COGNITIVE CHANGES FOLLOWING COGNITIVE-BEHAVIORAL THERAPY FOR SOCIAL PHOBIA

BY

JEANNETTE FILION-ROSSET, M.Ps.

A Dissertation submitted to

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Department of Psychology

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DEDICATION

To the memory of my dear husband

Gilbert Rosset

who passed away during the completion of this dissertation.

To the memory of my dear sister

Lysette Filion

who passed away three weeks before Gilbert.

To my children,

Jonathan and Geneviève,

for their patience, support and love.

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ABSTRACT

Several researchers posit that cognition plays an important role in the maintenance of social phobia (SP). Recent cognitive models of SP (Clark & Wells, 1995; Rapee & Heimberg, 1997) highlight the importance of two cognitive constructs in SP: self-focused attention and fear of negative evaluation. The present study examined changes in these constructs in individuals treated with cognitive-behavioral therapy (CBT) for SP. Eighty-seven participants with a DSM-IV diagnosis of SP were randomly assigned to waiting-list control (W-LC), self-administered CBT (SA-CBT), or group CBT led by either a self-help facilitator (SH-CBGT), or a professional therapist (PROF-CBGT). Thoughts were collected at pre- and post-assessment in a social situations diary using a thought-listing procedure. The Balanced States of Mind (BSOM; Schwartz, 1997) model was utilized to analyze the thoughts coded for valence and focus of attention. It was hypothesized that relative to W-LC, the treatment conditions would show a significant improvement on the overall BSOM ratios; a significant decrease in the proportion of self-focused thoughts and on the thoughts about negative evaluation by others; and a significant improvement on self-consciousness scales. Results show that treated participants developed an overall healthier way to think in general (T-BSOM ratios) and about themselves (S-BSOM ratios). Furthermore, participants treated with group CBT made a significant improvement toward a more adaptive self-consciousness. However, and contrary to expectations, no significant change was found for treated participants on the percentage of self-focused thoughts as well as thoughts about negative evaluation by others. Further analyses revealed that both T-BSOM and S-BSOM ratios mediated the

effects of treatment on a variety of clinical measures of SP. These results are discussed in relation to the recent cognitive models of SP. Implications for our understanding of this disorder and recommendations for treatment are also presented.

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INTRODUCTION

Social phobia, a common and disabling anxiety disorder, also called Social Anxiety Disorder, is defined by the revised fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000) as a marked and persistent fear of social or performance situations in which embarrassment may occur. The fear of being negatively evaluated by others as a consequence of perceived inadequacies in social performance seems to be the hallmark characteristic of this disorder (Butler, 1985; Clark & Wells, 1995; Mattick, Page, & Lampe, 1995; Rapee & Heimberg, 1997; Turner, Beidel, & Townsley, 1992).

Social phobia is often accompanied by significant levels of fear and avoidance of social situations, such as public speaking, dating, socializing, and even eating, drinking, or signing one's name in front of other people. Individuals with social phobia experience considerable somatic distress when they are involved in social situations, characterized by increased heart rate, blushing, sweating, and trembling (Gorman & Gorman, 1987). They also experience negative self-deprecating cognitions, increased general anxiety, and depression (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992; Turner, Beidel, Borden, Stanley, & Jacob, 1991). Empirical data and clinical experience suggest that people suffering from social phobia may experience severe interference in various areas of their life, especially in their occupational, educational, marital, and social functioning (Heimberg, Holt, Schneier, Spitzer, & Liebowitz, 1993; Hofmann & Barlow, 2002;

Schneier et al., 1992; Van Ameringen, Mancini, & Streiner, 1993). The high degree of comorbidity (Barlow, 1994) and the high level of distress caused by significant impairment in their general functioning (Schneier et al., 1992) is associated with increased levels of alcohol and substance abuse, depression, suicidal ideation, inability to obtain or maintain employment or achieve financial independence, greater use of medical facilities, and impaired occupational and school performance (Cox, Direnfeld, Swinson, & Norton, 1994; Davidson, Hughes, George, & Blazer, 1994; Heimberg, Liebowitz, Hope, & Schneier, 1995; Hofmann & Barlow, 2002; Schneier et al., 1992).

Recent epidemiological work classifies social phobia as the third most common psychiatric disorder following depression and substance abuse (Kessler et al., 1994). The National Comorbidity Survey (NCS; Kessler et al., 1994) indicated that social phobia is a significant mental health problem affecting many people. They found a 1-year prevalence of 7.9% and a lifetime prevalence of 13.3%. Despite the fact that estimates of prevalence vary according to the strictness of the definitions used, epidemiologic surveys across Europe, the United States and Canada present a similar picture: a lifetime prevalence estimate in the general population at about 7%, and a 12-month prevalence between 3% and 4% (Wittchen & Fehm, 2001). Stein, Walker, and Forde (1996) found a 6-12 month prevalence of 7.1% in a Winnipeg community sample. People with social phobia in the community are more likely to be female (APA, 2000), younger, and of lower socio-economic status and less likely to be married than normal controls (Magee, Eaton, Wittchen, McGonagle, & Kessler, 1996; Schneier et al., 1992). A recent study, The Canadian Community Health Survey: Mental Health and Well-Being (2002), reported a

12-month prevalence of 2.6% for males and 3.4% for females for social phobia. For the province of Manitoba, the study found a 12-month prevalence of 3.5% for males and 3.4% for women. According to these recent statistics, about 40,698 males and 39,535 females living in Manitoba (including 23,992 males and 23,307 females living in Winnipeg) met all the criteria for the diagnosis of social phobia during the past 12 months.

The mean age at onset of social phobia is reported as being between 11 and 15 years (Schneier et al., 1992), and the clinical course is that of a chronic unremitting lifelong disorder with a low rate of naturally occurring recovery (Davidson et al., 1994; Hazen & Stein, 1995; Schneier et al., 1992; Wittchen, Stein, & Kessler, 1999). Community studies have found that many individuals with social phobia do not seek treatment (Magee et al., 1996; Schneier et al., 1992). Those who seek treatment are more likely to do so after many years of suffering (Turner & Beidel, 1989).

The population of individuals with social phobia is very heterogeneous (Barlow, 1994; Clark & Wells, 1995). This diversity was acknowledged in the revised third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987) by defining subtypes according to whether the problem is generalized (fears in most social situations), or if the problem has a specific focus such as eating, writing or speaking in public. In clinical settings, the most common and severe form of the disorder is the generalized one (APA, 1994).

Since it was first identified as a distinct type of phobia (Marks, 1969; Marks & Gelder, 1966), and since it was referred to as "the neglected anxiety disorder" (Liebowitz,

Gorman, Fyer, & Klein, 1985), social phobia has received a burgeoning amount of interest, and significant progress has been made in understanding its origin, maintenance, and treatment (Heimberg, Liebowitz et al., 1995). There has been a significant increase in publications recently indicating a growing interest among both researchers and clinicians (Heimberg, Liebowtiz et al., 1995; Norton, Cox, Asmundson, & Master, 1995; Uhde, 1995; Walker & Kjernisted, 2000). However, it is apparent that there is the need for more research into multiple and diverse alternatives for the treatment of social phobia, as well as research attempting to look at mechanisms of change. The goal of this study is to contribute to the knowledge of social phobia, the most common anxiety disorder in the community (Walker & Kjernisted, 2000), by exploring the nature of cognitive change following treatment for social phobia.

This study will attempt to expand our knowledge about social phobia by exploring several questions such as: do treated individuals with social phobia develop a more healthy thinking style? What is the impact of treatment on attentional focus and self-consciousness? Are people with social phobia more preoccupied with their own negative self-evaluative thoughts or do they mainly think about being negatively evaluated by others? How does treatment change the fear of negative evaluation, which is supposed to be the cardinal symptom of social phobia? Firstly, a review of the literature will present perspectives on the development of social phobia with a greater emphasis on recent cognitive models, an overview of cognitive assessment, the cognitive factors operative in social phobia, and a review of studies investigating cognitive change following cognitive-behavioral treatment for social phobia. Secondly, the objectives of

this study and the hypotheses will be presented, followed by, thirdly, the method section, fourthly, the results section, and finally, a comprehensive discussion on the findings of this study.

Views on the Development of Social Phobia

A wide range of theoretical approaches and models regarding the origins of social phobia has been posited. These various perspectives stem from the evolutionary, genetic, psychodynamic, behavioral, and cognitive approaches. A brief non-exhaustive review of some of these perspectives will be presented here, with a greater emphasis on recent cognitive models of social phobia.

Genetic Point of View

There is consistent evidence that social phobia has a genetic component as suggested by twin (Kendler, Neale, Kessler, Heath, & Eaves, 1992) and family (Fyer, Mannuzza, Chapman, Liebowitz, & Klein, 1993; Reich & Yates, 1988) studies. Recent findings suggest a moderate genetic contribution (Mannuzza, Schneier, Chapman, Liebowitz, Klein, & Fyer, 1995). The work of Kagan and his colleagues on Behavioral Inhibition (BI) in young children suggests that for some individuals, social anxiety may start at a very early age (Kagan, 1989; Kagan, Resnick, & Snidman, 1988; Kagan & Snidman, 1991). Recent studies have linked BI with the anxiety disorders in general, and in particular, with social phobia and panic disorder (for a complete review, see Turner, Beidel & Wolff, 1996).

Psychobiological Model of Social Anxiety and Social Phobia

Gilbert's defense versus safety model (Gilbert, 1989; Trower & Gilbert, 1989) suggests that social anxiety and social phobia are caused by inappropriate levels of the activation of two biological and complementary survival systems—the defense system and the safety system. The defense system is responsible for assessing potential threat from others, and the safety system serves as a moderator of the defense system. Gilbert (1989) posits that under this model, socially anxious individuals have an excessive activation of the defense system and an underuse of the safety system. The overactivation of the defense system leads to excessive appraisals of perceived threat from others. These authors posit that people with social phobia do not properly use the safety system.

Behavioral Approaches

Several of the major behavioral models have been applied to the problem of social phobia. From a conditioning viewpoint, the development of social phobia can be conceptualized as the effect of pairing social stimuli (e.g., being observed by other people) with noxious stimulation (e.g., being repeatedly criticized, devalued, berated in social encounters) (Barlow, 1988; Öst & Hugdahl, 1981).

Social learning theory suggests that much of the learning of important social behavior occurs not so much via direct conditioning, but rather through modeling or observational learning (vicarious learning). According to this theory, simply observing someone else reacting fearfully in the presence of an object or a situation may be sufficient to cause the conditioning of a fear or phobia. Although the work done on observational conditioning of fear (Mineka, 1987; Mineka & Cook, 1988) was never

extended to the learning of social fears, it seems plausible that such learning could occur (Mineka & Zinbarg, 1995). Öst and Hugdahl (1981) found that 13% of their participants with social phobia reported that the onset of their social phobia had occurred through vicarious learning experiences. However, the applicability of this theory to social phobia needs further study, as is the case for most of the views presented here (Mattick et al., 1995).

The social skills hypothesis proposes that anxiety in social situations results from a deficit in individual's repertoire of verbal and non-verbal social skills (Trower, Yardley, & Bryant, 1978; Turner, Beidel, Cooley, Woody, & Messer, 1994). According to this hypothesis, poor performances in social situations lead to undesirable outcomes, negative evaluation by others, embarrassment, and distress. Learning that one cannot perform adequately in social situations leads to inhibition, and therefore impairs the development of adequate social skills or prevents the chance for further practice. Turner, Beidel, Cooley et al. (1994) posit that "all social phobics have skill deficiencies" (p. 383). However, results of studies investigating whether people with social phobia are less skilful and less socially competent are inconclusive (Beidel, Turner, & Dancu, 1985; Dow, Biglan, & Glaser, 1985; Turner, Beidel, Cooley et al., 1994). To date, only one study (Wlazlo, Schroeder-Hartwig, Hand, Kaiser, & Münchau, 1990) found skill deficiencies among people with social phobia and this was a deficiency in listening skills.

According to Heimberg and Juster (1995), studies support the idea that people with social phobia do not lack the capacity to execute social behaviors. Instead they might be inhibited in applying social skills because they believe they are socially inadequate.

Similarly, Hartman (1983) has argued that the social inadequacy of people with social phobia may be the result of a difference in attentional focus. According to Hartman, people with social phobia are impaired by the effort to divide their attention between internal cues (self-deprecatory thinking and perception of automatic arousal) and external cues in the social situation, and as a result are not able to adequately concentrate on the interaction.

Heimberg and Juster (1995) indicated that some confusion prevails regarding the use of the terms *social skills deficit* and *performance deficits*. Actual findings provide little support for the hypothesis that people with social phobia have social skills deficits (e.g., lack the capacity to execute a behavior). However, several studies have indicated that they exhibit performance deficits (e.g., inhibition in applying social skills in social situations). More research is needed to elucidate if skills are deficient or simply suppressed or inhibited as a result of anxiety (Mattick et al., 1995), and also whether self-report measures of social skills reflect a biased self-perception or an accurate appraisal of performances (Rapee & Lim, 1992).

Cognitive Models

The cognitive models have been influential in current views of social phobia by suggesting that this disorder has an important cognitive component—the fear of negative evaluation—and that this fear pervades the person's experience in feared social situations. Over the past 25 years, a number of cognitively based theories have been developed, and several authors (Butler, 1985; Marks, 1969, 1987; Mattick, Peters, & Clarke, 1989) have

suggested that the cognitive component is central to the development and maintenance of the disorder (Mattick et al., 1995).

The work of Beck, Emery and Greenberg (1985) has been the most influential of all the models proposed to date (Mattick et al., 1995). According to Beck et al.'s (1985) approach, anxiety disorders are "hypersensitive alarm systems sensitive to any stimuli that might be taken as indicating imminent disaster or harm" (p. 31). This hypersensitivity is characterized by a style of cognitive processing known as the "vulnerability mode", which establishes a cognitive set or processing bias that operates across situations. These authors define the vulnerability mode as an organization of cognitive structures called schemas, which are based on experience and act as a set of rules to classify, prioritize, and interpret incoming information or facilitate the retrieval of information from memory. According to Beck et al. (1985), the schemas of people with anxiety disorders are dysfunctional because they are *hypersensitive* to threat cues and *hyposensitive* to safety cues. For persons with social phobia, the vulnerability mode becomes active in social situations because (a) their self-schemas define them as defective or lacking the resources to meet social demands, and (b) because the social situations are construed as challenges or confrontations where they will be at risk for showing signs of vulnerability or weakness. In this mode, the world is seen as a dangerous place in which the person must constantly be vigilant to potential threat. As a result, the person misinterprets negative, neutral, or mildly positive cues, and discounts or ignores the positive or safety cues. Beck et al. (1985) hypothesize that for people with social phobia, vulnerability to negative

evaluation by others is the primary construct of their cognitive representation of themselves in social situations.

Several researchers have reported that high social anxiety is associated with a preponderance of negative self-statements (Cacioppo, Glass, & Merluzzi, 1979; Dodge, Hope, Heimberg, & Becker, 1988; Glass, Merluzzi, Biever, & Larsen, 1982). This data is consistent with Beck et al.'s (1985) hypothesized vulnerability mode. The verbal reports of socially anxious people suggest they construe themselves as probable victims of negative evaluation and unable to meet the demands of social situations.

The self-presentation model of social anxiety proposes that social anxiety occurs when a person meets two conditions: (a) a desire to make a particular impression on others; and (b) doubts that he or she will be able to achieve this (Schlenker & Leary, 1982). Leary and Kowalski (1995) posit that specific factors, such as high need for approval, perceived or actual deficits in social skills, low self-esteem, or low outcome expectancies, may increase the motivation to engage in impression management and decrease the sense of self-efficacy. These situational or dispositional factors are believed to play an important role in social phobia and may contribute to the heterogeneity of this disorder (Leary, 1988).

Two recent models propose a synthesis of these different views on the development and maintenance of social phobia. The first one is the cognitive model of social phobia developed by Clark and Wells (1995) and the other is the cognitive model of social phobia developed by Rapee and Heimberg (1997). Both models will be presented here because their integration of previous theoretical perspectives and empirical

findings offer a very important contribution to our understanding of the phenomenology of social phobia. Furthermore, because these models have been proposed as a rationale for therapeutic interventions, they present an interesting theoretical background for studies looking at cognitive change due to treatment using a cognitive-behavioral approach.

Clark and Wells' Cognitive Model of Social Phobia (1995)

Clark and Wells' (1995) cognitive model of social phobia is based on the contribution of several theorists: Beck et al. (1985); Butler (1985); Hartman (1983); Heimberg and Barlow (1988); Leary (1983); Salkovskis (1991); Teasdale and Barnard (1993); Trower and Gilbert (1989). For Clark and Wells, "the core of social phobia appears to be a strong desire to convey a particular favorable impression of oneself to others and marked insecurity about one's ability to do so" (p. 69). They propose that people's previous negative social experiences interacting with innate behavioral predispositions will contribute to the development of a series of assumptions about themselves and their social world. These assumptions make them prone to believe that they are in danger when engaged in social situations. In particular, these beliefs are that when they enter social situations, "(1) they are in danger of behaving in an inept and unacceptable fashion, and (2) that such behavior will have disastrous consequences in terms of loss of status, loss of worth, and rejection" (p. 69-70). According to Clark and Wells, this perception triggers an "anxiety program" that is automatically and reflexively activated. This anxiety program includes four components believed to contribute to a series of vicious cycles that will maintain or exacerbate the social anxiety. Examples of

these components are: (a) the interpretation of somatic and behavioral symptoms as further sources of perceived danger; (b) the interference between somatic responses, negative social evaluative thoughts, and the processing of social cues; (c) confirmation of the fear when a less-friendly response from others is produced because of the way people with social phobia behave when anxious; and (d) production of further feared sensations caused by behavioral symptoms.

Clark and Wells' (1995) model describes some processes that prevent persons with social phobia from disconfirming their negative beliefs about the danger they perceive in social situations. These processes are concerned with things that people with social phobia do in anticipation of, during, and after leaving a feared social situation. The first process is linked with anticipatory anxiety. Before entering a social situation, the thoughts of people with social phobia tend to be dominated by recollection of past failures, negative images of themselves, and predictions of a poor performance and rejection. Sometimes the anticipatory anxiety is so high that the person will avoid the situation. If this does not happen, the person will enter the social situation already engaged in a self-focused processing mode. This process is presented below. According to Clark and Wells (1995), during the feared social situation three different processes will occur.

1. A shift in attentional focus from the external environment to the self (self-focused attention) will produce enhanced awareness of feared anxiety responses, interfere with processing other peoples' behavior and processing the situation with increased physiological arousal, and promote the construction of a representation

of themselves as a *social object*. As a social object, the person with social phobia is preoccupied with how he or she appears to others. This representation-of-self-in-the-eyes-of-others is based on the social phobic's tacit self-concept. As part of this process, the person also uses vivid images or impressions (often exaggerated) in which he or she sees oneself through other people's eyes.

2. The use of In-Situation Safety Behaviors will maintain negative beliefs and anxiety. These safety behaviors consist of a wide range of behaviors in which the person with social phobia will engage to reduce the perceived risk of negative evaluation. Examples of these behaviors include: avoiding eye contact, mentally rehearsing words or sentences, and speaking quickly or slowly. These behaviors are problematic because they prevent the person from experiencing disconfirmation of their beliefs about feared behaviors and the consequences of these behaviors. In other words, when safety behaviors are used, the person with social phobia may attribute the non-occurrence of feared catastrophes to the implementation of the safety behavior. In some occasions, it is also likely that safety behaviors may exacerbate feared bodily sensations (Salkovskis, 1991; Wells et al., 1995).

3. The possibility of anxiety-induced performance deficits and their effects on other people's behavior will further contribute to the maintenance of social phobia. Following a social encounter, the last process posited by Clark and Wells' model is the reprocessing of the event. The person conducts a "postmortem" of the event

where thoughts are dominated by shame and overestimation of negative outcomes. This reflection results in the recent social interaction being added to the list of past failures, reinforcing the person's belief about his or her social inadequacy.

One of the goals of the treatment based on this model is to help people with social phobia by altering their cognitions in various ways, especially by shifting from an internal focus to an external focus. The person is encouraged to engage in processing of the situation itself and how he or she can perform effectively in it. In order to achieve this goal, this model proposes the use of self-statements to modify the self-image. It challenges the erroneous beliefs that other people think of them in a negative way. The treatment also helps the person become aware of safety behaviors and, through exposure, activates the person's fears in each situation to disconfirm the negative belief.

Rapee and Heimberg's Cognitive Model of Social Phobia (1997)

Rapee and Heimberg (1997) acknowledge the influence of earlier models (Carver & Scheier, 1988; Schlenker & Leary, 1982), as well as Clark and Wells' (1995) model of social phobia, upon their model of social anxiety. From an evolutionary perspective, Rapee and Heimberg assume that the normal purpose of anxiety in social contexts is to maintain affiliation with a group by avoiding challenges and rejection from dominant individuals. Rapee and Heimberg (1997) also agree that genetic factors might contribute to individual differences in anxiety by predisposing some people to have increased threat sensitivity. They also include environmental influences in their model, especially parental behaviors likely to influence children's mental representations of themselves and others. In line with Buss (1980), they retain three components of this influence: (a) parental

overprotection or excessive control, which may influence a child to construe himself or herself as incompetent; (b) parental expressions of excessive concern about the opinions of others, which might increase expectations of negative evaluation from others and reinforce the idea that other people expect high standards of behavior; and (c) parental modeling of avoidant coping strategies (e.g., avoidance of socializing), which might impose a restriction on the child's repertoire of effective skills for coping with the demands of social situations.

Rapee and Heimberg (1997) hypothesize that when entering a social situation with a perceived audience (real or imaginary), people with social phobia will:

1. Allocate their attention inward to the self to generate a mental representation of how they appear to the audience. This mental representation is made up of prior knowledge about oneself (e.g., actual deficits and distorted self-perceptions), and rather than being an exact image of how one is seen by others, it is a subjective interpretation of the impression one is making. Rapee and Heimberg (1997) propose that the mental representation integrates input from self-appraisals of previous social situations, and also includes internal information like sensation of muscle (e.g., posture, facial expression) and somatic symptoms (e.g., blushing, sweating, trembling).
2. Allocate their attention outward to detect any possible negative cues from the audience (e.g., verbal and nonverbal behaviors of others in social encounters). Based on Hartman's dichotomy of attention (Hartman, 1984), Rapee and Heimberg (1997) suggest that information from internal and external sources will

further influence the mental representation, which will change from moment to moment depending on the feedback from inside and outside. This contributes to a more distorted and exaggerated mental representation.

3. Develop an anticipation of the performance standard that the audience is expecting from them (e.g., high expectations).
4. Estimate the likelihood and consequence of negative evaluation by the audience based on the perceived discrepancies between the mental representation and the representation of the audience standards of performance.
5. Experience more anxiety because of the prospect of negative evaluation. Manifestations of anxiety (e.g., somatic, cognitive, behavioral) further reduce the capacity to execute social tasks, thus confirming the mental representation of inadequacy. In other words, the mental representation becomes more negative.
6. Engage in subtle avoidance behaviors that may appear as a lack of social skills. Rapee and Heimberg (1997) propose that it is not a lack of knowledge of social skills but a lack of use of social skills as a consequence of greater anxiety. These avoidance behaviors contribute to reduce engagement with the audience, providing negative feedback to the individual.

Rapee and Heimberg (1997) propose that a cycle is activated in which subsequent comparisons between the representation of the self as a social object and the representation of audience standards are expected to be even more unfavorable, thus leading to additional anxiety.

According to their model, Rapee and Heimberg (1997) suggest that treatment goals should help people with social phobia to direct their attention away from a distorted mental representation and exaggerated indicators of negative evaluation by others. Furthermore, they propose that cognitive restructuring could help to reduce the discrepancy between their mental representation and the presumed standards expected from the audience. Another treatment goal is related to the importance of giving instruction and feedback regarding the subtle avoidance behaviors. According to Rapee and Heimberg, treatment "would not focus on teaching the 'hows' of social skills, but in providing permission and encouragement to abandon comfortable but maladaptive social behaviors" (p. 753).

Many similarities can be found between the models of Rapee and Heimberg (1997) and Clark and Wells (1995). Both models acknowledge inherited predisposition and environmental factors, beliefs and assumptions in social situations perceived as threatening, somatic and behavioral changes as reinforcers of perceived danger, the possibility of disruption in behavioral performances and its impact on others, and finally, anticipatory anxiety and post-event processing. Furthermore, both models suggest that self-focused attention and fear of negative evaluation are critical key components of the disorder.

However, there are also some important differences between the two models. Rapee and Heimberg (1997) suggest that when entering an evaluation situation, people with social phobia allocate their attention in two directions—internal and external. Clark and Wells (1995) suggest that these people don't pay enough attention to the situation,

and if they do notice something negative in the environment, they tend to shift back to more self-focused attention. For Rapee and Heimberg, the mental representation of people with social phobia is constructed with the integration of information from past experiences, and internal and external information. In contrast, Clark and Wells suggest that social phobics construct an impression of themselves based on interoceptive information that is projected onto the audience; they assume this information is more important than observation of others' actual behavior.

Furthermore, their views on the process of self-focused attention present some differences. For Clark and Wells' (1995), self-focused attention is described as a detailed observation and monitoring of the self as a social object (e.g., as seen by others). When people with social phobia perceive something negative from the environment, they shift their attention back to the self, and this increased self-focused attention reduces further attention to the external environment. For Rapee and Heimberg (1997), the process of focusing on the self contributes to a mental representation based on three main sources: how they appear to others, accurate perception of flaws, and distorted perceptions of the self (present and past). The process of self-focused attention is not isolated from attention given to others or the environment, and as a consequence, the mental representation changes from moment to moment.

These two models also present some differences in their view of fear of negative evaluation. For Clark and Wells (1995), the fear of negative evaluation is rooted in a belief/assumption of danger that other people will make negative judgements about their perceived symptoms of anxiety. The thoughts about negative evaluation are not based on

detailed information about others' responses but on the beliefs that they cannot meet their own high performance standards, which is going to be catastrophic (e.g., rejection by others). For Rapee and Heimberg (1997), the fear of negative evaluation stems from a discrepancy between the evaluation of their own performance and beliefs about others' high expectancies. The higher the discrepancy, the higher the perception and fear of negative evaluation by others.

Nevertheless, these two models offer an interesting theoretical basis for the analysis of how social phobics' thinking changes following treatment. Specifically, this study sought to explore changes occurring in self-focused attention, self-consciousness, valence of thoughts, and thoughts about negative evaluation by others.

Cognitive Assessment

Clark and Wells' (1995) and Rapee and Heimberg's (1997) cognitive models of social phobia present an integrated conceptualization of this disorder and contribute to a better understanding of its origin and maintaining factors. They also provide a rationale for scientific studies that, in turn, require appropriate measures and techniques for the cognitive assessment of people with social phobia. Glass and Arnkoff (1994, 1997), Elting and Hope (1995), and Heimberg (1994) presented a critical review of cognitive assessment strategies and made several recommendations. A brief overview of their examination will provide a rationale for the assessment used in this study.

Review of Cognitive Assessment Strategies

Heimberg (1994) reviewed and evaluated cognitive assessment strategies employed in 24 studies using cognitive-behavioral treatment for social phobia. He found

that more than 52% of these studies used only questionnaires to assess cognitive traits. Common measures are the Fear of Negative Evaluation Scale (FNE; Watson & Friend, 1969), the Irrational Beliefs Test (IBT; Jones, 1969), and the Rational Behavior Inventory (RBI; Shorkey & Whiteman, 1977). Heimberg also reported that the FNE was the most utilized measure, and was found in more than 70% of the studies using questionnaires only. Furthermore, a limited number of studies utilized the endorsement method. This method consists of a structured questionnaire presenting a standardized set of relevant thoughts that may have occurred to the participants. The participants' task is to rate them according to different parameters such as frequency, degree of belief, impact, etc. The best-known measure in this category is the Social Interaction Self-Statement Test (SISST; Glass et al., 1982).

Another approach to cognitive assessment is the production method. This approach requires participants to report their thoughts before, during, and after a social interaction task. One procedure is the thought-listing task, oral or written, following an individualized behavioral or imaginal task. This method was originally applied to social anxiety by Cacioppo et al. (1979). Heimberg (1994) indicated that production methods have been used less in treatment studies of social phobia (Heimberg, Dodge, Hope, Kennedy, Zollo, & Becker, 1990; Heimberg, Salzman, Holt, & Blendell, 1993). To date, no empirical investigations have addressed which of these methods is superior (Elting & Hope, 1995; Heimberg, 1994).

Heimberg (1994) concluded his review by saying that cognitive assessment in social anxiety research has relied too much on questionnaires, especially the FNE, and not

enough on endorsement and production methods. He strongly recommends that multiple cognitive assessment devices be included in the same study.

Glass and Arnkoff (1994, 1997) reviewed the literature on self-statement assessment of social phobia and social anxiety from the perspective of validity. They found that most measures have shown good evidence of validity, especially with content and criterion-related validity. They recommend that content scoring (considering, for example, other- vs. self-focused thoughts) be added to valence scoring of self-statement measures (that is positive, negative, or neutral valence of thoughts) in order to address different questions. Glass and Arnkoff (1994, 1997) concur with Heimberg (1994) that it is most advantageous to use multiple cognitive measures, such as questionnaires and thought reports, and conduct the assessment across different points in time to ensure more valid results.

In their review of cognitive assessment, Elting and Hope (1995) stated that of all the forms of cognition, the assessment of cognitive products (e.g., thoughts and self-statements) has received the greatest attention in studies of social phobia. In their review of the main strategies to assess cognitive products, they concluded that the Fear of Negative Evaluation Scale (FNE) and the Brief Fear of Negative Evaluation Scale (BFNE) were widely used and tapped an important cognitive construct associated with social phobia. Elting and Hope (1995) reviewed studies using the thought production method, such as the thought-listing procedure (Cacioppo et al., 1979). In this procedure, participants are asked to record all the thoughts they recall having in a given time period, in writing or orally. Elting and Hope (1995) suggested that coding these thoughts not only

for valence but also for focus (e.g., self, other) "may add important information and should be considered as a potentially useful adjunct in future work" (p. 250).

The different methods to be applied in this study will be examined in light of reviews by Heimberg (1994), Glass and Arnkoff (1994, 1997), and Elting and Hope (1995), as well as with the extant literature. First, the procedures to collect thoughts will be reviewed—think-aloud, thought-listing, and use of a social situations diary. Second, the procedure to be used in summarizing thoughts—the States of Mind (SOM) model and the revised model, Balanced States of Mind (BSOM)—will be discussed.

Procedure to Collect Thoughts

Think-Aloud Procedure

Think-aloud procedure is one of the production methods where participants verbalize their thoughts while performing a task or imagining themselves in a social situation, and then think aloud. The participants' articulated thoughts are tape-recorded and later transcribed for content analyses by coders unaware of any information that could potentially bias the coding (e.g., diagnosis of the participants, time of assessment, treatment conditions, etc.) (Davison, Robins, & Johnson, 1983; Davison, Vogel, & Coffman, 1997).

The main advantages of the think-aloud procedure are: (a) its unstructured format, which gives a rich sample of thoughts; (b) no reliance on long-term memory or retrospective report; and (c) the potential for a high degree of situational specificity. The major disadvantages are (a) the need to use coders and therefore the reliability question is one that must be addressed; and (b) it is more time consuming (Davison et al., 1997).

In the present study, the think-aloud procedure was used with an imaginal task to sample a portion of the participants' thoughts. However, for the reasons given below in the Method section, these thoughts were not analyzed as part of the present thesis.

Thought-Listing Procedure

Cacioppo, von Hippel, and Ernst (1997) describe the thought-listing procedure as a technique where participants are asked to write down all the thoughts they recall having during a relevant scenario, behavioral role-play, or an interaction task. Usually, they are asked to write down their thoughts immediately following the role play or the situation in which they were involved. Thought-listing procedure has the flexibility to yield richer cognitive data without constraining the participants' responses (Heimberg, Nyman et al., 1987).

The main advantages of the thought-listing procedure are: (a) it is easy to administer; and (b) it can be applied to a variety of problems and social situations. The major disadvantages are: (a) participants may produce fewer thoughts with this procedure than the think-aloud one; (b) the protocols must be coded and therefore the reliability question is an important one; and (c) it is also more time-consuming (Cacioppo et al., 1997; Merluzzi & Boltwood, 1989). In the present study, the thought-listing procedure was used with naturally occurring anxiety-provoking situations written in a diary.

Diary Methodology

Diary methodology has been used in studies with normal and analog populations for a variety of reasons. For example, Flory, Raïkkönen, Matthews and Owens (2000) used an ambulatory diary with a normal population to assess self-focused attention and

mood during everyday social interactions. Lavallee and Campbell (1995) used a diary with students to analyze self-focused attention in relation to daily negative events. Hope, Heimberg, Zollo, Nyman and O'Brien (1987) asked students with high and low anxiety levels to keep a diary of their thoughts during social interactions. Wood, Saltzberg, Neale, Stone, and Rachmiel (1990) used a diary with a student population to assess self-focused attention and rumination in response to daily negative events.

Only a few studies have used diaries to evaluate the effectiveness of treatments for social anxiety (Christensen, Arkowitz, & Anderson, 1975; Dodge, Heimberg, Nyman et al., 1987; Heimberg, Madsen, Montgomery, & McNabb, 1980; Twentyman & McFall, 1975). In a case study investigating a treatment for fear of blushing, Mulkens, Bögels, and de Jong (1999) used diary recordings as a continuous measure to target the fear of blushing and avoidance.

Diary measures may capture dimensions that are missed by standard measures or experimentation in a laboratory setting. Clark (2001) suggested that getting thoughts directly linked with social situations would enhance our comprehension of the role of negative cognition. He recommended that "rather than ask participants to report on general thought patterns, it may be more fruitful to ask people what they are thinking at this moment and then obtain information on their immediate responses to these cognitions" (Clark, 2001, p. 6). Even though diary methodology is not as popular as other methods to collect thoughts, its primary advantage is that because it is used in a naturalistic setting, it provides data with a high degree of ecological validity (Glass & Arnkoff, 1994).

Procedure to Analyse Thoughts

In previous research, different aspects of thoughts have been coded: valence (*positive*, *negative*, or *neutral* thoughts), content (focus of attention on *self*, *other,* or *situation*), degree of controllability, intensity, subjective meaning, and degree of belief (Glass & Arnkoff, 1994). According to Heimberg (1994) and Merluzzi and Boltwood (1989) the most frequently scored characteristic has been the valence. The interpretation of the scores has been done by evaluating each level (positive thoughts and negative thoughts) in reference to normative groups, or by using the difference score (positive score minus negative score) (Merluzzi & Boltwood, 1989). Merluzzi, Burgio, & Glass (1984) have suggested that the latter approach is superior.

Schwartz and Garamoni (1986) have proposed the States of Mind (SOM) model as a framework for evaluating the valence of thoughts. This model suggests that healthy psychological functioning is characterized by an optimal balance between positive and negative thoughts. "According to the model, normal individuals strive to maintain an optimal balance of positive and negative cognitive/affective information and deviations from this balance are associated with psychopathology." (Schwartz, 1993, p. 164). Schwartz and Garamoni (1986, 1989) define five different states of mind characterized by different ratios of positive thoughts to the sum of positive plus negative thoughts $\left(\frac{P}{N+P}\right)$. These five states of mind are:

1. *Positive dialogue* with a set point of .618 and a range of .56 to .68, which is defined as the optimal state for healthy functioning.

2. *Internal dialogue* of conflict with a set point of .500 and a range of .45 to .55, which is associated with mild levels of psychopathology.
3. *Negative dialogue* with a set point of .380 and a range of .32 to .44, which is associated with a moderate degree of pathology characteristic of many clinical samples of depressed and anxious persons.
4. *Positive monologue* with values ranging from .69 to 1.00, which is characterized by an insufficient attention to negative events that may signal important threats and serve as a motivational function, which may be seen in pathological states such as acute mania.
5. *Negative monologue* with values ranging from .31 to .00, which is characterized by extreme negativity and associated with severe pathology such as profound depressive or acute stages of a severe panic disorder.

The three SOMs in the middle of the continuum (*positive dialogue, internal dialogue of conflict*, and *negative dialogue*) are presented as dialogues because positive and negative self-statements are both well represented in one's internal dialogue. By contrast, the two extreme categories (*positive monologue* and *negative monologue*) are characterized by a preponderance of positive and negative self-statements, respectively.

Schwartz and Garamoni (1986, 1989) posit that cognitive treatments produce a shift toward the range for *positive dialogue*. According to Heimberg & Juster (1994) this model adapts the cognitive-behavioral formulation of thoughts as an internal dialogue and can be used to examine the relationship between treatment outcome and cognitive change.

Cox (1996) also indicated that it is very important to assess the balance between negative and positive cognitions in order to assess cognitive change due to treatment.

The SOM ratio model is a critical construct that has received extensive conceptual and empirical attention (Burgess and Haaga, 1994). Schwartz and Garamoni (1986, 1989) present convincing evidence to support their model, and several studies with different populations reveal high consistency with the model. These populations include people with agoraphobia (Schwartz & Michelson, 1987), depression (Garamoni, Reynolds, Thase, Frank, & Fasiczka, 1992; Kendall, Howard, & Hays, 1989; Myers, Lynch, & Bakal, 1989), social anxiety (Glass & Furlong, 1990; Johnson & Glass, 1989), and social phobia (Bruch, Heimberg, & Hope, 1991; Dodge et al., 1988; Heimberg, Bruch, Hope, & Dombeck, 1990).

Despite these findings, some studies have suggested that SOM ratios exceeding the hypothesized optimal balance (e.g., ratios greater than .68) were also adaptive and possibly optimal in a wide range of situations. For example, Haaga, Davison, McDermut, Hillis, and Twomey (1993) found that optimal outcomes in treated ex-smokers were associated with SOM ratios greater than .95. Other studies have reported similar results in relation to assertiveness (Bruch, Hamer, & Kaflowitz-Lindner, 1992), social interaction with disabled persons (Fichten, Amsel, Robillard, & Tagalakis, 1991), quality and quantity of sleep (Amsel & Fichten, 1998), and the ability to take a walk outdoors following treatment of agoraphobia (Michelson, Schwartz, & Marchione, 1991).

According to Schwartz (1994, 1997), these findings challenged two of the main assumptions underlying the SOM model. More specifically, findings of these studies

suggested that the *positive dialogue* (SOM ratio = .62) does not necessarily characterize optimal psychological functioning, and SOM ratios greater than .68 (e.g., falling in the *positive monologue* range) do not necessarily represent dysfunctional states of mind. In order to address this problem, Schwartz (1994, 1997) proposed the reformulation of the SOM—the Balanced States of Mind Model (BSOM)—in order to differentiate ratios associated with coping with stress from ratios associated with optimal psychological functioning. He proposed that the BSOM model, based on Lefebvre's (1985, 1990) theory of consciousness, will add new balanced points that differentiate ratios when people are coping with stress (SOM ratio = .62), when people are functioning normally (SOM ratio = .72), and when they are functioning optimally (SOM ratio = .81).

Lefebvre's (1990) theory of consciousness provides a mathematical representation of the processes underlying human reflective awareness. For Lefebvre (1990), reflexive awareness is the human capacity of individuals (a) to see themselves and other people, (b) to observe themselves and others, and (c) to observe themselves seeing themselves and others. Schwartz et al. (2002) express this reflexive hierarchy with this example: "I (physical person) see myself in the mirror (image) and I know that I am seeing myself (cognizant image or image of the image)" (p. 440).

Lefebvre's (1990) theory incorporates several fundamental dimensions, including: (a) consideration of whether one's thoughts focus on one's own or on another's view of oneself; (b) the situation (e.g., whether stressful or relaxing); (c) the level at which reflection takes place (e.g., whether awareness involves sensory experiences, self-image, or the image of one's image); and (d) the valence (either positive or negative) of the

individual's thoughts or feelings. Each of these dimensions is represented in a mathematical model that uses Boolean algebra to predict the probability that a person will evaluate himself or herself positively in a given situation. This is beyond the scope of this thesis to provide a complete discussion on Lefebvre's model. Interested readers are referred to Lefebvre (1990), and Lefebvre, Lefebvre, and Adams-Webber (1986).

Schwartz (1995) proposed that the states of mind model "be subsumed within Lefebvre's (1990) general theory of consciousness to represent a framework for exploring mathematical regularities in the balance of positive and negative cognition and affect as these characterize normal and pathological states" (p. 20). The revised quantitative parameters of the BSOM delineate seven states of mind categories using the same ratio $\left(\frac{P}{N+P}\right)$. The new balanced states of mind categories are:

1. *Positive monologue* with a range of .91 to 1.0, which reflects excess positivity associated with unrealistic optimism, denial, grandiosity, and current manic states.
2. *Positive dialogue*, which is subdivided in three sub-categories:
   (a) *super optimal dialogue* with a set point of .875 and a range of .85 to .90, which is associated with healthy persons in a "deep" positive mood experiencing a more pervasive feeling of well-being, successes, or peak experiences;
   (b) *optimal dialogue* with a set point of .813 and a range of .78 to .84, which is associated with healthy persons who are in a positive mood, and have optimal well-being;

(c) *normal dialogue* with a set point of .719 and a range of .67 to .77, which is a characteristic of healthy persons who are in neutral situations.

3. *Successful coping dialogue* with a set point of .625 and a range of .59 to .66, which is a subnormal state of mind associated with successful management of negative events or negative situations. A successful coping dialogue is also defined as positive evaluation of self in negative mood, capacity to maintain positivity during difficult situations.

4. *Conflicted dialogue* with a set point of .500 and a range of .42 to .58, which is associated with mild pathology, where doubt, indecision and ambivalence prevail. This category is associated with mild depression, anxiety, or both.

5. *Failed coping dialogue* with a set point of .375 and a range of .34 to .41, which is associated with pessimism, guilt, worry, impaired self-esteem, and moderate depression, anxiety, or both.

6. *Negative dialogue* with a set point of .215 and a range of .10 to .33, which is associated with hopelessness, chronic negative rumination, agitation, low self-esteem, and severe pathology (depression, anxiety, or both). Schwartz et al. (2002) suggest that the *negative dialogue* includes three sub-categories:

   (a) the *high negative dialogue* with a set point of .281 and a range of .23 to .33;

   (b) the *moderate negative dialogue* with a set point of .187 and a range of .16 to .22;

   (c) the *low negative dialogue* with a set point of .125 and a range of .10 to .15.

7. *Negative monologue* with a range from .00 to .09, which is characterized by complete despair, acute panic, withdrawal, self-hatred, and profound depression, anxiety, or both.

Overall, the BSOM model predicts that general psychological adaptation should oscillate around a balance of approximately .81, and that in time of stress or difficulties, the observed state of mind for a functional person may drop as low as .62, if this person is coping effectively (Schwartz et al., 2002).

Schwartz et al. (2002) empirically tested the BSOM model with depressed male outpatients receiving CBGT and pharmacotherapy. At post-treatment, they found that remitted patients improved their BSOM ratios from .35 (pre) to .74 (post), whereas the unremitted patients remained in the failed coping category .35 (pre) to .41 (post). Schwartz (1997) pointed out the need for more group-design studies to further evaluate the BSOM model.

Following recommendations from Heimberg (1994), and Glass and Arnkoff (1994) and Elting and Hope (1995), the proposed study used a multi-component assessment procedure. Think-aloud procedure with imaginal task, thought-listing procedure, and social situations diary were utilized to collect thoughts that were analyzed by the BSOM model. Also, more conventional self-report measures were employed. These measures included the Subjective Units of Discomfort Scale (SUDS), the Brief Fear of Negative Evaluation (BFNE; Leary, 1983); the Self-Consciousness Scale-Revised (SCS-R; Scheier & Carver, 1985); the Social Phobia Scale (SPS) and the Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1989); the Fear Questionnaire (FQ;

Marks & Mathews, 1979); the Social Phobia and Anxiety Inventory (SPAI; Turner, Beidel, Dancu, & Stanley, 1989); the Scale of Maladaptive Self-Consciousness (SCONS; Christensen, 1982); and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Beck, Steer, & Garbin, 1988). A description of these measures is given in the Method section.

Cognitive Factors Operative in Social Phobia

Several writers (Butler, 1985; Emmelkamp, 1982) have suggested that cognitive factors may be more important in social phobia compared to the other anxiety disorders. Furthermore, the importance of cognitions in social phobia has been demonstrated by the association between the cognitive change and the reduction of symptoms in treated people with social phobia (Chambless, Tran, & Glass, 1997). Some of this disorder's relevant cognitive features are: negative thoughts about inadequacies, thoughts about being judged or criticized by others, atypical allocation of attention, and biased memory processes.

Before discussing the cognitive features typical in people with social phobia, it seems important to differentiate the various aspects of what constitutes cognition. Ingram and Kendall (1986), Ingram and Hollon (1986), and Kendall and Ingram (1987) have proposed a taxonomy that categorizes several classes of cognitive constructs. These authors have organized *cognition* into four levels:

1. *Cognitive structural level* represents the *architecture* of the cognitive system and by definition is contentless. Examples of constructs represented at this level are the short- and long-term memory systems (Ingram & Wisnicki, 1991).

2. *Cognitive propositions* refer to the bits of information stored and organized in the cognitive structures. Examples of cognitive propositions are memory traces and abstractions such as beliefs, expectancies, judgements, and attributions.
3. *Cognitive processes* or operations are the various procedures by which the cognitive system gathers and handles information (Kendall & Hollon, 1989). Examples of cognitive processes are the attentional processes, perceptual distortions, and processes of encoding and retrieving information (Kendall, 1992).
4. *Cognitive products* are the end result of cognitive schemas and operations. Examples of cognitive products are thoughts, self-evaluations, ideas, and feelings that people experience and, most of the time, are able to consciously recollect and report (Ingram, 1990). The cognitive factors in social phobia have been examined mostly in terms of products and processes.

Cognitive Products in Social Phobia

Negative Self-Statements

Several studies have reported that high social anxiety is associated with a preponderance of negative self-statements (Cacioppo et al., 1979; Dodge et al., 1988; Glass et al., 1982). Also, individuals with social phobia report much higher levels of subjective anxiety as well as negative self-dialogue (Heimberg, 1989; Heimberg, Salzman et al., 1993; Heimberg, Hope, Dodge, & Becker, 1990; Liebowitz et al., 1985). Turner, Beidel and Larkin (1986) reported that when engaged in a social interaction, people with social phobia reported significantly more negative thoughts and fewer positive thoughts than a group of non-socially anxious participants in three interpersonal situations. Nyman

and Heimberg (1985) obtained similar findings with a thought-listing procedure. In a recent investigation, Heimberg, Dodge, Hope et al. (1990) reported that persons with generalized social phobia had fewer positive thoughts than persons with social phobia whose complaint was only public-speaking anxiety.

Hartman (1984) found that the negative self-statements of people with social phobia generally fall into four categories: (a) thoughts of general social inadequacy; (b) concerns that their anxiety will be visible to others; (c) fear of negative evaluation; and (d) preoccupation with arousal or performance.

Stopa and Clark (1993) reported a content analysis of thought sampling data from a task where people with social phobia, an anxious control group (people meeting DSM-III-R criteria for any other anxiety disorder except obsessive-compulsive disorder), and a non-anxious control group were involved in a conversation with a stranger. They found that people with social phobia reported significantly more negative self-evaluative thoughts than the two other groups. More specifically, persons with social phobia have been found to engage in a number of thoughts related to negative evaluation, lack of ability, and concerns about appearance. One interesting finding in their study is the fact that the thoughts of people with social phobia were predominantly concerned with negative self-evaluation rather than concerns about what other people are thinking about them. This observation is consistent with the view of Clark and Wells (1995) and Rapee and Heimberg (1997) that much of the evidence for the negative beliefs of people with social phobia stems from their own impression of how they appear to others instead of their observation of others' reactions. McEwan and Devins (1983) also found that

individuals with social phobia seem to assume that the way they feel corresponds to the way they are perceived by other people. Recent research by Mersch (1995) and Stopa and Clark (1993) suggests that the core of the problem for people with social phobia seems to be the misinterpretation of their own behavior rather than preoccupation with how their behavior is evaluated by others.

SOM Ratios

Although research has suggested that people with social phobia have more negative self-statements than positive ones, several authors have argued that it is the relative balance between the positive and the negative self-statements that is important (Amsel & Fichten, 1990, 1998; Fichten et al., 1991; Glass & Arnkoff, 1994; Heimberg, Bruch et al., 1990; Kendall & Hollon, 1981; Schwartz, 1993; Schwartz & Garamoni, 1986). According to Lefebvre (1990), using a single ratio reflecting the balance of positive and negative thoughts $\left(\frac{P}{N+P}\right)$ can add important information beyond reporting each dimension separately. This is why the SOM, which is now the BSOM model (Schwartz 1994, 1997; Schwartz & Garamoni, 1986, 1989), is a powerful alternative and offers a conceptualization of the relative balance of positive and negative cognitions.

Fear of Negative Evaluation

According to the DSM-IV-TR (2000) and Rapee (1995), the core feature of social phobia is concern about being negatively evaluated by other people. Butler (1989) suggested that fear of negative evaluation is a cognitive construct that can be modified by cognitive interventions. The most frequently used scale to assess this construct has been

the Watson and Friend (1969) self-report questionnaire, entitled the Fear of Negative Evaluation (FNE) scale, or the brief version developed by Leary (1983)—the Brief Fear of Negative Evaluation (BFNE). Herbert, Rheingold and Brandsma (2001) suggested that this measure was not typically used for an indication of severity of symptoms, but rather as an assessment tool for theoretical constructs proposed by cognitive models of social phobia.

Studies Investigating Change in Cognitive Products

Change in Negative Self-Statements

Studies that have examined the changes in self-talk using the SISST or thought-listing procedure have found significant change (reduction in the proportion of negative thoughts and increase in positive self-statements) from pre- to post-treatment (Altmaier, Ross, Leary, & Thornbrough, 1982; Bruch et al., 1991; Gelernter et al., 1991; Heimberg, Dodge, Hope et al., 1990; Jerremalm, Jansson, & Öst, 1986; Mersch, Emmelkamp, Bögels, & van der Sleen, 1989; Scholing & Emmelkamp, 1999; Taylor, Woody, Koch, McLean, Paterson, & Anderson, 1997a; Turner, Beidel, & Jacob, 1994; Woody, Chambless, & Glass, 1997). Heimberg, Hope, Dodge et al. (1990) pointed out that it is important to show that changes in cognitive assessment measures are related to changes in the target behaviors. In their study, changes in positive and negative self-statements were significantly related to changes in phobic severity. Heimberg, Dodge, Hope et al. (1990) proposed that because self-statement change was related to improvement regardless of treatment condition, it might be that cognitive change is an important building block for behavioral change.

Change in SOM Ratios

In order to test their model, Schwartz and Garamoni (1986, 1989) repeated the analysis of results from five treatment studies and found that all pre-treatment SOMs were in the *internal dialogue of conflict*, *negative dialogue*, or *negative monologue* categories. Schwartz and Garamoni suggest that participation in therapy was associated with a shift toward the SOM of *positive dialogue*.

Bruch et al. (1991) reanalysed the thought-listing data from Heimberg, Bruch, Hope et al.'s (1990) study in order to examine the relationship between the two treatments (cognitive-behavioral group therapy and educational supportive group therapy) and the cognitive change as quantified with the SOM ratios. They found that their participants had a pre-treatment SOM ratio of .29, placing both groups in the *negative monologue* category. Following treatment, no differences were found between the two groups and both achieved SOM ratios in the range of *internal dialogue of conflict*. At 6-month follow-up, they found that cognitive-behavioral group therapy patients had a ratio within the theoretical ideal range of .67, while the ratio for educational supportive group patients returned to the baseline level (e.g., they were back to *negative monologue*). In this study, SOM ratios were also significantly related to assessor-rated severity of symptoms at both posttest and follow-up (rs = -.42, -.44, respectively, $ps < .05$).

Heinrichs, Wiegel, and Hofmann (1999) found that after receiving exposure treatment, their 23 individuals with social phobia improved their states of mind. At pre-treatment the mean SOM ratios was .29, a score typically reflecting *negative*

monologue. At post-treatment, their participants had mean SOM ratios of .49, (category of *internal dialogue of conflict*), demonstrating a significant improvement.

Change in Fear of Negative Evaluation

Butler (1985) suggested that the fear of negative evaluation (FNE) is especially important in the treatment of social phobia, and many studies support this claim. In the cognitive theories of social phobia, cognitive change has been defined as the reduction of the fear of negative evaluation (Beck & Emery, 1985). In fact, meaningful clinical change in social phobia treatment outcome studies has been associated with a reduction in FNE scores (e.g., Butler, Cullington, Munby, Amies, & Gelder, 1984; Gelernter et al., 1991; Hope, Heimberg & Bruch, 1995; Kanter & Goldfried, 1979; Mattick & Peters, 1988; Mattick et al., 1989; Mersch, 1995; Taylor et al., 1997a; Turner, Beidel, Long, Turner, & Townsley, 1993). Two studies—Mattick and Peters (1988) and Mattick et al. (1989)—reported that the best predictor of long-term outcome was change in the cognitive component of social anxiety—the fear of negative evaluation. This conclusion, according to these authors, supports the importance of cognitive change due to treatment. Hope and Heimberg (1993) also found that FNE was the strongest predictor of treatment response. However, as pointed out by Heimberg (1994), the meaning of change in FNE is unclear because it may reflect changes in cognition, anxiety, or both.

Furthermore, Stopa and Clark's (1993) findings that their participants with social phobia had more negative self-evaluative thoughts, and did not report more negative thoughts explicitly mentioning evaluation by others, raise an important question regarding the hypothesized cardinal feature of social phobia—fear of negative evaluation. Mattick

et al. (1995) indicated that despite the fact that reduction in fear of negative evaluation has been predictive of long-term outcome, it appears important to pay attention to the factors responsible for this reduction if we want to understand the mechanisms underlying cognitive change. Reducing the fear of negative evaluation by increasing the focus of attention to others and to the situation may support the idea that fear of negative evaluation in social phobia stems from their own negative impression of themselves (Butler & Wells, 1995; Clark & Wells, 1995).

Cognitive Processes in Social Phobia

Recent cognitive theories and models of social phobia emphasize the role of cognitive processes and focus of attention (e.g., self-focused attention) in the maintenance of this disorder (Clark & Wells, 1995; Heimberg, Dodge, & Becker, 1987; Leary & Kowalski, 1995; Rapee & Heimberg, 1997). Since Ingram's (1990) claim that "it appears difficult to find a psychological disorder that is not characterized by a heightened degree of self-focused attention" (p. 165), there has been an increasing interest in the presence and role of self-focused attention within the context of social anxiety and social phobia (Woody, 1996). Empirical evidence suggests that self-focused attention is positively associated with social phobia (Hope, Heimberg, & Klein, 1990; Roth & Heimberg, 2001; Woodruff-Borden, Brothers, & Lister, 2001; Woody, 1996). According to Woody (1996) and Rapee and Heimberg (1997), heightened self-focused attention interferes with the ability to process information from the environment and attend to the social tasks involved in social encounters.

Before reviewing studies presenting evidence of a link between self-focused attention and social phobia, it is important to define and explain this multifaceted and complex construct. Self-focused attention has been defined as "an awareness of self-referent, internally generated information that stands in contrast to an awareness of externally generated information derived through sensory receptors" (Ingram, 1990, p. 156). Several terms are used to refer to self-focused attention. Baumeister (1998) suggested that following Carver and Scheier's (1981) convention, "*self-awareness* refers to the state, *self-consciousness* refers to the personality trait, and *self-attention* and *self-focus* refer to either or both" (p. 685). Self-focused attention is not in itself a pathological process and should be understood as part of a more general process of self-regulation (Mor & Winquist, 2002; Spurr & Stopa, 2002). When does self-focused attention become pathological? Ingram (1990) suggests that maladaptive and pathological self-focused attention is best described as a state of "self-absorption" (p. 169) during which attention is directed toward the self to an "excessive" (p. 169) degree, for "sustained" (p. 169) periods of time, and in a highly inflexible manner. This excessive self-absorption may be particularly problematic if attentional resources are needed to cope effectively with external demands or behavioral standards.

Two important theories of self-focused attention propose several concepts that may be useful to understand self-focused attention processes in social phobia. First, Duval and Wicklund (1972), who introduced the concept of self-focus, proposed a theory of self-awareness. They suggested that conscious attention can take two forms and they used the terms *objective* and *subjective* self-awareness to describe them. Objective

self-awareness occurs when an individual focuses attention on the self as an object. The other form—subjective self-awareness—happens when the person's attention is directed away from the self and on to external objects. According to Duval and Wicklund's theory, attention focused on the self can lead to a self-evaluative process in which a person's current state in a particular self-relevant domain is compared with his or her standard in that domain. This theory is in line with the cognitive models of social phobia (Clark & Wells, 1995; Rapee & Heimberg, 1997), suggesting that the standards of people with social phobia are often based on distorted beliefs or assumptions such as "I cannot allow myself to make even the smallest social error."

Building on Duval and Wicklund's (1972) theory, Carver and Scheier (1986, 1990, 1998) suggested the cybernetic model of self-regulation, where self-focused attention constitutes a feedback cycle. In this self-regulatory process, the person assesses the discrepancy between his or her current self and a salient standard, and engages in discrepancy-reducing behaviors when a negative discrepancy is detected. When the person's current self matches the desired standard, he or she terminates the self-regulatory process. In Carver and Scheier's theory, negative affect appears when the person finds a low probability of reducing the discrepancy in a successful manner. The relevance of this model for the understanding of social phobia is that highly social anxious persons are likely to be more self-critical, have higher standards for themselves, and be more affected by the perception of a large negative discrepancy between their actual and desired performance (Mor & Winquist, 2002).

Following Fenigstein, Scheier, and Buss (1975), Carver and Scheier (1981) proposed a distinction between two states of self-focused attention—*private* self-consciousness and *public* self-consciousness. Private self-consciousness represents the degree to which a person tends to focus on psychological aspects of himself or herself, such as thoughts, feelings, and attitudes. Public self-consciousness pertains to a person's tendency to be aware of the external observable aspects of himself or herself, such as physical appearance, and the impression the person conveys to other people. These concepts have been frequently assessed in research on self-focused attention with the most widely used measure of self-consciousness—the Self-Consciousness Scale (SCS; Fenigstein et al., 1975). These authors suggest that their scale measures the traits of public and private self-consciousness and their state counterparts—public and private self-awareness—because they "assume that dispositional self-consciousness has essentially the same impact on behavior as situational self-awareness" (p. 526).

Furthermore, Mor and Winquist (2002) propose two important dimensions of self-focused attention: focus on positive aspects versus negative aspects of the self. They suggest differentiating these dimensions because they may reflect different affective experiences. This is in line with Wood and Dodgson's (1996) concept of compensation, which is a process where people focus on positive aspects of their lives following the experience of a negative event (e.g., failing an interview). Compensation has been associated with positive affect, higher self-esteem, and better coping strategies (Baumeister, 1982).

Hope et al. (1987) studied college student participants selected for high and low social anxiety. Participants were asked to keep a diary of their thoughts during social interactions. A content analysis of the diaries, examined specifically for self-focused versus non-self-focused thoughts, suggested that socially anxious participants report significantly more self-focused thoughts during the social interactions than the non-socially anxious participants. Other studies supported the hypothesis that self-focused attention is heightened in test anxiety (Deffenbacher, 1978; Neale & Katahn, 1968), in generalized anxiety (Hope & Heimberg, 1988), and in social anxiety (Hope & Heimberg, 1988).

Social anxiety has been found to have a positive correlation with public self-consciousness (Bruch, Gorsky, Collins, & Berger, 1989; Fenigstein et al., 1975; Pilkonis, 1977). Social anxiety has also been found to more strongly correlate with public self-consciousness than with private self-consciousness in a diagnosed sample of people with social phobia (Hope & Heimberg, 1993). Bruch and Heimberg (1994) found that people with social phobia scored higher than nonclinical participants on public self-consciousness measures.

As Carver and Scheier (1982) pointed out, attention determines the degree to which a person processes a stimulus and is influenced by it. It is well-known that self-focused attention increases the sensitivity to bodily sensations and other sources of internal experience. Also, Carver and Scheier (1981) and Scheier, Carver, and Mathews (1983) posited that the sensitivity to bodily sensations seemed to lead rapidly to thoughts about other aspects of the self, such as self-evaluative concerns. Excessive preoccupation

with the self may lead to negative self-thoughts (Burgio, Merluzzi, & Pryor, 1986) and decrease the amount of attention persons give to the interaction with their partner or reduce the processing of external interpersonal feedback (Clark & Wells, 1995). People with generalized social phobia have heightened public self-consciousness, tend to be self-critical, and tend to worry excessively about being criticized or rejected by others (Beck & Emery, 1985; Hope, Gansler, & Heimberg, 1989). There is sufficient evidence that self-focused attention plays a critical role in the origin and maintaining factors of social phobia (Roth & Heimberg, 2001; Woodruff-Borden et al., 2001).

Studies Investigating Change in Cognitive Processes

Some studies suggest that a reduction in self-focused attention is often associated with improvements in anxiety following treatment for social phobia. However, measuring self-focused attention is a complicated task because it depends how the construct is operationalized (e.g., decreased attention to the environment or diminished performance), and also because attention is necessarily altered when the person has to answer the questions about his or her focus of attention (Hofmann, 2000; Woody et al., 1997). While several studies investigated self-focused attention with different manipulations (e.g., mirror, video recording, etc.) or comparing different groups on this construct, few studies have looked at reduction of self-focused attention following a therapeutic intervention (Mor & Winquist, 2002).

Woody et al. (1997) treated 59 people diagnosed with social phobia, with a modified version of Heimberg's treatment manual (1993, 1998). These modifications included diaphragmatic breathing and specific instructions in external focus of attention.

They developed a self-report instrument—the Focus of Attention Questionnaire (FAQ; Woody et al., 1997)—with two subscales: self-focus and external-focus. They found a decrease in self-focused attention during the course of CBGT. Furthermore, they found that improvement in self-focused attention was associated with positive change on clinical measures of social phobia.

Hofmann (2000) used exposure therapy with 23 individuals with social phobia. The objective of the study was to investigate changes in attentional focus and changes in the valence of thoughts following the treatment. The thought-listing technique used generated 506 thoughts coded for focus (*task-, self-, other-focused*) and valence (*positive, negative, neutral*). Hofmann found a significant decrease in negative self-focused thoughts following treatment. Furthermore, this decrease was highly correlated with a decrease in the symptoms of social phobia. Results of this study are consistent with the results of Woody et al. (1997). Both studies found a decrease in self-focused attention and no increase in external focus.

Wells and Papageorgiou (1998) used a single-case series with eight males diagnosed with social phobia. The treatment consisted of one session with exposure, and one session of exposure plus external attention focus training. To measure self-focused attention, they used a self-report instrument where participants were asked to rate the degree of self-focused attention experienced during exposure on a bipolar rating scale ranging from–3 (*entirely externally focused*) to +3 (*entirely self-focused*). These authors found a shift to external attention during anxiety-provoking situations. They suggested that instructions that reduce self-focus by increasing external attention in feared social

situations led to reductions in anxiety and negative beliefs participants had about themselves. Wells and Papageorgiou's results are inconsistent with Woody et al. (1997) and Hofmann (2000) regarding the change in external focus of attention. However, this discrepancy could be explained by measurement or treatment differences.

Mulkens et al. (1999) used a single-case study with a female diagnosed with social phobia and a severe fear of blushing. The goal of the treatment was to modify the attentional focus, by using 14 sessions of Task Concentrating Training (TCT; Mulkens et al., 1999) and Exposure *in vivo*. Mulkens et al. used diary recordings where the patient had to write daily to what extent she had used the technique concentrating on the task at hand (TCT). Results showed that the self-reported blush frequency decreased after treatment and remained low at long-term follow-ups. Mulkens et al. suggested it is not clear if the physiological blush frequency actually decreased or if the patient's self-report reflects a reduced preoccupation with blushing. These authors suggest that the decrease in self-focused attention played an important role in reducing the frequency of blushing.

Rapee and Hayman (1996) and Harvey, Clark, Ehlers, and Rapee (2000) demonstrated the therapeutic effects of using video feedback to change an excessively negative view of self, which they believed, might be maintained by self-focused attention. Rapee and Hayman found that, compared to the rating taken before viewing the videotape, high socially anxious participants rated their performance closer to that of an independent rater after reviewing a videotape of their performance. In their study with videotape feedback, Harvey et al. (2000) found that the results were greatly enhanced when they provided the participants with careful cognitive preparation.

In summary, this review of cognitive factors in social phobia highlights the fact that cognitive deficiencies have been found in cognitive products (e.g., more negative thoughts, more thoughts about social inadequacy, and thoughts about negative evaluation by others) and in cognitive processes (e.g., increased self-focused attention, heightened and maladaptive self-consciousness). Furthermore, the exploration of the construct fear of negative evaluation, which is believed to be the cardinal symptom of social phobia, needs to be pursued in light of Stopa and Clark's (1993) finding suggesting the greater importance of negative self-evaluation. There is a need for studies looking at a possible link between change in cognitive products and change in cognitive processes due to treatment. Further research is needed to identify the mechanism by which cognitive change may be achieved (Gelernter et al., 1991). It is also important to examine the mechanisms by which treatment achieves its effect on people with social phobia (Heimberg & Barlow, 1988).

OBJECTIVES OF THE STUDY AND HYPOTHESES

The overall purpose of the current study was to explore cognitive change in participants diagnosed with social phobia following cognitive-behavioral treatment. Many questions remain unanswered about changes in cognitive products and processes as a result of therapeutic interventions (Bruch et al., 1991; Heimberg, 1990). This study addresses an important concern raised by Hudson and Rapee (2000) regarding research on social phobia—"the research to date is limited by the relatively small number of studies that sample clinical populations of individuals with social phobia" (p. 102)—and often echoed by several researchers (Clark & McManus, 2002; Goldfried, 2003; Mor & Winquist, 2002; Spurr & Stopa, 2002).

Following recommendations by D. A. Clark (1997), Glass and Arnkoff (1997), Haaga (1997), Heimberg (1994), and Herbert et al. (2001), this study used a multi-component cognitive assessment procedure. An imaginal task with think-aloud procedure and a social situations diary using thought-listing were used to collect cognitive data to complement data from more traditional self-report measures. Production approaches and diaries are less frequently used as cognitive assessment strategies because of inherent limitations (e.g., need for independent coders, time-consuming, etc.). However, these techniques offer several advantages related to assessment in a naturalistic environment and ecological validity. Hurlburt (1997) recognizes that "ecologically valid studies are rare" (p. 941). D. A. Clark (1997) encourages researchers to "adapt one's measurement strategies so that cognitive activity can be assessed in its natural environment" (p. 996).

Several studies with analog populations have reported that highly anxious people have more negative than positive thoughts (Beidel et al., 1985; Glass & Furlong, 1990; Glass et al., 1982; Heimberg, Acerra, & Holstein, 1985; Nyman & Heimberg, 1985; Turner et al., 1986). Studies also found that following treatment, people with social phobia report less negative and more positive thoughts (Heimberg et al., 1998; Heimberg, Dodge et al., 1990; Mersch, 1995; Mersch, Bögels, Hofmann, van Hout, Scholing, & Arntz, 1996; Scholing & Emmelkamp, 1996a; Taylor et al., 1997a; Turner, Beidel, & Jacob, 1994; Turner, Beidel, Cooley et al., 1994).

However, because positive and negative thoughts may have different functions, Amsel and Fichten (1998) criticized approaches that compute a simple difference score between positive and negative thoughts. They suggest, as an alternative, to use the state of mind (SOM) model proposed by Schwartz and Garamoni (1986, 1989). Rather than simple counts of the positive and negative thoughts, this model combines both positive and negative thoughts into a single index of mental functioning. Because the SOM ratios differentiate between dysfunctional and functional status, it appears to be an excellent tool to assess cognitive change following treatment. Few studies have used the SOM model with treated people for social phobia (Bruch et al., 1991; Dodge et al., 1988; Heimberg, Bruch et al., 1990; Heinrichs et al., 1999). To date, no study investigating cognitive change following social phobia have used the BSOM model. Schwartz et al. (2002) indicated the need to further evaluate the reformulated BSOM model using group-design research paradigms. Following Schwartz et al.'s (2002) recommendation,

this study sought to explore a more precise quantitative analysis of the cognitive change following treatment for social phobia.

Another objective of the current study was to assess change in the self-focused attention. Both recent cognitive models of social phobia (Clark & Wells, 1995; Rapee & Heimberg, 1997) posit that self-focused attention is a crucial factor in the development and maintenance of this disorder. Since Ingram's (1990) claim about the role of self-focused attention in psychopathology, a trend toward examining the presence of self-focused attention within anxiety disorders has provided a wealth of research. Several of these studies have looked at comparisons across different pathologies (e.g., Woodruff-Borden et al., 2001) or self-focus manipulations using video cameras, tape recorders, mirrors, or audiences (e.g., Burgio et al., 1986; Derakshan & Eysenck, 2001; Harvey et al., 2000; Hofmann & Heinrichs, 2002, 2003; Pozo, Carver, Wellens, & Scheier, 1991; Rapee & Hayman, 1996; Woody, 1996; Woody & Rodriguez, 2000). However, in their meta-analysis of self-focused attention and negative affect, Mor and Winquist (2002) found that despite the strong interest shown in investigating the role of self-focused attention in psychopathology, only a small proportion of studies actually examined this construct with diagnosable anxiety conditions, including social phobia.

To date, only two studies (Hofmann, 2000; Woody et al., 1997) explored changes in self-focused attention following CBT group treatment for social phobia, and no study has included a waiting-list control group. Furthermore, Hofmann (2000) and Mor and Winquist (2002) remarked that very few studies assessed the valence of self-focused thoughts. In their study comparing self-focused attention across various clinically

diagnosed groups (depression, panic disorder and other anxiety), Woodruff-Borden et al. (2001) found that the most meaningful differences among the groups was the valence of self-focused thoughts and not the presence or absence of it. The present study sought to clarify if there is a reduction in the proportion of self-focused thoughts after treatment. Also, because of the importance of assessing the valence of self-focused thoughts, this study used the BSOM model to explore the changes in the valence of self-focused thoughts (S-BSOM) computed with positive self-focused thoughts divided by positive plus negative self-focused thoughts. In other words, does treatment contribute to a healthier way of thinking about the self for people with social phobia? Schwartz and Garamoni (1986) proposed that a specific proportion of negative-to-positive thoughts accounts for optimal emotional adjustment. To date, no study has tested this assertion with self-focused thoughts.

Several studies have shown that people with social phobia are preoccupied with public aspects of themselves such as physical appearance and overt behavior (e.g., how one appears to others; Hope & Heimberg, 1988; Smith, Ingram, & Brehm, 1983). Public self-consciousness is an aspect of self-awareness as defined by Fenigstein et al. (1975) and connotes the idea of awareness of the self as a social object, which is a key concept in recent models of social phobia. Individuals with social phobia have been found to score higher on public self-consciousness than normal controls and people with other anxiety disorders (Bruch & Heimberg, 1994; Bruch, Heimberg, Berger, & Collins, 1989). Hope and Heimberg (1988) found that people with social phobia who were also high in public self-consciousness, demonstrated less social skills in social situations, reported a higher

level of anxiety, and more negative thoughts. One study by Lundh and Öst (2001) investigated change in self-consciousness following cognitive-behavior therapy. They found reduced scores on the public self-consciousness subscale of the SCS for 58% of their participants.

Christensen (1982) demonstrated that high levels of self-consciousness constitute a maladaptive social behavior. She posited that because excessive self-awareness seems to be associated with a more negative perception of self and others, reducing self-focusing might prove to be an important goal of therapy. Christensen developed the Scale of Maladaptive Self-Consciousness (SCONS) in order to provide a measure that explicitly focuses on the dysfunctional aspects of self-consciousness. Makris and Heimberg (1995) used the SCONS to assess self-consciousness with people diagnosed with social phobia. They suggested that Christensen's refined notion of self-consciousness might have some relevance when studying this construct with social phobia. To date, no study has used both the SCS-R and the SCONS to explore change in self-consciousness following treatment for social phobia.

One last objective of this study was to explore the fear of negative evaluation construct. According to DSM-IV-TR (2000), the cardinal symptom of social phobia is an excessive concern about the negative opinions of other people. The two recent cognitive models of social phobia (Clark & Wells, 1995; Rapee & Heimberg, 1997) also suggest that concerns about negative evaluation by others is a key component contributing to more self-deprecating thoughts. Previous empirical research has demonstrated that reduction in fear of negative evaluation as measured by the widely used measure FNE

(Watson & Friend, 1969) or the BFNE (Leary, 1983), was related to improvement in clinical symptoms of social phobia and also predictive of long-term outcome (Hope et al., 1995; Mattick & Peters, 1988; Mattick et al., 1989; Mersch, 1995; Mersch, Jansen, & Arntz, 1995; Taylor et al., 1997a). In their review of treatment approaches for social phobia, Cohn and Hope (2001) mentioned that "it appears that nearly all of the treatments employed across studies yielded some change in fear of negative evaluation" (p. 369). However, their review also revealed that "fear of negative evaluation does not improve spontaneously over a few weeks or months" (p. 366). Hope et al. (1995) suggested that changes in fear of negative evaluation as reported in the literature are very small and show little clinical significance. Furthermore, Stopa and Clark (1993) found that the thoughts of people with social phobia were predominantly concerned with self-evaluation rather than thoughts about evaluation by other people. In fact, these authors reported that few of the negative thoughts of people with social phobia explicitly mentioned the fear of evaluation by other people.

This study explored Stopa and Clark's (1993) findings regarding the question: what kind of thoughts occupy people with social phobia minds before and after treatment? The valence of thoughts about evaluation by others was also investigated using the BSOM model (M-BSOM) computed with positive meta-thoughts divided by positive plus negative meta-thoughts. Furthermore, change in negative thoughts about evaluation by others and fear of negative evaluation as measured by the BFNE were also explored. No prior study has looked at whether CBT treatment impacts the way

participants think about evaluation by others? Overall, this study sought to investigate change in cognitive products and processes following CBT treatment for social phobia.

Hypotheses

The first hypothesis sought to investigate if CBT treatments contributed to an overall healthier way of thinking. Thus, it was predicted that in comparison to W-LC, the treatment conditions would show significant improvement from pre- to post-assessment on the T-BSOM ratios.

The second hypothesis sought to explore if treatment contributed to reduce the amount of self-focused thoughts and enhance a more balanced way to think about oneself. Thus, it was predicted that in comparison to W-LC, the treatment conditions would show from pre- to post-assessment: (a) a significant reduction in the percentage of self-focused thoughts; and (b) a significant increase in the S-BSOM ratios.

The third hypothesis sought to examine the several facets of the construct fear of negative evaluation by others. Thus, it was predicted that in comparison to W-LC, the treatment conditions would show from pre- to post-assessment: (a) a significant reduction in the percentage of negative meta-thoughts; (b) a significant increase in the M-BSOM ratios; and (c) a significant improvement on the BFNE scores.

The fourth hypothesis sought to look at change in public and maladaptive self-consciousness. Thus, it was predicted that in comparison to W-LC, the treatment conditions would show from pre- to post-assessment: (a) a significant reduction in the PUB-SC subscale of the SCS-R; and (b) a significant reduction in the SCONS scores.

METHOD

Participants

This study was carried out in conjunction with another study "Evaluating three cognitive-behavioral self-help approaches for social phobia" (Walker, Cox, Frankel, & Torgrud, 1999) at the Anxiety Disorders Clinic at St. Boniface General Hospital, Winnipeg, Manitoba. The recruitment and screening process was carried out by clinicians involved in the outcome study. All participants were recruited through newspaper advertisements (see Appendix A). One hundred and forty-six participants were recruited after intensive screening, including a clinical interview to ensure they met inclusion and exclusion criteria. Inclusion criteria were: (a) primary diagnosis of Social Phobia (DSM-IV criteria) as established by the Structured Clinical Interview for DSM-IV (SCID-R; Spitzer, Williams, Gibson, & First, 1995); (b) ability to read and write in English at a Grade 8 level; (c) 18 years of age or older; (d) willingness to provide informed consent and be randomly assigned to one of the treatment conditions; (e) ability to attend 13 group meetings if assigned to a treatment condition, plus pre- and post-assessments; and (f) if taking antianxiety or antidepressant medication, then must be on a stable dose for at least 3 months. Exclusion criteria were: (a) report of organic disorders that might be related to social phobia, interfere with participation in the study, or be influenced negatively by participation; (b) presence of other severe psychiatric disorders including schizophrenia, current major affective disorder, substance abuse or dependence, panic disorder, and obsessive-compulsive disorder; (c) suicide risk, or

distress severe enough to cause an unstable life situation; and (d) concurrent psychological treatment.

Thirteen participants met these criteria but then withdrew from the study in the period before random assignment. The remaining 133 participants were randomly assigned to one of the following conditions: Waiting-List Control (W-LC) ($n = 36$); Self-Administered Cognitive-Behavioral Therapy (SA-CBT) ($n = 33$); Self-Help Cognitive-Behavioral Group Therapy (SH-CBGT) ($n = 32$); and Professional Cognitive-Behavioral Group Therapy (PROF-CBGT) ($n = 32$). Table 1 presents for each condition the number of participants who dropped out of the study and the number of participants excluded from the analyses because of missing data (questionnaires and diaries). The final *ns* for the four conditions were W-LC ($n = 24$), SA-CBT ($n = 22$), SH-CBGT ($n = 22$), and PROF-CBGT ($n = 19$). There were no significant differences at pre-assessment among participants included in the study ($N = 87$) and those not included: dropouts ($n = 10$) and missing data ($n = 36$) in terms of age, years of education, and scores on BDI, SPS, SIAS, FQ-SP, and SPAI-SP. It is important to note that the attrition (see Table 1) is primarily due to the missing post-diaries and post-questionnaires.

Table 1

Dropouts and Participants Excluded Because of Missing Data

Missing data	W-LC (n = 36)	SA-CBT (n = 33)	SH-CBGT (n = 32)	PROF-CBGT (n = 32)
Pre-diary	0	1	1	0
Pre- and post-diaries	1	2	2	4
Post-diary and post-questionnaires	6	7	5	7
Dropouts	5	1	2	2

Demographics

Of the participants who completed the study, 57% were female. The mean age was 38 years old, and the mean years of education was 14 with a range from 8 to 20 years. Forty one percent of the participants were married, 40% were single (never married), and 19% were either separated, divorced, or widowed. Regarding their employment status, 69% were involved in a paid work, 9% were studying, 5% were looking for a job, and 17% were at home, disabled, or retired. Table 2 presents the demographics of all participants by condition. No significant differences were found among the conditions for age, gender, education, marital status, and employment status.

Table 2

Demographics of the Participants–Means and Standard Deviations

Measure	W-LC	SA-CBT	SH-CBGT	PROF-CBGT	*p*
	n = 24	*n* = 22	*n* = 22	*n* = 19	
Age	41.25	37.73	38.23	35.47	*ns*
	(14.04)	(7.09)	(10.54)	(10.52)	
Gender					*ns*
Female	13	13	13	11	
Male	11	9	9	8	
Education (Years)	14.04	14.18	14.27	13.89	*ns*
	(2.48)	(2.13)	(1.91)	(1.82)	
Marital status					*ns*
Married	10	14	8	4	
Single (never married)	8	7	10	10	
Divorced, separated, widowed	6	1	4	5	
Employment					*ns*
Paid work	14	17	19	10	
Studying	3	0	1	4	
Looking for a job	1	1	2	0	
Other (at home, disabled, retired)	6	4	0	5	

Treatments

Professional Cognitive-Behavioral Group Therapy Condition (PROF-CBGT) (n = 32)

Participants assigned to this modality received 2-hour weekly clinical psychology sessions for 13 weeks, that were lead by an experienced PhD clinical psychologist and a graduate student in training. The major components of this treatment included:

1. *Education about social phobia*: describing the nature, symptoms, and possible causes of social phobia considering cognitive-behavioral, biological, and family aspects.
2. *Relaxation training*: training in several techniques, (e.g., breathing, deep muscle relaxation, and imaginal relaxation). Participants were encouraged to use the relaxation audiotape *Letting Go of Stress* by Miller and Halpern.
3. *Cognitive restructuring*: instruction in identifying distressing thoughts (automatic and distorted), developing more realistic thoughts by disconfirming false beliefs and developing more accurate expectations, practice monitoring thoughts while in social situations and keeping a weekly thought diary.
4. *Exposure*: explaining the concept of exposure and different types of exposure (imaginal and *in vivo*), and practicing graduated exposure using an exposure hierarchy related to treatment goals.
5. *Lifestyle issues*: dealing with stresses, perfectionism, alcohol, caffeine, and nicotine, and developing a healthy lifestyle.
6. *Homework*: including assigned reading from the self-help book *Dying of Embarrassment: Help for Social Anxiety and Phobia* (Markway, Carmin, Pollard,

& Flynn, 1992), as well as assigned reading and exercises in the accompanying workbook (Walker & Eldridge, 1994), practicing exposure (imaginal and *in vivo*), keeping a thought diary and an anxiety management log. Each group leader used a leader's guide (Walker & Eldridge, 1995) with detailed agendas for each of the 13 group meetings.

Self-Help Cognitive-Behavioral Group Therapy Condition (SH-CBGT) (n = 32)

Participants in this group received cognitive-behavioral group therapy led by an experienced self-help leader involved with the Anxiety Disorders Association of Manitoba (ADAM) and a co-leader in training for 13 two-hour therapy sessions. The major components of this treatment were the same as with the PROF-CBGT, and participants used the same book, workbook, and relaxation tape.

Self-Administered Cognitive-Behavior Condition (SA-CBT) (n = 33)

Participants assigned to self-administered cognitive-behavioral therapy received the same material as the two CBGT conditions: book, workbook, and relaxation tape. They were instructed to work independently on one lesson per week. There was no planned therapist contact between the pre- and post-assessment.

Waiting-List Control Condition (W-LC) (n = 36)

Participants assigned to this group received no treatment for 14 weeks and then were offered the Cognitive-Behavioral Group Therapy in the next available group after the post-assessment.

Measures

Self-Report Measures of Social Phobia

Social Phobia Scale (SPS) and Social Interaction Anxiety Scale (SIAS)

The SPS (Mattick & Clarke, 1989, 1998) is a 20-item questionnaire assessing fears of being scrutinized during routine activities (e.g., "I become anxious if I have to write in front of other people" and "I get nervous that people are staring at me as I walk down the street"). The SIAS (Mattick & Clarke, 1989, 1998), also a 20-item questionnaire, assesses more general fears related to social interaction (e.g., "I have difficulty making eye contact with others" and "When mixing socially, I am uncomfortable"). Both scales use a rating scale from 0 to 4 (0 = *not at all characteristic or true of me*, to 4 = *extremely characteristic or true of me*). Internal consistency was found to be excellent for both scales, and test-retest reliability was very high (.91 for SPS and .92 for SIAS) for a 4-week period (Mattick & Clarke, 1989). In Cox and Swinson's (1995) review of assessment measures, it was reported that one other study investigated the psychometric properties of these two scales. Heimberg, Mueller, and Holt (1992) reported findings supporting the internal consistency as well as the discriminant and convergent validity of these two scales. Cox and Swinson reported that these scales have been included as outcome measures in cognitive-behavioral treatment studies for social phobia and were found to be sensitive to treatment change.

Social Phobia and Anxiety Inventory (SPAI)

The SPAI (Turner, Beidel et al., 1989) is a 45-item self-report questionnaire that assesses somatic symptoms, cognitions, and avoidance behaviors in social situations. This

instrument includes social phobia (SPAI-SP, 32 items) and agoraphobia (SPAI-AG, 13 items) subscales, and a derived difference, also called SPAI-TOTAL (SPAI-TOT) score. This latter score is obtained by subtracting the agoraphobia subscale score from the social phobia subscale score. According to Turner, Beidel et al. (1989), the SPAI-TOT score yields a *purer* measure of social phobia providing "control for complaints of social anxiety that are only part of a larger clinical picture of agoraphobia" (p. 37). Several authors have indicated that the SPAI-SP was more sensitive to treatment effects than the SPAI-TOT, which is more helpful when there is a need for differential diagnosis (Fydrich & Renneberg, 1997; Herbert, Bellack, Hope, & Mueser, 1992; Ries et al., 1998). Therefore, only the SPAI-SP scores were used in the present study.

Samples of items are: "I feel anxious when stating an opinion to strangers" and "I sweat prior to entering a social situation". All items are rated on the 7-point Likert-type scales from 1 (*never*) to 7 (*always*). The maximum score for the SPAI-SP subscale is 192 and 78 for the SPAI-AG, respectively. Turner, Beidel et al. reported high internal consistency (alpha = .96 for the SPAI-SP subscale and .85 for the SPAI-AG subscale) and good test-retest reliability (r = .86 over 2 weeks). Adequate discriminant and convergent validity are also documented (Beidel, Turner, Stanley, & Dancu, 1989; Turner, Beidel et al., 1989). In the present study, the internal consistency for SPAI-SP was excellent (Cronbach's alpha = .99 at pre- and .99 at post-assessment). Furthermore, the SPAI has been shown to be highly sensitive to changes over treatment (Beidel, Turner, & Cooley, 1993; Cox & Swinson, 1995; Davidson, Potts, Richichi, Ford, Krishnan, Smith, & Wilson, 1991; Taylor et al., 1997a).

Fear Questionnaire (FQ)

The FQ (Marks & Mathews, 1979) is a widely used measure in social phobia studies (Cox & Swinson, 1995). It assesses avoidance of 15 common phobic situations divided in three subscales: (a) Agoraphobia (FQ-AG); (b) Social Phobia (FQ-SP); and (c) Blood and Injury Fears (FQ-B/I). Each situation (e.g., eating or drinking with other people, being watched or stared at, talking to people in authority, being criticized, speaking to or acting before an audience) is rated on a 9-point scale ranging from *0 (not avoided at all)* to 8 (*always avoided*). Cox and Swinson reported that extensive empirical support with clinical samples has been provided for reliability and validity. Coefficient alphas for the three scales ranged from .68 to .82, indicating satisfactory internal consistency (Cox, Parker, & Swinson, 1996). Test-retest reliability found for 1 to 4 weeks, for 2 to 10 weeks, and for 3 to 16 weeks intervals for the social phobia subscale was also good: .61, .81 and .84, respectively (Arrindell, Emmelkamp, & van der Ende, 1985). Marks and Mathews have also shown that the FQ is very sensitive to intervention. Cox, Swinson, and Shaw (1991) found that the FQ was very accurate in differentiating patients with agoraphobia and patients with social phobia. Only the Social Phobia subscale (range 0 - 40) will be used in the present research.

Self-Consciousness Measures

Self-Consciousness Scale-Revised (SCS-R)

The SCS-R (Scheier & Carver, 1985) is a widely used measure that contains three subscales. The Private Self-Consciousness subscale (PRIV-SC) assesses the tendency to focus on thoughts, sensations, and feelings about oneself (e.g., "I'm always trying to

figure myself out" and "I'm quick to notice changes in my mood"). This subscale is considered as a dispositional measure of non-pathological self-focused attention. The Public Self-Consciousness subscale (PUB-SC) is a non-pathological measure of the attention directed toward the reactions of others to the individual. This subscale assesses the tendency to monitor these aspects of oneself that are open to public scrutiny (e.g., "I'm concerned about my style of doing things" and "I care a lot about how I present myself to others"). The third subscale, Social Anxiety (SA), is a measure of discomfort over others' evaluation or of apprehension regarding negative evaluation by others (e.g., "It takes me time to get over my shyness in new situations" and "It's hard for me to work when someone is watching me"). This is a 22-item scale rated on a 4-point Likert-type scale from 0 to 3 (0 = *not at all like me* and 3 = *a lot like me*). The SCS-R has been used in many social-cognitive studies of self-focusing (Carver & Scheier, 1981) as well as studies on self-focused attention in depression (Ingram & Smith, 1984; Smith & Greenberg, 1981) and social anxiety (Monfries & Kafer, 1994). The SCS-R is reliable and also valid for assessing the degree of self-focused attention in psychological dysfunction (Carver & Scheier, 1981). In the present study, the internal consistency for the PUB-SC subscale was good (Cronbach's alpha = .82 and .88 at pre- and post-assessment, respectively).

Scale of Maladaptive Self-Consciousness (SCONS)

The SCONS (Christensen, 1982) measures the tendency to experience maladaptive self-consciousness as a stable trait across situations. Participants were provided with the description of the construct of self-consciousness as it appears in the

original scale version:

> Self-consciousness is a feeling that occurs in situations where others are present. These individuals may be people with whom you are acquainted or, in some cases, they may be total strangers. The feeling is characterized by an intense awareness of the self. Specific aspects of the self which may be focused on are the ones physical appearance, or ones behavior or performance in the situation. Because you are so preoccupied with the fact that you are there, in the situations, that you are being observed by others, and that a particular response or behavior is expected of you, it is difficult to become involved in what you are doing and to behave spontaneously. Christensen, 1982 (p. 179).

The SCONS contains 24 items that are descriptive of a wide range of social and public situations people have experienced or could easily imagine themselves as experiencing. Each item is rated on a 5-point scale (1 = *not at all self-conscious*, 5 = *very self-conscious*). Sample items are: "You are eating lunch and a person you don't know very well has just joined you" and "You are waiting in line and the person next to you strikes up a conversation". Good psychometric properties for the questionnaire were found. Christensen (1982) found good internal consistency (.87, Spearman-Brown formula) and test-retest reliability was .89 over a 3-month period. The author also reported modest correlations with the Self-Consciousness Scale of Fenigstein et al. (1975) (.33 for the public self-consciousness subscale and .38 for the social anxiety subscale). In the present study, the internal consistency was excellent (Cronbach's alpha = .91 and .95 at pre- and post-assessment, respectively). Makris, Heimberg, and Juster (1995) used the

SCONS with 121 patients diagnosed with social phobia, prior to their treatment and 39 non-anxious volunteers. They found that SCONS scores differentiated between people with social phobia and community controls. Maladaptive self-consciousness was significantly correlated with functional impairment and greater subjective distress within the clinical sample. Makris et al. (1995) found that Christensen's (1982) refined notion of self-consciousness appeared to be of better theoretical and practical relevance to the study of social phobia than the SCS-R.

Cognitive Measures

Brief Fear of Negative Evaluation Scale (BFNE)

The BFNE (Leary, 1983) is an abbreviated version of the Fear of Negative Evaluation Scale (FNE; Watson & Friend, 1969). The FNE is a 30-item true/false inventory. As a way of broadening the participants' range of responses, Bellack (1979) and Glass et al. (1982) suggested the adoption of a 5-point response format ranging from *never* to *always* as an alternative to a true/false version of the scale. Following these suggestions, Leary developed a short form of the FNE that contains 12 items and correlates highly (r = .96) with the full scale. BFNE uses a Likert-like rating ranging from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*). Sample items are: "I worry about what other people will think of me even when I know it doesn't make any difference" and "I am frequently afraid of other people noticing my shortcomings". The BFNE has excellent internal consistency, with a Cronbach's alpha of .92 and a test-retest correlation of .75 over a 4-week period (Leary, 1983). In the present study, the internal consistency was very good (Cronbach's alpha = .90 and .90 at pre- and post-assessment,

respectively). Clinical change in social phobia treatment outcome studies has been associated with a reduction in FNE scores (Gelernter et al., 1991; Heimberg, Dodge et al., 1990). Furthermore, Mattick et al. (1989) found that FNE change scores were the best single predictor of end-state functioning for their treated participants.

Participants' Thoughts

A social situations diary, using the thought-listing approach, and a think-aloud protocol were used to record the participants' thoughts at pre- and post-assessment.

Social Situations Diary (SSD).

For the social situations diary (Filion-Rosset & Johnson, 1996), each participant was given a prepared "record booklet" shown in Appendix B. The diary format enabled participants to record thoughts when anticipating the event, during the event and after the situation. Participants were instructed to write in their diary as soon as possible following the occurrence of the social situation to be recorded. Both the time of occurrence of the situation and the time of recording were noted. Table 3 presents the elapsed time between the occurrence of the social situation and the data entry in the diary. At pre-assessment, 76% of the participants recorded their thoughts within 24 hours of the occurrence of the situation. This number dropped to 61% at post-assessment. The number of situations and the number of recorded thoughts were left unspecified so that a more naturally occurring response frequency and a better profile of each participant's social interaction over a period of 1 week could be obtained. These thoughts were separated in discrete ideational units by a second clinical psychology graduate student trained by the investigator and blind to all the conditions.

Table 3

Elapsed Time Prior to Data Entry in the Diary for All Conditions, Pre- and Post-Assessment

Overall	Between 0-24 hours	Between 24-48 hours	Over 48 hours
Pre (n = 85)	76.5%	17.6%	5.9%
Post (n = 80)	61.3%	23.7%	15%

Think-Aloud Protocol.

Participants were asked to name five personally relevant social situations they fear and avoid, and then to rate each situation on a 9-point scale for the level of anxiety, (0 = *not anxious at all*, 8 = *extremely anxious*) and for the degree of avoidance, (0 = *never avoided*, 8 = *always avoided*). The same five situations were rated at pre- and post-assessment (range 0 to 40). Then participants were asked to choose one feared situation and imagine it as vividly as possible. Previous research (Chiauzzi, Heimberg, Becker, & Gansler, 1985) found that personalized tasks produced a greater arousal and behavioral disruption than a standardized situation. The procedure is presented in Appendix C. During the imaginal task, participants were instructed to say all the thoughts that they had, whether about themselves, another person, or the situation, and whether positive, negative, or neutral (Cacioppo et al., 1979). This procedure was repeated for three situations, and thoughts were reported for the anticipation of, during, and after the feared social situation. These thoughts were recorded on audiotape. The form for consent for audiotaping is presented in Appendix D. Verbatim transcripts were made of each

participant's tape-recorded thoughts and were separated in discrete ideational units by a clinical psychology graduate student trained by the investigator and blind to all the conditions.

Thoughts recorded with the think-aloud protocol were not used for the purpose of this thesis because of the unexpectedly great number of thoughts generated by these two procedures. The think-aloud protocol generated more than 40,000 thoughts and the social situations diary produced more than 13,000 thoughts. A meeting with the Advisory Committee members was held on November 30, 1999, and an agreement was made to only use the data generated by the Social Situations Diary. Appendix E presents information about the revised dissertation plan.

Additional Measures

Beck Depression Inventory (BDI)

The BDI (Beck et al., 1988; Beck et al., 1961) is a 21-item self-report instrument developed to assess the severity or intensity of depressive symptoms. Each of the 21 items is represented by four statements reflecting increasing levels of depression. Each item is rated on a 4-point scale ranging from 0 to 3. In Beck et al.'s meta-analysis, they reported a mean coefficient alpha of .86, and high concurrent validities with other depressive measures, and good discriminant validity with subtypes of depression and anxiety symptoms. Test-retest reliability ranges from .48 to .86, depending on the time period assessed. In this study, this questionnaire was used to assess negative affectivity.

Subjective Units of Discomfort Scale (SUDS)

The SUDS (Wolpe & Lazarus, 1966) was used by participants to report orally their subjective anxiety, both during the anticipatory phase and during and after the think-aloud protocol, and also when reporting their thoughts in the social situations diary (Filion-Rosset & Johnson, 1996). Participants used a rating scale from 0 to 100 where 0 = *completely calm and relaxed,* 25 = *mild anxiety,* 50 = *moderate anxiety,* 75 = *quite severe anxiety,* and 100 = *extreme anxiety, fright and terror*.

Independent Assessor Rating

Clinical Global Improvement Scale (CGI)

The CGI (Guy, 1976) is a clinician-rated instrument to assess the degree of change after treatment. It consists of five components: anxiety episodes, functional impairment, public avoidance, anticipatory anxiety, and overall change. Ratings are made on a 7-point scale ranging from 1 (*very much improved*) to 7 (*very much worse*). This rating scale is widely used in studies evaluating treatment response. Rating of participants' improvement were made at post-treatment by an independent assessor *blind* to conditions. A copy of this measure is presented in Appendix F.

Coding the Thoughts

Coding Manual

A coding manual for the study of social phobia (Filion-Rosset & Johnson, 1999) was developed for coders (see Appendix G). The manual provides information on the criteria for each category with several examples of thoughts obtained during a pilot project and the general rules to apply for the coding. The following operational

definitions of thoughts adapted from Cacioppo et al. (1979), Exner (1973), and Fichten, Martos, Robillard, and Tagalakis (1987) were used:

1. *Positive thoughts*. Thoughts that may facilitate successful, relaxed, and effective performance (e.g., controlling one's emotional arousal, adopting positive strategies, knowing what to say and what to do), that consider positive consequences for self, or indicate a positive emotional or physiological reaction (e.g., "I know I can make it and I'll be happy").
2. *Negative thoughts*. Thoughts that may inhibit or disrupt successful behavior (e.g., anticipating negative events or catastrophic consequences), indicate a desire to avoid or escape the situation, or indicate a negative emotional or physiological reaction to the situation or self-derogation (e.g., "I don't want to say too much because I'll sound stupid and inappropriate").
3. *Neutral thoughts*. Thoughts that are factual descriptions of the stimulus of the situation, do not meet the criteria for positive or negative rating, or are irrelevant or unclassifiable (e.g., "I'm probably thinking what to say").
4. *Self-Focused Thoughts*. Thoughts that involve self-evaluation or self-judgment, or refer to physical characteristics or states, personality traits, emotions, or own performance (e.g., "I did a good job").
5. *Other-Focused Thoughts*. Thoughts about other people's characteristics, feelings, and reactions, (e.g., "He is an experienced speaker").
6. *Meta-Thoughts*. Thoughts that refer to the evaluation of oneself made by other people, or manifest concern about others' reactions and what they think about the

participant. The meta-thoughts were subdivided in two categories: *meta-projective thoughts*, when there was no mention of any external cues (e.g., "I think that you think that I'm stupid"), and *meta-pure thoughts*, when the respondent mentioned some external cues or evidence (e.g., "Because he frowns, I think that he thinks that I'm stupid").

7. *Situation-Focused Thoughts*. Thoughts that represent concern with the situation or things (e.g., "The appointment is at 3:00 p.m.").

Training Sessions

Twelve undergraduate students responded to an advertisement placed on the bulletin boards at the University of Manitoba and the St. Boniface College (see Appendix H). The students were blind to the purpose of the experiment, the assignment, the conditions, and the times of assessment. They received intensive group training sessions (about 7 hours) and individual training sessions ranging from one to four hours each. All coders were provided with several examples of thoughts for each category and practiced the coding until a high level of agreement (85%) was achieved with independent coding. Thoughts used for training purposes were collected during a pilot project done prior to the proposal. At the initial coding stage, four coders left for various reasons and later on the work of three coders who were less reliable was recoded by one of the remaining five coders. Coders completed a Pledge of Confidentiality (see Appendix I) and were provided with Guidelines for the Coding (see Appendix J) and Coding Sheet (see Appendix K).

Interrater Reliability

In order to establish the interrater reliability, a random 13% of the diaries were coded by all coders and by the investigator. Interrater agreement values between coders and researcher were analysed using Cohen's Kappa. Kappa values between the five coders and the investigator ranged from .73 to .89 for the focus (*self*, *other*, *situation*) and from .69 to .82 for the valence (*positive*, *negative*, *neutral*). Kappa values were also computed between coders themselves. The values of Kappa ranged from .60 to .82 for the focus (*self*, *other*, *situation*) and from .57 to .69 for the valence (*positive*, *negative*, *neutral*). The Kappa values found in this study for the valence and the focus of thoughts range from good to very good, and are similar to or better than the Kappa values found in other studies: for both valence (K = .70 [Heimberg, Salzman et al., 1993]; K = .83 [Rapee, McCallum, Melville, Ravenscroft, & Rodney, 1994]; K = .74 [Bruch & Pearl, 1995]; K = .69 [Heinrichs et al., 1999]); and focus (K = .72 [Fichten et al., 1991]; K = .87 [Mahone, Bruch, & Heimberg, 1993]; K = .83 [Lavallee & Campbell, 1995]; K = .57 [Hofmann, 2000]). At the time of the coding, the meta-thoughts were so few, they were not included in the calculation of the Kappa values.

Recoding the Thoughts

Prior to data analyses, the observation of a very low frequency of meta-thoughts (less than 3%) raised some questions. A review of the definitions used for the coding, especially the ones for other-focused and meta-thoughts, and a review of previous coding revealed that some of the thoughts were miscoded. Part of this problem was linked to the initial guideline taken from Hope (personal communication, March 30, 1996) to code all

"I" statements as self-focused. In order to address this problem, it was decided to review the coding of all 13,510 thoughts. A total of 468 thoughts were recoded (3.5% of all thoughts) and of these, 313 thoughts (66.9% of the recoded thoughts) were changed from self-focused negative (S-) to meta-projective negative (Ⓜ⁻). The investigator and research advisor reviewed all ambiguous thoughts, and agreed upon the coding. A sample of recoded thoughts can be found in Appendix L. Interested readers can obtain a copy of all the recoded thoughts from the author.

Procedure

Participants who contacted the Anxiety Disorders Research Program in response to an advertisement in a local newspaper in Winnipeg were screened over the telephone by a qualified research assistant involved in the outcome research project. Those participants who seemed likely to have a problem with social phobia were seen for a Structured Clinical Interview for DSM-IV (SCID) with an experienced clinician. Participants who met the inclusion criteria were requested to sign an informed consent form to participate in the study (see Appendix M). They were also asked to fill out an extensive questionnaire package, including the SPS, SIAS, FQ-SP, and SPAI-SP, used in the present study as well.

Before proceeding to the random assignment, the principal researcher of the outcome study informed the investigator of the present study that the pre-interview could be scheduled. Participants were contacted by telephone to schedule the pre-interview, which was held mainly during the evening and over the weekend.

The pre-interview, which lasted an average of one hour, consisted of informing the participant about the process, obtaining a signed consent for audiotaping, proceeding with the hierarchy of feared social situations, imaginal task, and think-aloud protocol, where the thoughts spoken aloud were audio-recorded. Following this procedure, participants were given specific instructions regarding the social situations diary. A specific example was practiced, using the pre-interview as an anxiety-provoking situation (before, during, and after). Participants were provided with a pre-addressed and pre-stamped envelope to return the social situations diary at the end of the week following the pre-interview. They were also instructed to fill out four questionnaires (BFNE, SCS-R, SCONS, and BDI) enclosed in the envelope. Participants were told that the investigator would contact them by phone three days following the interview to discuss any questions or problems with the diary, and to remind them to write as soon as possible after the occurrence of the anxiety-provoking social situations. They were also reminded to mail the envelope with the diary and questionnaires when completed. During the pre-interview and the phone call, participants were invited to ask questions.

The investigator of the present study informed the principal researcher of the outcome study when participants were ready to be randomly assigned to one of the four conditions.

During the treatment or waiting period (13 weeks), the investigator had no contact with the participants. At the end of this period, the principal researcher of the outcome study informed the investigator of the present study that the post-interview could be scheduled. The investigator was blind to the condition assignment and all participants

were instructed not to mention or make any allusion to the condition to which they had been assigned.

The post-interviews were carried out in exactly the same manner as the pre-interviews. Following the post-interviews, participants were informed that they would be seen by an independent assessor who also blind to the group assignment of the participants. Recall that the independent assessor was also the intake clinician. Participants were then asked to fill out post-questionnaires. A meeting with the principal researcher was also scheduled for a debriefing session, and to ensure that participants in the W-LC and SA-CBT were provided with the opportunity to go to a regular group treatment at their convenience.

RESULTS

Data Screening

Prior to conducting statistical analyses, the variables were examined using SPSS release 9.0 (SPSS Inc., 1999). Several procedures were used to identify missing or out of range data, and the distribution of the variables. Another purpose of this screening procedure was to ensure the completeness and accuracy of the data set, and to assess whether the variables met the assumptions of the various planned statistical tests.

First, the data set was checked for missing values. Participants who did not complete or return their diaries (pre, post, or both) were removed from all analyses, as were participants with missing post-questionnaires. Missing data points on the social phobia questionnaires (SPAI-SP at pre- and post-assessment, and SPS, SIAS, and FQ-SP at post-assessment) were replaced with the average value of all other items on that measure. According to Tabachnick and Fidell (1996), this is a conservative procedure because the mean of the distribution as a whole does not change (p. 63). The group mean value was given to six participants with missing data points (four in the SH-CBGT and two in the W-LC). At less than 10% of the total *N*, these mean replacements will have little impact on measures of variability.

Second, variables were examined using box plots and the Kolmogorov-Smirnov Test to detect outliers. Several univariate (16) and multivariate (4) outliers were detected on 10 variables at pre-assessment. The analysis of outliers for post variables was done within-conditions. Eleven univariate and six multivariate outliers were detected on six variables. Tabachnick and Fidell (1996) suggest that one way to deal with outliers is to

replace them with a value that is one unit larger or smaller than the next most extreme score in the distribution (p. 69). The correction was applied to all variables and no outliers remained after this.

Third, the distribution of each variable was examined for skewness. Two questionnaire variables were negatively skewed: BFNE (pre) and PUB-SC subscale (pre). In this case, the procedure used was to reflect the scores and then apply the log transformation. Furthermore, 13 variables among the thought variables were moderately positively skewed. These variables were: grand total (post), grand total self-focused, total self-positive, total self-negative, total meta-negative, and percentage of negative meta-thoughts (pre and post). A square root transformation was used to address this problem.

Fourth, assumptions of linearity and homoscedasticity were checked using bivariate scatterplots, and no serious violations were found.

Fifth, assumptions of homogeneity of variance were tested using Levine's test for homogeneity of variance, and no violations were found.

Last, data were examined for multicollinearity and singularity by checking to see if any of the dependent variables were highly correlated. According to Tabachnick and Fidell (1996), a correlation of .90 or higher indicates that multicollinearity is present (p. 84). Following this criterion, no problems were detected among the variables in this study.

Comparison of Conditions at Pre- and Post-Assessment on Clinical Measures

Descriptive Statistics at Pre-Assessment

Analyses of scores at pre-assessment were conducted to detect any significant differences among the conditions. The means and standard deviations of the pre-assessment SPS, SIAS, FQ-SP, and SPAI-SP scores for the four conditions are presented in Table 4.

Table 4

Mean Scores and Standard Deviations for Clinical Measures at Pre-Assessment as a Function of Conditions

Condition	SPS		SIAS		FQ-SP		SPAI-SP	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
W-LC (n = 24)	32.17	15.80	50.42	12.55	20.45	6.87	96.54	30.46
SA-CBT (n = 22)	39.78	15.43	54.78	12.72	25.04	5.30	104.91	25.38
SH-CBGT (n = 22)	34.23	12.37	51.86	8.93	20.00	5.76	101.61	24.12
PROF-CBGT (n = 19)	41.32	12.38	58.21	12.16	23.26	6.22	117.83	21.94

Note. SPS = Social Phobia Scale; SIAS = Social Interaction Anxiety Scale; FQ-SP = Fear Questionnaire–Social Phobia Subscale; SPAI-SP = Social Phobia & Anxiety Inventory–Social Phobia Subscale.

SPS total scores can range from 0 to 80, with higher scores representing greater anxiety about being observed. At pre-assessment, the mean SPS score for the entire sample was 36.61 (*SD* = 14.45). For the SIAS, total scores also range from 0 to 80, with higher scores representing higher levels of social interaction anxiety. The mean pre-assessment score for the entire sample was 53.59 (*SD* = 11.86). For the FQ-SP, scores can range from 0 to 40, with higher scores indicating stronger distress in social situations. The pre-assessment mean score for the entire sample was 22.11 (*SD* = 6.33). For the SPAI-SP, scores can range from 0 to 192, with higher scores indicating more severe social phobia symptoms. The mean pre-assessment score for the entire sample was 104.59 (*SD* = 26.60). In general, the pre-assessment means for the social phobia measures were very close to the values obtained in other studies of social phobia (e.g., Brown et al., 1997; Coles & Heimberg, 2000; Cox et al., 1996; Hope et al., 1995; Mattick & Clarke, 1998; Oei, Moylan, & Evans, 1991; Peters, 2000; Ries et al., 1998; Rosser, Issakidis, & Peters, 2003).

Correlations among the social phobia measures for the total sample can be found in Table 5. As expected, the correlation coefficients are all at or above .50, showing that they are all measuring different features of the same problem—social phobia. Furthermore, these correlations are generally in line with other studies (Cox, Ross, Swinson, & Direnfeld, 1998; Mattick & Clarke, 1998; Ries et al., 1998; Rosser et al., 2003).

Table 5

Correlation Coefficients for Relations Among Clinical Measures at Pre-Assessment

Measure	SPS	SIAS	FQ-SP	SPAI-SP
SPS	-	.66**	.53**	.71**
SIAS		-	.50**	.73**
FQ-SP			-	.59**
SPAI-SP				-

Note. $N = 87$.

** $p < .01$.

Table 4 shows that the PROF-CBGT condition had the highest mean score on three of the four clinical measures. To determine whether these differences were statistically significant, a multivariate analysis of anova (MANOVA) was conducted on the conditions using all four clinical measures as dependent variables. A near-significant difference was found among conditions (Pillai's Trace = .217, $F[12, 246] = 1.596$, $p = .093$, $\eta^2 = .072$). Subsequent univariate ANOVAs revealed significant or near-significant differences among conditions on the following measures: FQ-SP, $F(3, 83) = 3.406$, $p < .05$, $\eta^2 = .110$; SPAI-SP: $F(3, 83) = 2.524$, $p = .063$, $\eta^2 = .084$. No significant differences were found for SPS, $F(3, 83) = 2.052$, $p = .113$, $\eta^2 = .069$ and for SIAS, $F(3, 83) = 1.812$, $p = .151$, $\eta^2 = .061$. Pairwise comparisons revealed significant differences among the conditions at pre-assessment, between W-LC and SA-CBT, SA-CBT and SH-CBGT on the FQ-SP, and the W-LC and PROF-CBGT on the SPS, SIAS, and SPAI-SP. Despite random assignment to the conditions, it appears that,

compared to other conditions, participants in PROF-CBGT were worst off clinically at pre-assessment (see Table 4).

Outcome Comparisons

In order to control pre-assessment differences, analysis of covariance (ANCOVA) was used for all post-assessment comparisons across conditions. The pre-assessment scores were used as the covariate, the social phobia measures as DVs, and the condition as the IV. The alpha level was set at .05, two-tailed. Evaluation of the assumptions for ANCOVA revealed that missing data, outliers, multicollinearity and singularity, normality, homogeneity of variance, linearity, and homogeneity of regression were satisfactory.

Did participants in the treatment conditions show a statistically significant improvement regarding their symptoms of social phobia relative to W-LC? Although the focus of this thesis does not primarily address treatment outcome, it is necessary to evaluate and understand the treatment outcome results because they provide a context and element of external validity for the assessment of cognitive change.

Analyses reveal that overall, the treatment conditions showed significantly lower levels of anxiety at post-assessment relative to the W-LC condition on all social phobia measures, except for the FQ-SP and the SPAI-SP measures which showed no difference between the W-LC and the SA-CBT conditions. Table 6 displays the adjusted means for the SPS, SIAS, FQ-SP, and SPAI-SP scores at post-assessment for all conditions.

Table 6

Post Adjusted Means for Clinical Measures per Conditions

Condition	SPS	SIAS	FQ-SP	SPAI-SP
W-LC				
(*n* = 24)	33.07	49.57	20.49	91.34
SA-CBT				
(*n* = 22)	27.37*	44.41*	17.44	83.34
SH-CBGT				
(*n* = 22)	22.51***	38.51***	13.70***	64.41***
PROF-CBGT				
(*n* = 19)	26.57*	42.17**	15.86**	74.63*

Note. * indicates significant differences between treatment conditions and W-LC.

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

Results of the overall ANCOVA revealed a significant condition effect for all social phobia measures at post-assessment: for SPS scores, $F(3, 82) = 5.563, p < .001, \eta^2 = 169$; for SIAS scores, $F(3, 82) = 6.693, p < .001, \eta^2 = .197$; for FQ-SP scores, $F(3, 82) = 6.438, p < .01, \eta^2 = .191$; and for the SPAI-SP scores, $F(3, 82) = 6.540$, $p < .01, \eta^2 = .193$. Analyses for gender differences were conducted for all conditions and no significant difference was detected between or within conditions for all clinical measures, with only one exception: the condition by gender interaction on the FQ-SP, $F(3, 78) = 3.131, p < .05$.

These results (see Table 6) demonstrate that participants in the SH- and PROF-CBGT conditions showed significant improvement on the clinical measures. Participants in the SA-CBT condition showed significant improvement on the SPS and SIAS but not on the FQ-SP and SPAI-SP relative to W-LC.

Subjective Units of Discomfort Scale (SUDS)

The participants were asked to report their anxiety level in the social situations diary, before, during, and after each anxiety-provoking situations at both pre- and post-assessment. Recall that the SUDS scores have a possible range of 0 (*no anxiety*) to 100 (*panic, terror*). Figure 1 presents the pre- and post-assessment means for the SUDS values given by participants before, during, and after the social situations reported in their diaries for all conditions. At pre-assessment the range of anxiety rating appears consistently higher during the situations for all conditions (means between 54.73 and 66.72) and lower after the situations (means between 27.49 and 38.40). A similar pattern is depicted at post-assessment for during the situation (means between 39.95 and 58.89) and after the situation (means between 17.81 and 34.34).

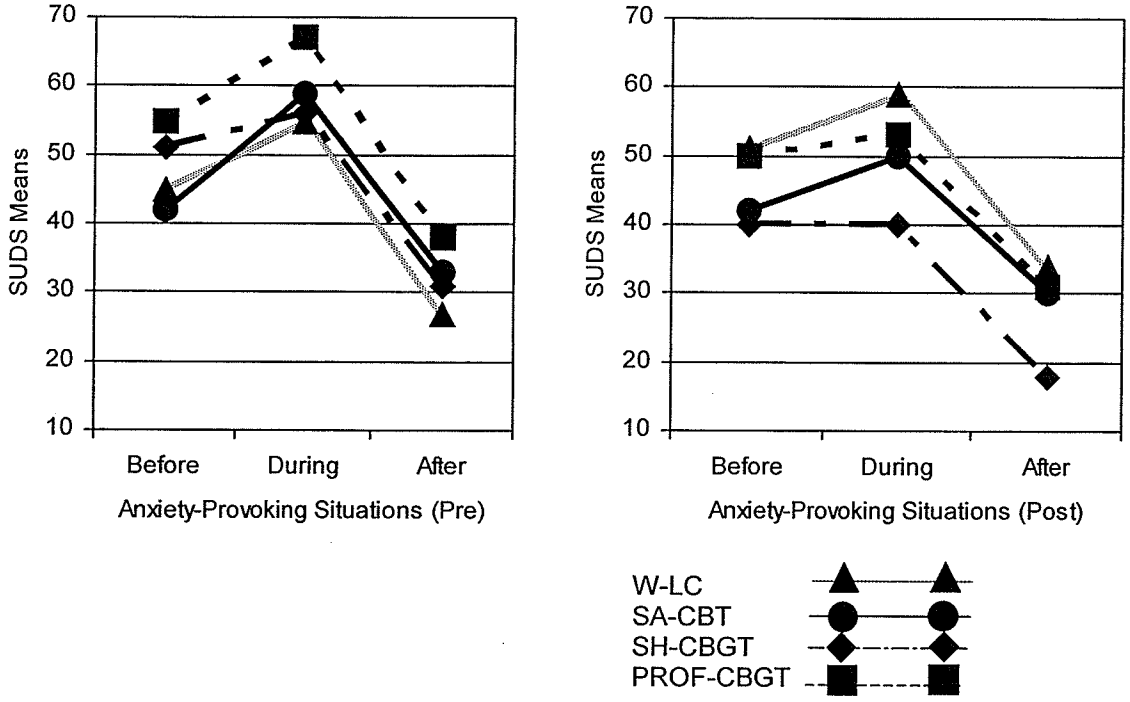


Figure 1. Means for SUDS Rating (0-100), Before, During, and After Reported Social Situations in the Diary at Pre- and Post-Assessment.

As with previous ANCOVAs, the pre-scores on the SUDS were used as the covariate and the post-scores as the DV. The overall ANCOVA of the SUDS before (SUDS-B) ratings revealed a non-significant condition effect, $F(3, 82) = 1.938, p = .13$, $\eta^2 = .066$, indicating that the level of self-rated anxiety reported prior to anxiety-provoking situations did not significantly differ among conditions at post-treatment. Analyses for gender differences, $F(1, 78) = .219, p = .64$, and gender by condition, $F(3, 78) = 1.217, p = .31$, were not significant.

The overall ANCOVA of the SUDS during (SUDS-D) ratings revealed a significant condition effect, $F(3, 81) = 5.816, p < .01$, $\eta^2 = .177$. Simple contrasts were conducted to compare the mean of W-LC condition with the mean of each treatment

condition. Results showed that SUDS-D ratings for participants in all treatment conditions were significantly lower at post-assessment than those in the W-LC condition. For SA-CBT, $p < .05$, and 95% CI = [21.6, .85]; for SH-CBGT, $p < .001$, and 95% CI = [32.2, 11.4]; and for PROF-CBGT, $p < .05$, and 95% CI = [23.8, 1.6]. Analyses for gender differences, $F(1, 77) = .229$, $p = .63$, and gender by condition, $F(3, 77) = 1.519$, $p = .22$, were not significant.

The overall ANCOVA of the SUDS after (SUDS-A) ratings also revealed a significant condition effect, $F(3, 80) = 7.400$, $p < .001$, $\eta^2 = .217$. Simple contrasts were conducted to compare the mean of the W-LC condition with the mean of each treatment condition. Results showed that SUDS-A ratings for treated participants in all treatment conditions were significantly lower at post-assessment than for those in the W-LC condition. For SA-CBT, $p < .05$ and 95% CI = [20.6, 1.1]; for SH-CBGT, $p < .01$, and 95% CI = [32.9, 13.4]; and for PROF-CBGT, $p < .05$, and 95% CI = [21.8, 1.2]. Analyses for gender differences were significant, $F(1, 76) = 5.250$, $p < .05$, but not significant for gender by condition, $F(3, 76) = 1.465$, $p = .23$.

Taken all together, these results suggest that following treatment participants experienced less anxiety during and after their involvement in anxiety-provoking social situations. However, their anxiety levels before these events, which was lower than during or after them, did not change following treatment.

Clinical Significance

Eng, Roth and Heimberg (2001) proposed that "it is imperative to examine the clinical significance of these (clinical) outcomes" (p. 313). Furthermore, as recommended

by Jacobson, Follette and Revenstorf (1984), analysis of Clinical Significance was conducted (see Appendix N). In general, more participants in the group treatments demonstrated clinically significant change than those in SA-CBT or W-LC.

Clinician Overall Global Improvement (CGI)

This scale, commonly used in anxiety research, was administered by an independent clinician blind to the participants' conditions. CGI assesses the degree of change exhibited by participants following treatment on a 7-point rating scale. Figure 2 presents the results of the overall improvement for each condition. Similar to the results found with the clinical outcome measures, the participants receiving CBGT group therapy improved more than participants in the SA-CBT condition, which improved more than W-LC.

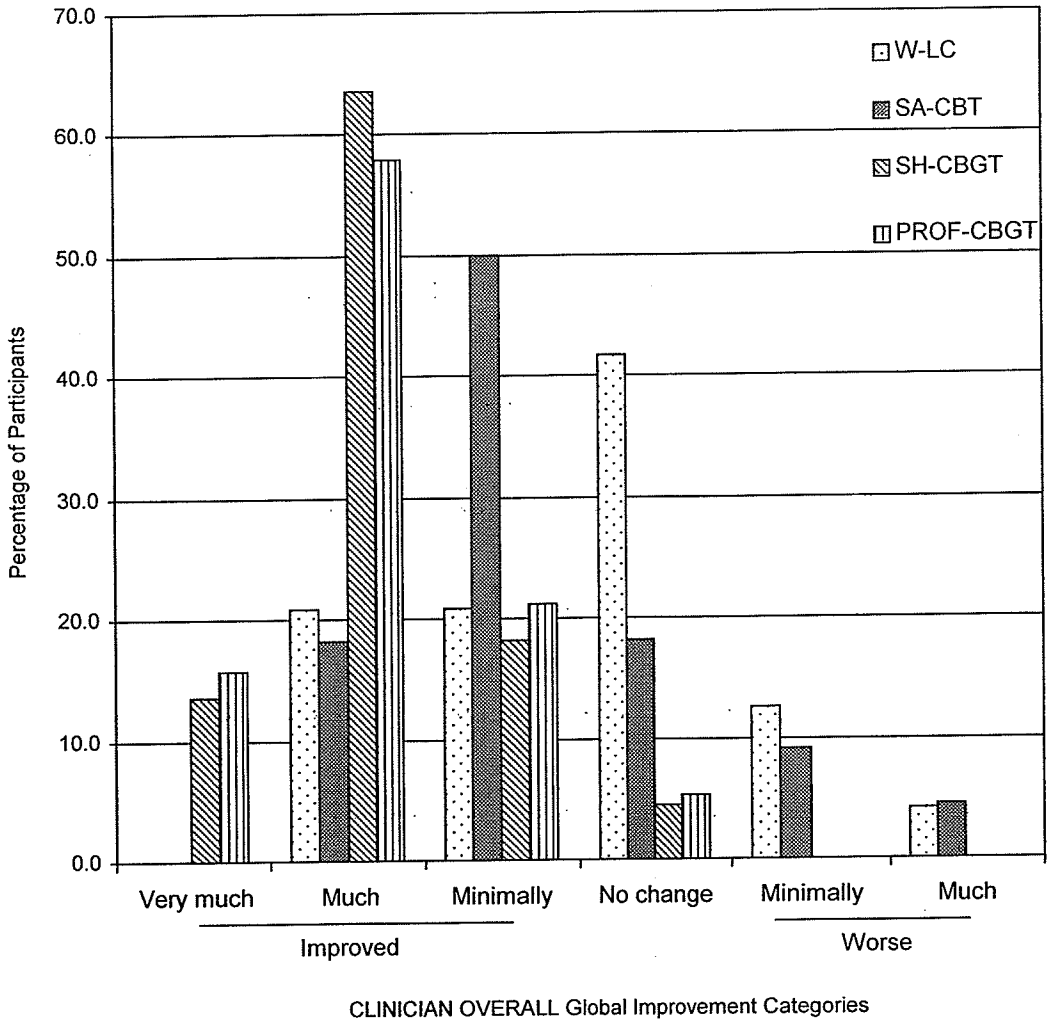


Figure 2. Independent Assessor Rating for the Overall Improvement of Participants in Each Condition.

Profile of Thoughts

Social Situations Diary

A social situations diary was used to record participants' thoughts at pre- and post-assessment. Although several authors have reported problems with compliance when using diary methodology (DeLongis, Hemphill, & Lehman, 1992; Stone, Kessler, &

Haythornthwaite, 1991; West & Hepworth, 1991), compliance in this study was relatively high. At pre-assessment, 98.3% of the participants returned their diary compared to 71.7% at post-assessment. In order to account for differential attrition across conditions, Fisher's Exact tests were conducted to compare all conditions on the decrease in the number of participants returning diaries at post-assessment. A significant difference between pre- and post-assessment was found for all conditions: one-tailed; $p < .001$ for W-LC; $p < .01$ for SA-CBT; $p < .05$ for SH-CBGT; and $p < .001$ for PROF-CBGT, indicating that a statistically significant attrition occurred on all conditions. A one-way ANOVA procedure was conducted in order to get Scheffé post-hoc comparisons to determine if there were any differences among all conditions for the number of participants not returning their post-diaries. No significant difference was found among groups ($p = .85$) on Scheffé multiple comparisons, indicating that differential attrition across conditions did not occur. As already stated, all participants with no pre-, no post-, or no pre-post-diaries were excluded from the analysis in this study.

In order to assess whether treatment condition affected the number of thoughts reported on pre- or post-assessment, the total number of thoughts and average number of thoughts per respondent were examined. Table 7 presents the grand total of thoughts per condition. The largest percentage of the grand total number of thoughts provided by all participants was accounted by participants in W-LC (30.3% at pre- and 31.0% at post-assessment), and the smallest percentage by participants in the PROF-CBGT condition (18.9% at pre- and 20.5% at post-assessment). Interestingly, the percentage of the grand total of thoughts given at pre- and post-assessment is consistent among the

conditions. Repeated measures analysis of variance (ANOVA) carried out on the grand total of thoughts at pre- and post-assessment showed a significant main effect for time, $F(1, 83) = 23.57, p < .001$, and a non-significant effect for the interaction between condition and time, $F(3, 83) = .253, p = .86$. Pairwise comparisons using Scheffé's method revealed no significant difference among the conditions. All the conditions had fewer thoughts at post-assessment. Another important observation is the wide range between the minimum and maximum thoughts for all conditions. This has been a problem linked to the use of open-ended procedures like think-aloud or thought-listing.

Table 7

Frequencies of Thoughts Per Condition (Pre- and Post-Assessment): Grand Total, %, M, SD, Minimum and Maximum

Condition	Total	%	*M*	*SD*	Min	Max
W-LC (*n* = 24)						
Pre	2,387	30.3%	99.46	80.99	19	304
Post	1,746	31.0%	72.75	77.99	7	374
SA-CBT (*n* = 22)						
Pre	1,880	23.8%	85.45	64.95	28	276
Post	1,208	21.5%	54.91	36.92	4	170
SH-CBGT (*n* = 22)						
Pre	2,124	27.0%	96.55	77.02	7	300
Post	1,521	27.0%	69.14	65.18	12	284
PROF-CBGT (*n* = 19)						
Pre	1,490	18.9%	78.42	46.53	22	201
Post	1,154	20.5%	60.74	56.77	6	249
Grand Total (*N* = 87)						
Pre	7,881	100%	90.59	68.97	7	201
Post	5,629	100%	64.70	61.43	4	374

Thought Frequencies

In order to determine the reason for the reduction in thoughts reported at post-assessment, the number of situations recorded per diary and the number of thoughts per situation were examined. Table 8 presents the number of situations recorded per diary for all conditions. Recall that participants were instructed to write down their thoughts in the social situations diary, but the number of situations and the number of thoughts to be written were left unspecified to ensure a more naturally occurring response frequency and

consequently a more ecologically valid profile of each participant's social anxiety during a 1-week period. Repeated measures analysis of variance (ANOVA) conducted on the number of situations at pre- and post-assessment showed a significant main effect for time, $F(1, 83) = 14.443$, $p < .001$, and a non-significant effect for the interaction between condition and time, $F(3, 83) = .345$, $p = .79$. Pairwise comparisons using Scheffé's method revealed no significant difference among the conditions. In summary, participants reported fewer anxiety-provoking situations at post-assessment in all conditions. One implication of this result is whatever gains the treated participants made relative to controls were not in the form of fewer anxiety-provoking situations, at least as reported in their diaries.

What is also unclear is, whether the situations reported represent all or, only a subsample of anxiety-provoking situations encountered. The fact that several participants reported on the maximum number of situations possible (i.e., 8), suggests that the thoughts reported in the diaries may represent only a subsample of anxious situations for many participants.

Table 8

Number of Situations Entered in the Social Situations Diary (Pre- and Post-Assessment) for All Conditions

Condition	Number of situations per diary				*p*
	M	*SD*	Min.	Max.	
W-LC (*n* = 24)					
Pre	5.46	(1.96)	2	8	*ns*
Post	4.58	(2.50)	1	8	*ns*
SA-CBT (*n* = 22)					
Pre	5.14	(2.03)	2	8	*ns*
Post	4.14	(2.34)	1	8	*ns*
SH-CBGT (*n* = 22)					
Pre	4.73	(2.55)	1	8	*ns*
Post	4.27	(2.33)	1	8	*ns*
PROF-CBGT (*n* = 19)					
Pre	5.16	(2.06)	2	8	*ns*
Post	4.42	(1.92)	1	7	*ns*
TOTAL (*N* = 87)					
Pre	5.13	(2.14)	1	8	*ns*
Post	4.36	(2.27)	1	8	*ns*

Similarly, the number of thoughts per situation was also examined. Table 9 presents the mean, standard deviation, and minimum and maximum number of thoughts per situation for all conditions. These numbers depict a consistent decrease for all

conditions in the number of thoughts from pre- to post-assessment. Repeated measures analysis of variance (ANOVA) carried out on the number of thoughts per situation at pre- and post-assessment revealed a significant difference for time, $F(1, 83) = 10.244$, $p < .01$, and a non-significant effect for the interaction between condition and time, $F(3, 83) = .213$, $p = .89$. Pairwise comparisons using Scheffé's method showed no significant difference among the conditions. Thus, participants reported fewer thoughts in response to anxiety-provoking situations across all conditions.

Table 9

Mean, Standard Deviation, Minimum and Maximum Number of Thoughts per Situation (Pre- and Post-Assessment) for All Conditions

Condition	Number of thoughts per situation				$p <$
	M	*SD*	Min.	Max.	
W-LC (n = 24)					
Pre	16.54	(8.54)	6	38	*ns*
Post	14.25	(9.02)	5	47	*ns*
SA-CBT (n = 22)					
Pre	15.90	(7.09)	6	35	*ns*
Post	13.43	(5.85)	4	28	*ns*
SH-CBGT (n = 22)					
Pre	19.15	(8.17)	7	39	*ns*
Post	16.04	(9.48)	5	47	*ns*
PROF-CBGT (n = 19)					
Pre	14.67	(4.77)	9	25	*ns*
Post	13.00	(9.89)	6	50	*ns*
TOTAL (N = 87)					
Pre	16.58	(7.49)	6	39	*ns*
Post	14.22	(8.59)	4	50	*ns*

These results on the number of situations per diary and the number of thoughts per situation help explain the reduction from pre- to post-assessment of the total number of thoughts recorded by participants in all conditions. Interestingly, the consistency in this reduction was observed across all conditions. This suggests that these changes may reflect some degree of respondent fatigue due to repeated measurement. The implication for

treatment outcome is that treatment apparently does not reduce the number of anxiety-provoking situations or the number of thoughts that arise when perceiving an anxiety-provoking situation. Treatment may, however, affect the qualitative aspects of how individuals think about anxiety-provoking events. Another possible explanation could be that treated participants were approaching more challenging situations and thus a smaller number of anxious situations and thoughts within them may represent an improvement.

Valence and Focus of Thoughts

Respondents' thoughts were analyzed along two dimensions: valence of thoughts (positive, negative, and neutral) and focus of thoughts (self, other, others' thoughts about self [metas], and situation-focused), which together compose the profile of thoughts. Table 10 presents a summary of the number of thoughts recorded in the diaries at pre- and post-assessment for all participants. Note that the table includes three components: valence of thoughts, focus of thoughts, and valence of each focus of thoughts. It is worth noting the higher frequency of negative thoughts relative to positive and neutral thoughts. In terms of the focus of thoughts, the percentage of self-focused thoughts is consistently high compared to thoughts focused on others, others' thoughts about self (metas), and situation-focused ones.

Table 10

Thought Profile Descriptive Statistics for All Conditions (Pre- and Post-Assessment)

	Pre (N = 87)				Post (N = 87)			
	Total	%	*M*	*SD*	Total	%	*M*	*SD*
Valence								
Positive	1,823	23.1%	20.95	22.09	1,845	32.8%	21.21	23.04
Negative	4,435	56.3%	50.98	36.78	2,473	43.9%	28.43	28.04
Neutral	1,623	20.6%	18.66	17.92	1,311	23.3%	15.07	19.59
Grand total	7,881	100%	90.59	68.97	5,629	100%	64.70	61.43
Focus								
Self	4,952	62.8%	56.92	46.35	3,463	61.5%	39.80	40.85
Others	1,187	15.1%	13.64	13.41	851	15.1%	9.78	11.77
Metas	753	9.6%	8.66	7.98	457	8.1%	5.25	5.15
Situation	989	12.5%	11.37	11.32	858	15.3%	9.86	9.90
Grand total	7,881	100%	90.59	68.97	5,629	100%	64.70	61.43
Valence X focus								
Self positive	1,160	14.7%	13.33	16.57	1,166	20.7%	13.40	16.28
Self negative	3,006	38.1%	34.55	27.74	1,669	29.7%	19.18	20.60
Self neutral	786	9.9%	9.03	8.83	628	11.2%	7.22	10.32
Other positive	273	3.5%	3.14	4.05	269	4.8%	3.09	3.88
Other negative	447	5.7%	5.14	5.49	256	4.5%	2.94	3.78
Other neutral	467	5.9%	5.37	6.15	326	5.8%	3.75	5.96
Metas positive	44	0.6%	.51	.95	54	1.0%	.62	1.22
Metas negative	606	7.7%	6.97	6.69	328	5.8%	3.77	4.24
Metas neutral	103	1.3%	1.18	1.59	75	1.3%	.86	1.34
Situation positive	346	4.4%	3.98	4.44	356	6.3%	4.09	4.62
Situation negative	376	4.8%	4.32	4.25	220	3.9%	2.53	3.18
Situation neutral	267	3.4%	3.07	4.54	282	5.0%	3.25	4.38
Grand total	7,881	100%	90.59	68.97	5,629	100%	64.70	61.43

Table 11 presents the frequency, percentage of thoughts, means, and standard deviations for the valence (*positive*, *negative*, *neutral*) of thoughts for all conditions at pre- and post-assessment. It is interesting to note that from pre- to post-assessment, there was a slight decrease in the percentage of positive thoughts for the W-LC group but an increased percentage of positive thoughts (between 12.1% to 16.7%) for the participants in the treatment conditions. For the negative thoughts, there is a similar pattern showing a higher percentage among the conditions at pre-assessment than at post-assessment. For the neutral thoughts, there was little change from pre- to post-assessment for all conditions.

Table 11

Valence of Thoughts Per Condition (Pre- and Post-Assessment)

Condition	Valence											
	Positive				Negative				Neutral			
	Total	% of conditions total	*M*	*SD*	Total	% of conditions total	*M*	*SD*	Total	% of conditions total	*M*	*SD*
W-LC (*n* = 24)												
Pre (total = 2,387)	597	25.0%	24.88	27.35	1,279	53.6%	53.29	39.31	511	21.4%	21.29	23.86
Post (total = 1,746)	429	24.5%	17.88	23.06	882	50.5%	36.75	33.15	435	25.0%	18.13	28.44
SA-CBT (*n* = 22)												
Pre (total = 1,880)	438	23.3%	19.91	19.83	1,114	59.2%	50.64	36.01	328	17.5%	14.91	14.77
Post (total = 1,208)	483	40.0%	21.95	29.15	518	42.9%	23.55	14.36	207	17.1%	9.41	7.69
SH-CBGT (*n* = 22)												
Pre (total = 2,124)	527	24.8%	23.95	20.77	1,154	54.3%	52.45	44.05	443	20.9%	20.14	17.68
Post (total = 1,521)	591	38.9%	26.86	22.79	521	34.2%	23.68	27.23	409	26.9%	18.59	20.34
PROF-CBGT (*n* = 19)												
Pre (total = 1,490)	261	17.5%	13.74	18.02	888	59.6%	46.74	26.16	341	22.9%	17.95	12.61
Post (total = 1,154)	342	29.6%	18.00	13.98	552	47.8%	29.05	33.14	260	22.6%	13.68	13.40

Note. % = percentage of thoughts reported by participants within that condition.

Table 12 presents the frequency, percentage of thoughts, means and standard deviations for the focus (*self*, *other*, *metas*, *situation*) of thoughts for all conditions at pre- and post-assessment. Self-focused thoughts represent by far the largest percentage of thoughts across all four conditions at both pre- and post-assessment. The percentage of other-focused and situation-focused thoughts, though much smaller, are also quite similar across the conditions at pre- and post-assessment. It is worth noting the consistently small percentage of meta-thoughts (e.g., others' thoughts about self) at both pre- and post-assessment.

Table 12

Focus of Thoughts Per Condition (Pre- and Post-Assessment)

	Focus															
	Self				Other				Metas				Situation			
Condition	Total	% of conditions total	*M*	*SD*	Total	% of conditions total	*M*	*SD*	Total	% of conditions total	*M*	*SD*	Total	% of conditions total	*M*	*SD*
W-LC (*n* = 24)																
Pre (total = 2,387)	1,553	65.0%	64.71	54.04	355	14.9%	14.79	16.51	181	7.6%	7.54	6.89	298	12.5%	12.42	14.41
Post (total = 1,746)	1,114	63.8%	46.42	53.12	273	15.6%	11.37	16.20	132	7.6%	5.50	6.14	227	13.0%	9.46	10.32
SA-CBT (*n* = 22)																
Pre (total = 1,880)	1,149	61.1%	52.23	39.98	233	12.4%	10.59	9.84	234	12.5%	10.64	9.88	264	14.0%	12.00	10.74
Post (total = 1,208)	718	59.4%	32.64	25.53	180	14.9%	8.18	7.85	131	10.9%	5.95	5.01	179	14.8%	8.14	8.17
SH-CBGT (*n* = 22)																
Pre (total = 2,124)	1,344	63.3%	61.09	53.17	354	16.7%	16.09	15.82	144	6.7%	6.55	6.89	282	13.3%	12.82	10.77
Post (total = 1,521)	927	61.0%	42.14	43.64	250	16.4%	11.36	10.71	98	6.4%	4.45	3.20	246	16.2%	11.18	11.96
PROF-CBGT (*n* = 19)																
Pre (total = 1,490)	906	60.9%	47.68	33.94	245	16.4%	12.89	9.25	194	13.0%	10.21	7.73	145	9.7%	7.63	7.60
Post (total = 1,154)	704	61.0%	37.05	35.32	148	12.8%	7.79	10.34	96	8.3%	5.05	5.99	206	17.9%	10.84	8.99

Note. % = percentage of thoughts reported by participants within that condition.

In order to provide an overall picture of the profile of thoughts, Figures 3 and 4 present the thoughts categorized by both valence and focus as a percentage of the grand total for all participants at pre- and post-assessment, respectively. These figures illustrate clearly the predominance of self-focused thoughts, both at pre- and post-assessment (62.7% and 61.6%, respectively). Furthermore, these figures depict an important decline in negative thoughts from pre- to post-assessment (from 56.3% down to 43.9%), and the lower percentages of other, meta-, and situation-focused thoughts across all conditions.

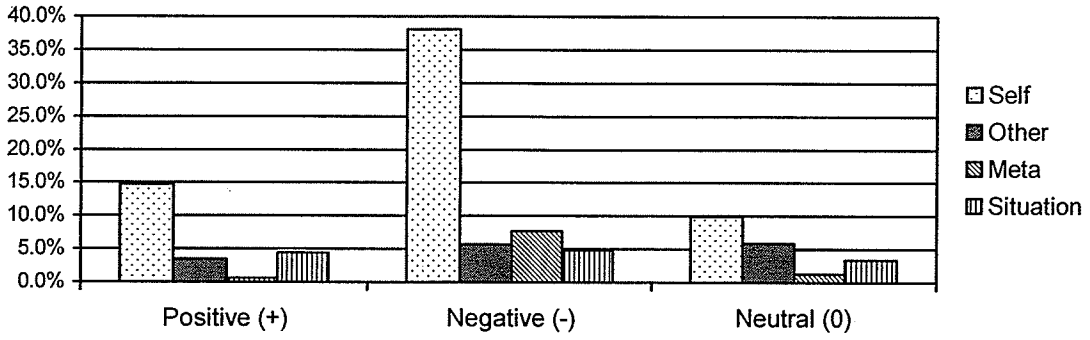


Figure 3. Percentage of Thoughts (Focus by Valence) Over the Grand Total of Thoughts for All Conditions at Pre-Assessment.

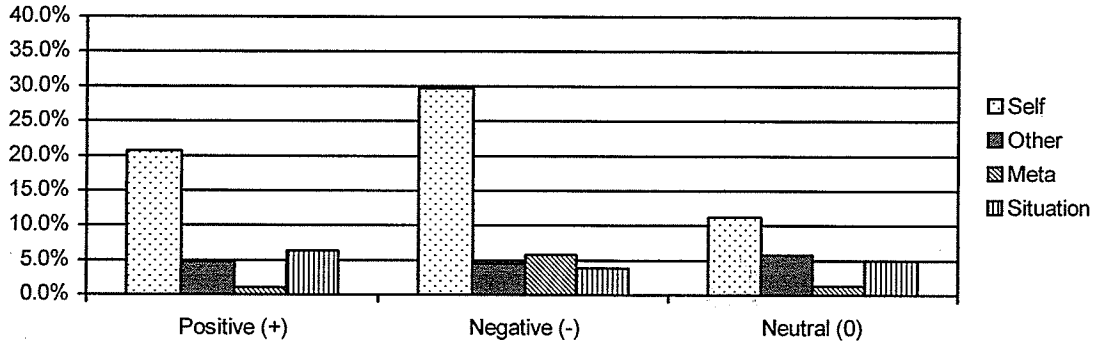
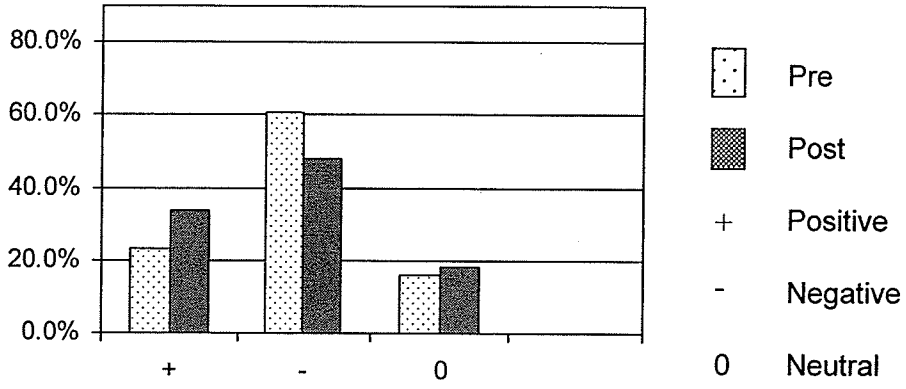
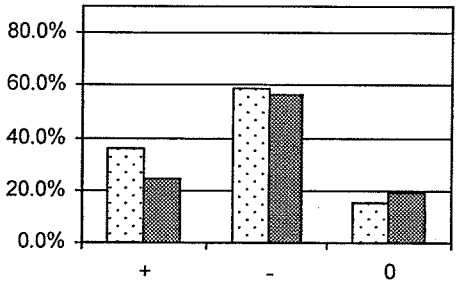


Figure 4. Percentage of Thoughts (Focus by Valence) Over the Grand Total of Thoughts for All Conditions at Post-Assessment.

Figures 5 to 8 each present a profile of thoughts for a single focus (*self*, *other*, *metas*, *situation*) broken down by valence (*positive*, *negative*, *neutral*) for each condition at pre- and post-assessment. In order to allow a comparison of the relative importance of the valences across conditions, the percentages were calculated within-focus, using the total number of thoughts within each condition. These figures illustrate change from pre-to post-assessment. Statistical analyses of change will be presented in the formal hypotheses testing.

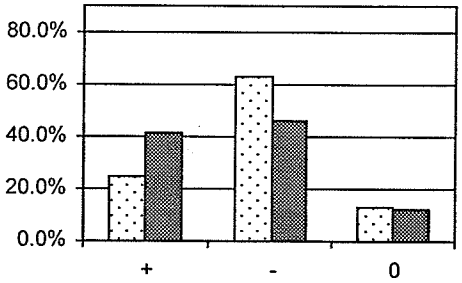


Overall
N = 87 Total Pre = 4,952 Total Post = 3,463



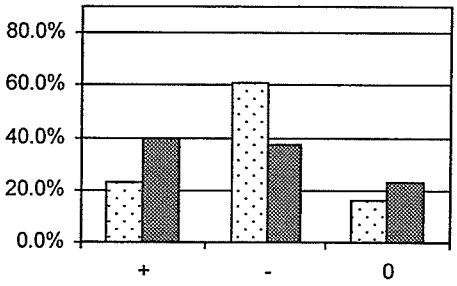
W-LC

n = 24
Total Pre = 1,553
Total Post = 1,114



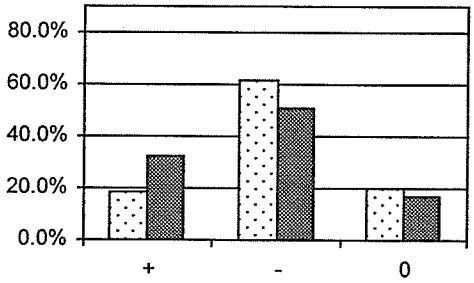
SA-CBT

n = 22
Total Pre = 1,149
Total Post = 718



SH-CBGT

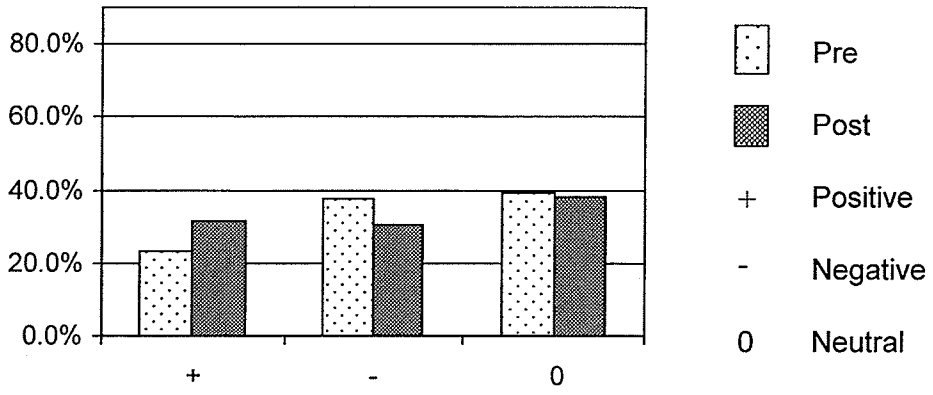
n = 22
Total Pre = 1,344
Total Post = 927



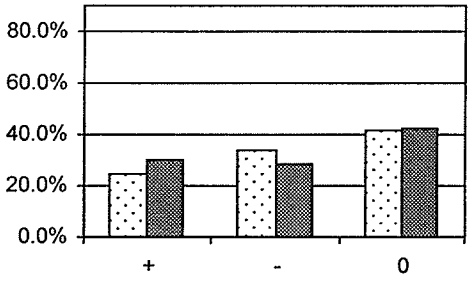
PROF-CBGT

n = 19
Total Pre = 906
Total Post = 704

Figure 5. Valence of Self-Focused Thoughts, Overall, and for Each Condition.

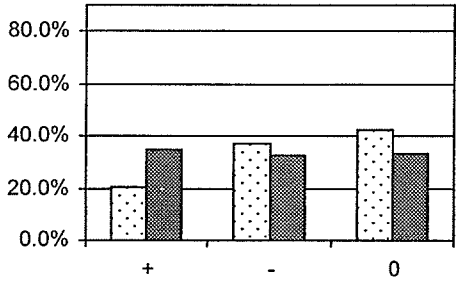


Overall
N = 87 Total Pre = 1,187 Total Post = 851



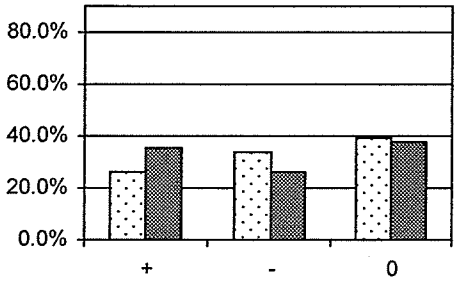
W-LC

n = 24
Total Pre = 355
Total Post = 273



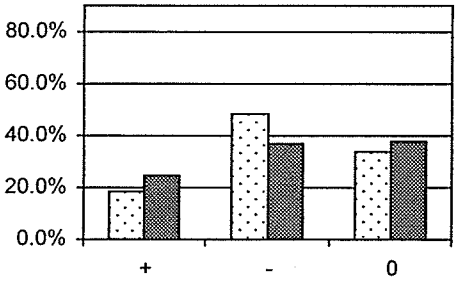
SA-CBT

n = 22
Total Pre = 233
Total Post = 180



SH-CBGT

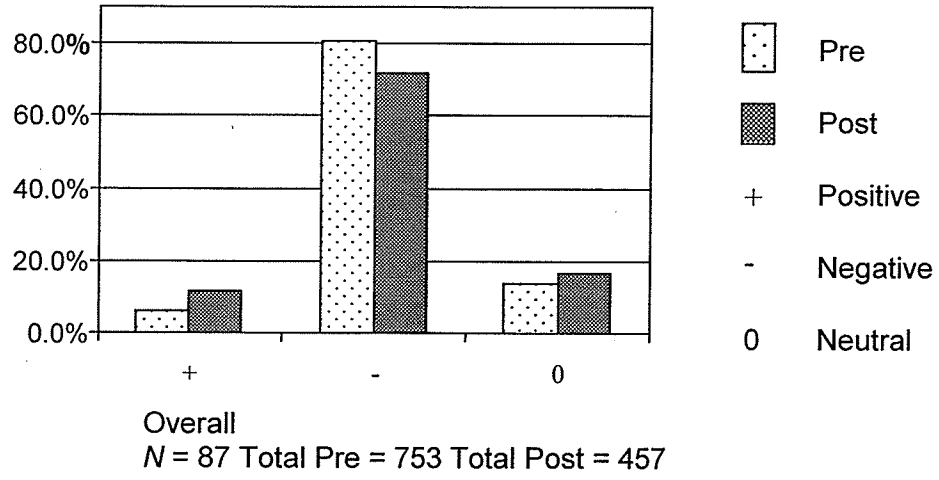
n = 22
Total Pre = 354
Total Post = 250



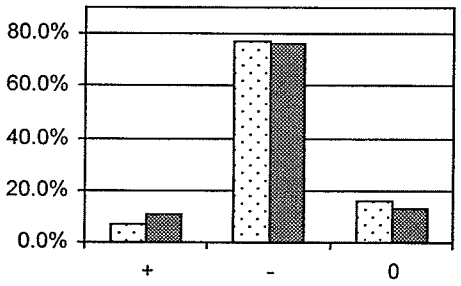
PROF-CBGT

n = 19
Total Pre = 245
Total Post = 148

Figure 6. Valence of Other-Focused Thoughts, Overall, and for Each Condition.

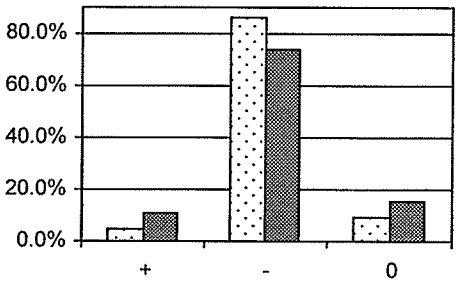


Overall
N = 87 Total Pre = 753 Total Post = 457



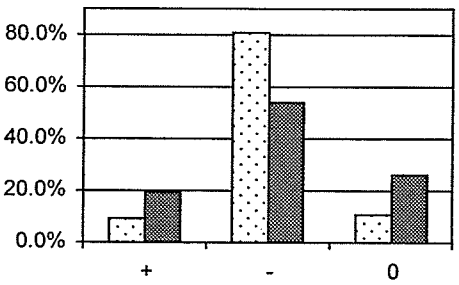
W-LC

n = 24
Total Pre = 181
Total Post = 132



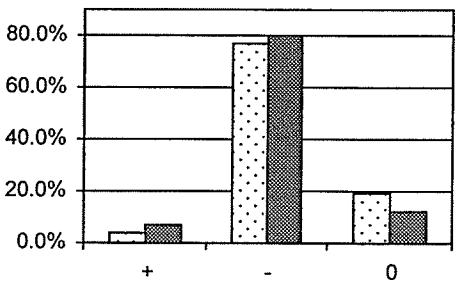
SA-CBT

n = 22
Total Pre = 234
Total Post = 131



SH-CBGT

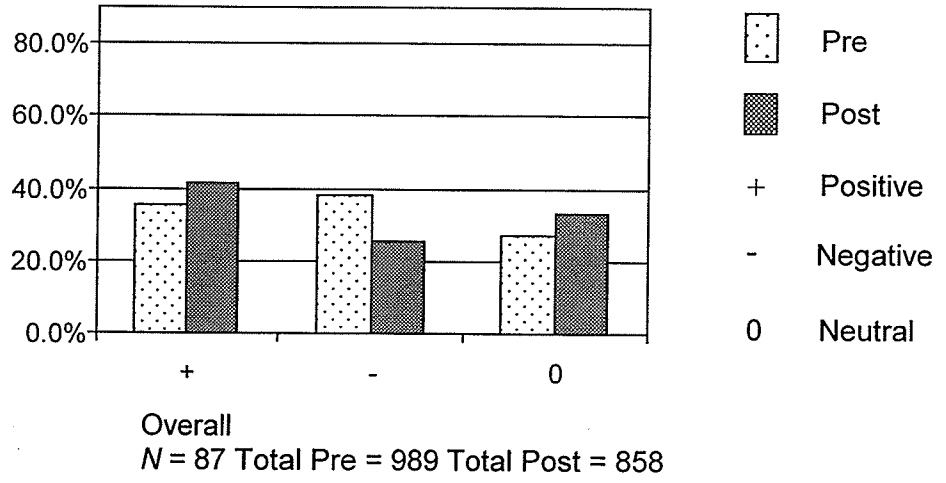
n = 22
Total Pre = 144
Total Post = 98



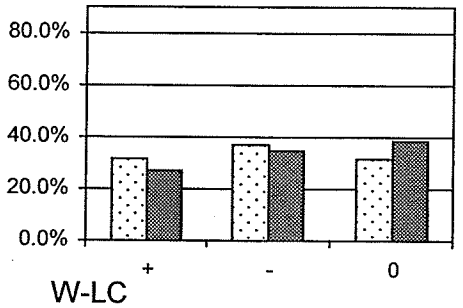
PROF-CBGT

n = 19
Total Pre = 194
Total Post = 96

Figure 7. Valence of Meta-Thoughts, Overall, and for Each Condition.

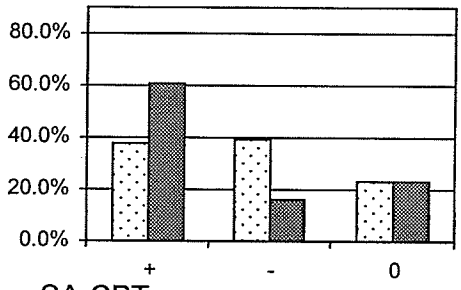


Overall
N = 87 Total Pre = 989 Total Post = 858



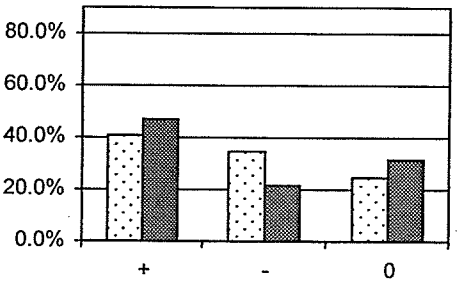
W-LC

n = 24
Total Pre = 298
Total Post = 227



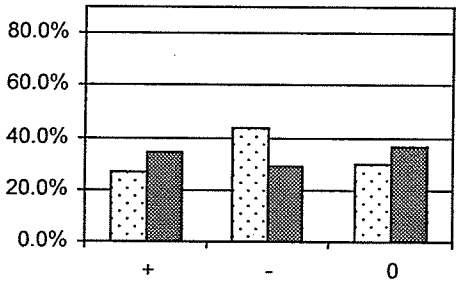
SA-CBT

n = 22
Total Pre = 264
Total Post = 179



SH-CBGT

n = 22
Total Pre = 282
Total Post = 246



PROF-CBGT

n = 19
Total Pre = 145
Total Post = 206

Figure 8. Valence of Situation-Focused Thoughts, Overall, and for Each Condition.

Formal Hypothesis Testing

The main study hypotheses related to change from pre- to post-assessment were tested with analysis of covariance (ANCOVA) to control for pre-assessment variations among conditions. The pre-assessment scores were used as the covariate, the post-assessment scores as DV, and the conditions as IV. The alpha level was set at .05, two-tailed. The various assumptions for ANCOVA—missing data, outliers, multicollinearity and singularity, normality, homogeneity of variance, linearity, homogeneity of regression—were checked for in all the variables used for the hypothesis testing and found to be satisfactory.

Hypothesis 1: Change in the T-BSOM Ratios

Hypothesis 1 predicted that when compared to the W-LC condition, participants in the three treatment conditions would show a significant improvement on the overall BSOM ratios. In other words, it was expected that participants in the treatment conditions would show an improvement in their thinking by demonstrating a better balance between positive and negative thoughts.

Overall, the present findings support the hypothesis that overall T-BSOM ratios improved significantly for participants in the three treatment conditions relative to controls. The overall ANCOVA of the T-BSOM scores revealed a significant condition effect: $F(3, 82) = 8.647, p < .001, \eta^2 = .240$. Simple contrasts were conducted to compare the mean of the W-LC condition with the mean of each treatment conditions. Results showed that the T-BSOM ratios for participants in all treatment conditions were higher at post-assessment than for those in the W-LC condition: for SA-CBT, $p < .05$ and

95% CI = [.01, .23]; for SH-CBGT, $p < .001$ and 95% CI = [.16, .38]; and for PROF-CBGT, $p < .01$ and 95% CI = [.07, .31]. Analyses for gender differences, $F(1, 78) = .031$, $p = .86$, and gender by condition, $F(3, 78) = 1.578$, $p = .20$, were not significant.

Table 13 presents the means, standard deviations and adjusted means for the T-BSOM scores at pre- and post-assessment for all conditions. Figure 9 depicts the changes using the T-BSOM model proposed by Schwartz (1997).At pre-assessment, the mean T-BSOM ratios range from .19 to .31, a score typically reflecting chronic negative rumination and severe psychopathology. At post-assessment, the mean SOM ratio remained the same for W-LC and ranged between .41 and .58 for the treatment conditions, moving these participants into the mild psychopathology category indicating that treatment ameliorated their states of mind considerably in the face of anxiety-provoking situations.

Table 13

Pre- and Post-Assessment Means Ratios, Standard Deviations, and Adjusted Means Ratios for the Balanced States of Mind (T-BSOM) for All Conditions

Condition	Pre		Post		Adj. means	$p <$
	M	*SD*	*M*	*SD*		
W-LC						
(n = 24)	.31	.16	.31	.20	.29	--
SA-CBT						
(n = 22)	.28	.12	.41	.20	.41	.05
SH-CBGT						
(n = 22)	.30	.14	.58	.22	.56	.001
PROF-CBGT						
(n = 19)	.19	.15	.43	.19	.48	.01

Note. p values refer to specific comparisons between W-LC and treatment conditions.

States of Mind	$\frac{P}{N+P}$ Range	Change in T-BSOM Ratios from Pre- to Post-Assessment	Characteristics
Positive Monologue	1.0 .91 - 1.0		Excess positivity; may be adaptive for brief periods
Positive Dialogue *Super Optimal Dialogue* *Optimal Dialogue* *Normal Dialogue*	.9 .85 - .90 .78 - .84 .8 .67 - .77 .7		Positive self-evaluation in deep positive mood Positive self-evaluation in positive mood Positive self-evaluation in neutral mood
Successful Coping Dialogue	.59 - .66 .6		Subnormal; successful management of negative events
Conflicted Dialogue	.42 - .58 .5		Doubt–ambivalence associated with mild psychopathology
Failed Coping Dialogue	.4 .34 - .41		Impaired self-esteem moderate psychopathology
Negative Dialogue *High* *Moderate* *Low*	.3 .23 - .33 .2 .16 - .22 .10 - .15 .1		Chronic negative rumination; severe psychopathology
Negative Monologue	.00 - .09 0.0		Complete despair (e.g., acute panic, profound depression)

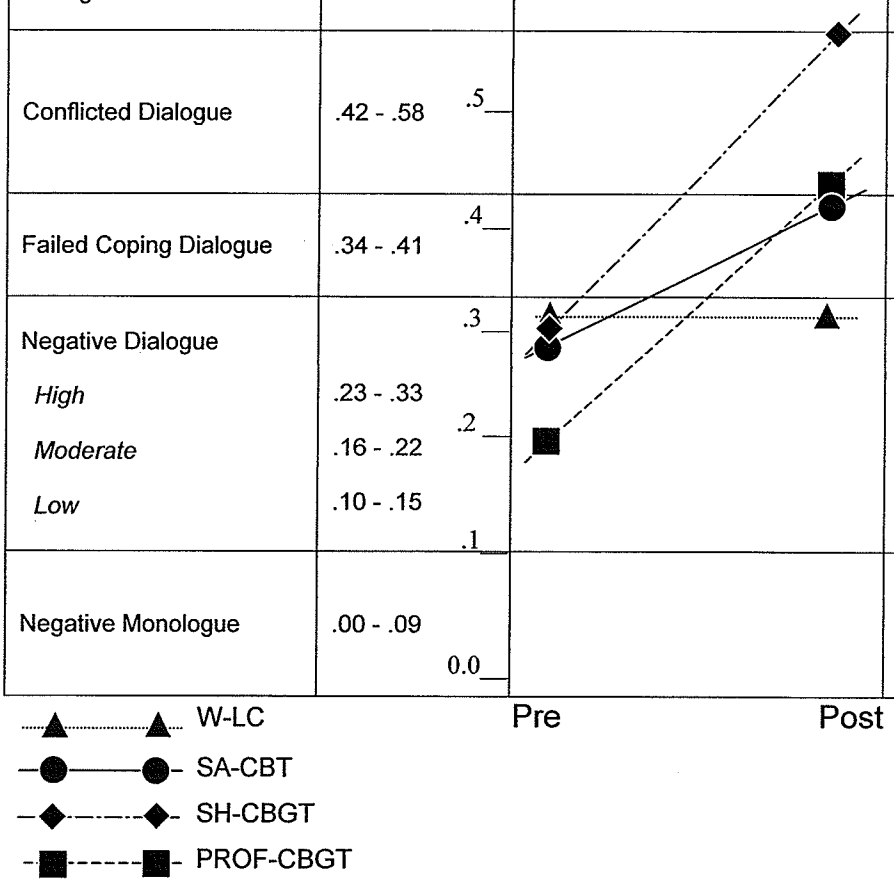


Figure 9. Balanced States of Mind for Overall Thoughts (T-BSOM) Categories at Pre- and Post-Assessment for All Conditions.

Hypothesis 2: Change in Self-Focused Thoughts

This hypothesis predicted that, when compared to the W-LC condition, participants in the three treatment conditions would show (a) a significant reduction in the percentage of self-focused thoughts, from pre- to post-assessment, and (b) an increase in S-BSOM ratios. In other words, it was expected that participants in the treatment conditions would have fewer thoughts focused on themselves and remaining thoughts would be more positive. According to Ingram (1990), self-focused attention appears to be a common feature in many forms of psychopathology. Furthermore, Clark and Wells (1995) suggest that self-focused attention is an important factor that contributes to maintain social phobia because of its impact on negative thoughts and feelings, and also because it interferes with allocating attention to external information that might disconfirm social fears.

2 (a) Change in the Percentage of Self-Focused Thoughts

The present findings did not support the hypothesis that the percentage of self-focused thoughts would show a significant reduction following treatment, relative to the W-LC condition. The overall ANCOVA of the percentage of self-focused thoughts revealed a non-significant condition effect: $F(3, 82) = .503$, $p = .68$, $\eta^2 = .018$, indicating that the percentage of self-focused thoughts at post-assessment (adjusted for the pre-assessment percentage) did not differ across conditions. Analyses for gender differences, $F(1, 78) = .363$, $p = .55$, and gender by condition, $F(3, 78) = 1.158$, $p = .33$, were not significant. Table 14 presents the means, standard deviations, and adjusted means for the percentage of self-focused thoughts at pre- and post-assessment.

Table 14

Pre- and Post-Assessment Means, Standard Deviations, and Adjusted Means for the % of Self-Focused Thoughts for All Conditions

Condition	Pre		Post		Adj. means	$p <$
	M	*SD*	*M*	*SD*		
W-LC (n = 24)	63.3	10.14	63.7	11.11	61.9	--
SA-CBT (n = 22)	62.3	13.63	59.2	13.49	59.0	*ns*
SH-CBGT (n = 22)	59.1	14.99	60.5	11.72	60.8	*ns*
PROF-CBGT (n = 19)	59.5	9.85	61.3	12.87	61.6	*ns*

Note. p values refer to specific comparisons between W-LC and treatment conditions.

The examination of the pattern of pre- and post-assessment means for the percentage of self-focus thoughts across conditions, show that three of the four conditions went slightly up and one condition showed a non-significant decrease, $t(21) = .821$, $p = .42$. Overall, these results support the stability of the construct—self-focused thoughts—across all conditions. Furthermore, it is surprising that different treatments did not have any impact on self-focused thoughts, speaking to the stability of this proportion.

2 (b) Change in S-BSOM Ratios

This hypothesis predicted that when compared to the W-LC condition, participants in the three treatment conditions would show a significant increase in the S-BSOM ratios from pre- to post-assessment. In other words, when they thought about themselves, we expected treated people would have a healthier thinking style with a better balance between positive and negative thoughts.

S-BSOM ratios were computed with the same formula used for the overall BSOM ratios $\left(\frac{P}{N+P}\right)$. As noted by Amsel and Fichten (1998), frequencies of zero for either positive or negative thoughts pose a problem for the calculation of BSOM ratios because:

> If the respondent has 0 positive thoughts, the SOM ratio will be 0, regardless of the number of negatives; similarly, if a respondent has 0 negative thoughts, the SOM ratio will always equal 1. Therefore, there is no distinction between a person who lists 0 positive and 1 negative thought and a person who lists 0 positive and 10 negative thoughts, although the clinical picture may differ considerably (Amsel & Fichten, 1998, p. 259).

In light of this problem, Amsel and Fichten (1998) recommend substituting +1 for the value of either positive or negative for participants whose number of positive or the number of negative thoughts equal 0. While this correction prevents SOM values from equalling either 0 or 1, it results in ratios that more accurately represent the clinical picture. In calculating the S-BSOM ratios, the +1 correction recommended by Amsel and

Fichten was employed whenever the number of positive or the number of negative thoughts equalled zero.

The present findings supported the hypothesis that when compared to the W-LC, participants in the treatment conditions showed a significant increase in the S-BSOM ratios. The overall ANCOVA of the S-BSOM ratios revealed a significant condition effect, $F(3, 82) = 7.511, p < .001, \eta^2 = .22$. Simple contrast analyses to compare each treatment condition with W-LC, revealed no significant difference between W-LC and SA-CBT ($p = .120$) but a significant difference between the two group CBT conditions relative to W-LC: for SH-CBGT, $p < .001$ and 95% CI = [.15, .39], and for PROF-CBGT, $p < .01$ and 95% CI = [.06, .32]. These results are consistent with previous research showing that SOM ratios are sensitive to treatment effects (Garamoni et al., 1992; Heimberg, 1994). Analyses for gender differences, $F(1, 78) = .218, p = .64$, and gender by condition, $F(3, 78) = 2.509, p = .06$, were not significant.

Table 15 presents the means, standard deviations and adjusted means for the S-BSOM ratios at pre- and post-assessment.

Table 15

Pre- and Post-Assessment Means, Standard Deviations, and Adjusted Means for the S-BSOM Ratios for All Conditions

Condition	Pre		Post		Adj. means	$p <$
	M	*SD*	*M*	*SD*		
W-LC (n = 23)	.29	.18	.30	.17	.29	--
SA-CBT (n = 21)	.27	.13	.38	.22	.38	*ns*
SH-CBGT (n =22)	.29	.16	.57	.26	.56	.001
PROF-CBGT (n = 19)	.20	.14	.45	.18	.48	.01

Note. p values refer to specific comparisons between W-LC and treatment conditions.

Figure 10 displays the changes in S-BSOM ratios from pre- to post-assessment. At post-assessment, participants in the two CBGT treatment groups improved from severe psychopathology to mild psychopathology, while participants in the SA-CBT condition improved from severe to moderate psychopathology.

States of Mind	$\frac{P}{N+P}$ Range	Change in S-BSOM Ratios from Pre- to Post-Assessment	Characteristics
Positive Monologue	1.0 .91 - 1.0 .9		Excess positivity; may be adaptive for brief periods
Positive Dialogue *Super Optimal Dialogue* *Optimal Dialogue* *Normal Dialogue*	.85 - .90 .8 .78 - .84 .67 - .77 .7		Positive self-evaluation in deep positive mood Positive self-evaluation in positive mood Positive self-evaluation in neutral mood
Successful Coping Dialogue	.59 - .66 .6		Subnormal; successful management of negative events
Conflicted Dialogue	.42 - .58 .5		Doubt–ambivalence associated with mild psychopathology
Failed Coping Dialogue	.4 .34 - .41		Impaired self-esteem moderate psychopathology
Negative Dialogue *High* *Moderate* *Low*	.3 .23 - .33 .2 .16 - .22 .10 - .15 .1		Chronic negative rumination; associated with severe psychopathology
Negative Monologue	.00 - .09 0.0		Complete despair (e.g., acute panic, profound depression)

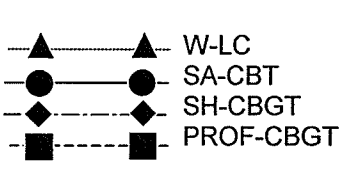


Figure 10. Balanced States of Mind for Self-Thoughts (S-BSOM) Categories at Pre- and Post-Assessment for All Conditions.

Hypothesis 3: Change in Thoughts About Negative Evaluation by Others, and Fear of Negative Evaluation

This hypothesis predicted that thoughts about negative evaluation by others and the fear of negative evaluation, which is believed to be the core feature of social phobia (e.g., concern with being negatively evaluated by other people [DSM-IV, 1994]), would be significantly reduced for treated participants and not for W-LC. In other words, it was expected that: 3 (a) when compared to W-LC, the percentage of negative meta-thoughts will be significantly reduced for participants in the treatment conditions; that 3 (b) the M-BSOM ratios will increase significantly from pre- to post-assessment for the treatment conditions, relative to the W-LC condition; and finally that, 3 (c) the scores on BFNE will be significantly reduced for treated participants relative to those in W-LC.

3 (a) Change in the Percentage of Negative Meta-Thoughts

The present findings did not support the hypothesis that the percentage of negative meta-thoughts would show a significant reduction following treatment. Analyses done with the transformed and non-transformed M-BSOM (ratios at pre- and post-assessment) gave similar results thus, for ease of interpretation, only the non-transformed results will be reported. The overall ANCOVA of the percentage of negative meta-thoughts revealed a non-significant condition effect, $F(3, 82) = .681$, $p = .57$, $\eta^2 = .024$. This indicates that no significant differences in the percentage of negative meta-thoughts exists across conditions. Analyses for gender differences, $F(1, 78) = .284$, $p = .60$, and gender by condition, $F(3, 78) = .875$, $p = .46$, were not significant.

Table 16 presents the means, standard deviations, and adjusted means for the percentage of negative meta-thoughts at pre- and post-assessment for all conditions. Note that negative meta-thoughts constitute a surprisingly small percentage of total thoughts, relative to their importance within clinical theories of social phobia.

Table 16

Pre- and Post-Assessment Means, Standard Deviations, and Adjusted Means for the % of Negative Meta-Thoughts for All Conditions

Condition	Pre		Post		Adj. means	$p <$
	M	*SD*	*M*	*SD*		
W-LC ($n = 24$)	7.3	6.16	6.3	5.93	6.6	--
SA-CBT ($n = 22$)	10.1	4.66	7.8	5.84	7.5	*ns*
SH-CBGT ($n = 22$)	4.9	4.50	4.5	3.98	5.2	*ns*
PROF-CBGT ($n = 19$)	11.6	7.98	5.9	6.50	5.3	*ns*

Note. *p* values refer to specific comparisons between W-LC and treatment conditions.

3 (b) Change in M-BSOM Ratios

This hypothesis predicted that in comparison to the W-LC condition, the treatment conditions would show a significant increase in M-BSOM ratios from pre- to post-assessment. In other words, it was expected that treated people would have a

healthier way of thinking about evaluation by others, with a better balance between their positive and negative thoughts regarding such an evaluation.

M-BSOM ratios were computed with the same approach used for S-BSOM ratios, and the +1 correction recommended by Amsel and Fichten (1998) was employed whenever the number of positive *or* the number of negative thoughts equalled zero.

The present findings did not support this hypothesis. The overall ANCOVA of the M-BSOM ratios did not show a significant condition effect, $F(3, 59) = .937$, $p = .43$, $\eta^2 = .045$. That is, no significant differences on the M-BSOM ratios were found among the conditions. Analyses for gender differences, $F(1, 55) = 2.285$, $p = .14$, and gender by condition, $F(3, 55) = 1.052$, $p = .38$, were not significant.

Table 17 presents the means, standard deviations, and adjusted means for the M-BSOM ratios at pre- and post-assessment. It is worth noting a general trend toward improvement for all conditions including W-LC.

Table 17

Pre- and Post-Assessment Means, Standard Deviations, and Adjusted Means for the M-BSOM Ratios for All Conditions

Condition	Pre		Post		Adj. means	$p <$
	M	*SD*	*M*	*SD*		
W-LC						
(*n* = 19)	.18	.095	.26	.133	.26	--
SA-CBT						
(*n* = 18)	.16	.100	.25	.172	.25	*ns*
SH-CBGT						
(*n* = 14)	.20	.112	.34	.172	.33	*ns*
PROF-CBGT						
(*n* = 13)	.19	.130	.24	.159	.24	*ns*

Note. p values refer to specific comparisons between W-LC and treatment conditions.

Figure 11 displays the changes in the M-BSOM ratios from pre- to post-assessment. Except for the SH-CBGT, which improved from severe psychopathology to moderate psychopathology, the other treatment conditions and W-LC, remained in the same category, despite a trend toward improvement.

State of Mind	$\frac{P}{N+P}$ Range	Change in M-BSOM Ratios from Pre- to Post-Assessment	Characteristics
Positive Monologue	1.0 .91–1.0		Excess positivity; may be adaptive for brief periods
Positive Dialogue	.9		
Super Optimal Dialogue	.85 - .90		Positive self-evaluation in deep positive mood
Optimal Dialogue	.8 .78 - .84		Positive self-evaluation in positive mood
Normal Dialogue	.67 - .77 .7		Positive self-evaluation in neutral mood
Successful Coping Dialogue	.59 - .66 .6		Subnormal; successful management of negative events
Conflicted Dialogue	.42 - .58 .5		Doubt–ambivalence with mild psychopathology
Failed Coping Dialogue	.4 .34 - .41		Impaired self-esteem moderate psychopathology
Negative Dialogue	.3		Chronic negative rumination; associated with severe psychopathology
High	.23 - .33		
Moderate	.2 .16 - .22		
Low	.10 - .15 .1		
Negative Monologue	.00 - .09 0.0		Complete despair (e.g., acute panic, profound depression)

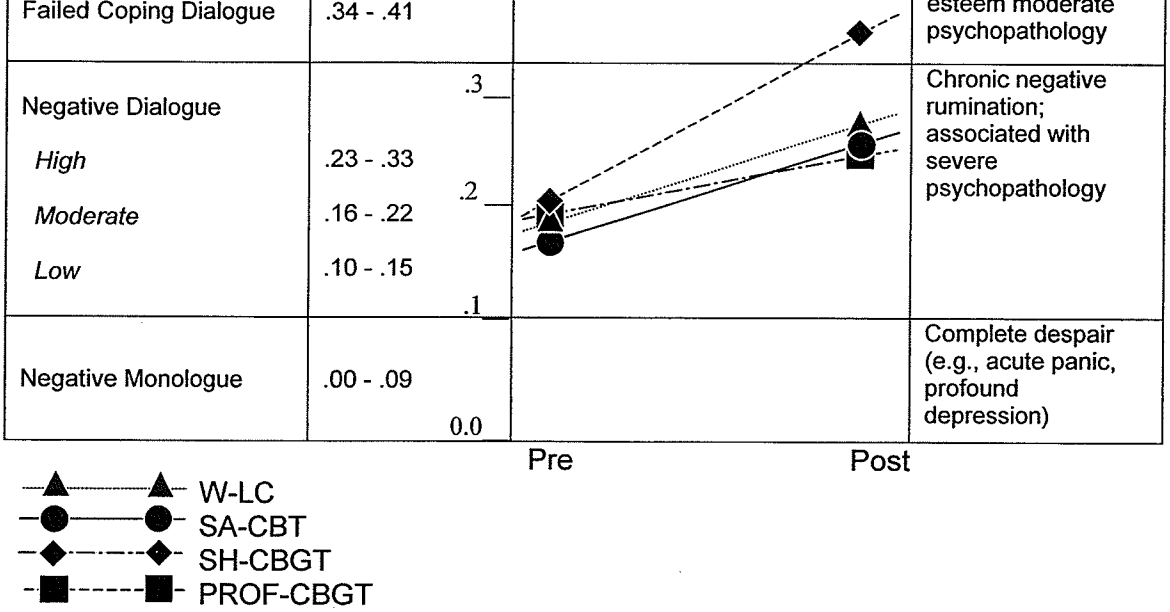


Figure 11. Balanced States of Mind (M-BSOM) Categories at Pre- and Post-Assessment for All Conditions.

3 (c) Change in BFNE

The present findings partially supported this hypothesis that treated participants' post-assessment scores on BFNE would decrease significantly relative to W-LC. However, only the participants in the SH-CBGT group improved significantly on this measure. Analyses done with the transformed and non-transformed BFNE (pre) gave similar results thus, for ease of interpretation, only the non-transformed results will be reported. Table 18 presents the pre- and post-assessment means, standard deviations, and adjusted means for the BFNE scores at pre- and post-assessment. The overall ANCOVA of the BFNE scores revealed a significant condition effect: $F(3, 82) = 5.658$, $p < .01$, $\eta^2 = .172$. Simple contrast analyses were conducted to compare the W-LC condition with each treatment condition. Results showed that relative to W-LC, no significant difference on the BFNE scores was found for either SA-CBT ($p = .49$), or for PROF-CBGT ($p = .50$). The only treatment condition demonstrating a significant difference in adjusted post BFNE scores relative to W-LC was the SH-CBGT condition, $p < .01$ and 95 % CI = [-10.58, -2.45]. Analyses for gender differences, $F(1, 78) = .387$, $p = .54$, and gender by condition, $F(3, 78) = .570$, $p = .64$, were not significant.

Table 18

Pre- and Post-Assessment Means Scores, Standard Deviations, and Adjusted Means for the Brief Fear of Negative Evaluation (BFNE) for All Conditions

Condition	Pre		Post		Adj. means	$p <$
	M	*SD*	*M*	*SD*		
W-LC						
(n = 24)	48.83	7.59	44.46	10.45	46.65	--
SA-CBT						
(n = 22)	53.27	6.16	49.40	7.70	48.07	*ns*
SH-CBGT						
(n = 22)	51.77	7.02	40.27	8.13	40.13	.01
PROF-CBGT						
(n = 19)	52.95	7.21	46.26	8.39	45.19	*ns*

Note. p values refer to specific comparisons between W-LC and treatment conditions.

Examination of the pattern of means in Table 18 suggests that the failure of the two treatment groups to statistically separate from the W-LC condition, was due in part to the modest improvement of the W-LC. This finding is also consistent with other treatment outcome studies revealing fear of negative evaluation does not improve generally over a few weeks or months (Cohn & Hope, 2001).

Finally, a small, but significant correlation was found between change in BFNE scores and change in the proportion of negative meta-thoughts from pre- to

post-assessment, $r(63) = .29, p < .05$. This result suggests that these two variables measure similar components of the same construct—fear of negative evaluation.

Overall, the predicted change in percentage of negative meta-thoughts, M-BSOM, and BFNE was not supported, except partially for BFNE scores.

In order to better understand the relative importance of changes in negative self- and meta-perceptions in the treatment of social phobia, follow-up analyses were conducted on self-focused thoughts and negative meta-thoughts (thoughts about negative evaluation by others). First, a comparison of the proportion of self- versus meta-thoughts that occupy the minds of people with social phobia before treatment was undertaken. Hence, we examined only the pre-scores of the participants. Table 19 presents the frequencies and percentage of negative self-focused thoughts and negative meta-thoughts for all conditions. The percentage of negative self-thoughts range from 37.4% to 38.6% and from 5.5% to 10.0% for negative meta-thoughts. Furthermore, this table shows there is a significant difference ($p < .0001$ for all conditions) in the volume of thoughts that occupy persons with social phobia—negative self-focused thoughts significantly outnumber thoughts related to others' thoughts about the self (meta-thoughts).

Table 19

Frequencies and % of Negative Self-Focused Thoughts and Negative Meta-Thoughts at Pre-Assessment for Overall and Each Condition

Overall and per condition	Negative self-focused thoughts		Negative meta-thoughts		Z score >	*p* <
	Total	%	Total	%		
Overall						
(*N* = 87)	3,006	38.1	606	7.7	21.728	< .0001
(Total = 7,881)						
W-LC						
(*n* = 24)	907	38.0	140	5.9	12.529	< .0001
(Total = 2,387)						
SA-CBT						
(*n* = 22)	722	38.4	201	10.7	9.775	< .0001
(Total = 1,880)						
SH-CBGT						
(*n* = 22)	819	38.6	116	5.5	12.188	< .0001
(Total = 2,124)						
PROF-CBGT						
(*n* = 19)	558	37.4	149	10.0	8.564	< .0001
(Total = 1,490)						

Note. Percentage of thoughts (negative self-focused thoughts and negative meta-thoughts) is calculated within-condition.

Second, a comparison between the W-LC condition and the treatment conditions on improvement in S-BSOM ratios and M-BSOM ratios was done using a *t*-test for independent means. Results showed that participants in the treatment conditions were

significantly more improved on S-BSOM ratios than those in the W-LC, $t(83) = -3.989$, $p < .001$, but were not different on M-BSOM ratios, $t(62) = -.055$, $p = .96$. These results suggest that relative to controls, treated people made a significant shift in the way they think about themselves (e.g., more balanced thoughts between positive and negative ones), but no improvement on how negatively they suppose others think of them.

Finally, what relationship, if any, might exist between change in self- and meta-perceptions? A Pearson correlation coefficient was computed between the change in S-BSOM ratios and M-BSOM ratios from pre- to post-assessment for treated participants. Results indicated a small positive but non-significant relationship, $r(45) = .24$, $p < .112$, suggesting a weak association between the change in participants' thoughts about themselves and thoughts about negative evaluation by others, at the time of treatment cessation. Why are change in S-BSOM and M-BSOM showing a low correlation? Possible explanations for this weak association are: (a) the relationship prior to treatment is small, $r(79) = .31$, $p < .01$; (b) change scores are less reliable than other scores and this may have reduced the correlation as well; and (c) the gain on one measure (S-BSOM ratios) was more substantial than the gain on the other measure (M-BSOM ratios), suggesting that it might take more time to develop a positive view about evaluation by others, than to develop a positive view about the self.

Taken all together, these results suggest that treatment did not substantially affect participants' thoughts about negative evaluation by others. However, treatment had a significant impact on changing participants' self-focused thoughts in a more balanced

way. Moreover, there was no association between change to negative thoughts about self and thoughts about others' negative evaluation of self.

Hypothesis 4: Change in Self-Consciousness

This hypothesis predicted that when compared to W-LC, participants in the treatment conditions would show a significant reduction in public self-consciousness and in maladaptive self-consciousness.

4 (a) Change in Public Self-Consciousness Subscale (PUB-SC)

The present findings partially supported the hypothesized reduction in public self-consciousness following treatment. Analyses done with the transformed and non-transformed PUB-SC subscale scores at pre-assessment produced similar results thus, for ease of interpretation, only the non-transformed results will be reported. The overall ANCOVA of the PUB-SC subscale scores revealed a significant condition effect, $F(3, 82) = 2.706, p < .05, \eta^2 = .090$. Simple contrast analyses were conducted to compare the W-LC condition with each treatment conditions. Results showed that a significant difference on the PUB-SC subscale scores was found for SH-CBGT relative to W-LC: SH-CBGT, $p < .05$, 95% CI = [-3.92, -.386]. No significant difference was found for either of the two remaining treatment conditions relative to W-LC (SA-CBT, $p = .89$; PROF-CBGT, $p = .65$). Analyses for gender differences, $F(1, 78) = 1.302, p = .26$, and gender by condition, $F(3, 78) = .887, p = .45$, were not significant.

Table 20 presents the pre- and post-assessment means, standard deviations, and adjusted means for the PUB-SC subscale scores at pre- and post-assessment.

Table 20

Pre- and Post-Assessment Means, Standard Deviations, and Adjusted Means for the PUB-SC Subscale Scores for All Conditions

Condition	Pre		Post		Adj. means	$p <$
	M	*SD*	*M*	*SD*		
W-LC ($n = 23$)	17.46	3.15	16.12	4.07	16.33	--
SA-CBT ($n = 21$)	17.95	2.72	16.64	3.61	16.46	*ns*
SH-CBGT ($n = 22$)	17.32	3.01	13.86	4.13	14.18	.05
PROF-CBGT ($n = 19$)	18.26	3.12	16.33	3.23	15.91	*ns*

Note. p values refer to specific comparisons between W-LC and treatment groups.

Although conditions showed decreases on mean values for this measure, the SH-CBGT condition gave the most substantial result. This is consistent with other results in the present research, suggesting that this condition did slightly better than the two other treatment conditions—SA-CBT and PROF-CBGT.

4 (b) Change in Maladaptive Self-Consciousness Scale (SCONS)

The present findings supported the hypothesis that maladaptive self-consciousness would be significantly reduced for treated participants relative to W-LC except for those in the SA-CBT condition. The overall ANCOVA of the SCONS scores revealed a significant condition effect, $F(3, 82) = 7.978$, $p < .001$, $\eta^2 = .226$. Simple contrast

analyses were conducted to compare the W-LC condition with each treatment conditions. Results showed significantly lower SCONS scores for SH-CBGT and PROF-CBGT relative to W-LC but no significant difference for SA-CBT ($p = .85$): for SH-CBGT, $p < .001$ and 95% CI = [-21.26, -7.09], and for PROF-CBGT, $p < .01$ and CI = [-8.79, -3.85]. Analyses for gender differences, $F(1, 78) = .108$, $p = .74$, and gender by condition, $F(3, 78) = .457$, $p = .71$, were not significant.

Table 21 presents the pre- and post-assessment means, standard deviations, and adjusted means for the SCONS scores. The two conditions treated with CBT group therapy (SH-CBGT and PROF-CBGT) made substantial change on their SCONS scores at post-assessment. It would appear that the group treatment format helps treated participants develop a more adaptive and healthy self-awareness.

Table 21

Pre- and Post-Assessment Means, Standard Deviations and Adjusted Means for the SCONS Scores for All Conditions

Condition	Pre		Post		Adj. means	$p <$
	M	*SD*	*M*	*SD*		
W-LC (n = 24)	84.72	16.92	80.45	18.32	82.20	--
SA-CBT (n = 22)	87.65	13.77	82.14	17.95	81.51	*ns*
SH-CBGT (n = 22)	84.77	12.66	66.32	14.55	68.02	.001
PROF-CBGT (n = 19)	91.11	11.25	74.32	14.38	70.87	.01

Note. p values refer to specific comparisons between W-LC and treatment conditions.

Furthermore, in order to explore the possible relationship between self-evaluation and self-consciousness, change in S-BSOM ratios and changes in PUB-SC subscale and SCONS scores from pre- to post-assessment, were correlated for treated participants. A significant relationship was found for both: PUB-SC, $r(62) = -.40$, $p < .01$, and SCONS, $r(62) = -.48$, $p < .01$. This strong relationship between self-focused attention and self-consciousness is in line with previous research and cognitive models' proponents. These correlations indicate that treated participants whose self-thoughts became more positive also, tended to become less self-conscious.

Additional Data Analyses

Correlations Among Measures of Change from Pre- to Post-Assessment

Does cognitive change correlate with other measures of change? This study used a multi-component approach to investigate change following treatment for social phobia. Table 22 presents a series of Pearson correlations computed among cognitive measures (T-BSOM, S-BSOM, M-BSOM, BFNE) on the one hand, with clinical measures (SPS, SIAS, FQ-SP, SPAI-SP), independent assessor ratings (CGI), and participants' ratings of their anxiety before, during, and after anxiety-provoking situations as reported in their diaries (SUDS-B, SUDS-D, SUDS-A) on the other hand.

Overall, numerous significant associations were observed between three of the four cognitive measures (T-BSOM, S-BSOM, BFNE) and the criterion measures. These findings support the validity of these three cognitive measures and suggest that they are integral to therapeutic change in social phobia. In contrast, M-BSOM showed relatively few significant associations. This result raises questions about the centrality of thoughts about others' negative evaluations to therapeutic change in social phobia.

These results suggest that participant's improvement on their overall thinking (e.g., more balanced thoughts) as measured by the T-BSOM is significantly correlated with decreases on clinical symptoms of social phobia, global improvement as assessed by the independent rater, and decreases in participants' rating of their anxiety. The same pattern can be depicted for S-BSOM and BFNE except for two non-significant correlations between S-BSOM and SPS, $r(63) = -.23$, and between BFNE and SUDS-D $r(62) = .24$.

Table 22

Correlation Coefficients for Change from Pre- to Post-Assessment for Cognitive Measures, Clinical Measures, Independent Assessor Rating, and Participants' Rating of Their Anxiety for Treatment Conditions

Measure	SPS	SIAS	FQ-SP	SPAI-SP	CGI	SUDS-B	SUDS-D	SUDS-A
BSOM	-.31*	-.44**	-.50**	-.48**	-.42**	-.25*	-.42**	-.37**
S-BSOM	-.23	-.36**	-.46**	-.42**	-.31*	-.37**	-.42**	-.37**
M-BSOM	-.21	-.25	-.21	-.07	-.18	-.30*	-.37*	-.34*
BFNE	.37**	.57**	.38**	.45**	.46**	.42**	.24	.33**

Note. n = 63 for all measures except for S-BSOM (n = 62), M-BSOM (n = 45), SUDS-D (n = 62), and SUDS-A (n = 62).

* $p < .05$. ** $p < .01$.

T-BSOM = Balanced States of Mind ratio; S-BSOM ratio = Self-Focused Balanced States of Mind ratio; M-BSOM = Meta-Thoughts Balanced States of Mind ratio; BFNE = Brief Fear of Negative Evaluation; SPS = Social Phobia Scale; SIAS = Social Interaction Anxiety Scale; FQ-SP = Fear Questionnaire–Social Phobia Subscale; SPAI-SP = Social Phobia & Anxiety Inventory–Social Phobia Subscale; CGI = Clinical Global Improvement Scale; SUDS-B = Subjective Units of Discomfort Scale–Before Social Situation; SUDS-D = Subjective Units of Discomfort Scale–During Social Situation; SUDS-A = Subjective Units of Discomfort Scale–After Social Situation.

No significant correlations were found between M-BSOM and clinical measures and CGI. However, M-BSOM was correlated with participants' own ratings in situations of anxiety. One possible explanation could be that rating its own anxiety (SUDS) might be more sensitive in detecting change, even a small one, in the way treated people develop a more balanced way of thinking about other people's evaluation.

To further explore the degree of association between the valence of self-thoughts and thoughts about evaluation by others, Pearson correlations were computed between

S-BSOM ratios and M-BSOM ratios at pre- and post-assessment for all conditions. Results revealed a significant positive association between these two cognitive constructs at pre-assessment, $r(79) = .31, p < .01$ and at post-assessment, $r(69) = .37, p < .01$, indicating that the valence of self-thoughts are moderately associated with the valence of thoughts about negative evaluation by others. In other words, having a more balanced view about self is moderately connected to a more balanced perception of evaluation by others. This is in line with other research suggesting a link between the way people think about themselves and how they perceive others' evaluation about the self.

Mediational Analyses

Results using social phobia measures showed statistically significant improvement for participants in the treatment conditions. Furthermore, tests of clinical significance revealed that treatment had a significant impact on clinical change for more participants in the treatment conditions than for participants in W-LC. On the other hand, the tests of hypotheses also showed that cognitive change was significant on T-BSOM ratios, S-BSOM ratios, and SCONS, and partially significant on BFNE for treated participants. Lastly, as depicted in Table 23, cognitive change correlates significantly with clinical change. This raises the question of whether cognitive change mediates clinical change.

To answer this question, mediational analyses were carried out according to the procedure suggested by Baron and Kenny (1986) and Kenny, Kashy and Bolger (1998). These authors describe a four-step process for assessing mediation (see Figure 12).

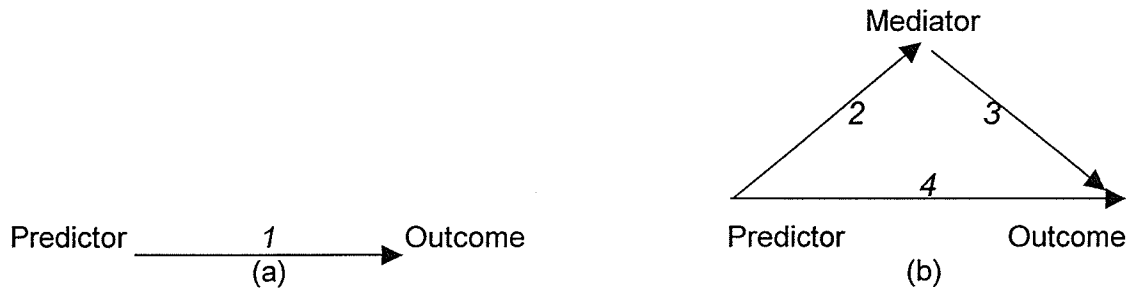


Figure 12. Steps for Assessing the Level of Mediation.

The first step shows that the predictor (treatment) is significantly correlated with the outcome or dependent variable (clinical measure) (path 1 in Figure 12 [a]). This step is important because it establishes whether there is an effect that can be mediated. The second step shows that the predictor (treatment) is significantly correlated with the mediator (cognitive measure) (path 2 in Figure 12 [b]). The third step shows that the mediator significantly affects the outcome variable (path 3 in Figure 12 [b]). The fourth step shows that the relationship between the predictor and the outcome is reduced when the potential mediator is controlled (path 4 in Figure 12 [b]).

Complete mediation is indicated when the equations in steps 1, 2, and 3 are significant, and the path from the predictor to the outcome drops to non-significance in the fourth step. Partial mediation is indicated when steps 1, 2, and 3 are significant, and the relationship between the predictor and the outcome is non-zero, but smaller in step 4 than in step 1.

(a) Mediation Analyses with T-BSOM Ratio Change as the Mediator

Table 23 presents the mediation analyses summary for T-BSOM ratios as the mediator (cognitive variable), and SPS, SIAS, FQ-SP, SPAI-SP, CGI, PUB-SC, SCONS, SUDS-B, SUDS-D, and SUDS-A as the outcome measures (criterion) comparing W-LC to the three treatment conditions. Six of the outcome measures (SIAS, FQ-SP, SPAI-SP, SCONS, SUDS-B, and SUDS-D) show complete mediation. Partial mediation was found

for SPS, CGI, and SUDS-A. According to Baron and Kenny (1986), the mediators reflect "the generative mechanisms through which the focal independent variable is able to influence the dependent variable of interest" (p. 1173). In the present context, this may mean that having a healthier way of thinking (more balanced T-BSOM ratios) reduces clinical symptoms of social phobia.

Table 23

Mediation Analyses Summary with T-BSOM as the Mediator

DV = SPS	Tx = W-LC versus treatment conditions		
Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.263	.001	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.268	.000	
4. Tx * mediator → outcome	-.180	.025	
			Partial

DV = SIAS	Tx = W-LC versus treatment conditions		
Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.297	.000	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.417	.000	
4. Tx * mediator → outcome	-.134	.094	
			Complete

DV = FQ-SP	Tx = W-LC versus treatment conditions		
Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.316	.000	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.456	.000	
4. Tx * mediator → outcome	-.142	.094	
			Complete

Table 23 (cont'd)

Mediation Analyses Summary with T-BSOM as the Mediator

DV = SPAI-SP Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.260	.002	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.326	.000	
4. Tx * mediator → outcome	-.140	.108	
			Complete

DV = CGI Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.409	.000	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.475	.000	
4. Tx * mediator → outcome	-.249	.018	
			Partial

DV = PUB-SC Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.098	.258	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.276	.001	
4. Tx * mediator → outcome	-.028	.760	
			No effect to be mediated

DV = SCONS Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.223	.007	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.447	.000	
4. Tx * mediator → outcome	-.034	.660	
			Complete

Table 23 (cont'd)

Mediation Analyses Summary with T-BSOM as the Mediator

DV = SUDS-B	Tx = W-LC versus treatment conditions		
Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.200	.042	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.307	.001	
4. Tx * mediator → outcome	-.083	.430	
			Complete

DV = SUDS-D	Tx = W-LC versus treatment conditions		
Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.325	.001	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.428	.000	
4. Tx * mediator → outcome	-.173	.068	
			Complete

DV = SUDS-A	Tx = W-LC versus treatment conditions		
Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.331	.000	
2. Tx → mediator	.395	.000	
3. Mediator → outcome	-.411	.000	
4. Tx * mediator → outcome	-.194	.037	
			Partial

(b) Mediation Analyses with S-BSOM Ratio Change as the Mediator

Table 24 presents the mediation analyses summary for S-BSOM ratios as the mediator (cognitive variable), and SPS, SIAS, FQ-SP, SPAI-SP, CGI, PUB-SC, SCONS, SUDS-B, SUDS-D, and SUDS-A as the outcome measures (criterion) comparing W-LC to the three treatment conditions. Six of the outcome measures (SIAS, SPAI-SP, SCONS, SUDS-B, SUDS-D, and SUDS-A) show complete mediation. Partial mediation was

found for SPS, FQ-SP, and CGI. No effect of treatment on PUB-SC change scores was found hence no mediation analysis was conducted. Again, these results suggest that having a healthier way to think about oneself (more balanced S-BSOM ratios) may be responsible for the reduction of clinical symptoms of social phobia.

Furthermore, it is very important to point out that S-BSOM completely mediated the changes in situational anxiety as measured by changes in SUDS ratings. These results provide strong evidence that changing the way participants thought about themselves had a direct impact in reducing their anxiety when involved in an anxiety-provoking situation.

Table 24

Mediation Analyses Summary with S-BSOM as the Mediator

DV = SPS	Tx = W-LC versus treatment conditions		
Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.263	.001	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.268	.000	
4. Tx * mediator → outcome	-.199	.017	
			Partial

DV = SIAS	Tx = W-LC versus treatment conditions		
Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.297	.000	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.374	.000	
4. Tx * mediator → outcome	-.158	.061	
			Complete

Table 24 (cont'd)

Mediation Analyses Summary with S-BSOM as the Mediator

DV = FQ-SP Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.316	.000	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.427	.000	
4. Tx * mediator → outcome	-.186	.032	
			Partial

DV = SPAI-SP Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.260	.002	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.281	.001	
4. Tx * mediator → outcome	-.161	.075	
			Complete

DV = CGI Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.409	.000	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.387	.000	
4. Tx * mediator → outcome	-.310	.004	
			Partial

DV = PUB-SC Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.098	.258	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.242	.005	
4. Tx * mediator → outcome	-.005	.959	
			No effect to be mediated

Table 24 (cont'd)

Mediation Analyses Summary with S-BSOM as the Mediator

DV = SCONS Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.223	.007	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.389	.000	
4. Tx * mediator → outcome	-.076	.353	
			Complete

DV = SUDS-B Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.200	.042	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.340	.001	
4. Tx * mediator → outcome	-.063	.548	
			Complete

DV = SUDS-D Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.325	.001	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.405	.000	
4. Tx * mediator → outcome	-.187	.050	
			Complete

DV = SUDS-A Tx = W-LC versus treatment conditions

Steps and variables:	Stand. Beta	ρ value	Level of mediation
1. Tx → outcome	-.331	.000	
2. Tx → mediator	.363	.000	
3. Mediator → outcome	-.354	.000	
4. Tx * mediator → outcome	-.187	.052	
			Complete

Overall, results of these mediational analyses support the idea that cognitive change (i.e., having a healthier way of thinking in general and especially about oneself), mediates clinical change in people treated for social phobia. In other words, cognitive

change gained through treatment appears to be an important mechanism able to influence clinical change as measured by social phobia scales, overall functioning as measured by an independent assessor, and by the participants' ratings of their anxiety when facing anxiety-provoking situations.

DISCUSSION

This study has sought to explore cognitive change—more specifically change in cognitive products and processes—following CBT treatment for social phobia. The present study was conducted in conjunction with another study evaluating three different CBT treatments for social phobia. Although some discussion of the differential results stemming from these three treatment modalities is necessary to properly contextualize the present research, it was not an objective for the present study to investigate these treatment modality differences. For more information on the treatment outcome study, interested readers are referred to Walker et al. (1999).

The sequence of the discussion section will be as follows. First, the four hypotheses and mediation results will be discussed in relation to existing literature. Subsequently, the general discussion will consider the implications of the findings for cognitive models of social phobia, treatment of social phobia, and understanding of social phobia.

Study Hypotheses and Mediation Analyses Discussion

Hypothesis 1–Change in the T-BSOM Ratios

Empirical data and cognitive models of social phobia propose that cognitions play a key role in the development and maintenance of social phobia. Changing the thoughts that comprise the internal dialogue of people with social phobia is considered a crucial component of an effective treatment (Clark & Wells, 1995; Rapee & Heimberg, 1997). Schwartz (1997) proposed that the BSOM model offers a particularly useful indication of change following treatment because it "not only differentiates dysfunctional and

functional status, but also permits finer calibration of clinically significant improvement" (p. 981).

Thus, the first hypothesis predicted that, relative to W-LC, treated participants would show a significant improvement from pre- to post-assessment on the overall T-BSOM ratios. Findings supported this hypothesis. At pre-assessment, the mean T-BSOM ratios for participants in all conditions were in the *Negative Dialogue* category (ranging between .10 and .33), which is characteristic of severe psychopathology. At post-assessment, the mean T-BSOM ratios, while remaining the same for W-LC, improved in all three treatment conditions. T-BSOM ratios for SA-CBT fell in the *Failed Coping Dialogue* category (ranging between .34 and .41), associated with moderate psychopathology, whereas the mean ratios for the two group treatments shifted to the *Conflicted Dialogue* category (T-BSOM ratios ranging between .42 and .58), associated with mild psychopathology.

These results suggest that CBT treatments lead to significant change in the *internal dialogue* or self-talk of participants diagnosed with social phobia when they encountered naturally occurring anxiety-provoking situations. These findings also suggest that group treatment may be more effective than the self-administered treatment (e.g., similar to bibliotherapy using the same book and workbook as the two other group treatments) in increasing the T-BSOM ratios. Overall, these findings provide empirical support for models of social phobia that emphasize cognitive change as a key element in the successful treatment of people with this disorder.

To our knowledge, no other study using the BSOM model (Schwartz, 1997) to investigate change following CBT treatment for social phobia has yet been undertaken. However, because the ratio formula used in both the SOM and BSOM models is the same $\left(\frac{P}{N+P}\right)$, results of this study can be meaningfully compared to previous studies that used the SOM model. Findings of the present study are quite similar to the results obtained by Heinrichs et al. (1999) in their study of 23 individuals with social phobia treated with group exposure treatment. At pre-treatment, using a thought-listing procedure, they found a mean BSOM ratio of .29 (*SD* = 0.18), a score typically reflecting *Negative Dialogue,* and associated with severe psychopathology. At post-treatment, participants had a mean BSOM ratio of .49 (*SD* = 0.25), indicating a shift to the *Conflicted Dialogue*, which is associated with mild psychopathology. Heinrichs et al. (1999) suggested that their findings show that exposure treatment resulted in changes in the internal dialogue of their social phobia participants.

Bruch et al. (1991) re-analyzed a subset of data previously obtained by Heimberg, Bruch et al. (1990), who also used a thought-listing procedure. Bruch et al. found a pre-treatment mean BSOM ratio of .29 (*SD* = 0.13) for the 30 participants treated with CBGT, placing them in the *Negative Dialogue* category, and a post-treatment mean BSOM ratio of .51 (*SD* = N/A), placing them in the *Conflicted Dialogue,* which is characteristic of mild psychopathology. Interestingly, results of Heinrichs et al. (1999) and Bruch et al. are very similar to the results found in this study.

In their study, Bruch et al. (1991) found that at the 6-month follow-up, participants in the CBGT group progressed to the *positive dialogue* (ratio = .67), which is now the *normal dialogue* in the BSOM model and characteristic of healthy people in neutral situations. This suggests that as a result of treatment, participants in Bruch et al.'s study continued to experience an improved balance between positive and negative thoughts. Unfortunately, the present study did not allow a follow-up assessment, and therefore is lacking important information about the trajectory of cognitive change in treated participants.

Furthermore, the present study found a positive relationship between change in T-BSOM ratios and reduction of symptoms of social phobia. This is in line with several other studies that found cognitive change was consistently associated with significant change on self-report measures of social phobia (Chambless et al., 1997; Hope et al., 1995; Scholing & Emmelkamp, 1999).

Another important consideration is that the T-BSOM ratios found in the present study were derived from a non-random sample of participants' thoughts taken specifically in response to anxiety-provoking social situations. This means that T-BSOM ratios likely underestimate participants' positive thoughts in neutral or positive situations. Even so, the present findings indicate that the treatment altered how people with social phobia appraise anxiety-provoking situations. Indeed, change in T-BSOM ratios completely mediated change in SUDS ratings for treatment conditions as established in the mediational analyses. The role of T-BSOM change in mediating clinical change will be discussed further later.

Thus, taken all together, these results support the notion that cognitive change is central to the successful treatment of persons with social phobia.

Hypothesis 2–Change in Self-Focused Thoughts

In line with the claim made by proponents of cognitive models of social phobia that self-focused attention plays a crucial role in the maintenance of social phobia (Hofmann & Heinrichs, 2003; Woody, 1996; Woody & Rodriguez, 2000), a major objective of the present study was to explore this construct. Thus, hypothesis 2 explored change in the overall proportion of self-focused thoughts and change in their valence following treatment for social phobia.

More specifically, hypothesis 2 (a) predicted that in comparison to W-LC, treated participants would have a significantly smaller proportion of self-focused thoughts. Findings did not support this hypothesis. At pre-assessment the proportion of overall self-focused thoughts for treated participants ranged between 59.1% and 62.3% and remained relatively the same at post-assessment, between 59.2% and 61.3% which did not differ from controls. This suggests that treatment did not alter the amount of thoughts directed to the self in anxiety-provoking social situations.

Interestingly, the mean percentage of self-focused thoughts found in this study is in line with other studies. Woodruff-Borden et al. (2001) examined the extent of self-focused attention across several clinically diagnosed groups. They reported that approximately 60% of total cognitions were coded as self-focused across patients diagnosed with panic, depression, social phobia, generalized anxiety disorder, and post-traumatic stress disorder. These results are also in line with Ingram's (1990)

conclusion that self-focused attention is prevalent across several pathologies, including experiences of anxiety, social anxiety and social phobia.

There is, however, a small body of literature that has found a reduction in self-focused attention following successful treatment of social phobia. Woody et al. (1997) studied the relationship between changes in focus of attention and clinical improvement following group CBT for social phobia. They found that self-focused attention, as measured with a scale specially designed for the study—the Focus of Attention Questionnaire (FAQ)—decreased during the course of treatment. They also reported that improvement on self-focus was associated with lower anxiety in dyadic interactions, less harsh self-criticism, and reduced personalized social fears following exposure (Woody et al., 1997). However, these authors reported that there was not a strong relationship between alleviation of general distress and the reduction in self-focused attention. Furthermore, they also reported that the reduction in self-focused attention was not accompanied by a corresponding increase in externally focused attention (e.g., attention to the information in a social setting). In other words, participants' focus on events and stimuli outside of the self remained unchanged over the course of the treatment.

Hofmann (2000) investigated self-focused attention before and after treatment of social phobia by using the thought-listing procedure. He found a significant decrease in overall self-focused thoughts from 35% before treatment to 27% after treatment. Hofmann suggested that exposure treatment was associated with a significant decline in social anxiety (measured with the SPAI) accompanied by changes in self-focused

thoughts from pre- to post-treatment. Similarly to Woody et al.'s (1997) findings, Hofmann reported that while self-focused attention decreased, task-focused thoughts (external focus) showed little changes from pre- to post-assessment. Hofmann suggested that "these results may indicate that self-focused thoughts, unlike task-focused thoughts, identify an important mediator of treatment change" (p. 723).

In part, the discrepancy between the results of these two studies (Hofmann, 2000; Woody et al., 1997) and those of the present study regarding the reduction of self-focused thoughts may be explained by several methodological differences. First, as mentioned by Hofmann, "measuring self-focused attention is complicated" (p. 718). Woody et al. used the FAQ, an endorsement technique that consists of five self-focus items and five external-focus items. This assessment procedure could be problematic because it requires participants to recall where their attention was focused (on the self or on other) and summarize many episodes. This summary format of reporting the focus of attention over many thoughts makes strong assumptions about respondents' abilities to accurately recall and summarize their attentional focus over multiple thoughts and episodes. It may, therefore, be prone to demand characteristics of the study.

Second, the number of self-focused thoughts used in these studies is relatively small (5 in Woody et al., 1997, and 506 in Hofmann, 2000) compared to the number of thoughts used in the present study (13,510). Third, the context in which the thoughts were collected may have also contributed to these differential results. In Woody et al.'s study, self-focused thoughts were assessed following role-play conducted in-session at three points during the treatment. It is therefore unclear how generalizable these results are to

situations outside the therapeutic context. In Hofmann's study, self-focused thoughts were collected before and after treatment, during a 3-minute *anticipation* period, before being engaged in a behavioral task (making a speech, initiating a conversation, expressing disagreement, solving math problems on a chalk board). In the present study, self-focused thoughts were collected in a social situations diary—1 week prior and 1 week following treatment when involved in a naturally occurring anxiety-provoking situation. It is believed that the procedure used in this study provides a more accurate representation of the attentional focus people with social phobia have when involved in anxiety-provoking situations. Furthermore, in conjunction with the hypothesis 1 results, it supports the idea that the qualitative nature of self-focused thoughts may have more importance than the proportion of self-focused thoughts.

In addition, a number of researchers have examined specific therapeutic interventions aimed at changing the focus of attention. For example, Wells and Papageorgiou (1998) used an attention-training procedure (being told explicitly to focus their attention on what was happening around them) in a single-case series with eight social phobic patients. They used a bipolar rating scale ranging from –3 (entirely externally focused) to +3 (entirely self-focused) to measure self-focused attention before and after treatment. They found a significant decrease in anxiety, in self-focused attention, and in negative belief about the self, and an increase in external focus of attention.

Similarly, Wells and Papageorgiou (2001) used one of the Social Phobia Rating Scale (SPRC; Wells, 1997) subscales, to measure self-focus attention in a small case

series involving six people with social phobia. They used a brief format cognitive therapy derived from the Clark and Wells' (1995) model that emphasized focusing attention outwards. They found a significant improvement on self-focused attention and on all clinical measures.

The reduction of self-focused attention found in Wells and Papageorgiou (1998, 2001) is consistent with the findings of Hofmann (2000) and Woody et al. (1997). However, it is worth noting that while Wells and Papageorgiou (1998, 2001) reported an increase in externally focused attention, Hofmann (2000) and Woody et al. (1997) did not find an increase in external attention.

Woody and Rodriguez (2000) examined the degree to which self-focused attention impacted anxiety and social performance in participants with social phobia and a normal control group. Their results indicated that self-focused attention exacerbated anxiety but did not impact social performance for participants in both categories—social phobics and normal controls. These authors suggested the fact that self-focused attention plays a functional role to elevate social anxiety, is not a unique phenomenon to those people with social phobia. In fact, self-focused attention resulted in more anxiety for both socially phobic and normal participants.

Woody and Rodriguez's (2000) findings that the normal comparison group did not respond differently to the self-manipulation than did the participants diagnosed with social phobia is quite surprising. It reminds us that self-focusing is a normal cognitive process. Despite the fact that the average proportion of self-focused thought frequencies for the normal population is unknown (Ingram, 1990), previous research has found the

presence of high levels of self-focus in normal samples (e.g., Borden, Lowenbraun, Wolff, & Jones, 1993; Ingram, 1990; Sedikides, 1992; Wood et al., 1990). It is worth mentioning that high self-focused attention is not itself pathological, and as Carver and Scheier (1981) imply, it is necessary for people to become aware of any signs of a suboptimal performance or need to adjust the behavior to the situation. The important question to ask according to Woodruff-Borden et al. (2001) is about "the transition then from 'normal' self-focusing to that associated with psychopathology" (p. 175).

Mor and Winquist (2002) suggested that self-focusing on positive or negative aspects of the self may represent two different types of self-focused attention leading to totally different affective experiences. In order to investigate this idea, hypothesis 2 (b) predicted that in comparison to W-LC, treated participants would show a significant increase in the S-BSOM ratios from pre- to post-assessment. Recall that the S-BSOM ratio is the proportion of positive self-focused thoughts divided by the positive plus negative self-focused thoughts. The present findings supported this hypothesis. At pre-assessment, the mean S-BSOM ratio for all conditions was in the *Negative Dialogue* category (ranging from .10 to .33), which is characteristic of severe psychopathology. The S-BSOM ratios for the SA-CBT group improved from pre to post-assessment (.27 to .38) although this improvement was not statistically greater than the improvement found in the W-LC condition. The mean S-BSOM ratios for the two group treatments increased considerably from .29 to .57 for SH-CBGT and from .20 to .45 for PROF-CBGT, placing the participants in the category *Conflicted Dialogue*, which is characteristic of mild psychopathology. It is interesting to note that while the overall proportion of self-focused

thoughts remained the same after treatment, these participants developed a healthier way to think about themselves (i.e., a better balance between positive and negative self-focused thoughts). This is in line with the suggestion that effective psychological intervention changes the person's representation of the self in a more positive direction (Clark & Wells, 1995; Rapee & Heimberg, 1997).

To our knowledge, no other study investigating change in valence of self-focused thoughts using the BSOM model has yet been undertaken. An impressive number of outcome studies have reported an increase in positive self-statements and a decrease in negative self-statements following different types of treatment (Clark & Agras, 1991; Gelernter et al., 1991; Heimberg, Dodge et al., 1990; Jerremalm et al., 1986; Mersch et al., 1989; Mersch et al., 1996; Newman, Hofmann, Trabert, Roth, & Taylor, 1994; Scholing & Emmelkamp, 1993, 1996b; Taylor et al., 1997a; Turner, Beidel, & Jacob, 1994; Turner, Beidel, Cooley et al., 1994). Self-statements have received the greatest attention in research according to Glass and Arnkoff (1997). However, these authors specify that the term *self-statements* is often used to refer broadly to an individual's thoughts, self-talk, automatic thoughts, or internal dialogue. It appears that the terms *self-statements* and *self-focused thoughts* refer to distinct phenomena. Furthermore, Mor and Winquist (2002) remarked that unfortunately, very few studies have assessed the valence of self-focus. Similarly, Hofmann (2000) remarked that no existing instruments assessed the focus of attention and the valence of thoughts at the same time, making it difficult to determine any change in positive or negative self-focused thoughts.

In an investigation of self-focused attention before and after treatment of social phobia, Hofmann (2000) found a significant decrease in negative self-focused thoughts following treatment (from 26.5% before treatment to 8.7% after treatment). A significant increase was also found in positive self-focused thoughts (from 3.37% before treatment to 10.12% after treatment). Using the mean percentage of negative and positive self-focused thoughts provided by Hofmann at pre- and post-treatment, a tentative calculation of ratios of means indicated a S-BSOM ratio of .11 before treatment and .53 after treatment. Interestingly, these ratios are similar to those found in the present study, which suggests that looking at change in the balance between positive and negative self-thought could provide important information toward improvement following CBT for social phobia. Furthermore, it is possible that the BSOM model allows us to examine when self-focused attention crosses the threshold from *pathological* to *normal*.

Hypothesis 3–Change in Thoughts About Negative Evaluation by Others and Fear of Negative Evaluation

The definition of social phobia specifies that the core feature of this disorder is a concern about being negatively evaluated by others (DSM-IV-TR, 2000). However, findings by Stopa and Clark (1993) showing that people with social phobia had more negative self-evaluative thoughts than thoughts about evaluation by other people, has challenged this view. One of the objectives of the present study was to explore change in this construct.

Hypothesis 3 explored change following treatment in thoughts and feelings related to concerns about negative evaluation by others, the valence of these thoughts, and also

fear of negative evaluation, which is recognized as the core construct of social phobia. Thus, hypothesis 3 (a) predicted that in comparison to W-LC, treated participants would show a smaller percentage of negative meta-thoughts (e.g., thoughts about negative evaluation by others). The findings did not support this hypothesis. The mean percentage of negative meta-thoughts at pre-assessment ranged from 4.9% to 11.6% and at post-assessment from 4.5% to 7.8%, which did not differ across conditions. Even though the observed trend was in the expected direction, this reduction was not significant, suggesting that treatment did not contribute to a substantial decrease in the proportion of thoughts related to negative evaluation by others.

The low percentage of negative meta-thoughts was unexpected because concerns and fears about negative evaluation by others is supposed to be the hallmark characteristic of this disorder, and effective treatment ought to alter this core dimension of social phobia. While previous findings of this study showed that treated participants had a significant decrease in their clinical symptoms, and developed a healthier way to think in general and especially about oneself, it is surprising to note that treatment did not contribute to a reduction of thoughts about negative evaluation by others. This raises interesting questions about our understanding of this disorder.

To our knowledge, no study investigating change in thoughts related to concern about negative evaluation by others following social phobia treatment has yet been undertaken. Despite the fact that a voluminous number of outcome studies reported a significant reduction in the number of negative self-statements following treatment, it is impossible to know what proportion of these self-statements were thoughts expressing

specifically a concern about evaluation by others. Recall that the definition of self-statements is quite broad, including a person's internal dialogue or inner speech.

One interesting study by Lundh and Sperling (2002) investigated thoughts following post-event processing of socially distressing events with low and high socially anxious undergraduates. From the diary used in their research, these authors designed a subcategory of thoughts called thoughts and feelings about being negatively evaluated by others, which is exactly related to the negative meta-thoughts category of the present study. More precisely, negative meta-thoughts in both studies referred to: descriptions containing explicit reference to being evaluated by others (e.g., "they think I'm stupid"); expressions mentioning worries about being evaluated by others (e.g., "what did they think about me"); thoughts expressing fears (e.g., "I'll be making a fool of myself"); and thoughts expressing being at the centre of attention in a negative way (e.g., "I'm looking awkward" or "they are staring at me"). Lundh and Sperling found that only 39% of the events reported by the participants contained thoughts about this negative-evaluative category. They found that for highly socially anxious participants, thoughts about negative evaluation were only one among several forms of interpersonal concerns raised following distressing social events. Other types of concerns were: thoughts about separation, loneliness, guilt, shame, embarrassment, and fears of hurting others. These authors concluded that it is "interesting to note that the participants reported a number of socially distressing events that were not primarily negatively-evaluational of the kind that is implicated in the concept of social phobia" (p. 133).

Results of the present study are also in line with Stopa and Clark's (1993) suggestion that "few of the negative thoughts reported by social phobics explicitly mentioned evaluation by other people" (p. 255). Similar to Stopa and Clark's findings, the present study found that negative meta-thoughts represented a very small proportion of overall thoughts (at pre-assessment only 7.7% compared to 38.1% for negative self-focused thoughts). This suggests that thoughts about negative evaluation by others are not as prevalent as indicated by the definition of this disorder and cognitive models of social phobia.

In order to further investigate the significance of concerns about negative evaluation by others, hypothesis 3 (b) predicted that in comparison to W-LC, treated participants would show higher M-BSOM ratios. Recall that M-BSOM ratio is the ratio obtained with the proportion of positive meta-thoughts divided by positive meta-thoughts plus negative meta-thoughts. Findings did not support this hypothesis. Ratios increased slightly in all conditions (range at pre-assessment between .16 and .20 and between .24 and .34 at post-assessment), and no differences between treatment and W-LC was found. This suggests that the effectiveness of treatment in the present study had little impact on thoughts about evaluation by others, at least at the time of treatment termination.

However, these results should be interpreted with caution for several reasons. First, owing to the scarcity of meta-thoughts, the correction factor (+1) for either no positive or no negative meta-thoughts, as suggested by Amsel and Fichten (1998) was used for several participants (slightly over 50%), in order to calculate the M-BSOM ratios. Furthermore, the small percentage of meta-thoughts possibly contributed to these

results, which should be taken with caution, as a tentative representation of change regarding the M-BSOM ratios in this study. There are a number of explanations for this. One possibility is that the measure was not sensitive to detect change. Another possibility is even with a good measure, this construct did not change during treatment but may change later. Finally, a third possibility is that maybe the meta-thoughts are less important.

To our knowledge, no previous studies have used the BSOM model to investigate changes in thoughts about evaluation by others, positive and negative, following treatment for social phobia.

In order to allow comparison of change in fear of negative evaluation by others after treatment with previous outcome studies, hypothesis 3 (c) predicted that in comparison to W-LC, participants would show a significant improvement on the BFNE scores. The findings partially supported this hypothesis. The BFNE scores ranged from 48.7 to 53.3 at pre-assessment and decreased to values ranging from 40.3 to 49.4 at post-assessment. Modest decreases in BFNE scores were observed in all conditions. Only participants in the SH-CBGT condition showed a significant difference relative to W-LC. This again suggests that fear of negative evaluation may not be as central to the effectiveness of treatment or more reluctant to change.

Several studies investigating different treatments for social phobia (e.g., CBT, exposure, cognitive restructuring) reported that following treatment, participants demonstrated a significant reduction in the FNE or BFNE scores. These studies include Gelernter et al., 1991; Heimberg, Liebowitz et al., 1995; Mattick et al., 1989; Mersch,

1995; Mersch et al., 1995; Taylor et al., 1997a; Turner, Beidel & Jacob, 1994—to name but a few. In their review of outcome studies, Cohn and Hope (2001) suggested that "fear of negative evaluation, which is thought to be the core feature of social phobia, appears to respond to all of the interventions examined" (p. 374), the only exception being the social skills training.

However, after reviewing treatment-outcome studies including a waiting-list control condition, several authors found that scores on the FNE or BFNE did not significantly improve in treatment conditions relative to controls, over a few weeks or months (Kanter & Goldfried, 1979; Mattick et al., 1989; Newman et al., 1994). Furthermore, Hope et al. (1995) suggested that changes on FNE or BFNE reported in the literature were small and of little clinical significance.

There are several explanations for these mixed results. First, in his review of cognitive assessment, Heimberg (1994) pointed out that the FNE or BFNE is not a pure measure of cognition because of the confusion between cognition and anxiety (e.g., "I am afraid that others will not approve of me"). To address this problem, Taylor et al. (1997a) modified the BFNE scale by deleting four items pertaining to fear or distress in order to have a better measure of fear-related cognitions rather than a combination of cognitions and emotional distresses. This is in line with Heimberg's (1994) concern, also mentioned by Cohn and Hope (2001) and Elting and Hope (1995).

Second, comparing sensitivity of outcome measures for treatments of social phobia, Taylor, Woody, McLean, & Koch (1997b) found that BFNE, compared to

SPAI-SP and FQ-SP, had the smallest effect size, which suggested it was a less sensitive measure to assess change following treatment.

Third, Stein, Jang, and Livesley (2002) suggested that fear of being negatively evaluated was moderately inherited by examining the scores of the BFNE in a sample of 437 (245 monozygotic and 192 dizygotic) twin pairs. This interesting finding suggests that fear of negative evaluation could be more resistant to treatment and/or takes more time to be changed.

Other studies suggested that fear of negative evaluation was not unique to people with social phobia. Using the BFNE, Bögels and Lamers (2002) studied the role of self-awareness in three different groups: blushing-anxious, socially anxious, and people with social phobia. They found that both, high socially-anxious and low socially-anxious people held negative beliefs in social situations (e.g., fear of negative evaluation) to some extent. Furthermore, Woody and Rodriguez (2000) investigated self-focused attention in people diagnosed with social phobia and in normal controls. They found that FNE did not play a role in moderating the relationship between self-focus and anxiety. In other words, participants with lower FNE scores and the normal control group experienced as much anxiety during an enhanced self-focused task, as those with high scores on the FNE and the social phobic participants. They suggested that maybe FNE is simply too broad a measure.

Overall, results of this study revealed that the number of meta-thoughts (i.e., thoughts about negative evaluation by others), is quite small compared to other thoughts (self-, other- or situation). Furthermore, the relative non-response to treatment in both,

meta-thoughts and BFNE scores, which are supposed to refer to the core construct of this disorder, is also surprising. Findings of this study suggest that thoughts about negative evaluation by others or fear of negative evaluation might be less core to social phobia and treatment as previously thought. This does not preclude the possibility however, that meta-cognitions exist as core beliefs. However, the present study did not assess core beliefs.

Hypothesis 4–Change in Self-Consciousness

This hypothesis sought to explore change in self-consciousness following treatment. Recall that having high public self-consciousness implies that the individual is easily brought into awareness of the self as a social object (Clark & Wells, 1995), and is easily induced to focus upon discrepancies between perceived and ideal self according to others' expectations (Rapee & Heimberg, 1997). Hypothesis 4 (a) predicted that in comparison to W-LC, treated participants would show lower PUB-SC subscale scores. Findings partially supported this hypothesis. All conditions shared a modest decline on PUB-SC subscale scores. Only the participants in the SH-CBGT condition showed a significant decrease relative to those in the W-LC. This differential result among treated participants is in line with previous results of this study showing that this condition had the best improvement in T-BSOM ratios and S-BSOM ratios. Once again, the suggestion may be that public self-consciousness per se, is not central to social phobia. What matters more may be the nature of the self-evaluation that occurs during focus on public aspects of self.

Very few studies have investigated change in public self-consciousness following treatment for social phobia. Taylor et al. (1997a) compared two treatments—cognitive restructuring followed by exposure, and associative therapy (e.g., free association to thoughts and memories of recent and past social anxiety-provoking situations) also followed by exposure. From pre- to post-treatment, participants in the cognitive restructuring component had a non-significant decrease from 17.2 to 15.5 on the PUB-SC subscale, which is comparable to the decrease in this study. In another study, Lundh and Öst (2001) also investigated changes in PUB-SC following CBT treatment for social phobia. They found that 58% of the participants showed reduced scores on PUB-SC subscale (e.g., a decrease from 23.1 to 21.3 from pre- to post-treatment). They also compared treatment responders and non-responders and found a decrease from 22.4 to 20.2 for the former and no change (24.3) for the latter. Overall, results of these two studies are in line with those of this research, indicating that while a decrease can be detected following treatment, these decreases are very modest, and perhaps the treatment does not have a strong impact on this construct.

An association between public self-consciousness and social anxiety has been observed in clinical samples of social phobia (Bruch, Giordano, & Pearl, 1986; Bruch & Heimberg, 1994). However, Hope and Heimberg (1988) failed to find such a difference between people with social phobia and college students on the PUB-SC subscale even though a positive correlation was found between this subscale and various measures of social anxiety. Furthermore, it is particularly interesting to note that the mean scores at pre-assessment in the present study were very similar to the values found in a normal

control group in a study done by Saboonchi, Lundh, and Öst (1999). This suggests that elevated public self-consciousness per se, may not be a distinguishing feature of social phobia.

Furthermore, Christensen (1982) suggested that public self-consciousness, as defined by Fenigstein et al. (1975), could present both: adaptive and maladaptive aspects. She suggested that to have appropriate social behaviors (e.g., making sensitive remarks), people need a certain degree of public self-awareness. Christensen proposed that "moderately self-conscious persons may be most sensitive because they are concerned about how others evaluate them yet are not so preoccupied with this that they cannot focus adequately on external events" (p. 187). Christensen remarked that people with low levels of self-consciousness may be insensitive to others because they are unconcerned with what other people think about them; in consequence, they may miss subtle behaviors that reflect these reactions or behave in inappropriate ways. This raises an important question—do treated people with social phobia decrease maladaptive self-awareness, or do they develop a more adaptive public self-consciousness?

Hypothesis 4 (b) predicted that in comparison to W-LC, treated participants would show lower scores on the SCONS, which assesses maladaptive self-consciousness. The findings supported the hypothesis for participants treated with CBGT but not for those in the SA-CBT condition. This suggests that group treatment was more effective in helping participants reduce maladaptive self-consciousness. One might speculate that regular exposure to similar others in a therapeutic context reduced maladaptive self-consciousness.

A significant negative correlation was found between change on the S-BSOM ratios and change on the SCONS scores, $r(62) = -.48$, $p < .01$, suggesting that changes in treated participants' healthier perception of themselves and a more adaptive self-consciousness are key ingredients of effective therapeutic interventions. Conceivably, public self-consciousness in general, and maladaptive self-consciousness in particular, may be caused by negative self-evaluation. Results from the present study support this idea.

A significant negative correlation was also found between change in S-BSOM ratios and change in PUB-SC subscale scores, $r(62) = -.40$, $p < .01$. However, this relationship is slightly less powerful than the one with SCONS, suggesting that these two scales might measure different manifestations of negative self-focused thoughts. As suggested by Christensen (1982), SCONS is a more direct measure of maladaptive sense of personal inadequacy in public situations, than PUB-SC subscale. The latter taps more into general public self-consciousness, which is not a maladaptive process per se. Therefore, the extent to which self-awareness is experienced as adaptive or maladaptive, is related to the valence of one's self-evaluative thoughts. This suggests that changes in SCONS might be a better indicator of changes in the valence of self-thoughts.

To our knowledge, no other study using the SCONS to investigate change following treatment for social phobia has yet been undertaken. This is surprising, especially in light of Makris and Heimberg's (1995) suggestion that the SCONS was a valid and useful measure in the study of social phobia. They found that people with social phobia had higher levels of maladaptive self-consciousness relative to a non-anxious

control group. Furthermore, they showed that maladaptive self-consciousness was positively associated with more severe symptoms of social phobia, more social anxiety, and more avoidance.

Mediation Analyses

According to Baron and Kenny (1986), a mediator is "the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest" (p. 1173). Results of the mediational analyses suggest that changes in the balance of positive to negative valenced thoughts both in general (T-BSOM) and specifically when self-focused (S-BSOM) mediates the effects of treatment on clinical outcome across a variety of measures. However, the lack of intermediate within-treatment measures of cognition of course precludes a definitive argument for the causal role of changes in cognition. Nonetheless, it is consistent with clinical theory.

Specifically, these results support the idea that altering the pervasive negativity of social phobics' internal dialogue is essential to improving their clinical status. Moreover, this is true both in general and specifically for their self-focused thinking. Surprisingly, however, treatment appears to have had no observable effect on the negativity of meta-thoughts; thus these were not a candidate for mediational analyses.

More generally, these findings are consistent with the idea that the core difficulty in social phobia is an unduly negative self-concept that forms the basis for maladaptive self-consciousness. Although negative meta-perceptions—along with the fear of negative evaluation they generate—are highly salient to social phobics, the present findings

suggest these may not be as important in maintaining the disorder as is the negative self-perception. The basis for this claim lies in the following results:

1. The valence of thoughts about self (i.e., S-BSOM ratios) responded to treatment and was found to mediate treatment's effect on clinical measures.
2. The valence of meta-thoughts (i.e., M-BSOM scores) did not respond to treatment (therefore could not mediate the effects of treatment on clinical measures).
3. The percentage of negative self-thoughts was much greater than the percentage of negative meta-thoughts.
4. Finally, T-BSOM and S-BSOM mediated the changes in situational anxiety as measured by changes in SUDS ratings.

To summarize, the mediational analyses support that cognitive change, as measured with the overall T-BSOM ratios and S-BSOM ratios, make separate and independent contributions to predicting within treatment change and clinical outcome change.

The next section will provide an overall discussion on the findings of this study in relation to the cognitive models of social phobia, and implications for treatment and for our understanding of this disorder.

General Discussion

Taken all together, the findings of the present study suggest that following CBT for social phobia, treated participants made significant improvements in the positivity of their thinking, both in general, and specifically about themselves, when engaged in anxiety-provoking social situations. While thinking more positively about themselves,

treated participants did not show any reduction in the proportion of thoughts focusing on the self, which remained quite high. In contrast, participants reported a very small proportion of thoughts related to perceived negative evaluations by others. Furthermore, treatment did not reduce these thoughts. Relatedly, only some treated participants experienced a reduction in fear of negative evaluation. Finally, some, but not all, treated participants showed a reduction in public self-consciousness and maladaptive self-consciousness. Oversimplifying somewhat, the picture that emerges, then, is one in which the valence of thoughts, rather than the focus of attention or fear of negative evaluation, appears to be what is responsive to treatment and what mediates the effects of treatment on clinical outcomes.

Implications of the Results for the Cognitive Models of Social Phobia

The present study did not test specific components of Clark and Wells' (1995) and Rapee and Heimberg's (1997) models, but nonetheless provides interesting information in relation to these models. Both models described what happens when an individual with social phobia enters a situation involving social evaluation. The thoughts recorded for this study were all taken when participants were engaged in naturally occurring anxiety-provoking situations. Furthermore, cognitive change depicted with the analysis of this substantial number of thoughts (7,881 at pre- and 5,629 at post-assessment) provides an interesting overall view that could be linked with various components of these models.

Clark and Wells' (1995) and Rapee and Heimberg's (1997) models posit that cognitions play an important role in the development and maintenance of social phobia. They propose that an overall treatment goal is to help participants disconfirm their

dysfunctional assumptions about social events, and to eliminate negative beliefs and cognitive biases that perpetuate their social fears. Findings of the present study support these models for several reasons. First, treated participants significantly increased their overall proportion of positive thoughts. Second, there was a strong positive relationship between this cognitive change and reduction of clinical symptoms. Finally, mediational analyses confirmed that cognitive change, as measured by the T-BSOM and S-BSOM ratios, completely mediated the effect of treatment on clinical measures of change.

These two models have also conceptualized the allocation of attentional resources as a critical maintaining factor in social phobia. However, Clark and Wells (1995) differ from Rapee and Heimberg (1997) in their proposals concerning the balance of attention. Clark and Wells propose that attention becomes focused on internal cues such as thoughts, image, and bodily sensations under conditions of social-evaluative threat. These authors specify that the detection of negative social cues in others is followed by avoidance and more self-focused attention—"when social phobics think they are in danger of negative evaluation by others, they shift their attention to detailed monitoring and observation of themselves" (Clark & Wells, 1995, p. 70). For Rapee and Heimberg, when a person with social phobia enters an evaluative situation, the attention is allocated in two directions—to a mental representation of the self, and to any possible negative cues from the audience. These authors specify that people with social phobia will concentrate on detecting specifically negative feedback they incorporate into their distorted image, making it even more negatively biased.

Findings from the present study revealed that at pre-assessment, substantial amounts of both self-focused and externally-focused thoughts were present in the sample. The occurrence of both self- and other-focused attention found in this study support Rapee and Heimberg's (1997) model regarding the allocation of attention. These findings are less supportive of Clark and Wells' (1995) contention that people with social phobia reduce the processing of external social cues in general and engage almost exclusively in self-focused attention.

For both models, self-focused attention is a key component, which contributes to an exaggeration of negative aspects of the self, prevents disconfirmation of negative beliefs, and maintains social anxiety. According to Clark and Wells (1995) and Rapee and Heimberg (1997), effective therapy leads to a reduction in self-focused thoughts, less negative and more positive self-focused thoughts, and more task-focused thoughts. Findings of this study do not support the assertion that effective treatment necessarily reduces the proportion of self-focused thoughts. However, findings support the point that psychological intervention changes the person's representation of the self in a more positive direction.

For these models, fear of negative evaluation is another prominent part and is expected to be reduced following successful treatment. For Clark and Wells (1995), fear of negative evaluation is based on negative self-evaluation, while for Rapee and Heimberg (1997), fear of negative evaluation stems from a discrepancy between their view of themselves and high expected standards they believe other people have about them. Findings of this study do not provide support for these models regarding the core

construct of fear of negative evaluation. First of all, the proportion of thoughts expressing concerns about negative evaluation by others is very small compared to negative self-focused thoughts. Second, the present findings did not show any reduction in these thoughts in treated participants. Third, improvement on the S-BSOM ratios was statistically significant for treated individuals but not significant for M-BSOM ratios. Finally, a non-significant relationship between change on S-BSOM ratios and change on M-BSOM ratios, $r(45) = .24, p = .112$, suggests that these two constructs might not be as closely related as proposed by the cognitive models of social phobia.

This raises several questions. Are these results related to a measurement problem? Is it because concerns about negative evaluation by others are not as important as those proposed by cognitive theories? Another possibility could be that changing these thoughts takes longer because they follow from change in negative self-focused thoughts. More research is needed to answer these questions, especially with respect to the idea that people with social phobia misinterpret others' beliefs about them because they hold dysfunctional beliefs about themselves and their behavior.

Both models suggest that people with social phobia, when they enter an evaluative social situation, focus on the public aspects of themselves and monitor external features of the self perceived as a social object. They also propose that effective treatment would decrease public self-consciousness. The findings of this study moderately support this element of both models. Furthermore, findings support the assertion of both models that effective treatment would reduce a distorted negative representation of self by promoting a more adaptive self-consciousness.

Overall, findings of the present study are in line with the cognitive models of social phobia, support that CBT treatment for social phobia contributed to the development of an overall healthier way of thinking, a more positive self-perception, and a more adaptive self-consciousness.

However, findings of this research did not support the role attributed to negative meta-perceptions (i.e., thoughts about negative evaluation by others). Furthermore, no support was found for the expected reduction of the global percentage of self-focused thoughts and the importance of external/situational focus.

Finally, findings of this research provided mixed support for the role played by the constructs—fear of negative evaluation and public self-consciousness. Interestingly, the level of public self-consciousness found in this study, is quite comparable to levels found in normal population.

Implications for Treatment of Social Phobia

Findings of the present study suggest that negative self-evaluation, rather than fear of negative evaluation by others, should be the main target during treatment. The larger volume of negative self-focused thoughts compared to thoughts related to concern about evaluation by others, the lack of reduction in the proportion of self-focused thoughts, and the improvement in their valence suggest that successful treatment provides an opportunity to correct distorted self-perceptions and help participants focus more on positive aspects of themselves.

This suggestion is in line with Woodruff-Borden et al. (2001) who pointed out that it will be important to examine the threshold when self-focusing changes from

normal to pathological, and find out how focusing on negative aspects of self contributes to this shift. Mor and Winquist (2002) suggest that self-focused attention is a complex construct of which there are several types: *rumination*, which is a "repetitive and unproductive" (p. 641) process; private and public self-focus, which "represent different self-regulatory processes–one in which individuals evaluate their actions without reference to others, and another in which individuals evaluate their actions while taking into account the social context" (p. 641); and, focusing on positive versus negative aspects of the self, which refers to very different affective experiences. Ingram (1990) proposed that the main characteristics of pathological self-focused attention are: excessive internal focus, lengthy duration, and excessive rigidity. Findings of this study suggest that negative valence of self-focused thoughts should be added to Ingram's (1990) list of characteristics of pathological self-focused attention.

Treatment can have a strong impact in helping people with social phobia to "re-develop" a normal and healthy way to focus on the self. However, one crucial question remains—*how* to do that. A therapeutic technique used by Harvey et al. (2000) involving video feedback with cognitive preparation, aimed at correcting distorted perceptions, may contribute to changing negative self-perception and developing a more realistic view of self. Harvey et al. suggested that asking people to clearly articulate how they think they appeared before they viewed themselves on the video helped them become more aware of their own thoughts and their inherent distortions. A similar approach called performance feedback in group therapy (Turk, Lerner, Heimberg, &

Rapee, 2001) could serve as a powerful cognitive restructuring tool to challenge distortions about others' perceptions of self.

Another approach less often mentioned in relation to treatment for social phobia is Meichenbaum's (1984) technique called *functional self-talk.* This technique is used to teach people to become aware of their internal dialogue and is aimed at teaching people to replace negative self-focused thoughts with positive and functional ones. Several authors posit that inner speech is a mediator of self-awareness and self-consciousness (Morin, 1995; Morin & Everett, 1990; Schneider, 2002; Siegrist, 1995). These authors propose that what is dysfunctional is not the chronic self-focused attention per se, but the inability to allocate attention elsewhere in response to situational demands. Morin and Everett recommended using Meichenbaum's technique to teach people how and when to talk to themselves about themselves and also when to remain silent in order to pay attention to other people or the situation.

This is in line with Schwartz's (1997) BSOM model suggestion that healthy as well as pathological functioning could be detected through the balance between positive and negative thoughts and feelings. Schwartz recommended we teach people to monitor their states of mind using the BSOM ratios because, according to him, therapy should promote "self-improvement using rebalancing strategies" (p. 974).

Furthermore, the use of a diary or recording forms to write down thoughts—already an integral part of most cognitive-behavioral treatment programs for social phobia—could serve as a powerful method to teach self-monitoring to people with social phobia. By doing this, they can learn to be self-focused and other-focused in a more

healthy way, depending on the demands of the situation. This is one of the goals of treatment to re-educate them to be more flexible in terms of allocation of their attention.

Another implication stemming from the findings of this study is that participants in the self-administered treatment (i.e., bibliotherapy) made significant progress compared to those receiving no treatment. This is a strong indication that it is unnecessary to have people with social phobia on a waiting list, sometimes taking up to one year or more to receive professional attention. This also points out the need to develop alternative therapy approaches for social phobia like the use of technologies such as the Internet. Lipsitz and Marshall (2001) suggest that the Internet "contains a wealth of psychoeducational, referral, and support group resources" (p. 827) for people with social phobia. It is unknown if CBT interventions administered through Internet are effective but based on the results of this study, it is suggested that self-administered treatment is better than no treatment for social phobia.

Implications for the Understanding of Social Phobia

According to DSM-IV-TR (2000), the core feature of social phobia is a concern about being negatively evaluated by other people. Furthermore, recent cognitive models of social phobia posit that self-focused attention is a key factor and plays a primary role in maintaining social phobia (Clark & Wells, 1995; Rapee & Heimberg, 1997). These authors also point out the important role of fear of negative evaluation in this disorder and propose different perspectives on this core construct.

Findings of this research provide an interesting picture of the amount of thoughts people with social phobia had in relation to two core constructs—self-focused attention,

and fear of negative evaluation. Findings revealed that the proportion of self-focused thoughts remained unchanged following treatment, which suggests that successfully treated people continue to focus on themselves. Also, findings showed that these participants' negative self-focused thoughts vastly outnumbered thoughts about negative evaluation by other people. Finally, findings did not show any reduction in the proportion of thoughts about negative evaluation by others. These findings are in line with a number of studies suggesting that social phobic's beliefs about negative evaluation by others are based on negative self-impression rather than on detailed information about other people's responses or reactions (Cox, Rector, Bagby, Swinson, Levitt, & Joffe, 2000; de Jong, 2002; Hackmann, Clark, & McManus 2000; Mansell & Clark, 1999; Mansell, Clark, & Ehlers, 2003; Scholing & Emmelkamp, 1999; Stein et al., 2002).

Interestingly, evidence from social psychology suggests it is a relatively normal process for people to form an impression of the self as a social object from self-perceptions. On the basis of research employing their social-relations methodology, Kenny and De Paulo (1993) argue persuasively that "people determine how others view them not from the feedback that they receive from others but from their own self-perceptions" (p. 145).

In the same line of thought, Gilovich, Medvec, and Savitsky (2000), through a series of tests of the *spotlight effect*, suggested "that people tend to believe that they stand out in the eyes of others, both positively and negatively, more than they actually do" (p. 219). Their results strongly suggested that, in general, people overestimate the extent to which other individuals pay attention to the details of their appearance and actions.

Furthermore, these authors found support for the existence of another phenomenon they called the *illusion of transparency*, after Miller and McFarland (1991), which refers to people's assessment of how their internal states are apparent to other people around them. Gilovich et al. suggested that the *spotlight effect* and *illusion of transparency* are more pronounced when individuals are more focused on themselves.

While these egocentric effects may occur to anyone in certain situations, some people may think egocentrically habitually. Dispositional egocentrism is the tendency to fail to subjectively differentiate self and other in one's thinking and behaviour. Research on egocentrism suggests that it is not uncommon in adults, and that there are important links between this construct and those examined in the present research. In a study of help-seeking university students, Stewart, Johnson, Walker, and Degen (2001) found that egocentrism was positively associated with measures of social phobia. Other research has shown that egocentrism is also positively associated with measures of adaptive and maladaptive self-consciousness (Johnson & Ediger, 2001) and public self-consciousness (Johnson, Brown, Ediger, & Koven, 2000). Taken together, these studies suggest that adults who suffer from symptoms of social phobia and experience high levels of self-consciousness may have less developed modes of social cognition in which self and other are inadequately differentiated in thought.

Interestingly, adolescence has been identified as a period in which individuals experience heightened self-awareness and egocentrism (Elkind, 1976) and in which the onset of social phobia most frequently occurs around 11 to 15 years of age (Hudson & Rapee, 2000). Self-focused attention during adolescence is also especially high (Penn &

Witkin, 1994). Elkind (1976) pointed out the construct component *imaginary audience*, a type of heightened self-consciousness that is very relevant for our understanding of social phobia. The imaginary audience is characterized by a heightened concern for how the adolescent appears in the eyes of others (e.g., concern that everyone will notice a superficial flaw). Elkind explains that the emergence of formal operational thought makes it possible for adolescents to think about other people's thinking. However, the adolescent has yet to develop the ability to distinguish between what is of interest to other people and what is of interest to the self (Penn & Witkin, 1994).

Both cognitive models (Clark & Wells, 1995; Rapee & Heimberg, 1997) pointed out the concept of an audience (real or imaginary) when people with social phobia enter an evaluative social situation. It is interesting that adolescents and people with social phobia share this component, or could it be that the social cognition in some people with social phobia did not fully develop? Maybe developmental problems in social cognition constitute fertile grounds for the eventual development of social phobia.

It will be interesting to see what studies on prevention and early intervention with adolescents will have to offer our understanding of social phobia (Dadds, Spence, Holland, Barrett, & Laurens, 1997), and their potential contribution to lower the prevalence of this disorder. Because most cases of social phobia begin during this crucial time of adolescence, a great deal more needs to be understood to enhance the treatment of this disorder.

Original Contributions

To our knowledge, this study is the first to use a considerable pool of thoughts (7,881 at pre- and 5,629 at post-assessment) taken in relation to naturally occurring anxiety-provoking social situations to investigate change following CBT treatment for social phobia. The overall view of changes in profile of thoughts provided important information in relation to the proposed cognitive models of social phobia, as well as implications for treatment and our understanding of social phobia.

Second, this research is, so far, the first to use the new BSOM model (Schwartz, 1997) with a clinical population diagnosed with social phobia, to explore change in their BSOM ratios following CBT, and include a waiting-list control condition. Furthermore, the use of BSOM ratios with self-focused thoughts (S-BSOM), and thoughts about concerns over negative evaluation by others (M-BSOM), brought a new perspective to explore cognitive change. As recommended by Amsel and Fichten (1998) and Schwartz, it is the balance between positive and negative thoughts that conveys a better idea about healthier functioning.

Third, the present study is also the first to use the SCONS to measure change in maladaptive self-consciousness. This scale was proposed by Christensen in 1982. Makris and Heimberg (1995) suggested that the SCONS was appropriate to use with people diagnosed with social phobia. It is hoped that other research studies will include the SCONS, especially since measures for self-consciousness are rare and it is very important to explore the multifaceted construct of self-focused attention.

Lastly, this research project is the first to provide empirical evidence of the unequivocal imbalance between self-focused thoughts and thoughts about being evaluated negatively by others with a clinical sample treated with CBT. The use of the variable meta-thoughts, which refers to thoughts about evaluation by others, appears to be a purer measure of this core construct of social phobia than the BFNE. It is possible that using endorsement measures to assess this construct leads to an inevitable over-emphasis of the construct of fear of negative evaluation.

Limitations and Future Research

The present study used a blend of old and new assessment paradigms to explore cognitive change in participants treated for social phobia. Several limitations stem from this approach. Despite Schwartz et al.'s (2002) plea for further evaluation of the BSOM model in group-design studies, this model has not been widely used, and to our knowledge, no study has yet been undertaken with social phobics. This makes comparison with other research very difficult except with studies using the old model. Furthermore, the use of production methods versus endorsement methods to collect thoughts is still an open debate.

A recent study done by Sturmer, Bruch, Haase, and Amico (2002) evaluated the convergent validity of the SISST and thought-listing for the derivation of SOM ratios. Their socially anxious participants were randomly assigned to one or the other method of collecting self-statements following a get-acquainted conversation with a stranger. They found that when correlated with other measures of overall general functioning, SISST gave a significantly more adaptive SOM ratio (SOM = .70) than the thought-listing

(SOM = .47). They suggested that these two methods might, in fact, be assessing different cognitive constructs, with SISST measuring more typical thoughts during a social interaction, and thought-listing measuring more idiosyncratic thoughts.

The debate is far from over. Recent reviews of cognitive assessment methods reveal that despite an expansion of production methods, endorsement methods show the greatest concentration in actual research (Glass and Arnkoff, 1997; Haaga, 1997). Both approaches offer well-known advantages and disadvantages. It appears that much research needs to be done before empirical evidence provides clear guidelines for choosing between these two methods. More studies are needed to clarify the value of getting a rich sample of thoughts and facing the problem of less controlled validity on one hand versus using a well-validated approach that does not capture the idiosyncratic nature of a person's thoughts.

Future research is needed to validate the BSOM model with social phobia and also extend the use of the ratios to different contents. For example, it will be interesting to investigate change in S-BSOM before, during, and after anxiety-provoking situations to find out if self-focused thoughts operate in the same way in all three temporal dimensions, or if there are important differences between them. Because BSOM ratios offer important information regarding the valence of thoughts, they can provide a useful indication to examine when self-focusing crosses the threshold from *pathological* to *normal* and the role of positively valenced thoughts contributing to this phenomenon.

Another limitation of the present study is linked to measurement taken only at pre- and post-assessment, which did not allow us to follow the trajectory of change during and

following treatment. With comparisons done only at two points in time, it is also difficult to infer any causal mediating relationships between the measured variables. Empirical evidence shows that change takes time and the short period of CBT treatment is often not long enough to get a complete account of benefits gained from during treatment. More research is needed to investigate if there is a temporal connection between change in self-focused attention and change in concerns about negative evaluation by others. This study did not observe any significant change in this construct. Is it because this change takes more time or because it becomes only apparent following substantial changes in the valence of self-focused thoughts?

This study provided an interesting overall picture of the profile of thoughts before and after CBT treatment for social phobia. While providing a broad perspective on the cognitive change, this information—the first time available in the social phobia literature—misses important information about the content of these thoughts. For example, it did not allow any information to pinpoint exactly what is changing in the internal dialogue. What do people with social phobia say to themselves as they get better? Do they express concerns about evaluation by others in a different way or do they understand that other people can also evaluate them positively? What kind of coping thoughts do people with social phobia develop as they benefit from CBT treatment? Is there a parallel or a sequential component between self-coping thoughts (e.g., "it's OK to make mistakes"), and coping thoughts about being evaluated (e.g., "other people can understand me and not judge me for my shortcomings, they have weaknesses too")? More research is needed to answer these questions and find out what kind of thoughts people

with social phobia use to shift from negative self-evaluation to a more balanced view of the self. This information is needed to better understand when pathological self-focused attention shifts back to normal self-focused attention. Also, more research is needed to find out what is a *normal* and healthy proportion of self-focused attention with normal controls. Furthermore, in view of the importance of self-negative thoughts in these results, it will be important to control for depressed mood in future research. This could help determine how much of the effects of negative self-thoughts are specific to social phobia versus general to depressed mood, which is known to be extensively comorbid with social phobia.

Findings of the present study indicate a number of additional avenues for research. In line with Woody and Rodriguez's (2000) recommendation, it would be important to specifically assess the content of self-directed thoughts to investigate if people with social phobia lack compensating skills (e.g., focusing on positive aspects of self after experiencing a negative event like a failure or making a mistake) and, if this is the case, to determine if treatment allows them to develop these skills. Furthermore, in line with Ingram (1990) and Woodruff-Borden et al. (2001), more research is needed to examine at what point the criteria of pathological self-focused attention—degree, duration, and cognitive inflexibility—change and if there is any specific order of change for people with social phobia.

Conclusion

Less than two decades ago, social phobia was referred to as the neglected anxiety disorder (Liebowitz et al., 1985); it has since received considerable interest among

researchers and clinicians. Several researchers and theorists have suggested that cognitive factors play a more important role in the development and maintenance of social phobia than is the case with other anxiety disorders (Butler, 1985; Clark & Wells, 1995; Emmelkamp, 1982; Heimberg, 1990; Rapee & Heimberg, 1997).

This research project attempted to make various contributions to the field. First, to date, few studies have used a diary procedure. The use of a diary is an economical way to collect people's thoughts in the natural environment. Furthermore, no previous studies using the BSOM model have included a waiting list control group, and very few studies have investigated the profile of thoughts (i.e., valence and focus).

Second, this study explored change in attentional focus following treatment. Despite the fact that a number of theorists have suggested that excessive self-focused attention is an important factor in the development and maintenance of social anxiety (Hartman, 1983; Sarason, 1975), few studies have investigated this component in relation to treatment. Clark and Wells' (1995) and Rapee and Heimberg's (1997) cognitive models of social phobia emphasize the change in attentional focus when a person with social phobia enters a social situation. According to these models, a major treatment goal is to reduce the degree of self-focused attention and increase the flexibility of attention to other people and the situation. This was not confirmed in the findings of the present study, but change in the valence of self-focused thoughts is in line with their view that treatment helps these people to develop a more positive representation of themselves.

Third, findings of this research are in line with Stopa and Clark's (1993) findings that people with social phobia have more negative self-evaluative thoughts than thoughts

expressing the fear of negative evaluation by others. Findings of this study show that what constitutes the cardinal symptom of social phobia—fear of negative evaluation—was not as important as expected among participants' thoughts, and no significant reduction was found following treatment. These findings need replication to gain a greater understanding of this construct and its role compared to the role of self-focused attention.

It is hoped that this study—the first of this kind—will shed some light on our understanding of this disorder, which affects thousands of people. Furthermore, it is also hoped that it will provide strong support to all efforts given to understand the role of cognitions and mechanisms by which cognitive change contribute to reduce clinical symptoms and promote normal social functioning.

It is also hoped that the findings of the present study will provide an impetus for more interaction among clinical, developmental, and social psychologists, to deepen our understanding of a disorder that starts early in life and affects the personal and social functioning of too many individuals. Maybe this collective knowledge can provide the information needed not only to cure the disorder but also to prevent it by early detection and early intervention.

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LIST OF APPENDICES

Appendix A

Newspaper Advertisements

IF YOU ARE SUFFERING FROM EXAGGERATED SHYNESS

You may be interested in participating in a study of treatment for social anxiety.

If you experience intense fear of being embarrassed or evaluated negatively by others in a variety of social situations such as: meeting new people, attending meetings, public speaking, eating or writing in front of others, going to parties, conversing, or interacting with members of the opposite sex,

... you may be eligible for the study.

You must be 18 to 65 years old and otherwise healthy. You will enter the study only after careful evaluation by our research staff. Two separate studies are available; a study of medication treatment and a study of psychological treatment.

For more information call the research nurse at the Anxiety Disorders Research Program, Mariette at 237-2805

Hôpital général St-Boniface General Hospital

Appendix B

Social Situations Diary

Appendix B

SOCIAL SITUATIONS DIARY INSTRUCTIONS

Now, I am going to explain what I want you to do with the Social Situations Diary for the coming week. (Give a copy).

Procedure:

- Read the instructions carefully and go over the sample
- Discuss examples of situations happening during a normal week
- Ask examples of situations happening regularly or situations that might happen unexpectedly
- Ask if they have any questions
- Encourage them to write as soon as possible after the situation
- Tell them that they can write each day about as many situations as they want
- Tell them to mail the diary in a pre-addressed and pre-stamped envelope
- Inform them that I will be phoning in 2-3 days to see how they are doing with the diary and provide them with the opportunity to ask questions if they want

SOCIAL SITUATIONS DIARY

Instructions

Understanding your thoughts in situations where you feel anxious is an important part of understanding anxiety. During the coming week please try to record your thoughts before, during and after one situation each day which has been difficult for you because of anxiety. Try to write down your thoughts as soon as possible after the difficult situation. Don't worry about your spelling or grammar, just get down as many of your thoughts as you can recall. Try to recall the strongest positive, negative, or neutral thoughts about yourself, other people or the situation that came to you in that social situation. The attached sample will show you how the diary and anxiety ratings are completed.

Name: _____

Week of: _____

SAMPLE OF DIARY

Date: March 19/96 Day: Tuesday

Social situation: I have to phone The doctor's office To make an appointment

Thoughts when I was *anticipating* this situation:

- I don't want to do this
- Will I be able to get in this week?
- I'll sound stupid
- Well, this is not the end of the world
- Maybe they'll put me on hold
- Last time I was OK
- My mind will go blank
- I know I'll blow it again

Anxiety rating before the situation (0-100) 60

Time of situation: 10:00 a.m.

Time of recording the thoughts : 10:30 a.m

Thoughts when *I was* in this situation:

- My voice is shakey
- Maybe she won't notice it
- I hate talking on the phone
- I wish I could handle This better
- She'll think I'm stupid
- I'll never be able to feel OK on the phone
- My mind goes blank
- I wonder why she puts me on hold
- Any way, she sounds really nice
- It is not as bad as I thought

Anxiety rating during the situation (0-100) 50

Thoughts *after* the situation

- Gee, I forgot to ask the question about medication
- Stupid me, I always do That
- I hate making phone calls
- My voice was shakey and I'm all sweat
- I'm sure she did not notice it
- Well I manage to do it
- I got the appointment I wanted
- I'm always afraid to ask questions I don't Know
- People will think I'm weird

Anxiety rating after the situation (0-100) 25

DIARY

Date: _____ Day: _____

Social situation: _____

_____

_____

_____

_____

Thoughts when I *anticipating* this situation:

Anxiety rating before the situation (0-100) _____

_____

Time of situation: _____

Time of recording the thoughts : _____

Thoughts when *I was* in this situation:

Anxiety rating during the situation (0-100) _____

_____

Thoughts *after* the situation

Anxiety rating after the situation (0-100) _____

Appendix C

Procedure for Imaginal Task and Think-Aloud

Appendix C

PROCEDURE FOR THE IMAGINAL TASK

Name: _____

Code number: _____

Interviewer: _____

Date: (Pre)_____(Post)_____

Interview starts at: (Pre)_____ends at: _____

(Post)_____ _____

Introduction

Thank you for participating in this research project.

First of all, I would like you to tell me about your five most feared social situations:

Target Situations	**Anxiety** (0-8) (0 = no anxiety) (8 = extreme anxiety) Pre-	Post-	**Avoidance** (0-8) (0 = no avoidance) (8 = complete avoidance) Pre-	Post-
# 1				
# 2				
# 3				
# 4				
# 5				

SITUATIONS FOR THE IMAGINAL TASK

- SITUATION # 1 _____

Tell me more about this situation (where, when, describe yourself, people you are with, etc.)

SUDS: anticipation: _____ during: _____ after: _____
(0-100)

- SITUATION # 2 _____

Tell me more...

SUDS: anticipation: _____ during: _____ after: _____
(0-100)

- SITUATION # 3 _____

Tell me more…

SUDS: anticipation: _____ during: _____ after: _____
(0-100) (0-100)

IMAGINAL TASK - ANTICIPATION just before

Now imagine yourself just before you go into _____. I want you to close your eyes, sit comfortably and imagine yourself and how you are thinking and feeling just before is going to happen. What are you seeing.... hearing..., smelling... What are you wearing... How are people around you... How are your surroundings... What sounds can you hear... Create as many details as you can concerning people around you...

Keep your eyes closed and tell me the strongest positive, negative or neutral thoughts that went through your mind as you were imagining yourself just before the situation: (use the tape-recorder).

Now, I want you to rate your anxiety just before you _____ from 0 to 100.

IMAGINAL TASK - During

Keep your eyes closed. Now I want you to imagine that you are _____. Imagine that you are _____. Imagine all the steps: the beginning, the middle and the end of _____. What do you see..., hear.... smell... How are people around you... What do you do.... and how do you do what you have to do ... Imagine the scene at length and in great details. Keep your imagination on this situation...

Keep your eyes closed and tell me the strongest positive, negative or neutral thoughts that went through your mind as you were imagining yourself just before the situation: (use the tape-recorder).

Now, I want you to rate your anxiety during _____from 0 to 100.

IMAGINAL TASK - After

Keep your eyes closed. Now I want you to imagine after _____. Where are you... What do you see... hear... smell... What do you do... How do you do what you have to do... Imagine where you are at length and with details.

Keep your eyes closed and tell me the strongest positive, negative or neutral thoughts that went through your mind as you were imagining yourself just before the situation: (use the tape-recorder).

Now, I want you to rate your anxiety after _____ from 0 to 100.

Appendix D

Patient Audio-Visual Consent Form

Appendix D

St. Boniface General Hospital
Patient Audio-Visual/Photography Consent Form

Requested by: _____ Date: _____

I hereby consent to:

☐ Interviewing

☐ Observed Interviewing - single ☐ ongoing ☐ session(s).

☐ Photographs taken

☐ Audio tapes taken - single ☐ ongoing ☐ session(s).

☐ Video tapes taken - single ☐ ongoing ☐ session(s).

This material and information may be used by St. Boniface General Hospital staff, Medical staff, and(or) Public Relations staff for:

☐ Assessment purposes

☐ Treatment purposes

☐ Educational purposes

☐ Research purposes

☐ Publication

☐ Other (explain in comments section)

Comments: _____

_____

_____

Completed by: _____ Date: _____

_____

_____

_____ _____ _____

Patient/Legal Guardian Signature Witness Signature Date

Appendix E

Revised Dissertation Plan–Dr. Ed Johnson's letter

Appendix E

Department of Psychology
The University of Manitoba

Memorandum

Date: December 8, 1999

TO: Ms. Jeannette Filion Rosset, Drs. B. Cox, G. Sande, L. Sexton, J. Walker, & R. Tait, Associate Head Graduate Studies, Psychology

FROM: Ed Johnson

SUBJECT: Jeannette Filion Rosset's Committee Meeting

At the request of Jeannette Filion-Rosset, a meeting of her dissertation committee was held to consider her proposal to alter her dissertation proposal. The meeting was held on November 30, 1999 at St. Boniface College. In attendance were Drs. B. Cox, L. Sexton, J. Walker, and E. Johnson, as well as Ms. Filion-Rosset. Dr. G. Sande, the departmental representative at Ms. Filion-Rosset's proposal oral, was unable to attend, but indicated he would accept a consensual decision of the committee. The following is a brief summary of Ms. Filion-Rosset's presentation and the committee's discussion and decision.

In her presentation, Ms. Filion-Rosset summarized her original proposal, the recommendations that ensued from the proposal oral (May 29, 1996), her work completed to date, the work remaining to complete the dissertation, and a tally of the expenses she has incurred thus far. On the grounds that her dissertation project as proposed has turned out to demand time, efforts, and expenses far in excess of what is reasonable and necessary to meet the standards of the University and the Department of Psychology for a dissertation, Ms. Filion-Rosset proposed an amendment in her dissertation. Specifically, she proposed that the data from the thought-listing procedure not be included in the dissertation.

In the subsequent discussion, the committee agreed that Ms. Filion-Rosset's proposal would not significantly alter her capacity to answer the questions of interest in her dissertation, since the thought-listing data is one of two sources of thoughts (diary-collected data being the other). It was also observed that even with the proposed changes the dissertation would remain far above "threshold" for meeting the criteria for a substantial original contribution to the field. On the basis of this discussion, it was agreed that Ms. Filion Rosset could proceed with the revised dissertation plan.

Appendix F

Clinical Global Improvement Scale (CGI)

Appendix F

Clinical Global Improvement Scale-Change

Compared to the patient's condition at the time of entry to the study (baseline), how has the patient's illness changed? Rate the extent to which the patient has changed regardless of whether or not, in your judgement, it is entirely due to treatment.

CGI-Overall Illness

1 Very much improved
2 Much improved
3 Minimally improved
4 No change
5 Minimally worse
6 Much worse
7 Very much worse

Appendix G

Coding Manual

Appendix G

Coding Manual for the Study of Social Phobia

(Revised - 2)

Prepared by Jeannette Filion-Rosset, M.A. and Edward Johnson, Ph.D.
University of Manitoba - June 16, 1999

Each thought unit is coded as:	positive **(Pos)**, or negative **(Neg)**, or neutral **(N)**.
and as:	self-focused **(S)**, or other-focused **(O)**, or situation-focused **(Si)**

Thus, each thought is coded either as: **Self-focused positive, Self-focused negative, Self-focused neutral, Other-focused positive, Other-focused negative, Other-focused neutral, Situation-focused positive, Situation-focused negative or Situation-focused neutral.** Another category called **No code category** will also be used when no criteria applies and for irrelevant or incomplete thoughts.

1- Criteria for each category:

1.1-Positive thoughts:

Thoughts that may facilitate successful, relaxed and effective interaction or performance:

- thoughts indicating a positive emotional or physiological reaction.
- thoughts about positive consequences for self, other or the situation
- adopting coping strategies,
- controlling negative thoughts or negative emotional arousal,

1.2-Negative thoughts:

Thoughts that may inhibit or disrupt successful behavior:

- thoughts about negative emotional or physiological reaction
- thoughts focusing on catastrophic performance or consequences
- thoughts focusing on perfectionistic expectations
- thoughts about avoiding or escaping the situation
- self-questioning, doubting (especially frequent or chronic)

1.3-Neutral thoughts:

Thoughts that have or will have no positive or negative impact on the interaction or the performance:

- thoughts representing factual descriptions of the situation,
- thoughts that will fail to meet any criteria for positive or negative rating,
- asking for information
- when there is uncertainty about the valence

1.4-Self-focused thoughts:

Thoughts that involved references to the participant's:

- personality characteristics
- emotions or feelings
- performance in academic, work or social situations
- reference to physical characteristics or states
- reflections (e.g. self-questioning, evaluations, memories, attributions) on one's own thoughts, feelings or behaviors in a situation.

Note: Thoughts with "we" or "us" are coded as SELF-FOCUSED

Examples: Self-focused positive (SPos)

- *"I'm comfortable sitting there and chatting with somebody near to me"*
- *"I keep telling myself that I can do it"*
- *"My thoughts are sort of trying to convince me that everything was all right"*
- *"I quite enjoy being there"*
- *"Trying to tell myself that if you make a mistake it's no big deal"*
- *"I try to convince myself that I can do it"*
- *"I hope I do a good job"*
- *"I hope I did okay"*

Examples: Self-focused negative (SNeg)

- *"I'll look nervous"*
- *"I don't want to say too much because it would sound stupid or be dump or inappropriate"*
- *"I hate doing this"*
- *"My voice will be kind of shaky"*
- *"My heart starts racing"*
- *"Felt like I was blacked out"*
- *"I was sweating profusely"*
- *"I feel disappointed in myself"*
- *"I might start screwing up"*
- *"I was mad at myself for getting upset"*
- *"Why can't I be normal?"*

- *"Thinking I'm probably going to say something really stupid"*
- *"I can feel my face getting very, very red"*
- *"I wish I was a little more outgoing"*
- *"I find it hard to get words out"*
- *"Hands get very sweaty"*
- *"I felt that I was watching myself"*
- *"Why am I reacting this way?"*

Examples: Self-focused neutral (SN)
- *"I'm probably thinking about what I have to do"*
- *"I'm wondering who I am gonna run into?"*
- *"How do I greet the person who is having the birthday?"*
- *"I'm probably thinking what to say"*
- *"I'm supposed to be leading two lessons in front of our lecturer"*

1.5-Other-focused thoughts:

A- Thoughts that involved references to other's:
- personality characteristics
- behaviour/performance in academic, work or social situations
- feelings or emotions
- physical characteristics
- evaluative thoughts about the other person's appearance, performance or personal qualities

B- Thoughts about what others are thinking or feeling. Very frequently these thoughts will involve thoughts about being evaluated by others, concerns about what other people think, how they feel about the respondent:

- Meta-projective thoughts are thoughts projecting self into the eyes of others, no mention of external cues, e.g. *"I think that he thinks that I'm silly."* ***Coded as*** Ⓜ.
- Meta-pure thoughts are thoughts where the respondent mentioned some external cues or evidence, e.g. *"I can tell by your smile that you like me.", "Because he frowns, I think that he thinks that I'm silly."* ***Coded as M.***

Examples: Other-focused positive (OPos)
- *"My dad is really thinking I'm going to play well tonight"*
- *"They seem to be impressed when I have actually heard what they said and react on it"*
- *"She is smiling"*
- *"He sounds quite sure of himself"*

- *"She did well with the presentation"*
- *"He is a nice doctor"*
- *"He is a good speaker"*

Examples: Other-focused negative (ONeg)

- *"The interviewer is staring at me"*
- *"Everybody will notice that I'm nervous"*
- *"These people are really wondering why I'm so nervous"*
- *"I'm thinking maybe that they think she's incompetent"*
- *"And see everyone is looking at me sort of the focus of attention"*
- *"He thinks I am a jerk"*
- *"Everybody's focus on me"*
- *"He is not a good speaker"*
- *"And if I think they're giving me a funny stare or something"*
- *"He is a bad listener"*
- *"Felt watched when walking in front of them"*
- *"She is an incompetent supervisor"*

Examples: Other-focused neutral (ON)

- *"I know the general manager is going to be coming in in a few minutes"*
- *"Everybody seems to be minding their own business and just being normal"*
- *"Who I am going to sit down with?"*
- *"What is that person thinking? "*
- *"I think about what they're thinking of me"*
- *"Wonder what they think"*

1.6-Situation-focused thoughts:

Thoughts in this category are:

- references to the situation,
- concerns with the situation or things related to the situation:
- location, event etc.
- about people in the abstract or in general, not a specific person or specific group of people

Examples: Situation-focused positive (Si Pos)

- *"That was kind of fun"*
- *"This was easier than I thought"*
- *"After all, this is not the end of the world"*
- *"The interview was easy"*

Examples: Situation-focused negative (Si Neg)
- *"It was a disaster"*
- *"It was terrible"*
- *"The chances are that I walk in and not know a single person there"*

Examples: Situation-focused neutral (Si N)
- *"The dentist's office was far"*
- *"The appointment is at 3:00 pm"*
- *"Wondering if I know people there"*
- *"I wonder how many people are going to be watching the game? "*
- *"The party was well attended"*
- *"Thinking about driving home, I guess"*

1.7-No code category:

Use this category when:
- none of the above criteria applies.
- the participant indicates that he/she has no thoughts–***"My mind was blank", "nothing"***
- a thought is incomplete

Examples: No code
- *"and um, then then we kind of, you know"*
- *"Um (...) that's about it I guess"*
- *"Ah, that's basically it"*
- *"That would be for that situation"*

2- General rules for coding include:

2.1- Questions to ask before coding for the valence:

What is the effect or impact of this thought on the performance or on the interaction? Is the thought helping this person to do what she or he wants to do? Is the thought helping to manage the situation? Or is the thought impairing the interaction or the performance? Is the thought reinforcing avoidance or escaping the situation? Be careful when the thoughts mentioned **BEFORE THE SITUATION** are **coping thoughts or thoughts helping to face the situation**. Examples: ***"It'll only be for an hour at the most"; "It's only for a cleaning, it won't take long".***

2.2- Question to ask before coding for the focus of attention:

Where is the main focus of this person's attention: on herself / himself? On another person or a specific group of people or on the situation?

2.3- Uncertainty and difficult thoughts to code:

If the thought is ambiguous or difficult to code, **give a tentative code** (using your best judgement) in the appropriate category and also indicate a **???** In the **No code** category. All the **???** will be reviewed by myself and my advisor.

Examples: Difficult / ambiguous thoughts
- *"I haven't lost any sleep over it"*
- *"I will have to talk with them"*
- *"I'll stay only 3 or 4 minutes with them"*

2.4- Recency Effect:

If the tone changes in the middle of the thought, make the coding on the latter portion of the thought chain. For example, the thought: ***"I know my heart is starting to pound really fast but I know I can make it through this"*** would be coded as Self-focused positive (SPos) due to the latter content of the sentence.

2.5 -Distinction between Other-focused and Situation-focused:

As a general rule, when the participant refers to **people** with the meaning that it is **people in general** with no reference to some people in particular or a specific group of people, code this thought as **Situation-focused**.

2.6- Meta Rule:

Meta-thoughts are those in which one explicitly or implicitly "reads" what another (or many others are) is thinking about. The topic of what the other is presumed to be thinking about may include the self (e.g. evaluation of the self, etc.) or may include non-self topics (e.g. ***"He thinks the party is over"***).

In some cases the "mind reading" is implicit. For example, ***"He's staring at me"*** refers explicitly to the behaviour but implicitly suggests the self is the object of the other's attention and interest.

When the thought is referring to what the other person is thinking or what other people are thinking, it is important to make a distinction between:

A) **Meta-projective thoughts:** when the participant is projecting himself or herself into the eyes of others and do not mention any external cues (e.g. ***"I think that he thinks that I'm silly").*** **These thoughts are coded as** Ⓜ.

B) **Meta-pure thoughts:** The participant is mentioning some external cues or evidence (e.g. ***"I can tell by your smile that you like me", "Because he frowns, I think that he thinks that I'm silly".*** **These thoughts are coded as M.**

Note 1: As a general rule, re-read all the thoughts you have coded in the Other-focused category to make sure that you did not miss any meta-projective or meta-pure thoughts.

Note 2: If there is some ambiguity between a meta-projective thought and a meta-pure thought, code it as meta-projective.

Note 3: If it is unclear or ambiguous, do not mark the thought as meta.

2.7- Guideline for thought units mentioning *"I feel relieved"*

When the thought refers to coping or a sense of accomplishment (suggested by words), code it as **positive.**

Examples:
- *"And you know, I'm relieved that it's done, I made it"*
- *"After the phone call, I'm usually quite, quite relieved it's finished, it's done"*
- *"Relieved that things turned out well"*

When the sense of relief refers to escape or avoidance (suggested by words) code it as **negative.**

Examples:
- *"And I feel relieved by not being up there anymore"*
- *"And after the meeting, it's just a complete relief that it's over"*
- *"Generally I'm so glad to be out of there"*

When there is nothing (no words) to help you decide if it is **avoidance** or a **sense of accomplishment,** code it as **neutral.**

Examples:
- *"But it feels like a relief that it's finished with"*
- *"It was a relief to have it over"*
- *"I'm glad it's over with"*
- *"I'm usually quite relieved"*

The thought unit ***"It's just a major relief when it's over"*** should be coded as **SELF** and not as **situation** because it refers to feeling/emotion.

Appendix H

Advertisement for Coders

Appendix H

INTERESTED IN RESEARCH EXPERIENCE?

This experience is for you if:

- You are an undergraduate student in your 2nd or 3rd year (Honors Program)
- You have taken the course 230 or 225/226
- You need some research experience to add to your resume

Information about the work to be done:

- This is a Ph.D. dissertation research on SOCIAL PHOBIA
- The work will consist in coding thoughts collected during a Think-Aloud Procedure and also with a Social Interactions Diary
- The coding will be done according to a Coding Manual especially designed for this research
- Supervision will be available during the coding
- A training session and supervised practice will be provided (tentative date: May 3rd or 4th)
- The coding will be done at the Duff Roblin Building and flexible hours will be offered to suit your schedule
- Coding starting during the first week of May and to be completed by the first week of June
- An honorarium will be provided and letters of references will be given on request

You are interested or you have some questions about this research experience, please contact:

Jeannette Filion-Rosset

Tel.: 237-0058

Pager: 935-5344

E-mail: filross@cc.umanitoba.ca

TU T'INTÉRESSES À LA RECHERCHE EN PSYCHOLOGIE CLINIQUE ?

Cette expérience est pour toi si:

- Tu es en 2ème ou 3ème année (majeure en psychologie de préférence)
- Tu as pris le cours Méthodes de recherche
- Tu as besoin d'ajouter une expérience de recherche à ton CV

Information au sujet du travail à faire:

- Ce projet de recherche est une thèse doctorale en psychologie clinique, portant sur la phobie sociale
- Le travail consistera à coder des pensées qui ont été recueillies avant et après le traitement, au moyen de deux techniques: *Penser tout haut* (Think-Aloud Procedure) et un *Journal sur les interactions sociales* (Social Interactions Diary)
- Le « coding » se fera selon les critères établis dans un manuel qui a été développé spécialement pour cette recherche
- Une session d'entraînement sera offerte (date tentative le 3 ou 4 mai, au Département de Psychologie - Duff Roblin Building, Université du Manitoba)
- Le « coding » sera fait au CUSB, selon des heures flexibles pour accommoder ton horaire
- Le travail va débuter durant la 1ère semaine de mai et devrait être terminé pour la 1ère semaine de juin
- Un honoraire sera remis ainsi que des lettres de références attestant cette expérience de travail

Si tu es intéressé (e) ou si tu as des questions, tu peux appeler:

Jeannette Filion-Rosset, professeure

Tél.: 233-0210 poste 462 ou 237-0058

Pagette: 935-5344

Courriel: filross@cc.umanitoba.ca

Appendix I

Pledge of Confidentiality

Appendix I

SOCIAL PHOBIA STUDY

PLEDGE OF CONFIDENTIALITY

I,_____, the undersigned, understands that the coding that I will be doing for the Social Phobia Study, involves clinical material and that this material should be treated with respect and confidentiality.

I agree that I will not, at any time during and after the coding, divulge to any person(s) any information contained in the Social Interaction Diaries and in the Think-Aloud Procedure and that I will not discuss the content of it with any people except those associated with the study.

I agree that I will not expose this material in public, that I will leave it in a safe place and that I will return it to Jeannette Filion-Rosset as soon as I have completed the coding.

I understand that this coding is an important part of a scientific research and that it requires a very serious approach, dedicated work, good concentration and honesty.

_____ _____

Date signed Signature (Coder)

_____ _____

Date signed Signature (Witness)

_____ _____

Date signed Signature (Researcher)

Appendix J

Guidelines for Coding

Appendix J

GUIDELINES FOR THE CODING

1 - Before starting to code, read carefully *the whole situation* (before, during and after) in order to get an overall understanding of the situation and of what's going on in this person's mind.

2 - As you read, write "?" if you do have questions.

3 - Start the coding, focusing on each thought unit and do the coding unit by unit.

4 - After the coding of the whole situation, review all the thought units coded on the OTHER CATEGORY (pos. neg. or neutral) to make sure that you did not MISS any meta-thoughts (projective or pure).

5 - Check with the coding manual or consult other coders for any difficult thoughts or questions you may have. Don't forget to write a "?" in the NO CODE area if you are not sure.

6 - Sum up the # of thoughts for each category.

7 - Write the time (diaries) only once, on the first coding sheet you are filling out.

8 - Put a round yellow sticker on the left corner of the coding sheet to indicate that there is "NO BEFORE" or "NO DURING" or "NO AFTER". Write it clearly on the sticker to draw the attention of the person entering data.

9 - If you haven't been doing the coding for a day or more, re-read the coding manual before to continue to do the coding.

10- Contact me if you have any problems or when you have completed the package given to you. Another package will be provided. (Phone # 237-0058; pager # 935-5344).

11- We can have weekly meetings (if necessary) to discuss difficult thoughts or give more precise guidelines.

12- Each package will contain "Diaries" and "Think-Aloud" that will be used for interrater reliability and the kappa will be constantly monitored. Feedback will also be provided.

THANK YOU FOR BEING PART OF MY RESEARCH. YOUR WORK IS EXTREMELY IMPORTANT FOR ME AND I HOPE THAT IT WILL ALSO BENEFIT YOU. GOOD LUCK AND MANY THANKS.

Jeannette Filion-Rosset

Appendix K

Coding Sheet

Appendix K

Coding - Social Phobia Study
Subject's code #:_____ Coder's Initials:_____
Think-Aloud Procedure:_____ Social Interactions Diary_____
Situation #1_____ #2_____ #3_____ #4_____ #5_____ #6_____ #7_____ #8_____
Before_____ During_____ After_____

	Self-focused			Other-focused			Situation-focused			No
	Pos.	Neg.	N	Pos.	Neg.	N	Pos.	Neg.	N	
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
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16.										
17.										
18.										
19.										
20.										
√										
Ⓜ										
M										
Tot										

SUDS:_____(0 - 100) For diary only - TIME:_____

Appendix L

Recoding the Thoughts

Appendix L

Recoding the Thoughts

Thoughts	Original Coding	Recoding
"Was my tension obvious?"	S⁻	Ⓜ⁻
"I thought–oh my God, I hope no one saw my stupid mistake."	S⁻	Ⓜ⁻
"Concerned about how I appear?"	S⁻	Ⓜ⁻
"I hate being evaluated."	S⁻	Ⓜ⁻
"Maybe I'll look like idiotic."	S⁻	Ⓜ⁻
"I feel like I'm watching people who are watching me."	S⁻	Ⓜ⁻
"I know I sound a bit shaky."	S⁻	Ⓜ⁻
"I hope I didn't look too nervous."	S⁻	Ⓜ⁻
"I hope I look OK!"	S neutral	Ⓜ neutral
"Do I seem uninterested because I am so quiet?"	S⁻	Ⓜ⁻
"I probably look nervous."	S⁻	Ⓜ⁻
"Do I look scared?"	S⁻	Ⓜ⁻
"Although no one is observing me being anxious, it can be seen in my writing."	S⁻	Ⓜ⁻
"I hope I don't look stupid or look inadequate."	S⁻	Ⓜ⁻
"I hope I don't sound silly."	S⁻	Ⓜ⁻
"Don't assume they are evaluating you negatively."	S+	Ⓜ+
"You must not think people are looking at your mouth."	S+	Ⓜ+
"I will look stupid if I don't talk."	S⁻	Ⓜ⁻
"This is going to reveal what I think my flaws are."	S⁻	Ⓜ⁻
"What if I look foolish and uncomfortable?"	S⁻	Ⓜ⁻
"And now everyone has seen what a blubbering idiot I am."	S⁻	Ⓜ⁻
"Will I always feel that everyone is judging and putting me down forever."	S⁻	Ⓜ⁻
"The more I open my mouth the more idiotic or stupid I sound."	S⁻	Ⓜ⁻
"Do I look OK?"	S neutral	Ⓜ neutral
"I'll sound stupid, too rehearsed."	S⁻	Ⓜ⁻

S = Self-focused thought
Ⓜ = Meta-thought projective
M = Meta-thought pure
Sit = Situation-focused thoughts
O = Other-focused thought

Appendix M

Information and Consent Form

Appendix M

Hôpital général St-Boniface General Hospital

Clinical Health Psychology
M1 North McEwen Building
Tel (204) 237-2979 Fax (204) 237-9243

INFORMATION AND CONSENT FORM
A STUDY TO EVALUATE PROGRAMS TO
ASSIST PERSONS WITH SOCIAL PHOBIA

You are being asked to participate in a study to evaluate several approaches to helping people with problems with social phobia. Before you give your consent to participate, we ask you to read the following and ask as many questions as necessary to ensure that you understand what your participation involves.

Nature and Purpose of the Study

Social phobia is a common anxiety problem marked by episodes of anxiety which occur in social situations. This problem is seen to varying degrees in 4 - 7% of the population. While several effective treatments have recently become available (either psychological treatment or treatment with medication), there remains the need to evaluate which approaches to treatment are most effective and which can be made available to the large number of people with this problem. Self-help approaches are especially important because they can reach many more people than the treatments which are available in specialized anxiety clinics.

In this study we will be evaluating the effectiveness of four different programs in helping people with social phobia. Each of the programs is designed to teach you to use a variety of coping strategies to deal with anxiety including: relaxation techniques, changing the thinking patterns that go along with anxiety, and learning to face difficult social situations. The programs are:

Program 1. A self-help book designed to teach ways of coping with anxiety. (The book is used independently and the participant's difficulty with anxiety is assessed before using the book and again 14 to 16 weeks later.)

Program 2. Self-help reading materials used in a group which meets in the evening for 13 weeks. The group leaders are members of a self-help association who have completed a group program on overcoming anxiety.

Program 3. Self-help reading materials used in a group which meets in the evening for 13 weeks. The group leaders are mental

health professionals experienced in treatment of anxiety problems.

Program 4. A waiting list. Persons who are assigned to the waiting list will be assessed at the start and at the end of the 16 week period. At the time of the second assessment, they will be provided with a copy of the book and workbook and given the opportunity to work on these alone or in our next available group program. (The waiting period for the people on the waiting list is still shorter than the waiting list for our usual group programs - so the person would have access to treatment more quickly than normally is the case. He or she will also have the opportunity for a very thorough assessment of problems with social anxiety.)

Each participant who is accepted into the study is assigned to one of the four programs by chance (randomly). This process operates like a lottery, you have a 25% chance (or 1 in 4) of being assigned to any one of the programs outlined above.

Study Procedures

Each person who is interested in participating in the study will have an assessment to determine whether the program offered in the study is appropriate for the problem he or she has been experiencing. There are also some limitations on who may participate in the study based on other treatments the person has been receiving and other problems which have been experienced.

If a person is accepted into the study and provides informed consent, he or she will complete a package of questionnaires about the anxiety problem and have an interview about the thoughts experienced in difficult social situations. After a brief waiting period (a few weeks), the participant will be assigned by chance to one of the four programs outlined above. All of the programs will take 14 to 16 weeks to complete. Individuals in the two independent self-help programs (Programs 1 and 2 above) will mail in weekly time logs about their participation in the program. Individuals in the two group programs (Programs 3 and 4 above) will attend thirteen weekly evening meetings with approximately seven other people with anxiety problems and two group leaders. The group meetings last for two hours and there is reading and homework to do between meetings.

Once they have completed the program, participants will have an interview with an independent assessor (a mental health specialist who is not aware of the program they participated in) who will review their progress. They will also complete a package of questionnaires and an interview about their thoughts in difficult social situations. At the end of the evaluation, recommendations for additional treatment will be made, if it is

required. Participants who did not participate in a group program will be offered a group program if they wish.

In order to evaluate the long-term effectiveness of the programs, participants will be contacted six months and two years after completion of the program to ask them to complete evaluation questionnaires.

Potential Benefits of the Study

You may potentially benefit from the study by experiencing a reduction of your anxiety symptoms. However, it is also possible that you may not derive any benefit from participation in this study. All participants will have a review of their anxiety problem at the end of the study and if additional treatment is required recommendations will be made for this treatment.

Possible Risks of the Study

There have not been reports of negative effects from participation in the programs evaluated in this study. On the other hand, some participants report an increase in anxiety for several weeks after they start the program. This seems to occur because they are facing problems that they may have been avoiding for some time and this can cause an increase in anxiety. This anxiety usually subsides once a person has been in the program for a few weeks.

The major cost to you of participating in the study is the time required to complete the program and the assessments associated with the evaluation of the program.

Alternative Treatments

There are a variety of treatments for social phobia. These include antidepressant and anxiolytic (or anxiety reducing) medications. Also, specific kinds of psychotherapies (especially cognitive-behavioral therapy) are used to treat social phobia. Each of these treatments has recognized advantages and disadvantages which will be explained to you by the study staff. These treatments are available through the Anxiety Disorders Clinic at St. Boniface General Hospital and through clinics at Grace General Hospital and Health Sciences Centre. Some mental health specialists in private practice also provide these treatments.

Confidentiality

As with other health records, the information gathered in this study will be maintained on a confidential basis in keeping with the policies of the St. Boniface General Hospital and the

University of Manitoba. The group leaders from the self©help association (the Anxiety Disorders Association of Manitoba) are also governed by rules of confidentiality. Your name will not appear in any reports which may be published based on this research. Only authorized study personnel at St. Boniface Hospital and the University of Manitoba will have access to information obtained from this study.

Voluntary Participation

Your participation in this study is entirely voluntary. You are free to decline to participate, or to withdraw your consent to participate at any time during the study without penalty or loss of benefits to which you are otherwise entitled. Your health care will not be jeopardized or compromised because you decline to participate in, or later withdraw from, this study.

Your participation may also be discontinued without your consent, if in the opinion of the study staff that it is in your best interest or if you fail to comply with the study procedures.

If Problems Arise

Should you have any questions concerning this study or if problems arise, you should contact the member of the research staff whose telephone number you have been given. The principal investigator for this study is Dr. John Walker, who may be reached at 237-2606.

CONSENT FORM FOR PARTICIPATION IN
A STUDY TO EVALUATE FOUR PROGRAMS TO
ASSIST PERSONS WITH SOCIAL PHOBIA

I, _____ have been informed of the nature and purpose of the study as well as the potential risks and benefits of participation in the study. I have had an opportunity to ask questions about the study, and all of my questions have been answered to my satisfaction.

I give my voluntary and informed consent to participate in this study. I understand that I am free to withdraw my consent and stop participating in this study at any time. I have been given a copy of this consent form.

_____ _____
Subject Signature Date

_____ _____
Witness Signature Date

_____ _____
Investigator Signature Date

Appendix N

Clinically Significant Change

Appendix N

Clinically Significant Change

On average, across most of the various social phobia measures used in this study, participants in the three treatment conditions improved relative to participants in the control condition after treatment. However, it remains difficult to determine treatment effectiveness based solely on statistical significance. Jacobson et al. (1984) suggested it was also important to determine if statistically significant change at the group means level was also clinically significant at the individual level. In order to address this need, Jacobson and his colleagues (1984, 1991) recommended evaluating both the reliability of change (i.e., a way to determine the magnitude of change) and the clinical significance of change (i.e., a way to determine if the treated participant returns to a normal functioning subsequent to treatment).

Reliable Change (RC)

The formula used to calculate the reliable change index (RC) was the one outlined by Jacobson and colleagues (1984, 1991):

$$RC = \frac{\chi \text{ post} - \chi \text{ pre}}{\text{Sdiff}}$$

Where: RC = Reliable Change

χ post - χ pre = posttest score minus pretest score

Sdiff = the standard error of the difference between the two test scores

(Sdiff = $\sqrt{2(S_E)^2}$)

According to Jacobson and Truax (1991), RC has a clear-cut criterion for improvement: if RC is greater than 1.96, it is likely that the post-assessment score is reflecting real non-chance change.

Participants in the three treatment conditions were collapsed and compared to the W-LC condition on the four outcome measures: SPS, SIAS, FQ-SP, and SPAI-SP. Fisher's Exact Tests were used to determine if there was a significant difference in the number of participants whose scores reflected reliable change. Table N1 presents the results from the comparison of W-LC and the treated participants. The results revealed that the number of treated participants who achieved reliable statistical change was significantly different from the number of untreated participants who did so on all four outcome measures ($p < .001$). On the SPS, 46% of the treated participants showed reliable change compared to 4% on W-LC. On the SIAS, 62% of the treated participants showed reliable change compared to 8% on W-LC. On the FQ-SP, 54% of the treated participants showed reliable change compared to 12% on W-LC. Finally on the SPAI-SP, 55% of the treated participants showed reliable change compared to 12% on W-LC.

Table N1

Fisher's Exact Tests for Reliable Versus Non-Reliable Change: Waiting-List Control Group Versus All Treatment Groups Together

	Waiting-list control group	Treatment groups	
Measure	*n*	*n*	*p** <
Reliable change (RC)			
SPS			
Reliable change	1	29	.001
Non-reliable change	23	34	
SIAS			
Reliable change	2	39	.001
Non-reliable change	22	24	
FQ-SP			
Reliable change	3	34	.001
Non-reliable change	21	29	
SPAI-SP			
Reliable change	3	35	.001
Non-reliable change	21	28	

N = 87

* (Two-tailed)

Further analyses were conducted separately for each treatment condition in comparison to the W-LC, using Fisher's Exact Tests and the same four outcome measures. Table N2 presents the results. When W-LC and SA-CBT were compared, results indicated that reliable change was significant for SPS, SIAS, and FQ-SP but not for SPAI-SP. When W-LC and SH-CBGT were compared, results indicated that reliable change was significant for all social phobia measures. When W-LC and PROF-CBGT were compared, results indicated that reliable change was significant for all four measures SP.

We can conclude that relative to W-LC participants, treated participants were significantly more likely to experience reliable change on virtually all measures of social phobia.

Table N2

Fisher's Exact Tests for Reliable Versus Non-Reliable Change: Comparison Between W-LC and the Three Treatment Conditions Separately

	W-LC	SA-CBT		SH-CBGT		PROF-CBGT	
Measure	*n*	*n*	$p^* <$	*n*	$p^* <$	*n*	$p^* <$
Reliable change							
SPS							
RC–yes	1	6	.05	14	.001	9	.01
RC - no	23	16		8		10	
SIAS							
RC–yes	2	9	.05	18	.001	12	.001
RC - no	22	13		4		7	
FQ-SP							
RC–yes	3	11	.01	15	.001	8	.05
RC - no	21	11		7		11	
SPAI-SP							
RC–yes	3	6	*ns*	15	.001	14	.001
RC - no	21	16		7		5	

Total $n = 46$ for W-LC and SA-CBT; $n = 46$ for W-LC and SH-CBGT; $n = 43$ for W-LC and PROF-CBGT.

*(two-tailed)

Clinical Significance (CS)

Jacobson et al. (1984) proposed that a "change in therapy is clinically significant when the client moves from dysfunctional to the functional range during the course of therapy on whatever variable is being used to measure the clinical problem" (p. 340). They suggested three possible criteria to determine whether each participant in the sample improved to a clinically significant degree. The first criterion assumes that the level of functioning at post-assessment falls at least two standard deviations above the mean of the dysfunctional population. The second assumes that the level of functioning at post-assessment does not fall below two standard deviations from the normal population mean. The third criterion, which falls between the first two, assumes that the post-assessment score is statistically more likely to fall within the functional range than within the dysfunctional one. Jacobson et al.'s third criterion is the one used in this study. They proposed the following formula to find a cutoff score that will determine if clinical change occurred for each participant:

$$C = \frac{S_0 \bar{X}_1 + S_1 \bar{X}_0}{S_0 + S_1}$$

Where: C = Cutoff

$S_0 = S_1$ = standard deviation of control group, normal population, and pre-assessment experimental group

$\bar{X}_1$ = mean of both pre-assessment experimental and pre-assessment control group

$\bar{X}_0$ = mean of well-functioning normal population

Using this formula, a cutoff point was determined for the SPS, SIAS, FQ-SP, and SPAI-SP questionnaires, and all participants were evaluated as to whether they *passed cutoff* or *did not pass cutoff* accordingly.

Participants with reliable change and who passed the cutoff were classified as recovered. Table N3 displays the results of Fisher's Exact Tests comparing recovered participants in W-LC with participants in the treatment conditions. It is important to note that the classification *not recovered* included those participants who improved, those with a reliable change but who did not reach the clinical cutoff, and those who did not improve or who may even have deteriorated. Compared to W-LC, the number of treated participants classified as recovered was statistically significant for all four outcome measures (SPS: $p < .01$; SIAS: $p < .05$; FQ-SP: $p < .05$; SPAI-SP: $p < .01$). On the SPS, 27% of the treated participants were classified as recovered, compared to 0% of W-LC. On the SIAS, 22% of the treated participants were classified as recovered, compared to 0% of W-LC. On the FQ-SP, 36% of the treated participants were classified as recovered, compared to 8% of W-LC. Finally, on the SPAI-SP, 49% of the treated participants were classified recovered, compared to 12% of W-LC.

Table N3

Fisher's Exact Tests for Participants Classified as Recovered versus Classified as not Recovered: Waiting-List Versus All Treatment Conditions

	Waiting-list control	Treatment conditions	
Measure	*n*	*n*	*p* * <
Clinical significance			
SPS			
Recovered	0	17	.01
Not recovered **	24	46	
SIAS			
Recovered	0	14	.05
Not recovered	24	49	
FQ-SP			
Recovered	2	23	.05
Not recovered	22	40	
SPAI-SP			
Recovered	3	31	.01
Not recovered	21	32	

N = 87

* Two-tailed

** Not recovered = Improved, no reliable change but passed clinical cutoff, no improvement and deteriorated.

Further analyses were conducted separately for each treatment condition in comparison to W-LC, using Fisher's Exact Tests and the same four outcome measures. Table N4 presents the results. When W-LC and SA-CBT were compared, results showed there was no significant difference between the number of recovered participants in each condition on three of the four outcome measures. On the SIAS, however, SA-CBT treated participants were significantly more likely to be recovered than W-LC participants. For the two group treatments, SH-CBGT and PROF-CBGT, however, significant differences were found in comparison to W-LC on all clinical measures. On the SPS, 41% of the SH-CBGT participants and 31% of the PROF-CBGT participants were classified as recovered, compared to 0% for W-LC. On the SIAS, 27% of the SH-CBGT participants and 21% of the PROF-CBGT participants were classified as recovered, compared to 0% for W-LC. On the FQ-SP, these numbers are 64% for SH-CBGT participants and 37% for PROF-CBGT participants, compared to 8% for W-LC. Finally, on the SPAI-SP, 68% of SH-CBGT participants and 53% of PROF-CBGT participants were classified as recovered, compared to 12% on W-LC.

On the more stringent criteria of clinically significant change (i.e., reliable change and passing cutoff), participants in the two treatment group conditions were significantly more likely than W-LC to be improved, whereas evidence for the SA-CBT condition was mixed.

Table N4

Fisher's Exact Tests Showing Participants Who Classified as Recovered Versus Participants Who Classified as not Recovered: Comparison Between W-LC Group and the Three Treatment Groups Separately

Measure	W-LC	SA-CBT		SH-CBGT		PROF-CBGT	
	n	*n*	*p** <	*n*	*p** <	*n*	*p** <
Clinical significance (CS)							
SPS							
Recovered	0	2	*ns*	9	.001	6	.01
Not recovered**	24	20		13		13	
SIAS							
Recovered	0	4	.05	6	.01	4	.05
Not recovered	24	18		16		15	
FQ-SP							
Recovered	2	2	*ns*	14	.001	7	.05
Not recovered	22	20		8		12	
SPAI-SP							
Recovered	3	6	*ns*	15	.001	10	.01
Not recovered	21	16		7		7	

n = 46 for W-LC and SA-CBT; *n* = 46 for W-LC and SH-CBGT; *n* = 43 for W-LC and PROF-CBGT.

* Two-tailed

** Not recovered = Improved, no reliable change but passed clinical cutoff, no improvement and deteriorated