situation. Presumably because of the overlearned nature of the beliefs, they become as automatic and seemingly involuntary as a well learned set (Woodsworth & Scholsberg, from Goldried & Davison, 1976).

(d) Overgeneralization (Lazarus, 1971), or absolutistic thinking (Ellis, 1979) in the agoraphobic, refers to the person who has had a panic attack in a supermarket, then overgeneralizes and begins to perceive all supermarkets as threatening in that they have been attributed with the power to elicit a panic attack, and are therefore to be avoided. This tendency to overgeneralize is closely linked to the tendency or need for absolute certainty. In other words, all supermarkets are perceived as dangerous because
the agoraphobic is absolutely certain that any one of them has the power to trigger a panic attack.

Russell (1962) once stated "not to be absolutely certain is, I think, one of the essential things in rationality" (in Lazarus, 1971, p. 169). A cognitive restructuring approach with agoraphobics must attend to both the tendency to overgeneralize and the need for absolute certainty in order to change one of the more salient features of the agoraphobic's cognitive topography.

(e) **Inaccurate Probability**, in the case of agoraphobics, refers to the fact that they tend almost never to question the actual likelihood or probability of what they fear actually occurring, but rather assume, based either on an inaccurate or non-existent theory of probability, that what they fear will in fact occur 100% of the time. Cognitive restructuring procedures must therefore attempt to teach agoraphobics about the nature of probability in order to provide them with a more realistic foundation on which to base their predictions.

Although these thinking patterns overlap, they have been enumerated separately in order to illuminate some of their differences while at the same time emphasize the fact that most agoraphobics manifest all of these thinking disorders to some degree.

2. **Effect of Thinking Patterns on Behavior**

A final consideration in favor of a therapeutic goal involving cognitive change is that
of patient control or mastery. Bandura (et al., 1980) has provided an inciteful description of the agoraphobic’s cognitions following the panic experience:

Thoughts centered increasingly on their vulnerability to disintegrative loss of control in public situations. They began to dread excursions outside the home because the aversive experiences recur unpredictably. Since distress subsided in the safety of the home, it took on powerful security value. Once perceptions of coping efficacy were undermined, even mild distress in taxing situations forbode disintegrative loss of control. As a result, the clients generalized their phobic avoidance to increasing domains of functioning in which they had never suffered disabling experiences. (Bandura et al., 1980, p. 63)

Meyer and Reich (1977) argue that the perceived lack of control or mastery is a central manifestation of the agoraphobic’s complaint, i.e., “I can’t help it.” They go on to say that treatment procedures must directly help to alter this self-perception. Now that the cognitive style of agoraphobics has been described, consideration will be given to the impact or effect of these cognitions on physiological arousal and overt behavior. At one extreme, cognitions are held responsible for actually maintaining the phobic syndrome; that is, the fear of fear which is largely a cognitive process, remains pervasive even when physiological symptoms are reportedly under control and often when the individual has not experienced a full-blown panic attack in months. Klein et al. (1978), based on their experiences with anti-depressants which block panic attacks but do not affect anticipatory anxiety, argues that the behavioral avoidances and security rituals are caused by the secondary anticipatory anxiety rather than by the panic. For these individuals it is as Bandura et al. (1980) suggest: it is the individual’s thoughts and beliefs about impending danger, about the potential discomfort of anxiety which will be too painful to bear, that continue to maintain the original pattern of phobic avoidance, and through a process of generalization expand the
situations and territory avoided because of the anticipation of future danger.

Chambless and Goldstein (1980) take the assumption of cognitions being responsible for creating autonomic arousal to its extreme by arguing that agoraphobics actually think and talk themselves into their panic attacks: "The agoraphobic ... gets so anxious about being anxious that the attack is triggered" (p. 326). They view cognitions as powerful determinants of both autonomic arousal and avoidance behaviors, commenting on the fact that the mere thought of an elevator for an agoraphobic is enough of a reminder to stay away from elevators forever.

In summary, because maladaptive cognitions are (1) an important source of distress for agoraphobics, (2) a salient feature of the agoraphobic syndrome, and (3) often viewed as responsible for the triggering, exacerbation, and attenuation of physiological symptoms and/or avoidance behaviors, it would seem both logical and necessary to administer a set of treatment procedures specifically designed to have a direct impact on the agoraphobic's cognitive domain.

Cognitive Restructuring: Treatment Procedure

As stated above, cognitive restructuring refers to any therapy procedure which places a primary emphasis on the role of cognitive behavior change in therapeutic improvement. In Ellis' (1962) case, he assumes that an individual's maladaptive emotional response reflects his indiscriminate and automatic labeling of a situation and he suggests that emotional reactions are mediated by internal sentences. Once these internal sentences are acknowledged and reported by the individual, they then become what is referred to in the cognitive-behavioral literature as self-talk, self-statements; or self-instructions. The
self-report of internal sentences or self-statements therefore becomes that aspect of
cognitive anxiety which is observable and measurable.

The cognitive restructuring procedures in this study, based primarily on the
principles of Ellis' (1962) rational-emotive therapy (RET), are designed to provide the
agoraphobic with an explanatory scheme to enable him to understand the nature of his
responses to phobic situations. Participants in both treatment groups are instructed about
the nature of agoraphobia: its origins, its onset, the development of avoidance patterns and
the role of anxiety reduction as a reinforcer, the learning theory base and the view of
agoraphobic symptom formation as a bad habit, and so forth. However, in the group
receiving cognitive restructuring the cause and effect connections between mind and body
are included, and it is suggested that alleviation of cognitive distress will help result in the
amelioration of agoraphobia. Through examples provided by the subjects themselves it is
made clear that situations are not in themselves anxiety arousing, but anxiety is aroused as
a result of maladaptive cognitive responses. For a complete description of the cognitive
restructuring procedures used in this study, including rationales for each procedure,
therapist's instructions and interventions, formats for each weekly 2 hour treatment
session, and so forth, the reader is referred to the Therapist's Manuals.

In summary, cognitive restructuring procedures are explained to subjects in terms of
the notion that one's belief system can and does directly influence one's level of emotional
arousal. For individuals who have been convinced that the nature of anxiety is so automatic
that it is beyond their control, the idea that thoughts actually can and do trigger anxiety adds
potency to the self-control philosophy of the treatment program, mainly that the goal of
treatment is to become the master of one's anxiety, the reducer of fear rather than the
victim of it.
Statement of Purpose

Evidence, collected in the past 15 years, has established the effectiveness of in vivo behavioral practice in helping people overcome the disabling problem of agoraphobia (e.g., Crowe et al., 1972; Emmelkamp et al., 1978; Emmelkamp & Wessels, 1975; Gelder et al., 1967; Gelder & Marks, 1966; Roberts, 1964; Terhune, 1949; Tucker, 1956). A number of authors (e.g., Beck & Emery, 1979; D'Zurilla et al., 1973; Ellis, 1979; Woodward & Jones, 1980) have suggested that cognitive therapy procedures, when combined with in vivo exposure, may be of value in promoting a more effective treatment of agoraphobia. They have described various kinds of thoughts that can arouse anxiety and contribute to avoidance behavior, including anticipations of catastrophic consequences, irrational beliefs, overconcern with arousal states, hypervigilance for threatening aspects of situations, and judgements of personal inadequacy. They argue that if these cognitions can be eliminated, and the individual is exposed to the fear producing situation, anxious arousal and avoidance will diminish.

The first study (Emmelkamp et al., 1978) designed to examine the effectiveness of cognitive restructuring by itself with agoraphobics, failed to suggest potential usefulness of cognitive strategies. However, improvements such as increasing the length of cognitive restructuring treatment, and combining it with in vivo exposure, have been proposed as possible means to arrive at more firm conclusions as to the merits of cognitive restructuring with agoraphobics. The first published study (Emmelkamp & Mersch, 1982), which combined cognitive restructuring with in vivo exposure suggested that the combined treatment was superior in some respects to the exposure alone. This study also suggested that in the long run cognitive modification alone was about equally effective as
exposure in vivo. Nevertheless, these conclusions are tentative and further research is necessary. A number of improvements in the design of Emmelkamp and Mersch's (1982) study have been offered, namely, increasing the treatment time and adding cognitive measuring instruments to the assessment package. In the only other study (Williams & Rappoport, 1983) which has attempted to assess the viability of a combined treatment package, there was no suggestion of superiority of the combined approach. While Williams and Rappoport (1983) did attempt to assess cognitive variables, again their treatment period was relatively short. They also focused their clinical intervention procedures on one specific fear, so the reader is not able to arrive at any conclusions as to the effectiveness of their treatment with regard to other fears that agoraphobics experience.

In conclusion, the present study was designed to determine whether in vivo treatment of agoraphobics could be made more efficient by incorporating cognitive modification techniques into the treatment. This study is, to a certain extent, a replication and extension of the work of Emmelkamp and Mersch (1982) and Williams and Rappoport (1983), with the following design improvements:

1. The clinical treatment time that the subjects experienced, in the present study, was increased. Emmelkamp (et al., 1978), Emmelkamp and Mersch (1982), and Williams and Rappoport (1983) studies involved 20 hours (10 sessions, over a 2 week period), 16 hours (8 sessions, over a 2 1/2 week period), 11 hours (the number of sessions or the time period was not specific), respectively. In the present study subjects were
Involved in a 22 session program with each weekly session lasting approximately 2 hours.

(2) The assessment package was broadened to incorporate cognitive variables as well as behavior and affective ones. The following measures were employed to tap the cognitive realm of the subjects:
   (a) Agoraphobia Cognitions Questionnaire, and (b) Body Sensations Questionnaire.

(3) Not focusing on any specific fear, as Williams and Rappoport (1983) did, but on a wide variety of fears, symptoms and correlates of the agoraphobic syndrome.

**Hypotheses**

In general, it is hypothesized that in vivo exposure integrated with cognitive restructuring (cognitive group) will be superior to in vivo exposure without cognitive restructuring (noncognitive group) in treating agoraphobia. More specifically, the following hypotheses will be tested:

(1) "Panic Attack" Hypotheses

For the purposes of this study, only agoraphobics with panic attacks, have been considered eligible. Based on this, the following hypotheses are suggested:

**Hypothesis 1a:** Subjects (Ss) exposed to the cognitive and noncognitive treatment conditions should demonstrate a significant reduction in self-reported frequency of panic attacks, and this reduction should also be significantly different from those not exposed to the treatment manipulation.
Hypothesis 1b: Ss exposed to the cognitive treatment condition should demonstrate a reduction in self-reported frequency of panic attacks, which is significantly greater than that reported by Ss exposed to the noncognitive manipulation.

(2) “General Anxiety” Hypotheses

Since general anxiety is an important aspect of the agoraphobic syndrome, the following hypotheses are suggested:

Hypothesis 2a. Ss exposed to the cognitive and noncognitive treatment conditions should demonstrate a significant reduction in general anxiety as measured on the following scales: (1) State dimension of the State-Trait Anxiety Inventory (STAI), and (2) Anxiety Dimension of the Brief Symptom Inventory (AD-BSI). This reduction in general anxiety should be significantly different from those not exposed to the treatment manipulation.

Hypothesis 2b. Ss exposed to the cognitive treatment condition should demonstrate a reduction of general anxiety, which is significantly greater than that reported by Ss exposed to the noncognitive manipulation, as measured on the STAI and AD-BSI.

(3) “Phobic Anxiety” Hypotheses

Since phobic anxiety is an important aspect of the agoraphobic syndrome, the following hypotheses are suggested:

Hypothesis 3a. Ss exposed to the cognitive and noncognitive treatment conditions should demonstrate a significant reduction in phobic anxiety as measured on the following scales: (1) Phobic Anxiety Dimension of the BSI (PAD-BSI), (2) Obsessive-Compulsive Dimension of the BSI (O-C-BSI), (3) Watson and Marks (1971) rating scale of phobic anxiety, (4) Agoraphobic Cognitions Questionnaire (ACQ), (5) Body Sensations Questionnaire (BSQ), and (6) self-report scale of anxiety on the Behavioral Avoidance Test (BAT). This reduction in phobic anxiety should also be significantly different from those not exposed to the treatment manipulation.
Hypothesis 3b. Ss exposed to the cognitive treatment condition should demonstrate a reduction in phobic anxiety, which is significantly greater than that reported by Ss exposed to the noncognitive manipulation, as measured on the PAD-BSI, O-C-BSI, rating scale of phobic anxiety, ACQ, BSQ, and BAT.

(4) "Behavioral Avoidance" Hypotheses

Since avoidance behavior is a central feature of agoraphobia, the following hypotheses are suggested:

Hypothesis 4a. Ss exposed to the cognitive and noncognitive treatment conditions should demonstrate a significant reduction in behavioral avoidance as measured on the following scales: (1) self-report of avoidance in six phobic situations, and (2) Behavior Avoidance Test (BAT). This reduction in avoidance behavior should also be significantly different from those not exposed to the treatment manipulation.

Hypothesis 4b. Ss exposed to the cognitive treatment condition should demonstrate a reduction of behavioral avoidance, which is significantly greater than that reported by Ss exposed to the noncognitive manipulation, as measured on a self-report scale of avoidance and BAT.

(5) "Global Distress" Hypotheses

Since the degree of global distress is considered an important component of the agoraphobia syndrome, the following hypotheses are suggested:

Hypothesis 5a. Ss exposed to the cognitive and noncognitive treatment conditions should demonstrate a significant reduction in global distress as measured on the following scale: Global Severity Index of the BSI (GSI-BSI). This reduction in global distress should also be significantly different from those not exposed to the treatment manipulation.

Hypothesis 5b. Ss exposed to the cognitive treatment condition should demonstrate a reduction of global distress, which is significantly greater than that reported by Ss exposed to the noncognitive manipulation, as measured on the GSI-BSI.
Hypotheses 1-5 represent the major suppositions of this study. In addition, the following subsidiary hypotheses will be tested:

1. "Treatment Expectations" Hypothesis

Since Ss's treatment expectations have been shown to affect treatment outcome, the following hypothesis is suggested:

**Hypothesis 1.** Ss exposed to the cognitive and noncognitive treatment condition will manifest no significant differences on treatment expectations, as measured on the Treatment Expectations Questionnaire.

2. "Fear" Hypotheses

Marks and Mathews (1979) have recently developed a brief self-rating scale in order to standardize the assessment of phobic patients and thereby facilitate the comparability of results between research studies and treatment centers. Since this scale has been used with increasing frequency in studies examining the problem of agoraphobia, the following hypotheses are suggested:

**Hypothesis 2a.** Ss exposed to the cognitive and noncognitive treatment conditions should demonstrate a significant reduction in fear, as measured on the following scales of the Fear Questionnaire: (a) total phobia, and (b) agoraphobia. This reduction in fear should also be significantly different from those not exposed to the treatment manipulation.

**Hypothesis 2b.** Ss exposed to the cognitive treatment condition should demonstrate a reduction in fear, which is significantly greater than that reported by Ss exposed to the noncognitive manipulation, as measured on the Fear Questionnaire.
CHAPTER II

METHOD

The purpose of the present study was to determine whether in vivo exposure treatment of agoraphobia could be made more efficient by incorporating cognitive modification techniques into the treatment. One experimental group received in vivo exposure with cognitive restructuring, and the other experimental group received in vivo exposure without cognitive restructuring. The waiting-list control group received neither in vivo exposure or cognitive restructuring. All participants underwent an initial interviewing, diagnosis and screening stage before being accepted into the study. For the subjects randomly assigned to the therapy groups a 22 week treatment plan followed. The control group subjects did not receive treatment; however, they were requested to return for the assessments sessions along with the subjects in the two therapy groups. These assessments were made before treatment began (pretest), after the 11th treatment session (intermediate -test) and after the completion of treatment (posttest).

Diagnostic Criteria for Subject Selection

A broad operational definition of agoraphobia was considered desirable, in order to allow for the inclusion of the typically wide range of agoraphobic symptoms. However, the definition had to be specific and explicit enough to exclude phobias which are similar (for example, claustrophobia and interpersonal phobias) but not the same as agoraphobia.

-43-
Therefore, individuals were selected for the study according to the following criteria, either discernible upon self-report, or as indicated on questionnaires (i.e., the Personal Data Questionnaire, Appendix A).

1. All subjects met the Diagnostic and Statistical Manual of Mental Disorders, 3rd ed. (DSM-III) criteria for the diagnosis of agoraphobia with panic attacks.

2. The individual was currently engaged in avoidance behavior in at least two of the following situations, (a) walking alone, (b) shopping alone, (c) driving alone, (d) passenger in a car, (e) public places (theatres, church, hairdresser, restaurant, etc.), (f) staying at home alone. The individual's degree of avoidant behavior was assessed on the personal data questionnaire (see question nine of this questionnaire).

3. The individual experienced phobic anxiety of an anticipatory nature, the fear of fear which manifested itself both physiologically and cognitively. Questions on the personal data questionnaire were included to assess the presence of phobic anxiety of an anticipatory nature (see question eight). Physiological symptoms of phobic anxiety were also assessed in this questionnaire (see question five b).
Screening Criteria for Subject Selection

On the basis of results on the interview and questionnaires individuals were diagnosed as agoraphobic. They were also screened for this study according to the following additional criteria:

1. The individual's agoraphobia was the primary problem with any other psychological problems being clearly secondary.
2. The individual reported that he/she was not receiving another form of psychotherapy, and he/she would not seek another form of psychotherapy during the treatment program (see Appendix B, Client Contract).
3. The individual was able to continue taking tranquilizing drugs if already prescribed.
4. The individual was available for the duration of treatment (see Appendix B).
5. The individual was 18 years of age or older at the time of the study.
6. The individual was judged to be sufficiently literate to be able to take full advantage of the written and oral training materials.
7. Individuals signed the appropriate consent forms (see Appendix C).

Subjects

Subjects were recruited from the clientele of the outpatient department at the Foothills Hospital, Calgary, Alberta, and from announcements in local media of a program to treat agoraphobia (see Appendix D). After the screening process, detailed above, subjects...
were randomly assigned to either the in vivo exposure group (noncognitive group), the in vivo exposure + cognitive restructuring (cognitive group), or the waiting list control group. Originally 38 subjects were accepted into treatment and six subjects dropped out by the sixth session. Two subjects from the cognitive group claimed that they were unable to comply with scheduling requirements and were thus terminated from the study. One subject from the noncognitive group claimed that the requirements of the treatment protocol were too difficult. Three subjects in the waiting list control group, dropped out of treatment claiming that they were seeking alternate forms of treatment. Twelve subjects in the noncognitive group, and 11 subjects in the cognitive group completed the treatment program. Nine subjects in the control group completed the assessment packages at the appropriate times. Demographic information on the 32 subjects who participated in the treatment program is presented in Table 1.

**Treatment Procedures**

Treatment was administered in a group format and the author served as therapist for both treatment groups. Treatment consisted of 22 weekly sessions lasting approximately two hours each. Two therapist’s manuals, (1) In Vivo Exposure (Noncognitive group; Appendix E), and (2) Cognitive Restructuring + In Vivo Exposure (Cognitive group; Appendix F), were designed, delineating session by session the procedures used for each approach and the distinguishing features of each treatment. Both these manuals are in excess of 100 pages, consequently it is difficult to briefly summarize the two approaches. However, a brief description of the therapy procedures and a table (Table 2, Summary of Therapy Procedures) summarizing the two therapies are detailed below.

**Treatment procedures for Noncognitive Group (see Table 2)**. During the first 20
Table 1
Subject Demographics

<table>
<thead>
<tr>
<th></th>
<th>Total Population (n=32)</th>
<th>Non-Cognitive (n=12)</th>
<th>Cognitive (n=11)</th>
<th>Waiting List (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age at screening</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (years)</td>
<td>38.7</td>
<td>41.6</td>
<td>37.5</td>
<td>36.2</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single (%)</td>
<td>18.8</td>
<td>25.0</td>
<td>11.1</td>
<td>22.2</td>
</tr>
<tr>
<td>Married (%)</td>
<td>68.8</td>
<td>66.7</td>
<td>81.8</td>
<td>55.6</td>
</tr>
<tr>
<td>Divorced /Widowed (%)</td>
<td>12.4</td>
<td>8.3</td>
<td>11.1</td>
<td>22.2</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (years completed)</td>
<td>11.0</td>
<td>10.8</td>
<td>11.9</td>
<td>10.2</td>
</tr>
<tr>
<td><strong>Duration of Fear</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (years)</td>
<td>8.5</td>
<td>8.7</td>
<td>8.5</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>Subjects having prior treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td>62.5</td>
<td>58.3</td>
<td>63.6</td>
<td>66.7</td>
</tr>
<tr>
<td>Session</td>
<td>Noncognitive Group (n=12)</td>
<td>Cognitive Group (n=11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------</td>
<td>-----------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Introduction of members. Discussion of causes, maintenance and symptoms of agoraphobia. Discussion of BASIC ID.</td>
<td>Introduction of members. Discussion of causes, maintenance and symptoms (COGNITIVE SYMPTOMS STRESSED) of agoraphobia. Discussion of BASIC ID.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rationale for Relaxation Training.</td>
<td>CONCEPT OF FEAR OF FEAR AND CAUSE AND EFFECT CONNECTIONS BETWEEN MIND AND BODY ARE DISCUSSED. Rationale for Relaxation Training.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discussion of the necessity for homework. Assignment of reading homework.</td>
<td>BRIEF INTRODUCTION TO THE CONCEPT OF ANXIETY RELATED TO COGNITIONS. Discussion of the necessity for homework. Assignment of reading homework.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Summary and questions from last session. Review homework. Relaxation practice begins, with emphasis to practice between therapy sessions. Continue to discuss causes and maintenance of agoraphobia.</td>
<td>Summary and questions from last session. Review homework. Relaxation practice begins, with emphasis to practice between therapy sessions. Continue to discuss causes and maintenance of agoraphobia (COGNITIVE ASPECTS HIGHLIGHTED).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discuss other common forms of treatment. Assignment of reading and relaxation homework.</td>
<td>Discuss other common forms of treatment. Assignment of reading and relaxation homework.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Summary and questions from last session. Review homework. Conduct relaxation exercise. Discuss in vivo treatment strategy: General discussion.</td>
<td>Summary and questions from last session. Review homework. Conduct relaxation exercise. INTRODUCTION TO IRRATIONAL THINKING MODEL (COGNITIVE THERAPY, RATIONAL EMOTIVE THERAPY). APPLICATION OF IRRATIONAL THINKING MODEL TO AGORAPHOBIA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assignment of relaxation and reading homework.</td>
<td>Assignment of relaxation and READING ON IRRATIONAL THINKING IN AGORAPHOBICS, AND TO BEGIN RECORDING COGNITIONS.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 4 | Summary and questions from last session.  
   | Review homework.  
   | Conduct relaxation exercise.  
   | Continue discussion of In vivo exposure:  
   | Treatment in practice - Step 1.  
   | Discuss drawing up problem list.  
   | Assignment of problem list, reading and relaxation homework.  

| 5 | Summary and questions from last session.  
   | Review homework.  
   | Conduct relaxation exercise.  
   | Continue discussion of In vivo exposure:  
   | Treatment in practice - Step 2, Step 3.  
   | Assignment of relaxation, reading and problem list homework.  

| 6 | Summary and questions from last session.  
   | Review homework.  
   | Conduct relaxation exercise.  
   | Continue discussion of In vivo exposure:  
   | Summary of treatment plan.  
   | Discuss individual hierarchy development.  
   | Assignment of reading, relaxation and drawing up individual hierarchy homework.  

| 7 | Summary and questions from last session.  
   | Review homework.  
   | Conduct relaxation exercise.  
   | Determine problem client is going to begin working on from personal hierarchy.  
   | Discuss methods of coping with panic attacks.  

Summary and questions from last session.  
Review relaxation and IRRATIONAL BELIEFS homework.  
Conduct relaxation exercise.  
Discuss in vivo treatment strategy: General discussion.  
CONTINUE TO DISCUSS COGNITIVE THERAPY ASPECTS OF TREATMENT FOR AGORAPHOBIA: COGNITIVE RESTRUCTURING PROCEDURES.  
Assignment of relaxation, READING, and COGNITIVE RESTRUCTURING homework.  
Summary and questions from last session.  
Review homework.  
Conduct relaxation exercise.  
Continue discussion of In vivo exposure:  
Treatment in practice - Step 1.  
Discuss drawing up problem list.  
CONTINUE DISCUSSION OF COGNITIVE THERAPY AND RATIONAL EMOTIVE THERAPY.  
Assignment of relaxation, READING, RECORDING OF COGNITIONS, and problem list homework.  
Summary and questions from last session.  
Review homework.  
Conduct relaxation exercise.  
Continue discussion of In vivo exposure:  
Summary of treatment plan.  
Discuss individual hierarchy development.  
CONTINUE DISCUSSION OF COGNITIVE THERAPY AND RATIONAL EMOTIVE THERAPY.  
Assignment of relaxation, READING, RECORDING OF COGNITIONS, and problem list homework.  
Summary and questions from last session.  
Review homework.  
Conduct relaxation exercise.  
Continue discussion of In vivo exposure:  
Summary of treatment plan.  
Discuss individual hierarchy development.  
CONTINUE DISCUSSION OF COGNITIVE THERAPY AND RATIONAL EMOTIVE THERAPY.
Assignment of reading, relaxation and corrections to personal hierarchy homework.

Table 2 cont’d

8

Summary and questions from last session.
Review homework.
Summarize the purpose of relaxation training and its use in in vivo exposure.
Review coping with panic attack strategies.
Describe individual problem treatment diaries and hand out appropriate forms.
Discuss other factors that interfere with improvement.

Group discussion of first group exposure.
Assignment of reading, relaxation, filling out personal diaries homework.

9

Summary and questions from last session.
Review homework.
Brief group discussion of upcoming exposure.
Conduct first group exposure.
Group discussion of outing: Problem solving.

Assignment of relaxation, READING, RECORDING OF COGNITIONS, and drawing up individual hierarchy homework.

10

Summary and questions from last session.
Brief group discussion of upcoming exposure.
Conduct group exposure.
Group discussion of outing: Problem solving.

Assignment of relaxation, READING, RECORDING OF COGNITIONS, and drawing up individual hierarchy homework.

11

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session.

Begin to emphasis the need to work on individual goals, between sessions.

Assignment of relaxation, READING, RECORDING OF COGNITIONS, and drawing up individual hierarchy homework.

Summary and questions from last session.
Review homework.
Summarize the purpose of relaxation training and its use in in vivo exposure.
Determine problem client is going to begin working on from personal hierarchy.
Discuss methods of coping with panic attacks.

CONTINUE DISCUSSION OF COGNITIVE THERAPY AND RATIONAL EMOTIVE THERAPY.

Assignment of reading, READING, RECORDING OF COGNITIONS, and corrections to personal hierarchy homework.

Summary and questions from last session.
Review homework.
Brief group discussion of upcoming exposure.
Conduct first group exposure.
Group discussion of outing: Problem solving, including COGNITIVE PROBLEM SOLVING STRATEGIES.

Assignment of reading, READING, RECORDING OF COGNITIONS, and corrections to personal hierarchy homework.

Summary and questions from last session.
Review homework.
Brief group discussion of upcoming exposure.
Conduct first group exposure.
Group discussion of outing: Problem solving, including COGNITIVE PROBLEM SOLVING STRATEGIES.

Begin to emphasis the need to work on individual goals, between sessions.

Summary and questions from last session.
Review homework.
Brief group discussion of upcoming exposure.
Conduct first group exposure.
Group discussion of outing: Problem solving, including COGNITIVE PROBLEM SOLVING STRATEGIES.

Begin to emphasis the need to work on individual goals, between sessions.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Summary and questions from last session.

12. Brief group discussion of upcoming exposure.
13. Conduct group exposure.

Review clients individual problem diaries, problem solving.
Continue to encourage practice of individual goals between sessions.

15. Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session.

Discuss individual goals clients will work on in the next group session.

16. Summary and questions from last session.
17. Brief discussion of upcoming exposure.
18. Conduct group exposure, with clients working on individual goals.
Group discussion of outing: Problem solving.

Review clients individual problem diaries, problem solving.

19. Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session.

Discuss individual goals clients will work on in the next group session.

20. Summary and questions from last session.
Conduct group exposure.
Group discussion of outing.
Review clients individual problem diaries, problem solving.

22. Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session.

Emphasis the need for continued practice of exposure.
Discussion of feelings about termination.

Summary and questions from last session.

Brief group discussion of upcoming exposure.
Conduct group exposure.
Group discussion of outing: Problem solving.

Review clients individual problem diaries, problem solving.
Continue to encourage practice of individual goals between sessions.

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session including COGNITIVE PROBLEM SOLVING STRATEGIES.

Review clients individual problem diaries, problem solving.
Continue to encourage practice of individual goals between sessions.

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session including COGNITIVE PROBLEM SOLVING STRATEGIES.

Discuss individual goals clients will work on in the next group session.

Summary and questions from last session.
Brief group discussion of upcoming exposure.
Conduct group exposure, with clients working on individual goals.
Group discussion of outing: Problem solving, including COGNITIVE STRATEGIES.
Review clients individual problem diaries, problem solving.

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session including COGNITIVE STRATEGIES.

Discuss individual goals clients will work on in the next group session.

Summary and questions from last session.
Brief group discussion of upcoming exposure.
Conduct group exposure.
Group discussion of outing.
Review clients individual problem diaries, problem solving.

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session including COGNITIVE STRATEGIES.

Emphasis the need for continued practice of exposure.
Discussion of feelings about termination.

Summary and questions from last session.

Brief group discussion of upcoming exposure.
Conduct group exposure.
Group discussion of outing: Problem solving.

Review clients individual problem diaries, problem solving.
Continue to encourage practice of individual goals between sessions.

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session including COGNITIVE PROBLEM SOLVING STRATEGIES.

Review clients individual problem diaries, problem solving.
Continue to encourage practice of individual goals between sessions.

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session including COGNITIVE STRATEGIES.

Discuss individual goals clients will work on in the next group session.

Summary and questions from last session.
Brief group discussion of upcoming exposure.
Conduct group exposure, with clients working on individual goals.
Group discussion of outing: Problem solving, including COGNITIVE STRATEGIES.
Review clients individual problem diaries, problem solving.

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session including COGNITIVE STRATEGIES.

Discuss individual goals clients will work on in the next group session.

Summary and questions from last session.
Brief group discussion of upcoming exposure.
Conduct group exposure.
Group discussion of outing.
Review clients individual problem diaries, problem solving.

Summary and questions from last session.
Group discussion, feedback from each client as to their progress and problems with exposure: Problem solving session including COGNITIVE STRATEGIES.

Emphasis the need for continued practice of exposure.
Discussion of feelings about termination.
minutes of the first session, subjects briefly exchanged information about themselves and their agoraphobia. The therapist spent approximately an hour discussing in an educational format the nature of agoraphobia, that is, a description of agoraphobia, symptoms of agoraphobia, what causes agoraphobia, and what keeps agoraphobia going. The rationale for treatment was also described. The role of anxiety in the development and maintenance of agoraphobia was outlined. One method of coping with anxiety, namely progressive muscular relaxation, was described to the patients. The first session concluded, as did all the sessions, with a question period and the assignment of homework.

In the second session relaxation training began. This relaxation exercise, or some variation of it, was performed during sessions two through seven. Additional educational material was presented about the causes of agoraphobia. The different types of treatment commonly available for agoraphobia were also described. Sessions three to eight focussed primarily on explaining the rationale of treatment, treatment strategy and the necessity for in vivo exposure to the feared object or situation. A considerable amount of time was spent during these six sessions in group discussion about the educational material and other related issues. In sessions four through eight the subjects were asked to develop a problem list of their feared situations and to construct a personalized hierarchy. Sessions nine through 22 involved group exposure to feared situations, and group discussions of the subject’s experiences, difficulties and successes. Gradually the therapist faded from the group during the group exposures and by session 16 the therapist was not present during in vivo exposures. However, the therapist was present at the group discussion sessions and following the exposure periods. By session 12 subjects were requested to begin to enter the feared situations on their personalized hierarchies, either as part of their homework assignments or during the group exposures. The final session was devoted to obtaining
information about individual subject's progress and to encourage continuation of systematic exposure practice, after the completion of treatment.

_Treatment procedures for Cognitive Group (see Table 2)._ This group received the same treatment as the noncognitive group except for the addition of a cognitive restructuring component. The cognitive restructuring procedure in this study, was based primarily on the principles of Ellis' (1962) rational-emotive therapy (RET). In this group the cause and effect connections between mind and body were included, and it was suggested that alleviation of cognitive distress would help ameliorate agoraphobia symptoms. Through examples provided by the subjects themselves it was made clear that situations were not in themselves anxiety arousing, but anxiety was aroused as a result of maladaptive cognitive responses. Cognitive restructuring procedures were explained to subjects in terms of the notion that one's belief system can and does directly influence one's level of emotional arousal. The cognitive-restructuring component of the treatment was presented primarily in sessions one through nine, in an educational format. However these concepts were applied during group exposure and they were addressed in the group discussions, during sessions 10 through 22. For a complete description of the differences between the cognitive and noncognitive groups the interested reader is directed to the two therapy manuals alluded to earlier. These manuals include rationales for each procedure, therapist's instructions and interventions, client handouts, and formats for each weekly treatment session.

_Treatment procedures for Waiting-List Control._ This group did not receive any therapeutic intervention. However, they were asked to fill in the treatment questionnaires and conduct the behavioral avoidance test at a preassessment interview. They were asked to return in 11 weeks to complete an Intermediate assessment identical to that completed by
cognitive and noncognitive subjects and finally to return after 22 weeks to complete the postassessment, again identical to that completed by the therapy subjects. The waiting-list control subjects were offered therapy after the completion of the postassessment.

Assessments

Assessments were performed before treatment (pretest), after the 11th treatment session (intermediate test) and immediately following the last treatment session (posttest). The design allowed for within-group treatment outcome comparisons as well as between group comparisons.

Instrumentation

Five dependent variables were selected for measurement to assess the comparative effectiveness of the treatments. They were chosen on the basis that, (1) they were indicators of agoraphobic symptomatology, (2) they accurately represented the diagnostic criteria used in this study, and (3) all variables were accurately measured in order to detect changes due to treatment. The five dependent variables measured in the study are: (1) frequency of panic attacks; (2) general anxiety (also referred to in the literature as pervasive or chronic); (3) phobic anxiety (also referred to in the literature as anticipatory or cognitive, i.e., the obsessive "what ifs," the irrational beliefs, and so forth; (4) phobic avoidance; (5) global distress. These five variables are considered in more detail on the following pages.
(1) **Frequency of panic attacks.** This variable was measured on a 9-point symptom scale of panic attacks which goes from 0 = "not at all," to 8 = "very much indeed, very severe panic, very frequent attacks" (Watson & Marks, 1971; see Appendix G). This 9-point rating scale and many others like it which were developed and validated by Marks and his associates in the 60's (Gelder & Marks, 1966; Marks, Boulougouris & Marset, 1971) have been adapted by North American researchers and used extensively with agoraphobic populations. This early development of a self-report scale to measure the frequency of panic attacks has always been considered an important goal in the treatment of agoraphobia.

(2) **General anxiety.** This variable was measured by two instruments, viz., the State-Trait Anxiety Inventory (STAI; Spielberger et al., 1970) and the Anxiety Dimension of the Brief Symptom Inventory (AD-BSI). The STAI is a brief self-report measure of both state and trait anxiety (see Appendix H). The "A-state scale" consists of 20 statements that pertain to the subject's feelings at a particular moment in time. Half the statements concern the absence of such feelings (e.g., "I feel calm," "I feel content"). Subjects rate each statement (e.g., "I feel tense") on a 4-point scale ("not at all" to "very much so"). The "A-trait scale" comprises 20 statements which refer to how the subjects generally feel. For the purpose of this study only the "A-state scale" was scored and used in statistical comparisons. The STAI is a particularly popular research instrument and the validity and reliability of this instrument has been discussed by a number of author's (e.g., Spielberger & Gorsuch, 1966; Spielberger et al., 1972).

The second measure of general anxiety, the Anxiety Dimension of the Brief Symptom Inventory (AD-BSI; Derogatis, 1975) is composed of six items reflecting a set of symptoms and signs that are associated clinically with high levels of manifest anxiety. General signs
such as nervousness and tension are included, as are panic attacks, spells of terror or panic, and feelings of fearfulness. Although the BSI was administered as a direct measure of the fifth dependent variable, specific dimensions of it were also used as additional checks on the validity of the measurement of certain dependent variables, and provided additional data for the interpretation of results. A more detailed description of the BSI is found in Appendix I.

(3) Phobic anxiety. This variable has been defined as a persistent fear response to a specific person, place, object, or situation, which is characterized as being irrational and disproportionate to the stimuli, and which leads to avoidance or escape behavior. Phobic anxiety (dp. no three) includes a measure of the irrational content of the fear and the prospect of avoidance behaviors, thus distinguishing it from the general anxiety factor (dp. no. two) which measures non-specific arousal. It was important to include both types of anxiety in this study, and to measure them as separate dependent variables in order to reflect fully the anxiety profile of the agoraphobic population.

Phobic anxiety was measured in six ways: (1) on the Phobic Anxiety Dimension of the BSI (PAD-BSI). The five items of this dimension focus on the pathognomic and disruptive manifestations of phobic behavior, afraid in open spaces, afraid to travel, having to avoid certain things, places, or activities, feeling uneasy in crowds, and feeling nervous when alone; (2) the score from the Obsessive-Compulsive Dimension of the BSI (O-C-BSI). This was included not only as a possible correlate of the PAD-BSI score, but also, because there is often an obsessive-compulsive quality to the nature and content of agoraphobic thinking. The O-C-BSI focuses on thoughts, impulses, and actions that are experienced as unremitting, as well as behaviors and experiences of a more general cognitive performance attenuation. Six items which include trouble remembering things, difficulty making decisions, your mind going blank, and so forth, comprise this dimension;
(3) a third measure of phobic anxiety was the rating scale originally developed by Gelder and Marks (1966) and then later modified by Watson and Marks (1971). This is a 9-point scale which measures both anxiety and avoidance for five (in this study six) fairly specific phobic situations. Interrater reliability for the Watson and Marks scale has been found to be satisfactory (Emmelkamp, 1974, 1979; Emmelkamp & Ultee, 1974; Hafner & Marks, 1976; Hend, Lamontagne & Marks, 1974; Teasdale et al., 1977; Watson & Marks, 1971) (Appendix J); (4,5) The next two measures of phobic anxiety fall within the cognitive realm. The first of these instruments, and the fourth measure of phobic anxiety was Chambless' et al. (1981) Agoraphobia Cognitions Questionnaire. The fifth measure of phobic anxiety was the Body Sensations Questionnaire also designed by Chambless' et al. (1981) (Appendix K). According to a number of authors agoraphobia has been described as not only a fear of particular places and situations but also a “fear of fear” (Goldstein & Chambless, 1978; Weekes, 1976). According to the model proposed by Goldstein and Chambless (1978) this fear of fear has two important components: cognitions concerning imagined disastrous consequences of having panic attacks, and a fear of interoceptive cues of arousal, particularly cues associated with the agoraphobic’s typical anxiety response pattern. The Agoraphobic Cognitions Questionnaire and the Body Sensations Questionnaire are two self-report instruments, devised to measure fear components. The former is comprised of nine thoughts concerning disastrous consequences of panic that are commonly reported by agoraphobics; these are rated as to the frequency of their occurrence on a 1-5 scale. The Body Sensations Questionnaire is made up of 17 items concerning internal responses associated with anxiety; all of these items, which were drawn from interviews with agoraphobics concerning sensations that exacerbate their anxiety, are rated
for the severity of anxiety they elicit on a 1-5 scale; (6) The sixth measure of phobic anxiety was a self-report of anxiety during the Behavioral Avoidance Test (see Appendix L). At each station on the test course subjects recorded their subjective level of anxiety on an 11-point scale, ranging from 0 ("Unafraid, not tense or anxious"), to 10 ("Extremely afraid, very tense and anxious"). Subjects self-report of fear at each of the completed stations was averaged to yield an overall Index of fear arousal during the test walk.

(4) Phobic Avoidance. This variable was measured on two instruments. The first was the 9-point self-rating avoidance scale (see Appendix J), mentioned earlier, which lists six commonly feared and avoided agoraphobic situations: Walking alone, shopping alone, driving alone, passenger in a car, public places such as theatre, church and restaurant, and staying home alone (Watson & Marks, 1971). The second measure of phobic avoidance was an actual behavior avoidance test (BAT; see Appendix L). Subjects were asked to walk a specially designed course. Subjects were informed that the purpose of the test walk was to obtain an objective measure of their fear. Each subject was provided a detailed map of the course and instructed to walk unaccompanied along the course alone as far as they could. Subjects were asked to rate their anxiety level during the behavior test on forms provided. The number of stations reached (0 to 10 score) served as the Index of performance on the test walk. The BAT was conducted before (pretest), and immediately following the last treatment session (posttest).

(5) Global Distress. This variable was measured on the Brief Symptom Inventory (see Appendix I). The BSI as a total instrument, that is over and above its nine primary symptom dimensions, yields three scores, or global Indices of distress. They are the Global Severity Index (GSI), the Positive Symptom Distress Index (PSDI), and the Positive Symptom Total (PST). Each measure communicate in a different way in a single score the
level or depth of an individual's psychopathology. The GSI represents the best single indicator of the current level or depth of the disorder and should be utilized where a single summary measure is required (Derogatis, 1977). For the purposes of this study the GSI was used as the single indicator of global distress.

Additional Instrumentation

The Instruments used for the major hypotheses have been described above. Subsidiary analyses demand the following additional tests:

(1) To evaluate whether outcome differences among treatments might be due to different expectations for improvement generated by the procedures, subjects completed a brief questionnaire after having received the treatment rationale and having completed a portion of treatment. Expectations of success and credibility of therapy procedures were measured by a questionnaire which contains four questions, with each having an 11-point rating scale. For example the expectation of personal success question asked the subject, "How confident are you that this treatment would be successful in reducing your fear?", and goes from 0 = "not at all confident," to 10 = "highly confident," reflecting the subjects self-reported evaluation of treatment effects (see Appendix M).

(2) Marks and Mathews (1978) have recently developed a brief one page self-rating scale (see Appendix N) in order to standardize the assessment of phobic patients and thereby facilitate the comparability of results between research studies and treatment centers. The form requests patients to rate themselves on one specific main target phobia, 15 of the commonest phobias from which three phobia subscores of agoraphobia, blood injury, and social anxiety can be derived, five associated anxiety/depression symptoms found in clinical practice, and a global phobia rating. The fear questionnaire yields five scores: Global.
phobia, total phobia, agoraphobia, main phobia, and anxiety/depression. For this study the agoraphobia, and total phobia scores were used for statistical purposes. For more details on the Fear Questionnaire see Appendix N.

Summary of Methodology

This study was designed to investigate the relative effectiveness of two different methods for treating agoraphobics in groups, (1) in vivo exposure alone, and (2) in vivo exposure + cognitive restructuring. Eligibility for all participants was determined based on two separate sets of criteria; the first, a set of diagnostic criteria which were in accord with the DSM-III's current definition of agoraphobia, and the second, a set of screening criteria which dealt with the issues of age, language, and so forth. Screening procedures included a personal interview and a personal data questionnaire, for all subjects in the study.

The questionnaire battery consisted of several self-report measures as well as a behavioral avoidance test designed to be sensitive to and measure the following dependent variables: (1) Frequency of panic attacks (self-report), (2) general anxiety (STAI, AD-BSI), (3) phobic anxiety (PAD-BSI, O-C-BSI, rating scale of phobic anxiety, ACQ, BSQ, self-report scale of anxiety on the BAT), (4) avoidance behavior (self-report of avoidance, BAT), and (5) global distress (BSI). The questionnaire battery was administered at pretest, intermediate test, and posttest. The same instruments were administered at the same points in time to the control subjects.

Two therapist's manuals were designed, delineating session by session the procedures used for each approach and the distinguishing features of each treatment. In addition to the procedures used for subject selection and treatment, this chapter described the instruments that were used in the study.
CHAPTER III
PRESENTATION OF RESULTS

This study was designed to determine whether in vivo exposure treatment of agoraphobia could be made more efficient by incorporating cognitive restructuring into the treatment. Three groups of agoraphobic subjects, a noncognitive group (in vivo exposure; \( n = 12 \)), a cognitive group (in vivo exposure + cognitive restructuring; \( n = 11 \)) and a waiting-list control group (no treatment; \( n = 9 \)) were assessed on a number of self-report scales and a behavioral avoidance test (Dependent measures) to determine the comparative effectiveness of the treatment manipulations. Assessments were performed before treatment (pretreatment), after the 11th treatment session (intermediate treatment), and immediately following the last treatment session (posttreatment).

Analyses of Variance on Pretreatment Scores

To ascertain initial equality of the three groups (cognitive, noncognitive, and waiting list control) one way analyses of variance (ANOVA's) were computed on pretreatment scores for all dependent measures. No significant differences emerged among the three groups. These results are presented in Table 3.

Introduction to Hypothesis Testing

To test the hypothesis that in vivo exposure + cognitive restructuring is more...
### Table 3
One Way Analyses of Variance on Pretreatment Scores for All Dependent Measures

<table>
<thead>
<tr>
<th>Dependent Measure</th>
<th>F test</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Panic Attack&quot; Measure</td>
<td></td>
</tr>
<tr>
<td>Frequency of Panic Attacks</td>
<td>0.23</td>
</tr>
<tr>
<td>&quot;General Anxiety&quot; Measures</td>
<td></td>
</tr>
<tr>
<td>State Anxiety Score</td>
<td>0.16</td>
</tr>
<tr>
<td>Anxiety Dimension Score</td>
<td>0.08</td>
</tr>
<tr>
<td>&quot;Phobic Anxiety&quot; Measures</td>
<td></td>
</tr>
<tr>
<td>Phobic Anxiety Dimension of BSI</td>
<td>0.08</td>
</tr>
<tr>
<td>Obsessive-Compulsive Dimension of BSI</td>
<td>0.25</td>
</tr>
<tr>
<td>Rating Scale of Phobic Anxiety</td>
<td>1.02</td>
</tr>
<tr>
<td>Agoraphobic Cognitions</td>
<td>1.11</td>
</tr>
<tr>
<td>Body Sensations</td>
<td>0.40</td>
</tr>
<tr>
<td>Anxiety on Behavior Avoidance Test</td>
<td>0.31</td>
</tr>
<tr>
<td>&quot;Behavioral Avoidance&quot; Measure</td>
<td></td>
</tr>
<tr>
<td>Rating Scale of Avoidance</td>
<td>0.52</td>
</tr>
<tr>
<td>Behavior Avoidance Test</td>
<td>0.14</td>
</tr>
<tr>
<td>&quot;Global Distress&quot; Measure</td>
<td></td>
</tr>
<tr>
<td>Global Distress Measure</td>
<td>0.32</td>
</tr>
</tbody>
</table>
Table 3 cont'd

"Fear" Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phobia Score</td>
<td>0.16</td>
</tr>
<tr>
<td>Agoraphobia Score</td>
<td>0.15</td>
</tr>
</tbody>
</table>

* p < .05
effective in the treatment of agoraphobia than in vivo exposure alone, a three treatments (cognitive, noncognitive, and waiting-list control) X three assessment sessions (pretreatment, intermediate treatment, and posttreatment) repeated measures ANOVA design was used. When only two repeated measures were used (pretreatment and posttreatment) a three X two ANOVA was computed.

When there was a significant interaction, between the Group and Sessions variable, there was little interest in tests of main effects (Kirk, 1968). An analysis designed to isolate the sources of the interaction, was needed. Such an analysis can be obtained by computing tests of simple main effects (Kirk, 1968). Computational procedures for these tests, for a split-plot design (one between and one within variable), are illustrated in Kirk (1968; p. 263-268). Where the simple main effects analyses indicated significant results, multiple comparison tests were used to delineate the specific points of differences between the cell means. For multiple comparisons between cell means with equal numbers of subjects per cell a Newman-Keuls analysis was appropriate (Kirk, 1968). For multiple comparisons between cell means with unequal number of subjects per cell a Scheffe's procedure was utilized (Kirk, 1968). When the interaction was not significant and there was a significant main effect(s), appropriate post-hoc multiple comparison tests were performed on the marginal means.

Main Hypotheses

(1) "Panic Attack" Hypotheses
Hypotheses 1a and 1b: Frequency of Panic Attacks Measure

Means and standard deviations for scores on the frequency of panic attacks measure are presented in Table 4. The mean self-reported frequency of panic attacks for each treatment group at pre, intermediate, and posttreatment test session are illustrated in Figure 1.

Results of a three treatments × three repeated measures ANOVA yield no significant main effect for treatment group, on the frequency of panic attacks measure. However, results indicated a significant main effect for assessment session, $F(2,58) = 39.20, p < 0.05$, and a significant group × session interaction, $F(4,58) = 5.37, p < 0.05$. Results for the present analysis (F tests) are presented in Table 5.

Simple main effects analyses indicated that the panic attack scores for the noncognitive group and the cognitive group differed significantly over the three assessment sessions, $F(2,58) = 25.87, p < 0.05$, and $F(2,58) = 21.09, p < 0.05$, respectively. The waiting list control group did not differ significantly over the three assessment sessions. The simple main effects analyses conducted to determine whether the three treatment groups differed in terms of frequency of panic attacks, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 1 indicated that at posttest both therapy groups showed a nonsignificant trend toward more reduction of self-reported frequency of panic attacks, than the control group. These results are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons ($\alpha = .05$) on the means involved in the interaction (cell means involved have equal number of subjects per cell) indicated that both noncognitive and cognitive groups reported significantly lower frequency of panic attack scores at postassessment than at preassessment or intermediate assessment. There was
Table 4
Means and Standard Deviations for Dependent Measures

<table>
<thead>
<tr>
<th>Dependent Measure</th>
<th>Noncognitive Group (n = 12)</th>
<th>Cognitive Group (n = 11)</th>
<th>Control Group (n = 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panic Attack</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of Panic Attacks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>4.1 (2.0)</td>
<td>3.5 (1.2)</td>
<td>3.8 (2.4)</td>
</tr>
<tr>
<td>Inter</td>
<td>3.4 (2.1)</td>
<td>3.2 (1.5)</td>
<td>2.9 (2.5)</td>
</tr>
<tr>
<td>Post</td>
<td>2.0 (1.2)</td>
<td>1.7 (1.0)</td>
<td>3.1 (2.1)</td>
</tr>
<tr>
<td><strong>General Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Anxiety Measure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>48.7 (10.9)</td>
<td>45.7 (8.3)</td>
<td>42.9 (6.7)</td>
</tr>
<tr>
<td>Inter</td>
<td>47.0 (11.6)</td>
<td>43.5 (7.7)</td>
<td>43.6 (6.3)</td>
</tr>
<tr>
<td>Post</td>
<td>40.9 (11.1)</td>
<td>38.0 (7.4)</td>
<td>44.6 (6.6)</td>
</tr>
<tr>
<td>Anxiety Dimension of BSI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>15.3 (5.7)</td>
<td>15.9 (3.7)</td>
<td>14.7 (5.2)</td>
</tr>
<tr>
<td>Inter</td>
<td>13.4 (5.4)</td>
<td>13.6 (3.3)</td>
<td>13.9 (4.6)</td>
</tr>
<tr>
<td>Post</td>
<td>8.9 (3.3)</td>
<td>8.4 (2.9)</td>
<td>14.7 (5.3)</td>
</tr>
<tr>
<td><strong>Phobic Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phobic Anxiety Dimension of BSI</td>
<td>10.4 (5.4)</td>
<td>11.4 (5.3)</td>
<td>11.1 (6.5)</td>
</tr>
<tr>
<td>Pre</td>
<td>9.1 (4.9)</td>
<td>10.0 (4.5)</td>
<td>10.4 (6.3)</td>
</tr>
<tr>
<td>Inter</td>
<td>6.2 (3.2)</td>
<td>6.9 (2.9)</td>
<td>9.6 (6.0)</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Obsessive-Compulsive Dimension of BSI</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obsessive-Compulsive Dimension of BSI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>7.5 (5.3)</td>
<td>6.3 (5.2)</td>
<td>7.8 (5.2)</td>
</tr>
<tr>
<td>Inter</td>
<td>6.9 (4.8)</td>
<td>5.8 (4.7)</td>
<td>7.0 (4.5)</td>
</tr>
<tr>
<td>Post</td>
<td>6.3 (4.5)</td>
<td>5.3 (4.5)</td>
<td>7.3 (3.9)</td>
</tr>
</tbody>
</table>

**Watson & Marks (1971) Rating Scale of Phobic Anxiety**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>19.3 (7.2)</td>
<td>15.9 (5.7)</td>
<td>20.2 (9.0)</td>
</tr>
<tr>
<td>Inter</td>
<td>15.3 (6.2)</td>
<td>13.3 (5.6)</td>
<td>18.9 (8.7)</td>
</tr>
<tr>
<td>Post</td>
<td>9.0 (3.0)</td>
<td>8.5 (3.1)</td>
<td>20.4 (8.9)</td>
</tr>
</tbody>
</table>

**Agoraphobia Cognitions Questionnaire**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>29.2 (9.7)</td>
<td>25.3 (4.4)</td>
<td>25.3 (5.6)</td>
</tr>
<tr>
<td>Inter</td>
<td>27.3 (10.5)</td>
<td>24.5 (5.4)</td>
<td>26.6 (5.3)</td>
</tr>
<tr>
<td>Post</td>
<td>22.8 (10.7)</td>
<td>20.5 (4.9)</td>
<td>24.7 (5.7)</td>
</tr>
</tbody>
</table>

**Body Sensations Questionnaire**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>41.1 (13.6)</td>
<td>37.7 (6.3)</td>
<td>37.9 (7.9)</td>
</tr>
<tr>
<td>Inter</td>
<td>39.0 (13.6)</td>
<td>36.2 (6.8)</td>
<td>37.2 (7.4)</td>
</tr>
<tr>
<td>Post</td>
<td>33.4 (10.6)</td>
<td>32.1 (7.2)</td>
<td>36.3 (8.0)</td>
</tr>
</tbody>
</table>

**Anxiety on Behavior Avoidance Test**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>8.1 (1.6)</td>
<td>7.6 (1.6)</td>
<td>7.8 (1.5)</td>
</tr>
<tr>
<td>Post</td>
<td>5.3 (1.6)</td>
<td>5.5 (1.7)</td>
<td>7.4 (1.7)</td>
</tr>
</tbody>
</table>

**"Behavioral Avoidance" Measures**

**Watson & Marks (1971) Rating Scale of Avoidance**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>17.3 (7.6)</td>
<td>18.4 (7.5)</td>
<td>21.0 (9.8)</td>
</tr>
<tr>
<td>Inter</td>
<td>15.8 (7.9)</td>
<td>15.9 (7.0)</td>
<td>22.4 (9.2)</td>
</tr>
<tr>
<td>Post</td>
<td>11.1 (5.9)</td>
<td>10.1 (4.3)</td>
<td>22.2 (8.9)</td>
</tr>
</tbody>
</table>
Table 4 cont'd

**Behavior Avoidance Test**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.8 (2.2)</td>
<td>2.5 (1.7)</td>
<td>2.4 (2.1)</td>
</tr>
<tr>
<td>Pre</td>
<td>6.8 (2.9)</td>
<td>7.2 (2.8)</td>
<td>2.5 (2.3)</td>
</tr>
</tbody>
</table>

"Global Distress" Measure

**Global Distress Measure**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.7 (0.7)</td>
<td>1.4 (0.5)</td>
<td>1.5 (0.7)</td>
</tr>
<tr>
<td>Pre</td>
<td>1.5 (0.6)</td>
<td>1.3 (0.5)</td>
<td>1.6 (0.7)</td>
</tr>
<tr>
<td>Inter</td>
<td>1.0 (0.4)</td>
<td>0.9 (0.3)</td>
<td>1.6 (0.6)</td>
</tr>
</tbody>
</table>

"Treatment Expectations" Measure

**Treatment Expectations Questionnaire**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>26.3 (3.7)</td>
<td>27.5 (2.7)</td>
</tr>
</tbody>
</table>

"Fear" Measures

**Total Phobia Score**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>48.1 (20.9)</td>
<td>49.5 (23.6)</td>
<td>53.3 (17.8)</td>
</tr>
<tr>
<td>Pre</td>
<td>44.5 (20.7)</td>
<td>45.6 (22.8)</td>
<td>53.8 (17.9)</td>
</tr>
<tr>
<td>Inter</td>
<td>37.8 (18.3)</td>
<td>39.5 (21.1)</td>
<td>51.3 (18.4)</td>
</tr>
</tbody>
</table>

**Agoraphobia Score**

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Inter</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21.0 (7.1)</td>
<td>19.5 (10.6)</td>
<td>21.3 (7.0)</td>
</tr>
<tr>
<td>Pre</td>
<td>19.1 (6.7)</td>
<td>18.3 (10.0)</td>
<td>22.1 (7.3)</td>
</tr>
<tr>
<td>Inter</td>
<td>14.8 (5.2)</td>
<td>13.9 (8.2)</td>
<td>22.2 (7.6)</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
FIG. 1. SUBJECTS' MEAN SELF-REPORTED FREQUENCY OF PANIC ATTACKS AT PRE, INTER AND POST-TREATMENT
Table 5

Significance of Treatment, Session, Interaction, and Simple Main Effects for Dependent Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Treatment (A)</th>
<th>Session (B)</th>
<th>AxB</th>
<th>A at Pre</th>
<th>A at Inter</th>
<th>Post</th>
<th>Noncog</th>
<th>Cog</th>
<th>Cont</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Panic Attack&quot; Variable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of Panic Attacks</td>
<td>0.19</td>
<td>39.20*</td>
<td>5.37*</td>
<td>0.08</td>
<td>0.08</td>
<td>0.63</td>
<td>25.67*</td>
<td>21.09*</td>
<td>1.72</td>
</tr>
<tr>
<td>&quot;General Anxiety&quot; Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Anxiety</td>
<td>0.36</td>
<td>74.39*</td>
<td>31.20*</td>
<td>0.38</td>
<td>0.18</td>
<td>0.49</td>
<td>72.64*</td>
<td>68.06*</td>
<td>3.06</td>
</tr>
<tr>
<td>Anxiety Dimension of BSI</td>
<td>0.64</td>
<td>36.61*</td>
<td>9.46*</td>
<td>0.09</td>
<td>0.02</td>
<td>2.57</td>
<td>23.98*</td>
<td>33.57*</td>
<td>0.46</td>
</tr>
<tr>
<td>&quot;Phobic Anxiety&quot; Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phobic Anxiety Dimension of BSI</td>
<td>0.35</td>
<td>40.58*</td>
<td>2.92*</td>
<td>0.04</td>
<td>0.07</td>
<td>0.47</td>
<td>21.42*</td>
<td>23.57*</td>
<td>2.72</td>
</tr>
<tr>
<td>Obsessive-Compulsive Dimension of BSI</td>
<td>0.31</td>
<td>8.48*</td>
<td>0.97</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Rating Scale of Phobic Anxiety</td>
<td>4.27*</td>
<td>35.02*</td>
<td>15.03*</td>
<td>0.51</td>
<td>0.80</td>
<td>5.44*</td>
<td>42.80*</td>
<td>22.62*</td>
<td>2.82</td>
</tr>
<tr>
<td>Agoraphobic Cognitions Questionnaire</td>
<td>0.46</td>
<td>53.75*</td>
<td>8.09*</td>
<td>0.32</td>
<td>0.11</td>
<td>0.28</td>
<td>42.89*</td>
<td>25.53*</td>
<td>3.64*</td>
</tr>
<tr>
<td>Body Sensations Questionnaire</td>
<td>0.21</td>
<td>41.66*</td>
<td>5.43*</td>
<td>0.14</td>
<td>0.06</td>
<td>0.19</td>
<td>33.09*</td>
<td>18.49*</td>
<td>0.13</td>
</tr>
<tr>
<td>Anxiety on Behavior Avoidance Test</td>
<td>1.47</td>
<td>54.56*</td>
<td>0.82*</td>
<td>0.14</td>
<td>n.a.</td>
<td>2.90</td>
<td>41.36*</td>
<td>24.52*</td>
<td>0.65</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th>&quot;Behavioral Avoidance&quot; Variables</th>
<th>Rating Scale of Avoidance</th>
<th>Behavior Avoidance Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.77* 31.80* 12.80* 0.25 1.00</td>
<td>3.77* 24.64* 39.03* 0.99</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&quot;Global Distress&quot; Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Distress Measure</td>
</tr>
<tr>
<td>0.95 26.16* 9.49* 0.12 0.24 1.82 29.67* 16.63* 0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&quot;Treatment Expectations&quot; Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Expectations Questionnaire</td>
</tr>
<tr>
<td>0.39 --- --- --- --- --- --- --- ---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&quot;Fear&quot; Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Phobia Score</td>
</tr>
<tr>
<td>0.65 59.02* 7.36* 0.06 0.23 0.54 32.70* 41.71* 2.03</td>
</tr>
<tr>
<td>Agoraphobia Score</td>
</tr>
<tr>
<td>0.96 48.38* 16.36* 0.06 0.24 1.23 45.91* 38.14* 1.05</td>
</tr>
</tbody>
</table>

*p < .05

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
no significant change from preassessment to intermediate assessment for both therapy
groups on the frequency of panic attacks measure.

**Results of Hypothesis Testing.** Findings indicated that subjects in the two therapy
groups improved significantly over the assessment sessions. The cognitive and noncognitive
treatment conditions did demonstrate a significant reduction in self-reported frequency of
panic attacks, however this reduction was not significantly different from those not exposed
to the therapy manipulations. Therefore, hypothesis 1a was only partially supported.
There was no evidence to indicate that the cognitive treatment group demonstrated a
reduction in self-reported frequency of panic attacks, which was significantly greater than
that reported by subjects in the noncognitive group. Therefore, hypothesis 1b was not
supported.

(2) "General Anxiety" Hypotheses

**Hypotheses 2ab (1): State Anxiety Score from the State-Trait Anxiety Inventory**

Means and standard deviations for scores on the state anxiety scale of the state-trait
anxiety inventory are presented in Table 4. The mean state anxiety score for each
treatment group at pre, intermediate, and posttreatment test session are illustrated in
Figure 2. Results of a three X three repeated measures ANOVA ( see Table 5) yield no
significant main effect for group on the state anxiety score. However, results indicated a
significant main effect for assessment session, $F(2,58) = 74.39$, $p < .05$, and a significant
group X session interaction, $F(4,58) = 31.20$, $p < .05$.

Simple main effects analyses indicated that the state anxiety scores for the
FIG. 2. SUBJECTS' MEAN STATE ANXIETY SCORE FROM THE STATE-TRAIT ANXIETY INVENTORY AT PRE, INTER AND POST-TREATMENT
noncognitive group and the cognitive group differed significantly over the three assessment sessions, \( F(2,58) = 72.64, p < .05 \), and \( F(2,58) = 68.86, p < .05 \), respectively. The waiting list control group did not differ significantly over the three assessment sessions. The simple main effects analyses conducted to determine whether the three treatment groups differed in terms of state anxiety, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 2, indicated that at posttest both therapy groups showed a nonsignificant trend toward more reduction of self-reported state anxiety, than the control group. These results are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons \((\alpha = .05)\) on the means involved in the interaction indicated that both noncognitive and cognitive groups reported significantly lower state anxiety scores at postassessment than at preassessment or intermediate assessment. Both therapy groups reported significantly less state anxiety at intermediate assessment than at preassessment.

**Results of Hypothesis Testing.** Findings indicated that subjects in the two therapy groups improved significantly over the assessment sessions. The cognitive and noncognitive treatment conditions did demonstrate a significant reduction in self-reported state anxiety, however, this reduction was not significantly different from those not exposed to the therapy manipulations. Therefore, hypothesis 2a (1) was only partially supported. There was no evidence to indicate that the cognitive treatment group demonstrated a reduction in state anxiety, which was significantly greater than that reported by subjects in the noncognitive group. Therefore, hypothesis 2b (1) was not supported.

**Hypotheses 2ab (2): Anxiety Dimension of Brief Symptom Inventory**

Means and standard deviations for scores on the anxiety dimension of the brief

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
symptom Inventory are presented in Table 4. The mean score on the anxiety dimension for
each treatment group at pre, intermediate, and posttreatment test session are illustrated in
Figure 3. Results of a three treatments X three repeated measures ANOVA (see Table 5)
revealed no significant main effect for group on the anxiety dimension of the brief symptom
Inventory. However, results indicated a significant main effect for assessment session,
F(2,58) = 36.61, p < .05, and a significant group X session interaction, F(4,58) = 9.46, p
< .05.

Simple main effects analyses indicated that the anxiety dimension scores for the
noncognitive group and the cognitive group differed significantly over the three assessment
sessions, F(2,58) = 23.98, p < .05, and F(2,58) = 33.57, p < .05, respectively. The
waiting list control group did not differ significantly over the three assessment sessions.
The simple main effects analyses conducted to determine whether the three treatment groups
differed in terms of anxiety dimension scores, at each assessment session, indicated that
there were no significant differences. However, visual inspection of Figure 3, indicated
that at posttest both therapy groups demonstrated a nonsignificant trend toward more
reduction of self-reported anxiety dimension scores, than the control group. These results
are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons (α = .05) on the means involved in the
interaction indicated that both noncognitive and cognitive groups reported significantly
lower anxiety dimension scores at postassessment than at preassessment or intermediate
assessment. Both therapy groups reported lower anxiety dimension scores at intermediate
assessment than at preassessment.

Results of Hypothesis Testing. Findings indicated that subjects in the two therapy
groups improved significantly over the assessment sessions. The cognitive and
FIG 3. SUBJECTS' MEAN SCORE ON ANXIETY DIMENSION OF BRIEF SYMPTOM INVENTORY AT PRE, INTER AND POST-TREATMENT.
noncognitive treatment conditions did demonstrate a significant reduction in self-reported anxiety dimension scores, however, this reduction was not significantly different from those not exposed to the therapy manipulations. Therefore hypothesis 2a (2) was only partially supported. There was no evidence to indicate that the cognitive treatment group demonstrated a reduction in anxiety dimension scores, which was significantly greater than that reported by subjects in the noncognitive group. Therefore, hypothesis 2b (2) was not supported.

(3) "Phobic Anxiety" Hypotheses

Hypotheses 3ab (1): Phobic Anxiety Dimension of Brief Symptom Inventory

Means and standard deviations for scores on the phobic anxiety dimension of the brief symptom inventory are presented in Table 4. The mean score on the phobic anxiety dimension for each treatment group at pre, intermediate and posttreatment test session are illustrated in Figure 4. Results of a three X three repeated measures ANOVA (see Table 5) yield no significant main effect for treatment group on the phobic anxiety dimension of the brief symptom inventory. However, results indicated a significant main effect for assessment session, \( F(2,58) = 4.058, p < .05 \), and a significant group X session interaction, \( F(4,58) = 2.92, p < .05 \).

Simple main effects analyses indicated that the phobic anxiety scores for the noncognitive group and the cognitive group differed significantly over the three assessment sessions, \( F(2,58) = 21.42, p < .05 \), and \( F(2,58) = 23.57, p < .05 \), respectively. The waiting list control group did not differ significantly over the three assessment sessions.
Mean Score on Phobic Anxiety Dimension of Brief Symptom Inventory

FIG. 4. SUBJECTS' MEAN SCORE ON PHOBIC ANXIETY DIMENSION OF BRIEF SYMPTOM INVENTORY AT PRE, INTER AND POST-TREATMENT
The simple main effects analyses conducted to determine whether the three treatment groups differed in terms of phobic anxiety scores, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 4 indicated that at posttest both therapy groups demonstrated a nonsignificant trend toward more reduction of self-reported phobic anxiety scores, than the control group. These results are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons (α = .05) on the means involved in the interaction indicated that both noncognitive and cognitive groups reported significantly lower phobic anxiety dimension scores at postassessment than at preassessment or intermediate assessment. Both therapy groups reported lower phobic anxiety dimension scores at intermediate assessment than at preassessment.

Results of Hypothesis Testing. Findings indicated that subjects in the two therapy groups improved significantly over the assessment sessions. The cognitive and noncognitive groups did demonstrate a significant reduction in self-reported phobic anxiety, however, this reduction was not significantly different from those not exposed to the therapy manipulations. Therefore, hypothesis 3a (1) was only partially supported. The cognitive group did not demonstrate a reduction in phobic dimensions scores, which was significantly greater than that reported by subjects in the noncognitive group. Therefore, hypothesis 3b (1) was not supported.

Hypotheses 3ab (2): Obsessive Compulsive Dimension of Brief Symptom Inventory

Means and standard deviations for scores on the obsessive compulsive dimension of the brief symptom inventory are presented in Table 4. The mean obsessive-compulsive score for each treatment group at pre, intermediate and posttreatment test session are

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Illustrated in Figure 5. Results of a three X three repeated measures ANOVA (see Table 5) yield no significant main effect for treatment group on the obsessive compulsive dimension of the Brief Symptom Inventory. There was no significant group X session interaction, however, results indicated a significant main effect for assessment session, $F(2,58) = 8.48, p < .05$.

Newman-Keuls post-hoc multiple comparisons ($\alpha = .05$) on the means involved in the session main effect indicated that subjects reported significantly higher obsessive-compulsive scores at session one than at session three. There were no other significant differences.

**Results of Hypothesis Testing.** Hypothesis 3a (2) and 3b (2) were not supported.

**Hypotheses 3ab (3): Watson and Marks (1971) Rating Scale of Phobic Anxiety**

Means and standard deviations for scores on Watson and Marks (1971) rating scale of phobic anxiety are presented in Table 4. The mean rating scale of phobic anxiety score for each treatment group at pre, intermediate and posttreatment test session are illustrated in Figure 6. Results of a three treatments X three repeated measures ANOVA (see Table 5) revealed a significant main effect for treatment group and a significant main effect for assessment session, $F(2,58) = 4.27, p < .05$ and $F(2,58) = 35.02, p < .05$, respectively. A significant group X session interaction, $F(4,58) = 15.03, p < .05$, was also revealed.

Simple main effects analyses indicated that the phobic anxiety scores for the noncognitive group and the cognitive group differed significantly over the three assessment sessions, $F(2,58) = 42.80, p < .05$, and $F(2,58) = 22.62, p < .05$, respectively. The waiting list control group did not differ significantly over the three assessment sessions.
FIG. 5. SUBJECTS' MEAN OBSESSIVE-COMPULSIVE SCORE FROM THE BRIEF SYMPTOM INVENTORY AT PRE, INTER AND POST-TREATMENT.
FIG. 6. SUBJECTS' MEAN SCORE ON WATSON AND MARKS RATING SCALE OF PHOBIC ANXIETY AT PRE, INTER AND POST-TREATMENT
Simple main effects analysis indicated that at postassessment the three treatment groups differed significantly, $F(2,58) = 5.44, p < .05$. These results are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons ($\alpha = .05$) on the means involved in the interaction indicated that both noncognitive and cognitive groups reported significantly lower scores on Watson and Marks (1971) rating scale of phobic anxiety at postassessment than at preassessment or intermediate assessment. Both therapy groups reported lower rating scale of phobic anxiety scores at intermediate assessment than at preassessments.

Scheffe tests ($\alpha = .05$; cell means involved have unequal number of subjects per cell) indicated that at postassessment the noncognitive and cognitive groups reported significantly lower scores than the waiting list control group. The two therapy groups did not differ significantly at postassessment.

**Results of Hypothesis Testing.** Findings indicated that subjects in the two therapy groups improved significantly over the assessment sessions. These findings also indicated that the therapy groups reported lower phobic anxiety scores than the control group at postassessment. The cognitive and noncognitive treatment conditions did demonstrate a significant reduction in self-reported phobic anxiety, and this reduction was significantly more than that reported by subjects in the control condition. Therefore, hypothesis 3a (3) was supported. The cognitive therapy group did not demonstrate a reduction in self-reported phobic anxiety greater than that reported by subjects in the noncognitive group. Therefore, hypothesis 3b (3) was not supported.

**Hypotheses 3ab (4): Agoraphobic Cognitions Questionnaire**

Means and standard deviations for scores on the agoraphobic cognitions questionnaire

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
are presented in Table 4. The mean score on the agoraphobic cognitions questionnaire for each treatment group at pre, intermediate, and posttreatment test session are illustrated in Figure 7. Results of a three treatments X three repeated measures ANOVA (see Table 5) yield no significant main effect for treatment group on the agoraphobic cognitions questionnaire. However, results indicated a significant main effect for assessment session, $F(2,58) = 53.75, p<.05$, and a significant group X session interaction, $F(4,58) = 8.09, p<.05$.

Simple main effects analyses indicated that the agoraphobic cognitions scores for the noncognitive, cognitive and the waiting list control group differed significantly over the three assessment sessions, $F(2,58) = 42.89, p<.05$, $F(2,58) = 25.53, p<.05$, $F(2,58) = 3.64, p<.05$, respectively. The simple main effects analyses conducted to determine whether the three groups differed in terms of agoraphobic cognitions scores, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 7, indicated that at posttest both therapy groups demonstrated a nonsignificant trend toward more reduction of self-reported agoraphobic cognition scores, than the control group. These results are presented in Table 5.

Newman–Keuls post-hoc multiple comparisons ($\alpha = .05$) on the means involved in the interaction indicated that both non-cognitive and cognitive groups reported significantly lower agoraphobic cognitions scores at postassessment than at preassessment or intermediate assessment. Results for the noncognitive group indicated that subjects reported significantly lower agoraphobic cognitions scores at intermediate assessment than at preassessment. The cognitive group did not differ significantly between pre and intermediate assessment. For the waiting list control group results indicated that subjects scored significantly higher at intermediate assessment than at preassessment or
Mean Score on the Agoraphobic Cognitions Questionnaire

Pre  | Inter | Post
--- | --- | ---
35  | 30  | 25
30  | 25  | 20
25  | 20  | 15

FIG. 7. SUBJECTS' MEAN SCORE ON THE AGORAPHOBIC COGNITIONS QUESTIONNAIRE AT PRE, INTER AND POST-TREATMENT

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Postassessment

Results of Hypothesis Testing. Findings indicated that all three treatment groups changed significantly over the assessment sessions. The cognitive and noncognitive groups did demonstrate a significant reduction in self-reported agoraphobic cognitions scores, however, the waiting-list control group also showed a significant change. Both therapy groups showed improvement at postassessment. The control group demonstrated a significantly higher agoraphobic cognitions score at intermediate assessment than at the other two assessment sessions. None of the groups differed significantly from one another at each of the assessment sessions. Therefore, hypothesis 3a (4) was only partially supported.

The cognitive treatment group did not demonstrate a reduction in agoraphobic cognitions, which was significantly greater than that reported by subjects in the noncognitive group. Therefore, hypothesis 3b (4) was not supported.

Hypotheses 3ab (5): Body Sensations Questionnaire

Means and standard deviations for scores on the body sensations questionnaire are presented in Table 4. The mean score on the body sensations questionnaire for each treatment group at pre, intermediate and posttreatment test sessions are illustrated in Figure 8. Results of a three treatments X three repeated measures ANOVA (see Table 5) yield no significant main effect for treatment group on the body sensations questionnaire. However, results indicated a significant main effect for assessment session, F(2,58) = 41.66, p < .05, and a significant group X session interaction, F(4,58) = 5.43, p < .05.

Simple main effects analyses indicated that the body sensations scores for the noncognitive and cognitive groups differed significantly over the three assessment sessions, F(2,58) = 33.09, p < .05, and F(2,58) = 18.49, p < .05, respectively. The
FIG. 8. SUBJECTS' MEAN SCORE ON THE BODY SENSATIONS QUESTIONNAIRE AT PRE, INTER AND POST-TREATMENT
control group did not differ significantly over the three assessment sessions. The simple main effects analyses conducted to determine whether the three treatment groups differed in terms of body sensations scores, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 8, indicated that at posttest both therapy groups demonstrated a nonsignificant trend toward more reduction of self-reported body sensation scores, than the control group. These results are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons (\(\alpha = .05\)) on the means involved in the interaction indicated that both the noncognitive and cognitive groups reported significantly lower body sensations scores at post assessment than at preassessment or intermediate assessment. There was no significant change from preassessment to intermediate assessment for the cognitive group on the body sensations questionnaire. However, for the noncognitive group the results indicated that subjects reported significantly less body sensations at intermediate assessment than at preassessment.

**Results of Hypothesis Testing.** Findings indicated that subjects in the two therapy groups improved significantly over the assessment sessions. The cognitive and noncognitive treatment groups did demonstrate a significant reduction in self-reported body sensations, however, this reduction was not significantly different from those not exposed to the therapy manipulations. Therefore, hypothesis 3a (5) was only partially supported. The cognitive treatment group did not demonstrate a reduction in frequency of body sensations scores, which was significantly greater than that reported by subjects in the noncognitive group. Therefore, hypothesis 3b (5) was not supported.
Hypotheses 3ab (6): Self-Report of Anxiety on the Behavior Avoidance Test

Means and standard deviations for scores on the self-report anxiety scale of the behavior avoidance test are presented in Table 4. The mean self-report anxiety score for each treatment group at pre- and posttreatment test session are illustrated in Figure 9. Results of a three treatments x two repeated measures ANOVA (see Table 5) yield no significant main effect for treatment group on the self-report of anxiety on the behavior avoidance test. However, results indicated a significant main effect for assessment session, $F(1,29) = 54.54, p<.05$, and a significant group x session interaction, $F(2,29) = 8.82, p<.05$.

Simple main effects analyses indicated that the anxiety scores for the noncognitive and cognitive groups differed significantly over the two assessment sessions, $F(2,58) = 41.36, p<.05$, $F(2,58)= 24.52, p<.05$, respectively. Both therapy groups reported significantly lower anxiety on the behavior avoidance test at posttreatment than at pretreatment. The control group did not differ significantly over the assessment sessions. The simple main effects analyses conducted to determine whether the three treatment groups differed in terms of anxiety on the behavior avoidance test, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 9, indicated that at posttest both therapy groups demonstrated a nonsignificant trend toward more reduction of self-reported anxiety on the behavior avoidance test, than the control group. These results are presented in Table 5.

Results of Hypothesis Testing. Findings indicated that subjects in the two therapy groups improved significantly over the two assessment sessions. The cognitive and noncognitive treatment conditions did demonstrate a significant reduction in self-reported...
FIG. 9. SUBJECTS’ MEAN SELF-REPORT OF ANXIETY SCORE ON THE BEHAVIOR AVOIDANCE TEST AT PRE, AND POST-TREATMENT

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
anxiety on the behavior avoidance test, however, this reduction was not significantly
different from those not exposed to the therapy manipulations. Therefore, hypothesis 3a
(6) was only partially supported. The cognitive treatment group did not demonstrate a
reduction in self-reported anxiety on the behavior avoidance test, which was significantly
greater than that reported by subjects in the noncognitive group. Therefore, hypothesis 3b
(6) was not supported.

(4) "Behavioral Avoidance" Hypotheses

**Hypotheses 4ab (1): Watson and Marks (1971) Rating Scale of Avoidance**

Means and standard deviations for scores on Watson and Marks (1971) rating scale of
avoidance are presented in Table 4. The mean score on the rating scale of avoidance for each
treatment group at pre, intermediate and posttreatment test session are illustrated in
Figure 10. Results of a three X three repeated measures ANOVA (see Table 5) revealed a
significant main effect for treatment group on the Watson and Marks (1971) rating scale of
avoidance, $F(2,29) = 3.77$, $p< .05$. Results also indicated a significant main effect for
assessment session, $F(2,58) = 36.80$, $p< .05$, and a significant group X session interaction,
$F(4,58) = 12.88$, $p< .05$.

Simple main effects analyses indicated that the avoidance scores for the noncognitive
and cognitive groups differed significantly over the three assessment sessions, $F(2,58) =
24.84$, $p< .05$, and $F(2,58) = 39.03$, $p< .05$, respectively. The waiting list control group
did not differ significantly over the assessment sessions. Simple main effects analysis
indicated that at postassessment the three treatment groups differed significantly, $F(2,58) =
3.77$, $p< .05$. 

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
FIG. 10. SUBJECTS' MEAN SCORE ON THE WATSON AND MARKS SCALE OF AVOIDANCE AT PRE, INTER, AND POST-TREATMENT
Newman-Keuls post-hoc multiple comparisons (\( = .05\)) on the means involved in the interaction indicated that both noncognitive and cognitive groups reported significantly lower scores on Watson and Marks (1971) rating scale of avoidance at postassessment than at preassessment or intermediate assessment. There was no significant change from preassessment to intermediate assessment for the noncognitive group on the avoidance measure. However, for the cognitive group the results indicated that subjects reported significantly less avoidance at intermediate assessment than at preassessment.

Scheffe tests indicated (\( = .05\)) that at postassessment the noncognitive and cognitive groups reported significantly lower scores than the waiting-list control group. The two therapy groups did not differ significantly at postassessment.

Results of Hypothesis Testing. Findings indicated that subjects in the two therapy groups improved significantly over the assessment sessions. At postassessment, the cognitive and noncognitive groups reported a significant reduction in self-reported avoidance scores and this reduction was significantly different from the scores reported by the waiting-list control group. Therefore, hypothesis 4a(1) was supported. The cognitive treatment group did not demonstrate a reduction in avoidance scores, which was significantly greater than that reported by the noncognitive subjects. Therefore, hypothesis 4b(1) was not supported.

Hypotheses 4ab(2): Behavior Avoidance Test.

Means and standard deviations for scores on the behavior avoidance test are presented in Table 4. The mean score on the behavior avoidance test for each treatment group at pre, and posttreatment test session are illustrated in Figure 11. Results of a three x two
FIG. 11. SUBJECTS' MEAN SCORE ON THE BEHAVIOR AVOIDANCE TEST AT PRE- AND POST-TREATMENT
repeated measure ANOVA (see Table 5) yielded a significant main effect for treatment group, $F(2,29) = 3.35, p < .05$, a significant main effect for assessment session, $F(1,29) = 127.67, p < .05$, and a significant group X session interaction, $F(2,29) = 27.49, p < .05$.

Simple main effects analyses indicated that the behavior avoidance test scores for the noncognitive and cognitive groups differed significantly over the two assessment sessions, $F(2,58) = 67.41, p < .05$, and $F(2,58) = 98.12, p < .05$, respectively. Both therapy groups reported significantly higher behavior avoidance test scores at post-assessment than at pre-assessment. The control group did not differ significantly over the assessment sessions. Simple main effects analysis indicated that the three treatment groups differed significantly at postassessment, $F(2,29) = 5.95, p < .05$.

Scheffe tests indicated ($p = .05$) that at postassessment the noncognitive and cognitive groups reported significantly higher scores than the waiting-list control group. The two therapy groups did not differ significantly at postassessment.

Results of Hypothesis Testing. Findings indicated that subjects in the two therapy groups improved significantly over the two assessment sessions. At postassessment, the cognitive and noncognitive groups reported a significant increase in self-reported behavior avoidance test scores, and these scores were significantly higher than those reported by subjects in the waiting-list control group. Therefore, hypothesis 4a (2) was supported. The two therapy groups did not differ significantly at postassessment. Therefore, hypothesis 4b (2) was not supported.

(5) "Global Distress" Hypotheses
Hypotheses 5a and 5b: Global Distress Measure from the Brief Symptom Inventory

Means and standard deviations for scores on the global severity index from the brief symptom inventory are presented in Table 4. The mean global severity index score for each treatment group at pre, intermediate and posttreatment test session are illustrated in Figure 12. Results of a three X three repeated measures ANOVA (see Table 5) yield no significant main effect for treatment group on the global distress index measure. However, results indicated a significant main effect for assessment session, $F(2,58) = 26.16, p < .05$, and a significant group X session interaction, $F(4,58) = 9.49, p < .05$.

Simple main effects analyses indicated that the global distress scores for the noncognitive and cognitive groups differed significantly over the three assessment sessions, $F(2,58) = 29.67, p < .05$, and $F(2,58) = 16.63, p < .05$, respectively. The control group did not differ significantly over the assessment sessions. The simple main effects analyses conducted to determine whether the three treatment groups differed in terms of global distress scores, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 12, indicated that at posttest both therapy groups demonstrated a nonsignificant trend toward more reduction of self-reported global distress, than the control group. These results are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons ($\alpha = .05$) on the means involved in the interaction indicated that both noncognitive and cognitive groups reported significantly lower global index scores at postassessment than at pre- or intermediate assessment. There was no significant change from preassessment to intermediate assessment for both therapy groups on the global severity index.
FIG. 12. SUBJECTS' MEAN GLOBAL SEVERITY INDEX SCORE FROM THE BRIEF SYMPTOM INVENTORY AT PRE, INTER AND POST-TREATMENT.
Results of Hypothesis Testing. Findings indicated that subjects in the two therapy groups improved significantly over the assessment sessions. The cognitive and noncognitive groups did demonstrate a significant reduction in self-reported global distress, however, this reduction was not significantly different from those not exposed to the therapy manipulations. Therefore, hypothesis 5a was only partially supported. There was no evidence to indicate that the cognitive treatment group demonstrated a reduction in global distress, which was significantly greater than that reported by subjects in the noncognitive group. Therefore, hypothesis 5b was not supported.

Subsidiary Hypotheses

(1) "Treatment Expectations" Hypothesis

Means and standard deviations for scores on the treatment expectations questionnaire are presented in Table 4. A one way analysis of variance, two treatments (cognitive and noncognitive) X pretreatment score on the treatment expectations questionnaire, was conducted. No significant differences emerged among the two groups. These results are presented in Table 5.

Results of Hypothesis Testing. Subjects exposed to the cognitive and noncognitive treatment conditions did not manifest any significant differences on the treatment expectations questionnaire. Therefore, subsidiary hypothesis 1 was supported.
(2) "Fear" Hypotheses

Hypotheses 2ab (1): Total Phobia Score on the Marks and Mathews Fear Questionnaire

Means and standard deviations for scores on the total phobia scale of the Marks and Mathews fear questionnaire are presented in Table 4. The mean total phobia score for each treatment group at pre, intermediate and posttreatment test session are illustrated in Figure 13. Results of a three treatments X three repeated measures ANOVA (see Table 5 ) yield no significant main effect for treatment group on the total phobia score of the fear questionnaire. However, results indicated a significant main effect for assessment session, $F(2,58)= 59.02, p< .05$, and a significant group X session interaction, $F(4,58)= 7.36, p< .05$.

Simple main effects analyses indicated that the total phobia scores for the noncognitive and cognitive groups differed significantly over the three assessment sessions, $F(2,58)= 32.70, p< .05$, and $F(2,58)= 41.71, p< .05$, respectively. The control group did not differ significantly over the assessment sessions. The simple main effects analyses conducted to determine whether the three treatment groups differed in terms of total phobia scores, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 13, indicated that at posttest both therapy groups demonstrated a nonsignificant trend toward more reduction of self-reported total phobia scores, than the control group. These results are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons ($\alpha = .05$) on the means involved in the interaction indicated that both noncognitive and cognitive groups reported significantly lower total phobia scores at postassessment than at pre- or intermediate assessment. Both
FIG. 13. SUBJECTS' MEAN TOTAL PHOBIA SCORE ON THE MARKS AND MATHEWS FEAR QUESTIONNAIRE AT PRE, INTER AND POST-TREATMENT
therapy groups reported significantly lower total phobia scores at intermediate assessment than at preassessment.

Results of Hypothesis Testing. Findings indicated that subjects in the two therapy groups improved significantly over the assessment sessions. The cognitive and noncognitive treatment conditions did demonstrate a significant reduction in total phobia score, however, this reduction was not significantly different from those not exposed to the therapy manipulations. Therefore, subsidiary hypothesis 2a (1) was only partially supported. The cognitive group did not demonstrate a reduction in total phobia scores, which was significantly greater than that reported by subjects in the noncognitive group. Therefore, subsidiary hypothesis 2b (1) was not supported.

Hypotheses 2ab (2): Agoraphobic Score on the Marks and Mathews Fear Questionnaire

Means and standard deviations for scores on the agoraphobic fear scale of the Marks and Mathews fear questionnaire are presented in Table 4. The mean agoraphobic fear score for each treatment group at pre, intermediate and posttreatment test session are illustrated in Figure 14. Results of a three treatments X three repeated measures ANOVA (see Table 5) yield no significant main effect for treatment group on the agoraphobia score of the fear questionnaire. However, results indicated a significant main effect for treatment session, $F(2,58) = 48.38, p< .05$, and $F(4,58) = 16.36, p< .05$.

Simple main effects analyses indicated that the agoraphobic fear scores for the noncognitive and cognitive groups differed significantly over the three assessment sessions, $F(2,58) = 45.91, p< .05$, and $F(2,58) = 38.14, p< .05$, respectively. The control group did not differ significantly over the assessment sessions. The simple main
FIG. 14. SUBJECTS' MEAN AGORAPHOBIA FEAR SCORE ON THE MARKS AND MATHEWS FEAR QUESTIONNAIRE AT PRE, INTER AND POST-TREATMENT
effects analyses conducted to determine whether the three treatment groups differed in terms of agoraphobic fear scores, at each assessment session, indicated that there were no significant differences. However, visual inspection of Figure 14, indicated that at posttest both therapy groups demonstrated a nonsignificant trend toward more reduction of self-reported agoraphobia scores, than the control group. These results are presented in Table 5.

Newman-Keuls post-hoc multiple comparisons on the means involved in the interaction indicated that both the noncognitive and cognitive groups reported significantly lower agoraphobic fear scores at postassessment than at pre- or intermediate assessment. There was no significant change from preassessment to intermediate assessment for the cognitive group on the agoraphobic fear measure. However, for the noncognitive group the subjects reported significantly lower agoraphobic fear scores at intermediate assessment than at preassessment.

Results of Hypothesis Testing. Findings indicated that subjects in the therapy groups improved significantly over the assessment sessions. The cognitive and noncognitive treatment conditions did demonstrate a significant reduction in agoraphobia score, however, this reduction was not significantly different from those reported by the control group. Therefore, subsidiary hypothesis 2a (2) was only partially supported. The cognitive group did not demonstrate a reduction in agoraphobia score, which was significantly greater than that reported by subjects in the noncognitive group. Therefore, subsidiary hypothesis 2b (2) was not supported.
The purpose of this study was to determine whether in vivo exposure treatment of agoraphobia could be made more efficient by incorporating cognitive modification techniques into the treatment. One experimental group received in vivo exposure with cognitive restructuring, and the other experimental group received in vivo exposure without cognitive restructuring. The waiting-list control group received neither in vivo exposure nor in vivo exposure + cognitive restructuring.

Review of Hypothesis Testing

The results of the present investigation clearly suggest that in vivo exposure treatment of agoraphobia could not be made more efficient by incorporating cognitive restructuring into the treatment. Multiple measures of change yielded no significant improvement in phobic symptomatology for subjects in the waiting-list control group. The lack of change in the control group contrasts with the improvement obtained in the two therapy groups. Both therapy groups were accompanied by marked and significant reduction in phobic symptomatology as measured on the following scales (a) Watson and Marks (1971) rating scale of phobic anxiety (b) Watson and Marks rating scale of avoidance, and (c) Behavior Avoidance Test. The two therapy groups also displayed a consistent but nonsignificant trend toward improvement on a number of different measures including, (a) Frequency of panic attacks (see Fig. 1), (b) State anxiety score (see Fig. 2), (c) Anxiety dimension of BSI

- 104 -
(see Fig. 3), (d) Phobic anxiety dimension of BSI (see Fig. 4), (e) Agoraphobic cognitions questionnaire (see Fig. 7), (f) Body sensations questionnaire (see Fig. 8), (g) Self-report of anxiety on BAT (see Fig. 9), (h) Global distress measure from BSI (see Fig. 12), (i) Total phobia score from the fear questionnaire (see Fig. 13), and (j) Agoraphobia score from the fear questionnaire (see Fig. 14).

Results of hypothesis testing are summarized in Table 7. Hypotheses 3a (3), 4a (1), and 4a (2) were fully supported. Results indicated that there was a significant improvement on the three relevant measures across sessions for both therapy groups, and this improvement was significantly greater than that reported by the control group at posttest. Hypotheses 1a, 2a (1), 2a (2), 3a (1), 3a (4), 3a (5), 3a (6), 5a, and subsidiary hypotheses 2a (1), 2a (2) were partially supported. Evidence suggested that on the ten relevant measures there was an improvement across sessions for both therapy groups, however, this improvement was not significantly greater than that demonstrated by the control group. There was no support for hypotheses 3a (2), as results did not suggest that the therapy groups improved across sessions on the obsessive compulsive dimension of the BSI. Hypotheses 1b, 2b (1), 2b (2), 3b (1), 3b (2), 3b (3), 3b (4), 3b (5), 3b (6), 4b (1), 4b (2), 5b, subsidiary hypotheses 2b (1), 2b (2) failed to receive any support. There was no evidence to indicate that the noncognitive or cognitive groups differed significantly from one another on any of the fourteen relevant dependent measures. Results indicated no significant difference between the therapy groups on the treatment expectations questionnaire. Therefore, subsidiary hypothesis 1 was fully supported.
Table 6

Summary of Hypothesis Testing

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Dependent Measure</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Panic Attack&quot; Hypotheses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a*</td>
<td>Frequency of Panic Attacks</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. <strong>Partial support</strong> for hypothesis.</td>
</tr>
<tr>
<td>1b</td>
<td>Frequency of Panic Attacks</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>&quot;General Anxiety&quot; Hypotheses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a (1)*</td>
<td>State Anxiety Score</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. <strong>Partial support</strong> for hypothesis.</td>
</tr>
<tr>
<td>2b (1)</td>
<td>State Anxiety Score</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>2a (2)*</td>
<td>Anxiety Dimension of BSI</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. <strong>Partial support</strong> for hypothesis.</td>
</tr>
<tr>
<td>2b (2)</td>
<td>Anxiety Dimension of BSI</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>&quot;Phobic Anxiety&quot; Hypotheses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a (1)*</td>
<td>Phobic Anxiety Dimension of BSI</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. <strong>Partial support</strong> for hypothesis.</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th>Cell</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3b (1)</td>
<td>Phobic Anxiety Dimension of BSI</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>3a (2)</td>
<td>Obsessive-Compulsive Dimension of BSI</td>
<td>No significant change for three treatment groups. No support for hypothesis.</td>
</tr>
<tr>
<td>3b (2)</td>
<td>Obsessive-Compulsive Dimension of BSI</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>3a (3)**</td>
<td>Watson &amp; Marks (1971) Scale of Phobic Anxiety</td>
<td>Significant reduction for both therapy groups, and a significant difference from control X sessions. <strong>Full support</strong> for hypothesis.</td>
</tr>
<tr>
<td>3b (3)</td>
<td>Watson &amp; Marks (1971) Scale of Phobic Anxiety</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>3a (4)*</td>
<td>Agoraphobic Cognitions Questionnaire</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. <strong>Partial support</strong> for hypothesis.</td>
</tr>
<tr>
<td>3b (4)</td>
<td>Agoraphobic Cognitions Questionnaire</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>3a (5)*</td>
<td>Body Sensations Questionnaire</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. <strong>Partial support</strong> for hypothesis.</td>
</tr>
<tr>
<td>3b (5)</td>
<td>Body Sensations Questionnaire</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>3a (6)*</td>
<td>Self-Report of Anxiety on BAT</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. <strong>Partial support</strong> for hypothesis.</td>
</tr>
<tr>
<td>3b (6)</td>
<td>Self-Report of Anxiety on BAT</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Table 6 cont'd

"Behavioral Avoidance" Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Instrument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4a (1)**</td>
<td>Watson &amp; Marks (1971) Scale of Avoidance</td>
<td>Significant reduction for both therapy groups, and a significant difference from control X sessions. <strong>Full support</strong> for hypothesis.</td>
</tr>
<tr>
<td>4b (1)</td>
<td>Watson &amp; Marks (1971) Scale of Avoidance</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>4a (2)**</td>
<td>Behavior Avoidance Test</td>
<td>Significant reduction for both therapy groups, and a significant difference from control X sessions. <strong>Full support</strong> for hypothesis.</td>
</tr>
<tr>
<td>4b (2)</td>
<td>Behavior Avoidance Test</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
</tbody>
</table>

"Global Distress" Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Instrument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5a*</td>
<td>Global Distress Measure from BSI</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. <strong>Partial support</strong> for hypothesis.</td>
</tr>
<tr>
<td>5b</td>
<td>Global Distress Measure from BSI</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
</tbody>
</table>

"Treatment Expectations" Subsidiary Hypothesis

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Instrument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1**</td>
<td>Treatment Expectations Questionnaire</td>
<td>No difference between therapy groups. <strong>Full support</strong> for hypothesis.</td>
</tr>
</tbody>
</table>
Table 6 cont'd

**Fear** Subsidiary Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Measure</th>
<th>Result Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a (1)*</td>
<td>Total Phobia Score</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. Partial support for hypothesis.</td>
</tr>
<tr>
<td>2b (1)</td>
<td>Total Phobia Score</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
<tr>
<td>2a (2)*</td>
<td>Agoraphobic Score</td>
<td>Significant reduction for both therapy groups, but no significant difference from control X sessions. Partial support for hypothesis.</td>
</tr>
<tr>
<td>2b (2)</td>
<td>Agoraphobic Score</td>
<td>No significant difference between therapy groups X sessions. No support for hypothesis.</td>
</tr>
</tbody>
</table>

* Partially supports hypothesis
** Fully supports hypothesis

---

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Comparisons with Relevant Research

This study was, to a certain extent, a replication and extension of the work of Emmelkamp et al. (1978), Emmelkamp and Mersch (1982) and Williams and Rappoport (1983) with the following design improvements:

(1) The clinical treatment time that the subjects experienced, in the present study, was increased.

(2) The assessment package was broadened to incorporate behavioral, affective, and cognitive components. One of the problems with the literature on agoraphobia is the variety of different scales used by different investigators. This variety makes it difficult to compare results between studies. In an effort to make this present study more comparable, a variety of measures have been included. However, this variety introduces the problem of redundancy of assessment instruments. Fortunately, with the use of this variety of assessment instruments it gives one the opportunity to look at the correlations between a number of measures used regularly in agoraphobia research.

(3) No specific fear was focussed on.

Notwithstanding these changes, the outcome of the present study failed to find differential treatment outcome favouring the cognitive approach. These findings are essentially the same as found in a number of other studies (e.g., Emmelkamp & Mersch,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The first published study (Emmelkamp & Mersch, 1982; n = 27), which combined cognitive restructuring with in vivo exposure indicated that at posttest, prolonged exposure in vivo and exposure in vivo + cognitive restructuring were equal and clearly superior to cognitive restructuring on phobic anxiety and avoidance measures (Watson & Marks, 1971), and on the behavioural measure (standardized behavioral avoidance test). At the 1-month follow-up, however, the differences between the treatments partly disappeared because of continuing improvement in the cognitive restructuring condition, and a slight relapse in the exposure in vivo condition. Cognitive restructuring training did not enhance the effects of exposure in vivo at any time: The combined procedure was no more effective than the exposure in vivo condition. This study used the same phobic anxiety and avoidance measures (Watson & Marks, 1971) and a similar behavioral avoidance test as used in the present study. The results on these scales from both studies were essentially the same.

In the next study Williams and Rappoport (1983) attempted to assess the viability of a combined treatment package. Agoraphobics were assigned to two conditions: (1) exposure in vivo (n = 10) and (2) exposure in vivo + cognitive restructuring (n = 10). Treatment was directed to their driving disabilities; other fears were not dealt with. Although both conditions improved on subjective anxiety, only the exposure in vivo group gained significant benefit from treatment on the behavioral measure. Since this study focussed on one specific fear the assessment instruments were for the most part different from those used in the present study. However, one instrument, the fear questionnaire (Marks & Mathews, 1979) was the same, and both therapy groups showed equivalent improvement on this scale. Because of the differences in assessment instruments used, it is difficult to
compare these studies. However, even with these differences once again the results of this study are very similar to those found in the present investigation.

Based on the last two studies and the present investigation the evidence indicates that in vivo exposure combined with cognitive restructuring procedures is not superior to in vivo exposure alone in treating agoraphobics. However, subsequent to the design of the present study several other relevant articles (Emmelkamp et al., 1986; Last et al., 1984; Mavlssakalain et al., 1983) have appeared in the literature which are worthy of closer examination.

Mavlssakalian et al (1983) investigated the impact of two different cognitive strategies (self-instructional training and paradoxical Intention) on exposure in vivo. Results of Mavlssakalian et al’s study (n= 24) indicated that at the end of treatment, paradoxical Intention plus exposure evidenced greater gains than did self-instructional training plus exposure. However, the self-instructional training condition continued to improve after the posttest, which resulted in equivalent long-term effectiveness of the two treatments. Given that an exposure only group was not included, it is impossible to determine whether the cognitive strategies enhanced the effects of exposure in vivo. This was an unfortunate omission as this study was methodologically adequate (e.g., adequate treatment time, and assessment) otherwise, and would have aided in clarifying the role of a cognitive component in improving in vivo exposure treatment for agoraphobics.

The next study which addressed the issue of efficacy of cognitive restructuring + in vivo exposure in treating agoraphobics was conducted by Last et al. (1984). The main purpose of this investigation was to assess cognitive change during behavioral and cognitive-behavioral treatment of agoraphobia. Six agoraphobics participated in a treatment program consisting of 10 sessions of in vivo exposure, with half the subjects receiving an additional cognitive
treatment component. Both treatments were administered in a multiple baseline design across subjects. The Marks and Mathews (1979) fear questionnaire and a standardized behavioral avoidance test very similar to the one used in the present study were two of the measures employed. Results on these scales, or on any other scales, showed neither treatment produced clear and consistent treatment outcome gains, or clear and consistent cognitive changes. The addition of a cognitive component to the in vivo exposure did not improve treatment outcome. One could argue that 10 sessions might not be an adequate treatment time, and that the subjects did not have enough time to learn and integrate their new cognitive skills.

The most recent study (Emmelkamp et al., 1986), examining the efficacy of adding a cognitive component to in vivo exposure treatment for agoraphobics, revealed that at posttreatment the cognitive strategies did not enhance the effects of exposure in vivo. This study was designed to investigate the differential effectiveness of self-instructional training, rational emotive therapy and prolonged exposure in vivo. In addition to the short-term effects after 3 weeks of treatment, possible delayed effects of treatments were assessed 1 month after treatment, during which period subjects received no further treatment. This was done to give subjects the opportunity to integrate and practice their cognitive strategies in the natural environment. After this treatment-free period all subjects received 3 weeks of prolonged exposure in vivo, and were reassessed to evaluate possible interactions between cognitive strategies and exposure in vivo. In sum, results of the present study indicate that exposure in vivo was superior to cognitive treatment on measures for agoraphobia. Further, there was no evidence that priming agoraphobic patients with cognitive therapy enhanced the overall effects of the exposure treatment. Again the fear questionnaire (Marks & Mathews, 1979) and a behavioral avoidance scale similar to the one used in the present study...
investigation, were used in this study. On these scales there was no evidence to indicate that the addition of a cognitive component to an in vivo exposure procedure increased the efficacy of the treatment. This last study has a number of advantages over some of the other studies reviewed, namely, the treatment time of 6 weeks (approximately 60 hours) was adequate, and the sample size ($n=39$) was the largest of any of the studies reviewed. One problem with this study was the limited cognitive assessment.

A number of the dependent measures used in each of these studies were the same or very similar to those used in the present investigation. Consistently, on these measures there was no indication that in vivo exposure + cognitive restructuring was superior to in vivo exposure alone, in treating agoraphobia. The same results were evident for the other measures. In conclusion, the results of the present study suggest that cognitive strategies do not enhance the effects of exposure in vivo, corroborating the results of Emmelkamp and Mersch (1982), Williams and Rappoport (1983), Last et al., (1984) and Emmelkamp et al., (1986).

Along with the present study, and the other studies, it seems to indicate the limited role of cognitive procedures in treatment of agoraphobia. At least, for those agoraphobics defined by the DSM III system. There may be agoraphobics with a particular set of needs which would be better served by cognitive techniques.

**Lack of Therapy Differences**

In human experiments, changes in the dependent measures often may result from characteristics of the situation or intervention that are not peculiar to the particular intervention. It is possible to conclude that something other than treatment might have
obscured the differences between the two therapy groups, thus affecting the dependent measures obtained rendering them more equivalent than different.

In treatment research, the factors that may account for change often are especially difficult to identify. However, there are at least five possible phenomena, either alone or in combination, which might be offered as an alternative explanation, for why despite the intention that therapies be different from one another, they were in fact more equivalent than different, in the present investigation. These possibilities are:

(1) That nonspecific treatment effects such as motivation, faith in treatment, credibility of treatment, demand characteristics, attributes of the therapist such as supportiveness, enthusiasm, warmth, directiveness, encouragement of risk-taking, fostering of independence, and expectations of success were equivalent across therapy groups and were stronger than treatment effects;

(2) that a common mechanism of psychological change, referred to in current social learning theory literature as “perceived self-efficacy” (Bandura, 1977), was equally responsible for enhancing psychosocial functioning “through its effects on choice behavior, effort expenditure, persistence, and self-guiding thought” in all subjects (Bandura, 1980, p. 40).

(3) that cognitive change, a more generalized phenomenon than change specifically in perceived self-efficacy, was the superior construct underlying change, and thus, differences between the therapy groups were obscured because of the overriding effect across groups of cognitive change; i.e., “I am in control, I can cope; I have
tools now" (but differences between tools or techniques were not significant);

(4) that the standardized emphasis on in vivo exposure across therapy groups, including instructions for hierarchy construction and homework assignments, therapist support, encouragement, and time allotted for group discussion on in vivo experiences, was stronger in its equivalent impact on all therapy groups than any differences in treatment. Marks' conclusion (1978) that "exposure to the feared situation in reality is the basic mechanism shared by all successful therapies", might well account for the basic finding of nonsignificance between treatments in the present investigation.

(5) that the results of the present study may not have been statistically significant but clinically significant. If one looks at the treatment efficacy one can see that within each of the experimental groups some clients improve dramatically while others changed minimally. This erratic response to therapy suggests that significant uncontrolled variables were at work making the therapy treatments an effective treatment for some clients but not for others. Some of these uncontrolled variables have been alluded to above. This variance (error variance) is directly related to statistical significance. For a given difference between groups, the larger the error variance, the less likely will the results be statistically significant (Kazdin, 1980). This variability can disturb the interpretation of findings. Because of the necessary use of statistical procedures the clinically significant findings can be hidden (Kazdin, 1980).
Potentially significant clinical differences between the treatment groups as a result are missed.

In summary, considering the potency and speculated equivalence across groups of such phenomena as (1) nonspecific treatment effects, (2) perceived self-efficacy, (3) cognitive change as a superior construct which accounts for and overrides change in other domains, (4) standardized emphasis on in vivo exposure, and (5) hidden clinical differences because of limitations with statistical procedures, it is possible that the two therapies were not different enough either to override the effects of these phenomena or to produce statistically significant differences in results between groups.

Cognitive Restructuring

An interesting finding from the present investigation was that the addition of a cognitive restructuring component to the in vivo exposure did not alter the cognitive set of the clients, as reported on the Agoraphobia Cognitions Questionnaire and the Body Sensations Questionnaire. Both therapy groups were equivalent in terms of scores on these two scales, at posttreatment assessment. This result is contrary to expectations, and several alternative hypotheses will be considered for these results. One possibility is that the particular therapist who conducted the cognitive interventions was inadequate at doing so. While therapist effects could not be tested directly since there was only one therapist in the present study, it is noteworthy that the therapist was well acquainted with cognitive techniques and that he had been using them with agoraphobic clients and other disorders for some time prior to the execution of the present investigation. In addition, the cognitive techniques used were drawn from among those most widely advocated by exponents of
cognitive therapy, and were presented enthusiastically and repeatedly as an integral part of the behavior practice.

A second possible explanation is that subjects learned the cognitive techniques but did not actually utilize them. Although this can not be directly assessed, subjects in the cognitive group condition indicated to the therapist on many occasions that they were employing the techniques and that they found them helpful. Alternatively, it may be hypothesized that subjects utilized the cognitive techniques and did lessen their destructive cognitive set, but that the cognitive measures administered were not sensitive to these changes.

Although not specifically addressed in this study, it would be interesting to evaluate the role of cognitions in the fear process. In order to accomplish this, several issues would warrant attention. First, the production of maladaptive cognitions by phobics upon confrontation with feared situations needs to be established. Second, if such cognitions typically are present their role in mediating fear, and their overall correspondence with fear reactions need to be assessed. Finally, the importance of cognitive change to clinical outcome needs to be demonstrated. Although such findings would not illuminate the causal relationship between cognitive and behavior change, such results would lend some support for a role of cognitions in the fear reduction process. The first preliminary efforts at the above tasks have been conducted (e.g. Williams & Rappoport, 1983; Last et al., 1984) but the work is a long way from complete. More adequate cognitive assessment means are necessary (Last et al., 1984).

The issue for the future appears to have less to do with whether to include cognitive variables as a focus for intervention than it does with how to measure cognitive change accurately (Last et al., 1984). The measurement of cognitive variables in agoraphobia is relatively unexplored, but it is likely to hold tremendous implications for successful
treatment of these difficult clients. Further research in this area is clearly indicated.

The results of the present investigation suggest that a combination of cognitive restructuring plus in vivo exposure is not superior to in vivo exposure by itself, for the treatment of agoraphobics. Clearly, findings obtained on the efficacy of cognitive treatment procedures are discrepant between analog studies with fearful subjects (e.g., D'Zurilla, Wilson & Nelson, 1973; Kanter & Goldfried, 1979; Meichenbaum, 1971; Meichenbaum 1972; Wein, Nelson & Odom, 1975) versus truly phobic clients such as in the present investigation. While the analog investigations cited earlier tend to support the utility of cognitive restructuring with fearful populations, results from clinical investigations show purely cognitive interventions to be inferior to a standard behavioral treatment (in vivo exposure), and to be of no additional therapeutic value as indicated in the present study or in several other studies (Emmelkamp & Mersch, 1982; Emmelkamp et al., 1986; Last et al., 1984; Mavissakalian et al., 1983; Williams & Rappoport, 1983) when combined with behavioral techniques. This discrepancy serves to underscore the difficulties often noted in generalizing results obtained from mildly fearful subjects to individuals with clinically significant phobias. However, in view of the previously phenomenological importance of cognitions in clinical phobics (e.g., Beck & Emery, 1979) this pattern of results is somewhat surprising. Since individuals with clinically relevant phobias are more likely than normal or mildly fearful individuals to generate catastrophic cognitions, and have these thoughts mediate fear and panic, it would seem reasonable to expect cognitive interventions to be most effective with these subjects.

There are several possible explanations of why cognitive interventions have been shown to be ineffective with clinical phobias. First, regardless of the specific cognitive techniques utilized, all cognitive restructuring treatment share the aim of modifying or
changing maladaptive cognitions into more productive and adaptive thoughts. However, all but two of the studies reported (Last et al., 1984; Williams & Rappoport, 1983) failed to assess whether maladaptive cognitive patterns were actually modified as a result of cognitive treatment. Thus it is unclear whether cognitive restructuring is ineffective because the modification of cognitions is unimportant or irrelevant to therapeutic success, or rather that the cognitive restructuring utilized in these studies was ineffective in achieving the goal of cognitive modification. Secondly, the effects of treatments in analog studies might be more strongly influenced than in clinical phobia trials by demand characteristics and expectancy of therapeutic gain. Thirdly, it seems probable that the intelligence of the patients in clinical trials on the average will have been lower than that of the typical subject in analog research (students). Cognitive restructuring might well be more effective with intelligent students used to thinking rationally. The degree of physiological arousal in anxiety-engendering situations, too might differ considerably for agoraphobics and for subjects in analog studies. It is quite possible that cognitive restructuring constitutes an effective form of treatment for low physiological reactors (such as the subjects of analog studies) although such treatment is less effective with high physiological reactors (such as agoraphobics). The limited usefulness of the addition of a cognitive component to in vivo behavior exposure is in agreement with previous results (Emmelkamp & Merch, 1982; Emmelkamp et al., 1986; Last et al., 1984; Mavissakalian et al., 1983; Williams & Rappoport, 1983). One possible conclusion to reach is that whereas a cognitive approach may be successful with more cognitively-based disorders such as test anxiety (e.g., Meichenbaum, 1972) or speech anxiety (e.g., Thorpe, 1975), it is simply not the treatment of choice for phobic disorders, in which the behavioral component plays a major role and in which the physiological arousal is so prominent (Rachman & Wilson, 1980).
Methodological Issues

1. Sample Size

The question that faces the researcher is "How large a sample must I have?" or put in other words, "With how small a sample is it reasonable to proceed?" A simple coping strategy answer exposed by Kraemer (1981) and Kazdin (1983) is 20: no fewer than 10 per group. Kraemer (1981) states that this number represents a sample size that:

"(a) seems acceptable in the (clinical) field at this time, (b) generally seems reasonable in those circumstances when recruitment of subjects is difficult or processing of each subjects is expensive, (c) yields reasonable power for the magnitude of clinical effects that can be achieved in this area, and also provides a reasonable balance between the cost of the research project and its power. The larger the sample size, the greater the acceptability and power, but then the larger the sample size, the less feasible the completion of the project and the greater the cost" (p. 311).

Typically the sample size of agoraphobic studies is relatively small. For example, for the studies reviewed in the Comparisons with Relevant Research section Emmelkamp et al., 1978, Emmelkamp and Mersch, 1983, Emmelkamp et al., 1986, Last et al., 1984, Mavaissakalian et al, 1983, Williams and Rappoport, 1983, reported sample sizes of 21, 27, 39, 6, 24, and 20 respectively. The sample size of the present investigation was 32.

There are a number of reasons for the limited number of subjects in the present
Investigation and in agoraphobia research, in general. Some of these reasons are outlined below:

a) In a large scale survey conducted by Doctor (Thorpe & Burns, 1983)
95.8% of their sample had consulted with a local doctor about their condition; 76.6% had also seen a psychiatrist; 16.4% had consulted a religious or spiritual healer about their problem; 9.2% had received treatment from a non-medical hypnotherapist; 3.5% had consulted a psychologist. A range of treatment had been received; 95.81% had received medication; 28.9% relaxation training; 28.3% psychotherapy/psychoanalysis, 13.5% religious faith healing; and 10.7% had received behavior therapy. As these results show, the most popular form of treatment for agoraphobics is the use of medication, and the least popular is a behavior therapy approach (e.g., in vivo exposure). This is a major limiting factor in the sample size of agoraphobic studies, which use behavior therapy. Doctor (Thorpe & Burns, 1983) also indicated that approximately 74 percent of the respondents felt they had not received adequate help for their agoraphobia. This dissatisfaction with previous treatment makes subject recruitment difficult. Doctor (Thorpe & Burns, 1983) reports that a significant number of the agoraphobics despaired nearly always or often about getting better; this is perhaps not surprising when it is considered that higher percentages had received treatment and felt that they had been inadequately helped. This despair often prevents subjects from seeking treatment.
b) For research purposes a selection criteria for agoraphobic subjects is established. This selection criteria often eliminates potential subjects. For example, in the present study subjects were rejected if the primary problem was not agoraphobia. Several subjects were eliminated as their primary problem at the time of the screening interview was seen as drug dependency (i.e., alcoholism), rather than agoraphobia.

c) Often there is limited access to the agoraphobia population. Access is limited by such factors as 1) they are currently under treatment by another professional or para-professional, 2) the agoraphobic's problem is not accurately diagnosed by professionals or para-professionals, 3) professionals or para-professionals are not willing to refer patients, and 4) the agoraphobic and/or their therapist is not aware of the existence of your treatment program. This last factor is a major problem in subject recruitment.

d) A behavior therapy form of treatment is time-consuming for the therapist. Therefore, to complete the research project in a reasonable amount of time the researcher is often willing to sacrifice power for time factors.

e) For ethical reasons it is often necessary to proceed with treatment before one obtains the desired number of subjects.

f) Subject attrition is a common problem with agoraphobic studies. This issue will
be addressed at greater length in a later section.

The sample size of the present investigation is larger than the typical agoraphobic study, or at least larger than the average of those studies reviewed in the Comparisons with Relevant Research section. It also surpasses the minimum requirements stated by Kraemer (1981) and Kazdin (1983). Although it would have been preferable to have a larger sample size, the present size provides “reasonable power”, and is adequate considering the difficulties outlined above.

2. Subject Attrition

The cost of high attrition or differential attrition in an experiment can be great in drawing conclusions about therapy outcome. Substantial attrition may threaten the internal validity of an experiment (Kazdin, 1983). Although there is no definite criterion for what constitutes “substantial”, extreme cases are fairly obvious.

In the present study, one subject failed to complete the noncognitive group, two the cognitive group and three the waiting-list control group. The overall attrition rate was 15.8%. Emmelkamp et al., 1978, Emmelkamp and Mersch, 1983, Emmelkamp et al., 1986, Mavisakian et al., 1983, and Williams and Rappoport, 1983 reported attrition rates of 12.5, 7.4, 9.3, 8.3, and 16.7 %, respectively. The attrition rate in the present investigation was slightly higher than that in the studies reported above. However, none of these studies had a control group. Attrition is typically highest in a control group and particularly in a waiting-list control group (Kazdin, 1983). Overall, the attrition rate and the differential attrition rate, in the present investigation, were not high enough to be
defined as substantial. Consequently, the attrition rate in the present investigation was not high enough to represent a threat to internal validity.

3. Sensitivity of Dependent Measures

Another factor, which might have contributed to the lack of statistically significant differences between the treatment groups, is that certain dependent measures used in the present study might not have been sensitive enough to detect and/or measure differential treatment outcomes with an agoraphobic population. The only exploratory attempt to examine the relative sensitivity of different assessment instruments was conducted by Mavissakalian and Barlow (1981). They indicated that, “In vivo performance measures showed the best ability to discriminate between treatments, followed by self-report of the intensity of the main phobia. Direct behavioral measures also showed the best ability to identify change from the beginning to the end of a particular treatment” (p. 49).

This report is interesting in light of the findings of the present investigation. The two therapy groups displayed a marked and significant reduction in phobic symptomatology as measured on the Behavior Avoidance Test. Mavissakian et al’s (1981) remarks lend support to the idea that the behavioral measure was a sensitive measure of change and that the therapy groups were different from the control group. The behavioral measure along with the rating scale of phobic anxiety and avoidance might have been more sensitive to treatment change than the other measures used in the present study.

4. Types of agoraphobia

Phares (1967) presents a general critique of conventional practices in psychiatric diagnosis:
1. People within the same diagnostic category are notoriously dissimilar from another.

2. Psychiatrists have never been able to agree amongst themselves as to who belongs in which category.

These complaints originally directed at the diagnostic system employed by psychiatrists can also be directed at the use of the label "agoraphobia":

1. People who are diagnosed as agoraphobia are often dissimilar from one another (e.g., Chambless & Goldstein, 1982)

2. Individuals working in the field of agoraphobia have had great difficulty in defining the term agoraphobia (e.g., Chambless & Goldstein, 1982).

People with "agoraphobia" do not have the unitary psychological condition implied by the label, but suffer from a heterogeneous collection of phobias and a varied assortment of other psychological problems (Chambless & Goldstein, 1982). "This marked heterogeneity renders conventional psychodiagnostic modes of conceptualizing agoraphobia inappropriate and dysfunctional for the conduct of treatment-oriented research." (Hersen, Eisler & Miller, 1985, p. 110)

Several workers in the field of agoraphobia have established their own subtypes of agoraphobia. For example, Chambless and Goldstein (1978) have identified two types of
Agoraphobia; complex and simple. Another common subtyping is acute and chronic agoraphobia (Johnson, 1985). At present there is no empirical evidence to support the existence of either of these two systems of subtyping. However, if these different subtypes of agoraphobia do exist then what are the implications for the present research. Perhaps simple acute agoraphobics respond better to a cognitive component behavioral treatment? There is no easy way to assess this. The basic issue however, is that the disagreement or the confusion in proper definition of the term agoraphobia may have confounding effects on the results of research and may threaten the external validity of agoraphobia research, including this present investigation. Until there is some clarification of the term 'agoraphobia' then this problem will continue to exist.

Treatment and Theoretical Implications

Several different evaluation strategies are available when examining the efficacy of a psychological treatment. The present investigation utilizes a constructive treatment strategy (Kazdin, 1980). This type of strategy refers to developing a treatment package by adding components to enhance therapy. With the constructive approach one begins with a basic treatment component. In the case of the present study the basic package was in vivo exposure. Research is then conducted that adds various ingredients to the basic treatment to determine whether treatment effects are enhanced. The added component, in the present study, was cognitive restructuring. Essentially the constructive treatment approach addresses the question: What can be added to the basic treatment to make it more effective? The advantage of the constructive treatment approach is that it empirically establishes a treatment package. The empirical development of a treatment package is rare in the field of clinical psychology where treatments tend to proliferate endlessly. Most of the treatments...
that develop have no established body of empirically validated information to argue for their use. Rather, proponents advance particular techniques based largely upon clinical practice, uncontrolled observations, and anecdotal material. Another distinguishing feature of the constructive treatment approach is that it gives the greatest priority to outcome.

Understanding the mechanisms of treatment gives way in priority to therapeutic outcome. Indeed, the constructive approach has relatively little to say about theory and this is the main disadvantage of this particular approach (Kazdin, 1980).

In terms of therapy implications, the results of the present study, have shown that a form of cognitive restructuring combined with in vivo exposure does not enhance the effectiveness of the in vivo component for the treatment of agoraphobia. Although the approach used has relatively little to say about theory, it is interesting that the results of the present investigation can be reconciled by Bandura's (1977) self-efficacy theory. This theory holds that fear is indeed rooted in thought, but that the best way to change thought is through performance-based treatments (e.g., in vivo exposure), which give clients firsthand evidence that they can function effectively. In contrast, verbal treatments such as cognitive therapy provide weak evidence of personal capability and are therefore less influential in changing thought and behavior. If self-efficacy theory is correct, then agoraphobia would more effectively be treated by helping clients change what they do than by helping them through verbal means such as cognitive therapy, change what they think. The results of the present study support this position.

Implications for Future Research

The failure of this study to find differential treatment outcome favoring the treatment with the additional cognitive component parallels that evidenced in previous
research (Emmelkamp & Merck, 1982; Emmelkamp et al., 1986; Last et al., 1984; Mavissakalian et al., 1983; and Williams & Rappoport, 1983). However, neither these studies nor the current investigation are complete tests of the effectiveness of the addition of a cognitive component to in vivo exposure treatment for agoraphobics, since neither the full range of cognitive techniques available (e.g., paradoxical intention) nor the depth in which they may be applied (e.g., individual therapy) was fully explored. Future studies need to be conducted to explore these issues.

Given the failure of cognitive treatments with agoraphobics, in the present study and elsewhere, some would argue against conducting any further research, however, it appears that several important issues remain to be explored, the results of which may have a profound impact on our current understanding and delivery of treatment to agoraphobics. The development and utilization of reliable and valid cognitive measures are critical to evaluation of the efficacy of cognitive treatments. As such, the utility and psychometric properties of more structured measures (e.g., self-efficacy ratings, attitudinal scales), beyond the one used in the current study, as well as specific cognitive measures in future investigations will aid in determining whether, and which cognitive therapies actually engender constructive cognitive change. Such studies must be conducted before cognitive techniques can be dismissed as ineffective.

Even if these cognitive procedures should eventually be seen to be ineffective, cognitive measurement should be used to assess cognitive changes during behavioral, exposure-based treatment of agoraphobics. Although exposure treatments at this point in time seem to be the treatment of choice for agoraphobia, the process or mechanism of action by which exposure works remains unclear. Systematic testing of alternative hypotheses,
Including cognitive change, may shed light on this complicated issue and aid in increasing the efficacy of present treatments.

Investigation of relationships between patient characteristics and response to particular treatments is needed to enable prescriptive recommendations to be made for the individual agoraphobic. For example, it would be interesting to look at the differential effect of cognitive treatment with high and low physiological reactors and see the result, or if a valid cognitive instrument becomes available it might be possible to divide patients into those who are in need of some form of cognitive therapy and those who are not. Such research would enable us to derive prognostic indicators of treatment choice and subsequent treatment success.

Another topic of future research is the definition of agoraphobia. Presently, research findings are clouded by the inadequacy of the definition of agoraphobia and until there is a more adequate one this problem will persist.

Results of the present investigation suggest a high correlation between outcome measures, however, because of the limited sample size these results must be interpreted with extreme caution. There is a real need for researchers in the field of agoraphobia to examine the outcome measures they use, and eventually to agree on adequate outcome measures. This would allow for a more direct comparison of results between publications. There is still an urgent need to develop comprehensive questionnaires which will tap the cognitive, behavioral and physiological response systems of agoraphobics.

Emphasis in future research should be placed on determining a comprehensive range of problematic situations in which agoraphobics experience particular difficulties in a given environment. For example, many agoraphobic studies include a behavioral test, and it is assumed that this is an adequate measure of behavioral avoidance. Without going into the
methodological problems of behavior avoidance tests (see Kazdin, 1980, for more detailed criticisms), it is assumed that if subjects change their avoidant behavior on a behavior avoidance test (or to questionnaires for that matter) that there behavior in a natural setting will also be changed. However, this is not necessarily true (Kazdin, 1980). Thus, behavioral tests will be of little value unless they correlate highly with the patients' reactions to the problematic situations encountered in the natural environment. It is perhaps true, that too much research in the past has tended to employ statistical definitions of treatment effectiveness and outcome criteria which have little demonstratable treatment effectiveness; as suggested earlier 'statistical significance does not imply clinical utility', or 'statistical nonsignificance does not imply clinical uselessness'. In addition to measuring what subjects can do in the real life phobic situation, it is important in terms of clinical outcome to assess the effects of treatment on subjects' day to day activities. As Mathews et al (1981) point out, "A treatment that enables a patient to produce heroic performances but does not affect daily life is of limited value" (p. 25). Thus it is suggested that future research use outcome measures which are closely tied to the in vivo behaviors which the subject wishes to change, rather than to the behaviors the researcher wishes to see change.

As suggested earlier the results of the present study may have been confounded by nonspecific treatment effects such as demand characteristics, credibility of treatment, motivation of clients, and attributes of the therapist. It is clear that a fundamental problem of behavior research in general, is a need to disentangle these confounding effects from the effects of the treatment procedures; most of the studies in agoraphobia, including the present one, have failed to rule out these differential effects (Kazdin, 1980). Future investigations need to identify sources of non-specific treatment effects which may affect the
various parameters of behavior and to ascertain ways in which they may be controlled.

Bandura (1977) has stressed the importance of assessing the patient's sense of personal effectiveness in dealing with a phobic situation. Self-efficacy scales of the type used in Bandura's (et al., 1980) experimental treatment of eleven agoraphobics would have been a useful addition to the present study. Initial attempts to use these scales in the present study were negated by the complexity of the scales and clients inability to respond to them in a meaningful way. Efforts to clarify these scales would make them more useful in the future.

The primary aim of the present study was not to test specific hypotheses concerning the various components of the in vivo exposure or in vivo exposure + cognitive restructuring treatment, but rather to compare different treatment "packages". In actuality each of the therapy treatments involves many different components (e.g., group support, homework assignments, relaxation training, etc.). The design of the study prevented a determination of the relative contributions of each of these different components to treatment outcome. Further research is needed to evaluate the relative effects of these different components.

Finally, the present study could be replicated with a larger number of subjects. This increase in number of subjects would increase the power. This increase in sample size would also allow a more adequate comparison between the different outcome measures used in the study.

Summary

Multiple measures of change yielded no significant improvement in phobic symptomatology for subjects in the waiting-list control group. The lack of change in the
control group contrasts with the improvement obtained in the two therapy groups. Both therapy groups were accompanied by marked and significant reduction in phobic symptomatology as measured on the following scales (a) Watson and Marks (1971) rating scale of phobic anxiety, (b) Watson and Marks rating scale of avoidance, and (c) the Behavior Avoidance Test. The two therapy groups also displayed a consistent but nonsignificant trend toward improvement at posttest on ten of the eleven remaining variables. There was no evidence of differences between the two therapy groups on any of the dependent measures. The results of the present study clearly suggest that in vivo exposure treatment of agoraphobia could not be made more efficient by incorporating cognitive restructuring into the treatment.

The results of the present study essentially corroborated the findings of Emmelkamp and Merch (1982), Emmelkamp et al. (1986), Last et. al. (1984), Mavissakalian et. al. (1983), and Williams and Rappoport (1983). Comparisons with relevant research, reasons for the lack of therapy differences, methodology concerns, theoretical implications and suggestions for future research were discussed.
REFERENCES


Derogatis, L.R. *The brief symptom inventory - BSI*, 1975. (available from the author)

Derogatis, L.R. *SCL-90 administration, scoring and procedures manual - I*. Clinical psychometrics research unity, John Hopkins University School of Medicine, 1977.


Johnson, K. Personal communication, October 1985.


Thorpe, G.L. Desensitization behavior rehearsal, self-instructional training and placebo effects on assertive refusal behavior. European Journal of Behavior Analysis and Modification, 1975, 1, 30-44.


APPENDIX A

Personal Data Questionnaire
Personal Data Questionnaire

Purpose of this questionnaire:

The purpose of this questionnaire is to obtain a comprehensive picture of your background. In scientific work, records are necessary, since they permit a more thorough dealing with one's problems. By completing these questions as fully and as accurately as possible, you will facilitate your therapeutic program.

It is understandable that you might be concerned about what happens to the information about you, because much or all of this information is highly personal. All records are strictly confidential. No outsider is permitted to see your record without your permission.

Date: __________________________

I. General Data

Name: __________________________ M _____ F _____

Address: _________________________________________________________________

Telephone: (day) ______________________ (evening) ______________________

Age: ________ Occupation: _____________________________________________

Marital Status: Single, Married, Divorced, Widowed, Re-married, Separated
(Circle one)

Length of present marriage: ______________________

Length of previous marriage: ______________________

With whom are you now living? ____________________________________________

By whom were you referred? ________________________________________________

II. Educational Data

1. List the highest grade you completed in school. ______________________

2. Are you aware of any difficulties in paying attention, in understanding written material or instruction, or in hearing or reading? If so, please explain. ______________________

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
III. Medical Data

Date of Birth ____________________ Place of Birth ____________________

Mother's condition during pregnancy (as far as you know): ____________________

List major illnesses during childhood and note complications: ____________________

List major illnesses during adolescence and note complications: ____________________

Height: ____________________ Weight: ____________________

List surgical operations along with age at the time: ____________________

List serious accidents: ____________________

List hospitalizations, complications and length of confinement: ____________________

Have you had a physical examination recently? Yes _____ No _____

If yes, briefly state the results of this examination: ____________________

List drugs you are taking, their dosages, how often, and why you take them. ____________________

Do you suffer from diabetes, hypertension, or hypoglycemia? ____________________

Is there a history of diabetes, hypertension, hypoglycemia, in your family? ____________________

Has any member of your family suffered from alcoholism, epilepsy, a nervous breakdown, depression, or any other form of mental or emotional illness? ____________________
IV. Phobic Data

1. Give the date of onset of your phobic condition: ____________________________

2. Where did your phobias begin: ____________________________
   ____________________________
   ____________________________

3. Explain your circumstances at the time of onset. Note any stress or instability in marriage, family, or occupation, financial problems, changes in residence, separation from loved ones, death of a loved one, etc.: ____________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________

4. Did your problem start with a sudden panic attack?
   Yes ________ No ________

5. Do you currently suffer from panic attacks?
   Yes ________ No ________
   a) If yes, approximately how often? (check one)
      Once a day _____ More than once a day_____
      Once a week_____ More than once a week_____
      Once a month____ More than once a month____
      Less than once a month ______
   b) If yes, fill in Symptom Scale on the next page.

6. How has your condition changed since the original onset? ____________________________

7. Have you had symptoms similar to these prior to your present difficulty? Which ones? ____________________________
   ____________________________
   ____________________________
   ____________________________
Symptom Scale

Some of the following symptoms occur during a panic attack. Please evaluate them according to their effect when you are having an attack and indicate your answers on the scale 1 to 5 below. Add comments if this will help describe your panic attacks.

1. No effect  4. Strong effect
2. Mild effect  5. Severe effect
3. Medium effect

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fluttery stomach</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sweaty Palms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Warm all over</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Rapid or heavy heartbeat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Tremor of the hands</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Weak or rubbery knees or legs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Shaky inside and or out</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Dry mouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Lump in throat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Tightness in chest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Hyperventilation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Stiff neck</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Headache</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Dizzy or light-headed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Nausea or vomiting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Diarrhea</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. A feeling of being unable to move</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. A feeling of having to run or get out</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: _______________________________________________________

______________________________________________________________

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
8. Please rate the following questions:

1. All of the time  4. Once in a while
2. A great deal of the time  5. Never
3. Sometimes

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Are you bothered by feelings of anxiety i.e., subjective tension and physical feelings of nervousness?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Do unpleasant or negative thoughts keep going over and over in your mind?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Do you worry about &quot;losing control&quot;?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Does the anticipation of the situations you fear bother you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Do you try to &quot;fight&quot; anxiety?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Are you bothered by a fear or dread of the &quot;next&quot; panic attack?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
9. Present level of functioning

<table>
<thead>
<tr>
<th>are you able to</th>
<th>Yes</th>
<th>No</th>
<th>Yes, if accompanied by: (indicate person)</th>
<th>Yes, if (indicate condition, e.g. close to home, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Walk alone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Shop alone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a. Drive alone (driver)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3b. Drive (as passenger)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a. Attend theater</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4b. Attend movies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4c. Attend church/synagogue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4d. Eat in a restaurant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Stay home alone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Take an elevator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Take a bus or subway</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Take a train</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Take a plane</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
V. Occupational Data

Are you working at present? Yes _____ No ____
If yes, what sort of work are you doing? ______________________________
What kinds of jobs have you held in the past? __________________________
Does your present job satisfy you? Yes _____ No ____
If no, in what ways are you dissatisfied? ______________________________
Do you have occupational ambitions: Yes _____ No ____
If yes, please explain: _____________________________________________

VI. Marital Data

How long did you know your marriage partner before engagement? ______
Husband's/wife's age: _____ Husband's/wife's occupation _______________
Describe in your own words the personality of your husband or wife:
_________________________________________________________________
In what areas is there compatibility? _________________________________
In what areas is there incompatibility? _______________________________

How many children have you? _____ Do any of your children present
special problems? ________________________________________________
Give details of any previous marriage: ________________________________
_________________________________________________________________
VII. Family Data

a) Father

Living or deceased? ________ If deceased, give your age at the time of his death: ________________________________

If alive, give father's present age and occupation: __________________________

Describe his health: ____________________________________________

In what ways were you punished by your father as a child? __________

Give description of your father's personality and his attitudes toward you: ________________________________________________________

b) Mother

Living or deceased? ________ If deceased, give your age at the time of her death: ________________________________

If alive, give mother's present age and occupation: __________________________

Describe her health: ____________________________________________

In what ways were you punished by your mother as a child? __________

Give description of your mother's personality and her attitudes toward you: ________________________________________________________

c) Siblings

List names and ages of brothers and sisters: __________________________

Relationship with brothers and sisters: __________________________
Give your impression of the home atmosphere in which you grew up, describing the state of compatibility between your parents and between your parents and the children: __________________________

VIII. Life Style Data

1. What are your current interests, hobbies and activities? __________________________

2. How do you spend most of your leisure time? __________________________

3. To what extent have your difficulties inhibited your social life? __________________________

4. Do you talk about your condition with friends and or family members? __________________________

5. Do your phobic problems interfere with the development of close relationships? __________________________

6. Has your condition prevented your spouse from occupational advancement or your family from mobility? __________________________

IX. Treatment Data

1. Are you currently or have you in the past received professional help for your condition? 
   Yes ______ No ______

   If yes, please describe when this was, what kind of therapy, how long was this treatment, and how much benefit did you derive from this treatment? __________________________
2. Have you received medication for this condition?  
   Yes ________ No _________  
   If yes, please describe when this was, what kind of medication, 
   how long it was taken for, the dosage, and how much benefit was 
   derived? ___________________________________________________________  
   ___________________________________________________________  

3. Have you tried self-help by reading psychology books?  
   Yes ________ No _________  
   If yes, what did you read and did it help? __________________________ 
   ___________________________________________________________  

4. When, and under what circumstances, did the word "agoraphobia" 
   become meaningful to you? _________________________________________  
   ___________________________________________________________  

5. Many people with agoraphobia are dependent on someone. If this 
   applies to you, please explain the nature and extent of your 
   dependency, and the attitude of this person toward your problem. 
   If this is other than your spouse give spouses attitude also.  
   ___________________________________________________________  
   ___________________________________________________________  
   ___________________________________________________________  

6. List your specific behavioural goals in order of their importance 
   to you; i.e., I would like to be able to:  
   1) ___________________________________________________________  
   2) ___________________________________________________________  
   3) ___________________________________________________________  
   4) ___________________________________________________________  
   5) ___________________________________________________________  

7. List benefits you hope to obtain from therapy:  
   1) ___________________________________________________________  
   2) ___________________________________________________________  
   3) ___________________________________________________________  
   4) ___________________________________________________________  
   5) ___________________________________________________________  

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
8. Please indicate any time(s) which are absolutely impossible for you to attend treatment sessions:

<table>
<thead>
<tr>
<th>Day</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Evening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Morning</td>
<td>Afternoon</td>
<td>Evening</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Morning</td>
<td>Afternoon</td>
<td>Evening</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Morning</td>
<td>Afternoon</td>
<td>Evening</td>
</tr>
<tr>
<td>Thursday</td>
<td>Morning</td>
<td>Afternoon</td>
<td>Evening</td>
</tr>
<tr>
<td>Friday</td>
<td>Morning</td>
<td>Afternoon</td>
<td>Evening</td>
</tr>
</tbody>
</table>

9. Treatment time could be shortened from 24 weeks, but this would entail you coming for therapy for more than once a week. Could you come twice a week?

Yes ________ No ________

10. Do you anticipate any scheduling difficulties? ________

11. As long as the time is suitable, will you have transportation to every treatment session? ____________________________
APPENDIX B

Client Contract
Client Contract: Agoraphobia Group

Purpose: To ensure maximal attendance at Agoraphobia Group sessions, to accept responsibility for my actions, to accept responsibility to the therapist and group members, and to increase the probability of compliance with goals which are established to alleviate agoraphobia.

Having worked extensively with the complex problem of agoraphobia in the past, it has been found to be necessary to implement the following.

I, ______________________, while a client/patient in the treatment programme for agoraphobia agree to comply with the following.

i) I will make every effort to attend as many sessions as possible as I recognize that my participation in the programme is essential in order to overcome the difficulty.

ii) If, however, I am unable to attend, I will call and speak to Mr. Steggles or leave a message with the secretary for him prior to the session indicating my inability to participate on that day.

iii) I am aware that failure to make the therapist and other group members aware of my lack of attendance is irresponsible on my part and is disruptive to the group procedure. As a result, I accept that failure on two occasions to call in prior to non-attendance will result in me being asked to voluntarily withdraw from the group (subject to the decision of the therapist and group members).

iv) Knowing that group goals and homework assignments (e.g., reading, behavioural assignments), while sometimes difficult, are in the best interest of alleviation of the agoraphobia, I agree to put forth my best effort to complete all group and individually assigned tasks. If I do not complete them, I agree to discuss with the group my rationale for not doing so.

Having read and understood the above, I will abide by the guidelines of this agreement.

Signature of Group Member

Signature of Therapist

Date: ___________________________
APPENDIX C

Informed Consent Form
INFORMED CONSENT FOR AGORAPHOBIC VOLUNTEER SUBJECTS IN THE RESEARCH PROGRAM

You are being asked to participate in a research program designed to compare acceptable behavioral procedures used in the treatment of agoraphobia. The treatments will focus on understanding and learning how to control your phobic anxiety, and acquiring the skills necessary to overcome your tendency to avoid certain feared situations. It is hoped that you will benefit from the program by developing the ability to control your anxiety and to enter currently avoided situations.

Therapy will take place in groups of eight to ten individuals. Sessions, approximately 2 hours in length, will be conducted once weekly for 22 weeks. There will be no charge to participants in this program.

The therapist will be available to discuss the results of the program with you, and to answer any questions you may have regarding treatment procedures, upon completion of the program.

You are free to withdraw consent and to discontinue your participation (see Client Contract) in the treatment program at any time by notifying the researcher. If you understand and are willing to participate in this program, please sign below on the designated line.

Thank you for your cooperation,

________________________________________
(Signed Consent)

________________________________________
(Date) (Print Name)
APPENDIX D

Advertisement for Agoraphobia

Treatment-Research Program

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
AGORAPHOBIA CAN BE TREATED

Mr. S. Steggle, M.A., a Psychologist at the Foothills Hospital, is looking for agoraphobics to become involved in a treatment-research programme (Agoraphobia is a fear of public places, a recurrence of anxiety experienced by people in common situations such as walking, driving, shopping, eating in restaurants, attending meetings, etc.).

The treatment programme will be 24 weeks in duration and is of no charge to participants. A screening interview will be utilized to confirm an accurate diagnosis of agoraphobia.

For further information, please telephone Mr. S. Steggle, Dept. of Psychosocial Resources, Foothills Hospital.

270-1732
APPENDIX E

Therapist's Manual: In Vivo Exposure
Due to the length of the Therapist's Manual: In Vivo Exposure (in excess of 100 pages), this manual has been attached in a separate section.
APPENDIX F

Therapist's Manual: Cognitive Restructuring +

In Vivo Exposure
Due to the length of the Therapist's Manual: Cognitive Restructuring + In Vivo Exposure (in excess of 100 pages), this manual has been attached in a separate section.
APPENDIX G

Frequency of Panic Attacks
Have you suffered from acute attacks of panic, anxiety, palpitations, breathlessness, sweating or trembling for no obvious reason during the past 7 days? (Do not include persistent background tension or your phobias).

Using the scale below circle the appropriate number.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all</td>
<td>A little: mild panic, or a few attacks</td>
<td>to some extent: moderate panic, several attacks</td>
<td>markedly: severe panic, or frequent attacks</td>
<td>very much indeed: very severe panic, or very frequent attacks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX H

State-Trait Anxiety Inventory
SELF-EVALUATION QUESTIONNAIRE

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME_________________________________________________________ DATE ___________

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

1. I feel calm ........................................................................................................... 0 0 0 0
2. I feel secure ........................................................................................................... 0 0 0 0
3. I am tense ............................................................................................................. 0 0 0 0
4. I am regretful ....................................................................................................... 0 0 0 0
5. I feel at ease ......................................................................................................... 0 0 0 0
6. I feel upset .......................................................................................................... 0 0 0 0
7. I am presently worrying over possible misfortunes ........................................ 0 0 0 0
8. I feel rested ......................................................................................................... 0 0 0 0
9. I feel anxious ....................................................................................................... 0 0 0 0
10. I feel comfortable .............................................................................................. 0 0 0 0
11. I feel self-confident .......................................................................................... 0 0 0 0
12. I feel nervous ..................................................................................................... 0 0 0 0
13. I am jittery .......................................................................................................... 0 0 0 0
14. I feel "high strung" ............................................................................................ 0 0 0 0
15. I am relaxed ....................................................................................................... 0 0 0 0
16. I feel content ..................................................................................................... 0 0 0 0
17. I am worried ....................................................................................................... 0 0 0 0
18. I feel over-excited and "rattled" ........................................................................ 0 0 0 0
19. I feel joyful ....................................................................................................... 0 0 0 0
20. I feel pleasant .................................................................................................... 0 0 0 0

CONSULTING PSYCHOLOGISTS PRESS
577 College Avenue, Palo Alto, California 94306

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
APPENDIX I

Brief Symptom Inventory
Below is a list of problems and complaints that people sometimes have. Read each one carefully, and select one of the numbered descriptors that best describes HOW MUCH DISCOMFORT THAT PROBLEM HAS CAUSED YOU DURING THE PAST INCLUDING TODAY. Place that number in the open block to the right of the problem. Do not skip any items, and print your number clearly. If you change your mind, erase your first number completely. Read the example below before beginning, and if you have any questions please ask the technician.

### EXAMPLE

HOW MUCH WERE YOU DISTRESSED BY:

<table>
<thead>
<tr>
<th>Descriptors</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Not at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 A little bit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Moderately</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Quite a bit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Extremely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Answer**

#### HOW MUCH WERE YOU DISTRESSED BY:

1. Nervousness of shakiness inside
2. Faintness or dizziness
3. The idea that someone else can control your thoughts
4. Feeling others are to blame for most of your troubles
5. Trouble remembering things
6. Feeling easily annoyed or irritated
7. Pains in heart or chest
8. Feeling afraid in open spaces
9. Thoughts of ending your life
10. Feeling that most people cannot be trusted
11. Poor appetite
12. Suddenly scared for no reason
13. Temper outbursts that you could not control
14. Feeling lonely even when you are with people
15. Feeling blocked in getting things done
16. Feeling lonely
17. Feeling blue
18. Feeling no interest in things
19. Feeling fearful
20. Your feelings being easily hurt
21. Feeling that people are unfriendly or dislike you
22. Feeling inferior to others
23. Nausea or upset stomach
24. Feeling that you are watched or talked about by others
25. Trouble falling asleep
26. Having to check and doublecheck what you do
27. Difficulty making decisions
28. Feeling afraid to travel on buses, subways, or trains
29. Trouble getting your breath
30. Hot or cold spells
31. Having to avoid certain things, places, or activities because they frighten you
32. Your mind going blank
33. Numbness or tingling in parts of your body
34. The idea that you should be punished for your sins
35. Feeling hopeless about the future
36. Trouble concentrating
37. Feeling weak in parts of your body
38. Feeling tense or keyed up
39. Thoughts of death or dying
40. Having urges to beat, injure, or harm someone
41. Having urges to break or smash things
42. Feeling very self-conscious with others
43. Feeling uneasy in crowds
44. Never feeling close to another person
45. Spells of terror or panic
46. Getting into frequent arguments
47. Feeling nervous when you are left alone
48. Others not giving you proper credit for your achievements
49. Feeling so restless you couldn't sit still
50. Feelings of worthlessness
51. Feeling that people will take advantage of you if you let them
52. Feelings of guilt
53. The idea that something is wrong with your mind

---

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The Brief Symptom Inventory (BSI) is essentially the brief form of the Symptom Checklist-90-R. Consequently, the SCL-90-R deserves a brief description. The SCL-90-R is a 90-item self-report symptom inventory which was developed by the Clinical Psychometrics Research Unit, and designed to primarily reflect current psychological symptom patterns of psychiatric and medical patients. A preliminary version of the scale was introduced by Derogatis and his colleagues (Derogatis, Lipman, & Covi, 1973) and, based on early clinical experience and psychometric analyses, was modified and validated in the present revised form (Derogatis, Rickels, & Rock, 1976). A study conducted by Edwards et al. (1978), which compared five major adjustment scales for their utility in assessing patient groups, found that the SCL-90-R was "by far the most reliable instrument and thus the most sensitive for assessing individual patient change" (Edwards et al., 1978). The SCL-90-R possessed almost perfect test-retest reliability with the coefficient value of .939 being very close to the internal consistency of .953.

As stated earlier, the BSI is the brief version of the SCL-90-R. It is comprised of 53 items designed to reflect the psychological symptom patterns of psychiatric and medical patients. Each item is rated on the same five-point distress scale (0 through 4) as is used with the SCL-90-R, ranging from "not at all," at one poll to "extremely" at the other. The BSI, like the SCL-90-R is scored and interpreted in terms of nine primary
symptom dimensions and three global indices of distress. It is admin-
istered with a time set reference given to the patient, which in most
cases, as in this study, is seven days including today. Correlations
between the symptom dimensions scores of the BSI and the SCL-90-R,
based on a sample of 564 psychiatric outpatients, were very high,
ranging from .92 to .98, thus confirming the notion that the BSI is a
valid measure of the symptom constructs. Since the BSI requires only
half the time of the SCL-90-R to complete, and because the assessment
battery in this study was felt to be quite lengthy, the BSI rather than
the SCL-90-R was used as a time-saving device, as protection against
the possibility of tedium or fatigue during the assessment period.
For further information on the reliability and validity of the SCL-90-R
and the BSI, the reader is referred to the SCL-90-R Manual (Derogatis,
1977).
APPENDIX J

Phobic Avoidance and Anxiety
Below is a rating scale. Listed are six commonly feared situations. Under the word AVOIDANCE in the spaces provided write the number from the rating scale below which best indicated how much you tend to avoid the feared situation.

**AVOIDANCE SCALE**

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>I never avoid this situation</td>
<td>I hesitate to enter this situation, but rarely avoid it</td>
<td>I sometimes avoid this situation</td>
<td>I usually avoid this situation</td>
<td>I always avoid this situation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AVOIDANCE**

<table>
<thead>
<tr>
<th></th>
<th>Walking alone</th>
<th>Shopping alone</th>
<th>Driving alone</th>
<th>Passenger in a Car</th>
<th>Public Places (Theater, church, restaurant, etc.)</th>
<th>Staying at Home Alone</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ANXIETY**

Now under the word ANXIETY write the number from the rating scale below which best describes how much anxiety you tend to experience in the feared situation.

**ANXIETY SCALE**

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>No anxiety</td>
<td>Medium</td>
<td>Moderate</td>
<td>Marked</td>
<td>Severe</td>
<td>Extreme</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panic</td>
<td>Panic</td>
<td>Panic</td>
<td>Panic</td>
<td>Panic</td>
<td>Panic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX K.

Agoraphobic Cognitions Questionnaire and
Body Sensations Questionnaire
Agoraphobic Cognitions Questionnaire

This questionnaire has two parts.

Below are some thoughts or ideas that may pass through your mind when you are nervous or frightened.

1. Indicate how often each thought occurs when you are nervous. Rate from 1-5 using the scale below.
   1. Thought never occurs
   2. Thought rarely occurs
   3. Thought occurs during half of the times I am nervous
   4. Thought usually occurs
   5. Thought always occurs when I am nervous

2. Circle the three ideas which occur most often when you are nervous.

   _________ I am going to throw up
   _________ I am going to pass out
   _________ I must have a brain tumor
   _________ I will have a heart attack
   _________ I will choke to death
   _________ I am going to act foolish
   _________ I am going blind
   _________ I will lose control of my bladder or bowels
   _________ I will hurt someone
   _________ I am going to go crazy
   _________ I am going to scream
   _________ I am going to babble or talk funny
   _________ I will be paralyzed by fear
   _________ Other ideas not listed (Please describe and rate them)

Name: ____________________________
Body Sensations Questionnaire

1. Below is a list of specific body sensations that may occur when you are nervous or in a feared situation. Please mark down how afraid you are of these feelings. Use a five point scale from not worried to extremely frightened. Only rate sensations you have personally experienced.

1. Not frightened or worried by this sensation
2. Somewhat frightened by this sensation.
3. Moderately frightened by this sensation.
4. Very frightened by this sensation.
5. Extremely frightened by this sensation.

2. Circle the three sensations which you find most difficult in your life. These feelings would be the frightening feelings which occur most frequently.

1. Heart palpitations
2. Pressure of a heavy feeling in chest
3. Numbness in arms or legs
4. Tingling in the fingertips
5. Numbness in another part of the body
6. Feeling short of breath
7. Dizziness
8. Blurred or Distorted vision
9. Nausea
10. Having "butterflies" in your stomach
11. Feeling a knot in your stomach
12. Having a lump in your throat
13. Wobbly or rubbery legs
14. Sweating
15. A dry throat
16. Feeling disoriented
17. Feeling disconnected from your body: Only partly present.
18. Other _____________________________
   (Please describe) _____________________________

Name: _____________________________
APPENDIX L

Behavioural Avoidance Test
Behavioral Avoidance Test

Location: Entrance to Stadium Shopping Mall, Calgary, Alberta.

Instructions to subject:

Now I would like to see how far into the mall you can walk by yourself. The procedure is simple. Just walk along the major walkway following the instructions as explained here (Subject is given handout detailing walk route). When you've walked as far as you can go, mark on your sheet the location, and then return here to the start. Do you have any questions so far? OK, there is one more thing: I would like you to rate your anxiety as you reach various points along your walk. To make your anxiety rating you will use this form (Show subject the anxiety rating procedure on the form already provided). As you can see on the form there are various numbered points or landmarks where I want you to stop and quickly rate your anxiety. For instance, the first landmark is the fountain over there about 25 yards ahead (Point to fountain). When you reach the fountain you are to briefly stop and record your anxiety rating on the form that you are carrying. Once you have done that continue to walk ahead on the major walkway until you reach point number 2 which will be the Sport Store approximately 50 yards ahead. Again, stop and record your anxiety level on the form and proceed to Dairy Queen which is the next numbered landmark. Repeat this same procedure for as many landmarks as you can. At any point if you feel like you can't go on and want to end the walk, note on your sheet the location and walk directly back to this starting point. Is that clear? Do you have any questions? OK, you can begin now.

Questions Subjects might ask:

Likely questions such as "How anxious should I get before I stop?" or "How hard do you want me to push myself?" should be answered with the following comment: "It's up to you to decide if and when you will stop." If there is further questioning along these lines, say "The only one who knows how much you can do is yourself. When you will stop is left completely to your own judgment."
Handout: Instructions for Walk

PLEASE RATE YOUR ANXIETY AT EACH STATION ACCORDING TO THIS SCALE:

0 1 2 3 4 5 6 7 8 9 10

Unafraid not tense Afraid somewhat tense Very afraid tense and extremely afraid very tense or
not anxious and anxious anxious anxious anxious

or anxious
<table>
<thead>
<tr>
<th>Walk route</th>
<th>Landmarks</th>
<th>Anxiety Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrance to Mall</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Fountain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Sports Store</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Dairy Queen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Tip Top Tailors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Fairweathers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. I.D.A. drugstore</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Hudson Bay Store</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Enter Bookstore and Browse for 5 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Enter Woodwards and Browse for 5 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Stand in line and buy Lottery ticket.</td>
<td></td>
</tr>
</tbody>
</table>

Name: ____________________________
APPENDIX M

Treatment Expectations
Treatment Expectations

On the following scales you are asked to indicate how you feel about the treatment. This is a routine procedure. Remember that you are to rate the treatment method and not the therapist. The therapist will not see these rating scales until the treatment program is complete.

How logical does this type of treatment seem to you?

0 1 2 3 4 5 6 7 8 9 10

not at all logical very logical

How confident are you that this treatment would be successful in reducing your fear?

0 1 2 3 4 5 6 7 8 9 10

not at all confident highly confident

How confident would you be in recommending this treatment to a friend with the same problem?

0 1 2 3 4 5 6 7 8 9 10

not at all confident highly confident

How successful do you feel this treatment may be in decreasing a different fear of yours?

0 1 2 3 4 5 6 7 8 9 10

not at all successful very successful
APPENDIX N

Fear Questionnaire
Fear Questionnaire

Name ............................................. Age ....... Sex ...... Date ............

Choose a number from the scale below to show how much you would avoid each of
the situations listed below because of fear or other unpleasant feelings. Then write
the number you chose in the box opposite each situation.

<table>
<thead>
<tr>
<th>Would not</th>
<th>Slightly</th>
<th>Definitely</th>
<th>Markedly</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>avoid it</td>
<td>avoid it</td>
<td>avoid it</td>
<td>avoid it</td>
<td>avoid it</td>
</tr>
</tbody>
</table>

1. Main phobia you want treated (describe in your own words) □
2. Injections or minor surgery □
3. Eating or drinking with other people □
4. Hospitals □
5. Traveling alone by bus or coach □
6. Walking alone in busy streets □
7. Being watched or stared at □
8. Going into crowded shops □
9. Being in authority □
10. Sight of blood □
11. Going alone far from home □
12. Thought of injury or illness □
13. Speaking or acting to an audience □
14. Large open spaces □
15. Going to the dentist □
16. Other situations (describe) □

Ag+B1+Soc = Total 2-16

Fear Questionnaire (continued)

Now choose a number from the scale below to show how much you are troubled by
each problem listed, and write the number in the box opposite.

<table>
<thead>
<tr>
<th>Hardly troublesome</th>
<th>Slightly troublesome</th>
<th>Definitely troublesome</th>
<th>Markedly troublesome</th>
<th>Very severely troublesome</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

18. Feeling miserable or depressed □
19. Feeling irritable or angry □
20. Feeling tense or panicky □
21. Upsetting thoughts coming into your mind □
22. Feeling you or your surroundings are strange or unreal □
23. Other feelings (describe) □

Total

How would you rate the present state of your phobic symptoms on the scale below?

<table>
<thead>
<tr>
<th>No phobias</th>
<th>Slightly disturbing/ not really disabling</th>
<th>Definitely disturbing/ disabling</th>
<th>Markedly disturbing/ disabling</th>
<th>Very severely disturbing/ disabling</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please circle one number between 0 and 8.
Fear Questionnaire

The first score on the Fear Questionnaire, global phobia, is measured on a nine-point rating scale which goes from 0 = "no phobias present," to 8 = "very severely disturbing/disabling," the wording of the anchoring points reflecting both distress and avoidance. The second score, total phobia, is derived from the 15-item fear questionnaire which measures avoidance on a nine-point scale from 0 = "would not avoid it," to 8 = "always avoid it," thus yielding a possible score range from 0 to 120. The third score, agoraphobia, one of the phobia subscores, is composed of five specific agoraphobic items. The main phobia score is derived from the subjects response on a nine-point scale on the first item of the questionnaire. The fifth and final score, anxiety/depression, asks subjects to rate the five most common nonphobic symptoms found in phobic patients on a nine-point rating scale which goes from 0 = "hardly at all," to 8 = "very severely troublesome."

There is satisfactory evidence that the fear questionnaire reflects the clinical status of patients. In an analysis by Hallam (1977) using an earlier version of the fear questionnaire with 171 phobic patients treated by nurse therapists in London, therapists' ratings of dysfunction corresponded well with the clinical state of patients and relatives' accounts of them, as well as with other ratings about their adjustment (Ginsberg & Marks, 1977; Marks et al., 1977).

The current version of the fear questionnaire that was used in this study has been shown to be sensitive to clinical improvement after treatment; in a sample of 26 phobic patients treated by exposure in vivo from nurse
therapists, analysis of variance (p < .01) found significant improvement in all mean scores from pre- to posttest as follows: Global phobia rating (5.7 to 3.1), total phobia rating (36.5 to 26.6), agoraphobia (14 to 8), and anxiety/depression (18 to 12).

Test-retest reliability of the fear questionnaire with a clinical population has been reported for a sample of 20 phobic patients with a test-retest interval of seven days. Test-retest reliabilities for global phobia, total phobia, agoraphobia, and anxiety/depression, ranged from .79 to .89 more than adequate.

Reliabilities and correlations of each individual item with subscores were calculated to assess the contribution made by each. In general, both reliabilities for individual items and item/subscore correlations were .5 or greater except for 10 items which were therefore removed. The subscores from the 30-item and 20-item form have a mean correlation of .95 with one another.
Correlations Between Measures

Pearson product-moment correlations between dependent measures were computed in an effort to determine the relationship between the dependent measures under investigation in this study. The correlation matrix presented in Table 7, suggests that a number of the measures are highly correlated.
### Table 190.

Correlation Coefficients for Self-Report Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP1</td>
<td>-</td>
<td>.30</td>
<td>.54**</td>
<td>.23</td>
<td>.41*</td>
<td>.50**</td>
<td>.44*</td>
<td>.43*</td>
<td>.77***</td>
<td>.41*</td>
</tr>
<tr>
<td>STA1</td>
<td>-</td>
<td>.43*</td>
<td>.24</td>
<td>.27</td>
<td>.27</td>
<td>.63***</td>
<td>.45**</td>
<td>.32</td>
<td>.18</td>
<td></td>
</tr>
<tr>
<td>ADB1</td>
<td>-</td>
<td>-</td>
<td>.58**</td>
<td>.37*</td>
<td>.51**</td>
<td>.37*</td>
<td>.38*</td>
<td>.96*</td>
<td>.56**</td>
<td></td>
</tr>
<tr>
<td>PDB1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.53**</td>
<td>.28</td>
<td>.33</td>
<td>.25</td>
<td>.10</td>
<td>.50**</td>
<td></td>
</tr>
<tr>
<td>OCB1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.29</td>
<td>.34</td>
<td>.45**</td>
<td>.20</td>
<td>.37*</td>
<td></td>
</tr>
<tr>
<td>SAX1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.54**</td>
<td>.48**</td>
<td>.47**</td>
<td>.83***</td>
<td></td>
</tr>
<tr>
<td>ACQ1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.60***</td>
<td>.55**</td>
<td>.42*</td>
<td></td>
</tr>
<tr>
<td>BSQ1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.44*</td>
<td>.45**</td>
<td></td>
</tr>
<tr>
<td>ABAT1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.38*</td>
<td></td>
</tr>
<tr>
<td>SAD1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAT1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GS11</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TFQ1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFQ1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STA2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADB2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDB2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCB2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAX2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACQ2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAD2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GS21</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TFQ2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFQ2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STA3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADB3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDB3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCB3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAX3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACQ3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSQ3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABAT3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAD3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAT3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GS13</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TFQ3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFQ3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td>-.76***</td>
<td>.54**</td>
<td>.47**</td>
<td>.34</td>
<td>.94***</td>
<td>.30</td>
<td>.59***</td>
<td>.28</td>
<td>.40*</td>
</tr>
<tr>
<td>(2)</td>
<td>-.25</td>
<td>.50**</td>
<td>.27</td>
<td>.09</td>
<td>.34</td>
<td>.98***</td>
<td>.35</td>
<td>.28</td>
<td>.29</td>
</tr>
<tr>
<td>(3)</td>
<td>-.34</td>
<td>.65***</td>
<td>.39*</td>
<td>.27</td>
<td>.52**</td>
<td>.38*</td>
<td>.82***</td>
<td>.55**</td>
<td>.36*</td>
</tr>
<tr>
<td>(4)</td>
<td>-.11</td>
<td>.68***</td>
<td>.17</td>
<td>.33</td>
<td>.21</td>
<td>.24</td>
<td>.50**</td>
<td>.98***</td>
<td>.55**</td>
</tr>
<tr>
<td>(5)</td>
<td>-.13</td>
<td>.69***</td>
<td>.29</td>
<td>.25</td>
<td>.36*</td>
<td>.28</td>
<td>.44*</td>
<td>.50**</td>
<td>.99***</td>
</tr>
<tr>
<td>(6)</td>
<td>-.57**</td>
<td>.49**</td>
<td>.51**</td>
<td>.54**</td>
<td>.43*</td>
<td>.29</td>
<td>.55**</td>
<td>.27</td>
<td>.35</td>
</tr>
<tr>
<td>(7)</td>
<td>-.58***</td>
<td>.59***</td>
<td>.45*</td>
<td>.44*</td>
<td>.68***</td>
<td>.44*</td>
<td>.39*</td>
<td>.37*</td>
<td>.47**</td>
</tr>
<tr>
<td>(8)</td>
<td>-.41*</td>
<td>.51**</td>
<td>.48**</td>
<td>.36*</td>
<td>.52**</td>
<td>.52**</td>
<td>.57**</td>
<td>.30</td>
<td>.47**</td>
</tr>
<tr>
<td>(9)</td>
<td>-.86***</td>
<td>.37*</td>
<td>.61***</td>
<td>.42*</td>
<td>.77***</td>
<td>.34</td>
<td>.54**</td>
<td>.19</td>
<td>.22</td>
</tr>
<tr>
<td>(10)</td>
<td>-.51**</td>
<td>.57**</td>
<td>.64***</td>
<td>.68***</td>
<td>.37*</td>
<td>.19</td>
<td>.61***</td>
<td>.49**</td>
<td>.41*</td>
</tr>
<tr>
<td>(11)</td>
<td>-</td>
<td>-.30</td>
<td>-.44*</td>
<td>-.54**</td>
<td>-.78***</td>
<td>-.29</td>
<td>-.48**</td>
<td>-.17</td>
<td>-.15</td>
</tr>
<tr>
<td>(12)</td>
<td>-</td>
<td>-</td>
<td>.49**</td>
<td>.42*</td>
<td>.50**</td>
<td>.52**</td>
<td>.62***</td>
<td>.71***</td>
<td>.69***</td>
</tr>
<tr>
<td>(13)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.66***</td>
<td>.44*</td>
<td>.30</td>
<td>.49**</td>
<td>.24</td>
<td>.29</td>
</tr>
<tr>
<td>(14)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.34</td>
<td>.12</td>
<td>.29</td>
<td>.20</td>
<td>.26</td>
</tr>
<tr>
<td>(15)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.35*</td>
<td>.62***</td>
<td>.27</td>
<td>.35*</td>
</tr>
<tr>
<td>(16)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.38*</td>
<td>.30</td>
<td>.30</td>
</tr>
<tr>
<td>(17)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.55**</td>
<td>.45*</td>
</tr>
<tr>
<td>(18)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.58***</td>
</tr>
<tr>
<td>(19)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(20)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(21)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(22)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(23)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(24)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(25)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(26)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(27)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(28)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(29)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(30)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(31)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(32)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(33)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(34)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(35)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(36)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(37)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(38)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(39)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(40)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Variable</td>
<td>(20)</td>
<td>(21)</td>
<td>(22)</td>
<td>(23)</td>
<td>(24)</td>
<td>(25)</td>
<td>(26)</td>
<td>(27)</td>
<td>(28)</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>(1)</td>
<td>.35*</td>
<td>.45**</td>
<td>.40*</td>
<td>.43*</td>
<td>.51**</td>
<td>.47**</td>
<td>.37*</td>
<td>.75***</td>
<td>.31</td>
</tr>
<tr>
<td>(2)</td>
<td>.09</td>
<td>.62***</td>
<td>.48**</td>
<td>.07</td>
<td>.44*</td>
<td>.27</td>
<td>.06</td>
<td>.14</td>
<td>.66***</td>
</tr>
<tr>
<td>(3)</td>
<td>.33</td>
<td>.38*</td>
<td>.31</td>
<td>.47**</td>
<td>.61***</td>
<td>.37*</td>
<td>.24</td>
<td>.44**</td>
<td>.35*</td>
</tr>
<tr>
<td>(4)</td>
<td>.17</td>
<td>.30</td>
<td>.24</td>
<td>.49**</td>
<td>.68***</td>
<td>.17</td>
<td>.29</td>
<td>.11</td>
<td>.20</td>
</tr>
<tr>
<td>(5)</td>
<td>.16</td>
<td>.33</td>
<td>.49**</td>
<td>.39*</td>
<td>.64***</td>
<td>.29</td>
<td>.24</td>
<td>.28</td>
<td>.29</td>
</tr>
<tr>
<td>(6)</td>
<td>.92***</td>
<td>.60***</td>
<td>.47**</td>
<td>.79***</td>
<td>.43*</td>
<td>.53**</td>
<td>.56**</td>
<td>.43*</td>
<td>.33</td>
</tr>
<tr>
<td>(7)</td>
<td>.47**</td>
<td>.95***</td>
<td>.64***</td>
<td>.36*</td>
<td>.53**</td>
<td>.60***</td>
<td>.42*</td>
<td>.17</td>
<td>.63***</td>
</tr>
<tr>
<td>(8)</td>
<td>.40*</td>
<td>.58**</td>
<td>.97***</td>
<td>.45*</td>
<td>.46**</td>
<td>.47**</td>
<td>.35*</td>
<td>.29</td>
<td>.49**</td>
</tr>
<tr>
<td>(9)</td>
<td>.45*</td>
<td>.52**</td>
<td>.40*</td>
<td>.42*</td>
<td>.32</td>
<td>.62***</td>
<td>.45*</td>
<td>.54**</td>
<td>.39*</td>
</tr>
<tr>
<td>(10)</td>
<td>.78***</td>
<td>.45**</td>
<td>.43*</td>
<td>.95***</td>
<td>.52**</td>
<td>.64***</td>
<td>.71***</td>
<td>.33</td>
<td>.25</td>
</tr>
<tr>
<td>(11)</td>
<td>-.55**</td>
<td>-.61***</td>
<td>-.40*</td>
<td>-.53**</td>
<td>-.27</td>
<td>-.61***</td>
<td>-.59***</td>
<td>-.56**</td>
<td>-.35*</td>
</tr>
<tr>
<td>(12)</td>
<td>.32</td>
<td>.56**</td>
<td>.52**</td>
<td>.54*</td>
<td>.96***</td>
<td>.49**</td>
<td>.41*</td>
<td>.35*</td>
<td>.46**</td>
</tr>
<tr>
<td>(13)</td>
<td>.50**</td>
<td>.56**</td>
<td>.50**</td>
<td>.62***</td>
<td>.42*</td>
<td>.99***</td>
<td>.66***</td>
<td>.27</td>
<td>.39*</td>
</tr>
<tr>
<td>(14)</td>
<td>.54**</td>
<td>.40*</td>
<td>.43*</td>
<td>.63***</td>
<td>.36*</td>
<td>.67***</td>
<td>.98***</td>
<td>.15</td>
<td>.16</td>
</tr>
<tr>
<td>(15)</td>
<td>.31</td>
<td>.47**</td>
<td>.48**</td>
<td>.36*</td>
<td>.47**</td>
<td>.44*</td>
<td>.37*</td>
<td>.77***</td>
<td>.33</td>
</tr>
<tr>
<td>(16)</td>
<td>.14</td>
<td>.69***</td>
<td>.56**</td>
<td>.12</td>
<td>.48**</td>
<td>.32</td>
<td>.11</td>
<td>.19</td>
<td>.28</td>
</tr>
<tr>
<td>(17)</td>
<td>.40**</td>
<td>.47**</td>
<td>.48**</td>
<td>.59***</td>
<td>.60***</td>
<td>.48**</td>
<td>.29</td>
<td>.50**</td>
<td>.36*</td>
</tr>
<tr>
<td>(18)</td>
<td>-.18</td>
<td>.38*</td>
<td>.29</td>
<td>.50**</td>
<td>-.72***</td>
<td>-.24</td>
<td>-.28</td>
<td>-.17</td>
<td>-.27</td>
</tr>
<tr>
<td>(19)</td>
<td>-.22</td>
<td>.36*</td>
<td>.51**</td>
<td>.43*</td>
<td>.63***</td>
<td>.28</td>
<td>.25</td>
<td>.27</td>
<td>.29</td>
</tr>
<tr>
<td>(20)</td>
<td>-.55**</td>
<td>.41*</td>
<td>.78***</td>
<td>.31</td>
<td>.53**</td>
<td>.59***</td>
<td>.44*</td>
<td>.28</td>
<td>.26</td>
</tr>
<tr>
<td>(21)</td>
<td>-.63***</td>
<td>-.63***</td>
<td>-.63***</td>
<td>.52**</td>
<td>.59***</td>
<td>.41*</td>
<td>.30</td>
<td>.69***</td>
<td>.28</td>
</tr>
<tr>
<td>(22)</td>
<td>-.42*</td>
<td>.47**</td>
<td>.50**</td>
<td>.44*</td>
<td>.27</td>
<td>.54**</td>
<td>.40**</td>
<td>.35**</td>
<td>.25</td>
</tr>
<tr>
<td>(23)</td>
<td>-.53**</td>
<td>-.53**</td>
<td>-.53**</td>
<td>.64***</td>
<td>.69***</td>
<td>.40*</td>
<td>.25</td>
<td>.31</td>
<td>.44*</td>
</tr>
<tr>
<td>(24)</td>
<td>-.44*</td>
<td>-.44*</td>
<td>-.44*</td>
<td>.37*</td>
<td>.45*</td>
<td>.50**</td>
<td>.36</td>
<td>.33</td>
<td>.33</td>
</tr>
<tr>
<td>(25)</td>
<td>-.69***</td>
<td>-.69***</td>
<td>-.69***</td>
<td>.31</td>
<td>.44*</td>
<td>.25</td>
<td>.21</td>
<td>.33</td>
<td>.33</td>
</tr>
<tr>
<td>(26)</td>
<td>-.25</td>
<td>-.25</td>
<td>-.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
</tr>
<tr>
<td>(27)</td>
<td>-.25</td>
<td>-.25</td>
<td>-.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
</tr>
<tr>
<td>(28)</td>
<td>-.25</td>
<td>-.25</td>
<td>-.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
<td>.25</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th>Variable</th>
<th>(29)</th>
<th>(30)</th>
<th>(31)</th>
<th>(32)</th>
<th>(33)</th>
<th>(34)</th>
<th>(35)</th>
<th>(36)</th>
<th>(37)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>.46**</td>
<td>.23</td>
<td>.44*</td>
<td>.22</td>
<td>.40*</td>
<td>.39*</td>
<td>.42*</td>
<td>.33</td>
<td>-.57**</td>
</tr>
<tr>
<td>(2)</td>
<td>.17</td>
<td>.24</td>
<td>.28</td>
<td>-.01</td>
<td>.59***</td>
<td>.36*</td>
<td>.11</td>
<td>.10</td>
<td>-.08</td>
</tr>
<tr>
<td>(3)</td>
<td>.54**</td>
<td>.42*</td>
<td>.35</td>
<td>.22</td>
<td>.26</td>
<td>.27</td>
<td>.06</td>
<td>.95</td>
<td>-.13</td>
</tr>
<tr>
<td>(4)</td>
<td>.25</td>
<td>.85***</td>
<td>.50**</td>
<td>.08</td>
<td>.20</td>
<td>.17</td>
<td>.02</td>
<td>.94</td>
<td>-.03</td>
</tr>
<tr>
<td>(5)</td>
<td>.28</td>
<td>.43*</td>
<td>.96**</td>
<td>.11</td>
<td>.32</td>
<td>.49**</td>
<td>.14</td>
<td>.28</td>
<td>-.22</td>
</tr>
<tr>
<td>(6)</td>
<td>.46**</td>
<td>.22</td>
<td>.38*</td>
<td>.65***</td>
<td>.53**</td>
<td>.43*</td>
<td>.25</td>
<td>.73***</td>
<td>-.39*</td>
</tr>
<tr>
<td>(7)</td>
<td>.26</td>
<td>.34</td>
<td>.34</td>
<td>.16</td>
<td>.89***</td>
<td>.49**</td>
<td>.27</td>
<td>.36*</td>
<td>-.34</td>
</tr>
<tr>
<td>(8)</td>
<td>.38*</td>
<td>.19</td>
<td>.45*</td>
<td>.18</td>
<td>.52**</td>
<td>.91***</td>
<td>.34</td>
<td>.34</td>
<td>-.32</td>
</tr>
<tr>
<td>(9)</td>
<td>.42*</td>
<td>.20</td>
<td>.29</td>
<td>.28</td>
<td>.49**</td>
<td>.36*</td>
<td>.56**</td>
<td>.35*</td>
<td>-.64***</td>
</tr>
<tr>
<td>(10)</td>
<td>.46**</td>
<td>.41*</td>
<td>.44*</td>
<td>.60***</td>
<td>.36*</td>
<td>.37*</td>
<td>.79***</td>
<td>-.30</td>
<td></td>
</tr>
<tr>
<td>(11)</td>
<td>.41*</td>
<td>.20</td>
<td>.22</td>
<td>.38*</td>
<td>-.57**</td>
<td>-.38*</td>
<td>-.59***</td>
<td>-.44*</td>
<td>-.69***</td>
</tr>
<tr>
<td>(12)</td>
<td>.44*</td>
<td>.61***</td>
<td>.69***</td>
<td>.19</td>
<td>.48**</td>
<td>.50**</td>
<td>.18</td>
<td>.44</td>
<td>-.21</td>
</tr>
<tr>
<td>(13)</td>
<td>.39*</td>
<td>.24</td>
<td>.34</td>
<td>.36*</td>
<td>.54**</td>
<td>.42*</td>
<td>.41*</td>
<td>.57**</td>
<td>-.44*</td>
</tr>
<tr>
<td>(14)</td>
<td>.21</td>
<td>.30</td>
<td>.26</td>
<td>.33</td>
<td>.29</td>
<td>.31</td>
<td>.24</td>
<td>.45**</td>
<td>-.31</td>
</tr>
<tr>
<td>(15)</td>
<td>.46**</td>
<td>.24</td>
<td>.39*</td>
<td>.18</td>
<td>.40*</td>
<td>.46**</td>
<td>.26</td>
<td>.42*</td>
<td>-.56**</td>
</tr>
<tr>
<td>(16)</td>
<td>.26</td>
<td>.29</td>
<td>.31</td>
<td>.09</td>
<td>.67***</td>
<td>.46**</td>
<td>.21</td>
<td>.20</td>
<td>-.19</td>
</tr>
<tr>
<td>(17)</td>
<td>.63***</td>
<td>.45*</td>
<td>.48**</td>
<td>.33</td>
<td>.40*</td>
<td>.49**</td>
<td>.26</td>
<td>.49**</td>
<td>-.35**</td>
</tr>
<tr>
<td>(18)</td>
<td>.30</td>
<td>.89***</td>
<td>.55**</td>
<td>.13</td>
<td>.29</td>
<td>.25</td>
<td>.06</td>
<td>.39*</td>
<td>-.13</td>
</tr>
<tr>
<td>(19)</td>
<td>.27</td>
<td>.45**</td>
<td>.97***</td>
<td>.14</td>
<td>.35*</td>
<td>.50**</td>
<td>.14</td>
<td>.31</td>
<td>-.22</td>
</tr>
<tr>
<td>(20)</td>
<td>.50**</td>
<td>.22</td>
<td>.27</td>
<td>.78***</td>
<td>.49**</td>
<td>.37*</td>
<td>.40*</td>
<td>.77***</td>
<td>-.47**</td>
</tr>
<tr>
<td>(21)</td>
<td>.37*</td>
<td>.37*</td>
<td>.36*</td>
<td>.30</td>
<td>.95***</td>
<td>.51**</td>
<td>.35*</td>
<td>.46**</td>
<td>-.45**</td>
</tr>
<tr>
<td>(22)</td>
<td>.36*</td>
<td>.23</td>
<td>.49**</td>
<td>.19</td>
<td>.59***</td>
<td>.92***</td>
<td>.36**</td>
<td>.34</td>
<td>-.33</td>
</tr>
<tr>
<td>(23)</td>
<td>.55**</td>
<td>.46**</td>
<td>.49**</td>
<td>.70***</td>
<td>.36*</td>
<td>.42*</td>
<td>.40*</td>
<td>.89***</td>
<td>-.49**</td>
</tr>
<tr>
<td>(24)</td>
<td>.58**</td>
<td>.69***</td>
<td>.65**</td>
<td>.29</td>
<td>.47**</td>
<td>.49**</td>
<td>.30</td>
<td>.50**</td>
<td>-.30</td>
</tr>
<tr>
<td>(25)</td>
<td>.48**</td>
<td>.28</td>
<td>.36*</td>
<td>.44*</td>
<td>.58***</td>
<td>.44*</td>
<td>.48**</td>
<td>.63***</td>
<td>-.52**</td>
</tr>
<tr>
<td>(26)</td>
<td>.31</td>
<td>.33</td>
<td>.28</td>
<td>.44*</td>
<td>.33</td>
<td>.34</td>
<td>.36*</td>
<td>.55**</td>
<td>-.42**</td>
</tr>
<tr>
<td>(27)</td>
<td>.75***</td>
<td>.32</td>
<td>.36*</td>
<td>.56**</td>
<td>.31</td>
<td>.37*</td>
<td>.63***</td>
<td>.49**</td>
<td>-.70***</td>
</tr>
<tr>
<td>(28)</td>
<td>.51**</td>
<td>.38*</td>
<td>.34</td>
<td>.35*</td>
<td>.72***</td>
<td>.51**</td>
<td>.49**</td>
<td>.41*</td>
<td>-.48**</td>
</tr>
<tr>
<td>(29)</td>
<td>.51**</td>
<td>.37*</td>
<td>.76***</td>
<td>.43*</td>
<td>.51**</td>
<td>.73***</td>
<td>.73***</td>
<td>.74***</td>
<td></td>
</tr>
<tr>
<td>(30)</td>
<td>.51**</td>
<td>.34</td>
<td>.37*</td>
<td>.25</td>
<td>.31</td>
<td>.50**</td>
<td>.31</td>
<td>.65***</td>
<td>-.69***</td>
</tr>
<tr>
<td>(31)</td>
<td>.32</td>
<td>.36*</td>
<td>.32</td>
<td>.32</td>
<td>.64***</td>
<td>.8**</td>
<td>.69***</td>
<td>.8**</td>
<td>-.52**</td>
</tr>
<tr>
<td>(32)</td>
<td>.48**</td>
<td>.47**</td>
<td>.33</td>
<td>.36*</td>
<td>.53**</td>
<td>.45*</td>
<td>.50**</td>
<td>.42**</td>
<td>-.45**</td>
</tr>
<tr>
<td>(33)</td>
<td>.48**</td>
<td>.42**</td>
<td>.25</td>
<td>.39*</td>
<td>.52**</td>
<td>.26</td>
<td>.42*</td>
<td>.65***</td>
<td>-.65***</td>
</tr>
<tr>
<td>(34)</td>
<td>.48**</td>
<td>.42**</td>
<td>.25</td>
<td>.39*</td>
<td>.52**</td>
<td>.26</td>
<td>.42*</td>
<td>.65***</td>
<td>-.65***</td>
</tr>
<tr>
<td>Variable</td>
<td>(38)</td>
<td>(39)</td>
<td>(40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td>.44*</td>
<td>.47**</td>
<td>.34*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td>.23</td>
<td>.23</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td>.44*</td>
<td>.36*</td>
<td>.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4)</td>
<td>.49**</td>
<td>.14</td>
<td>.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5)</td>
<td>.60***</td>
<td>.30</td>
<td>.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6)</td>
<td>.48**</td>
<td>.55**</td>
<td>.60**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7)</td>
<td>.33</td>
<td>.53**</td>
<td>.39*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8)</td>
<td>.42*</td>
<td>.48**</td>
<td>.35*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9)</td>
<td>.38*</td>
<td>.63***</td>
<td>.47**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10)</td>
<td>.57**</td>
<td>.66***</td>
<td>.71***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(11)</td>
<td>-.36*</td>
<td>-.62***</td>
<td>-.59***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(12)</td>
<td>.65***</td>
<td>.46**</td>
<td>.36*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(13)</td>
<td>.46**</td>
<td>.96***</td>
<td>.68***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(14)</td>
<td>.30</td>
<td>.63***</td>
<td>.87***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(15)</td>
<td>.42*</td>
<td>.46**</td>
<td>.34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(16)</td>
<td>.30</td>
<td>.29</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(17)</td>
<td>.56**</td>
<td>.50**</td>
<td>.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(18)</td>
<td>.56**</td>
<td>.21</td>
<td>.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(19)</td>
<td>.59***</td>
<td>.30</td>
<td>.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(20)</td>
<td>.48**</td>
<td>.59***</td>
<td>.69***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(21)</td>
<td>.41*</td>
<td>.54**</td>
<td>.43*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(22)</td>
<td>.45*</td>
<td>.50**</td>
<td>.42*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(23)</td>
<td>.66***</td>
<td>.68***</td>
<td>.75***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(24)</td>
<td>.72***</td>
<td>.44*</td>
<td>.37*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(25)</td>
<td>.51**</td>
<td>.98***</td>
<td>.73***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(26)</td>
<td>.39*</td>
<td>.67***</td>
<td>.93***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(27)</td>
<td>.64***</td>
<td>.41*</td>
<td>.40*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(28)</td>
<td>.52**</td>
<td>.46**</td>
<td>.34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(29)</td>
<td>.81***</td>
<td>.60***</td>
<td>.55*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(30)</td>
<td>.70***</td>
<td>.30</td>
<td>.38*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(31)</td>
<td>.68***</td>
<td>.39*</td>
<td>.34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(32)</td>
<td>.67***</td>
<td>.56**</td>
<td>.70***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(33)</td>
<td>.49**</td>
<td>.56**</td>
<td>.42*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(34)</td>
<td>.57**</td>
<td>.48**</td>
<td>.42*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(35)</td>
<td>.67***</td>
<td>.60***</td>
<td>.59***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(36)</td>
<td>.76***</td>
<td>.70***</td>
<td>.74***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(37)</td>
<td>-.67***</td>
<td>-.63***</td>
<td>-.65***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(38)</td>
<td>--</td>
<td>.61***</td>
<td>.59***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(39)</td>
<td>--</td>
<td>--</td>
<td>.77***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(40)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05  
** p < .01  
*** p < .001
Shawn S. Steggles was born in Woodstock, Ontario, Canada, on October 18, 1953. He received his elementary education at Stittsville Public School, Stittsville, Ontario and his secondary education at South Carleton High School, Richmond, Ontario. In September 1972 he entered Carleton University, Ottawa, Ontario from which he graduated with a B.Sc. (Hon.) in Biology in May 1976, and a B.A. (Hon.) in Psychology in May 1977. In September 1977 he attended the University of Windsor, Graduate program in Clinical Psychology and received his M.A. in May 1981. In March 1983 he underwent treatment for cancer and subsequently his education was temporarily stopped. In July 1985 he resumed work on his doctoral dissertation, while working at the Tom Baker Cancer Center, Calgary, Alberta. In November 1986 he began working in Sudbury, Ontario at the Northeastern Ontario Oncology Program as the Head of the Psychosocial Services Department.