DIFFERENTIAL MANIFESTATIONS OF GENERALIZED SOCIAL PHOBIA AND CIRCUMSCRIBED SPEECH PHOBIA

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Abstract

This study investigated differences among outpatients with circumscribed speech phobia (n = 12), generalized social phobia without avoidant personality disorder (n = 20), or generalized social phobia with aviodant personality disorder (n = 9). Overt behavior, verbal reports, and psychophysiological reactivity were compared among groups. Results supported the idea of dimensionality within the social phobia diagnosis. Circumscribed (speech) phobia appears to be somewhat distinctive, as the generalized social phobia groups presented with greater symptom severity. The circumscribed speech phobia and the generalized social phobia with avoidant personality disorder patients were the most distinctive, presumably representing ends of a social phobia severity continuum. Overall psychopathology was most pronounced in the generalized social phobia with avoidant personality disorder group, which differed from the generalized social phobia without avoidant personality disorder group only on a few measures. There was substantial similarity between these latter groups, consistent with other contemporary research. Issues of diagnostic classification were addressed.

Differential Manifestations of Generalized Social Phobia and Circumscribed Speech Phobia

Social Phobia

Social phobia is a disorder characterized by an irrational persistent anxiety related to one or more situations in which a person is exposed to possible scrutiny and negative evaluation from others (American Psychiatric Association, 1987). However, this classification of social phobia in the Diagnostic and Statistical Manual, 3rd edition-Revised (DSM-III-R; American Psychiatric Association, 1987) remains problematic. DSM-III-R calls for the same basic diagnosis for individuals who experience anxiety in one or two social situations (e.g., public speaking) and those who experience generalized anxiety in a variety of social situations, although a "generalized type" of social phobia can be specified using DSM-III-R. The question of which type of social phobia (generalized or circumscribed) represents its classic manifestation, however, remains open.

In addition, there are many common features between the generalized type of social phobia and avoidant personality disorder (Goldstein & Renneberg, 1989; Turner & Beidel, 1989). Questions have arisen

regarding the possibility of classifying discrete public speaking phobia separately from other social phobias (e.g., McNeil & Lewin, 1986, 1992; Pollard & Henderson, 1988; Spitzer & Williams, 1985). However, data regarding distinctions between circumscribed public speaking anxiety and generalized social anxiety are largely quantitative, as opposed to qualitative (Heimberg, Hope, Dodge, & Becker, 1987, 1990; McNeil & Lewin, 1986, 1992; Turner, Beidel, & Townsley, 1992).

Turner, Beidel, Dancu, and Stanley (1989) concluded that the discrete types of social phobia are quite rare, with public speaking phobia being an exception. Moreover, Pollard and Henderson (1988), as well as Turner and Beidel (1989), report data in support of the notion that circumscribed public speech phobia is much more common than the other discrete social phobias. Barlow (1988) contends that the type of social phobia with which most people are familiar is public speaking. In addition, other researchers have found anxiety (and phobia) related to public speaking can be independent from more general social anxieties (McNeil & Lewin, 1986, 1992; Heimberg et al., 1987, 1990).

McNeil and Lewin (1986, 1992) specifically compared individuals with general social anxiety and individuals with circumscribed public speaking anxiety. Their results demonstrated that general social anxiety can be distinguished from public speaking anxiety in that general social anxious individuals have greater anxiety related to negative evaluation by others, and more general and trait anxieties. Moreover, they found more avoidance/escape and reported greater distress in a generalized social anxiety group during a conversation behavior test, relative to a circumscribed speech anxiety group. In addition, the generalized social anxiety group reported less positive thought content in behavior tests when compared to the circumscribed speech anxiety group.

Heimberg et al. (1987, 1990), using DSM-III-R criteria for social phobia, compared patients with the generalized type of social phobia to those with public speaking phobia. Patients diagnosed with generalized social phobia reported more anxiety and depression on a variety of verbal report instruments, relative to those with public speaking phobia. These two groups were further differentiated in that the former group was rated as manifesting greater anxiety and as exhibiting

poorer performance during an individualized behavioral test. Additionally, the generalized group reported a lesser degree of positive thoughts, and were not as physiologically aroused by the individualized behavioral test. The McNeil and Lewin (1986, 1992) and Heimberg et al. (1987; 1990) studies differed in that the former allowed for avoidance/escape in the behavior test, while the latter included skill ratings. These behavioral variables provided distinctions between their experimental groups. McNeil and Lewin (1986, 1992) used highly anxious nonclinic subjects, while Heimberg et al. (1987, 1990) studied clinically diagnosed patients. The latter study also incorporated a measure of depression. Both these studies, however, provide data which suggest measurable differences between general social anxiety (or phobia) and circumscribed speech anxiety (or phobia).

Prevalence of Social Phobia

Research conducted regarding prevalence rates of social phobia indicate that approximately 2% of the general population (Barlow, 1988; Robbins et al., 1984) warrant a diagnosis of social phobia. Pollard and Henderson (1988) reported prevalence rates for social phobia of 22.6% in the general population before

applying the DSM-III-R significant distress criterion, a measure the authors believed to be excessively conservative. This criterion requires the individual to experience a degree of interference in daily life which leads to seeking treatment. By not using this criterion, the authors hoped to include in their prevalence rates individuals who would be unlikely to seek treatment, but who still had serious social phobia(s). After application of this criterion, adjusted prevalence rates for social phobia were reported to be 2% in the general population. Public speaking phobias were the most common of the social phobias, accounting for 83% of all social phobias reported. These prevalence rates suggest that there are large numbers of people (22.6% in the general population) who experience social anxiety, especially public speaking anxiety, but without the discomfort that would bring them into contact with a health professional.

Pollard and Henderson (1988) call attention to an important consideration regarding prevalence rates of social phobia. Specifically, DSM-III-R does not account for persons who never encounter social phobic situations, but who would manifest phobic behavior

(e.g., avoidance, enduring the situation with distress) if so confronted. Turner, Beidel, Dancu, and Keys (1986) suggested that social phobia was more widespread than represented by then-current data. It is evident, then, that the actual prevalence rates for social phobia could be much higher than 2% in the general population, conceivably due to the avoidant nature of the disorder. According to Barlow (1988), epidemiological data are further obscured by confusion over what constitutes social phobia.

Other research has shown that 8% to 12% of persons requesting services at anxiety disorders clinics specifically mention symptoms indicating social phobia as the main feature of their problems (Marks, 1970; Sanderson, Rapee, & Barlow, 1987). Barlow (1988) supported these data regarding incidence rates of social phobia in two separate populations seeking psychological treatment at his anxiety disorders clinic; the data reflected social phobia incidence rates of 12% in one population and 15% in the other population.

Not only is social phobia relatively prevalent in anxiety disorder clinic populations, but unsatisfactory social relationships are considered by many to be

either a central or at least a major complaint of most people seeking treatment for a variety of psychological problems (Richardson & Tasto, 1976). Researchers have linked complaints of social anxiousness to avoidance of social situations (Beidel, Turner, & Dancu, 1985; Zimbardo, 1977), feelings of frustration and loneliness (Marlodo, 1981), inability to seek and maintain satisfying romantic relationships (Schlenker & Leary, 1982; Twentyman & McFall, 1975), and alcohol abuse (Leibowitz, Gorman, Fyer, & Klien, 1985; Pilkonis, Feldman, & Himmelhoch, 1981). As would be anticipated given this list, depression is frequently associated with social phobia (Brooks, Baltazar, & Munjack, 1989). Turner and Beidel (1989) report data in support of the view that difficulties in social situations are very serious and can potentially have detrimental effects on a wide range of an individual's daily functioning.

Research on Social Phobia

Historically, there has been very little attention given to social phobia. No attempt had been made to specifically define social phobia until as recently as 1966. Marks and Gelder (1966) defined social phobia as a condition in which a person becomes anxious while performing some task due to his or her perception that

others are evaluating his or her behavior. It was not until DSM-III in 1980 that social phobia was designated as a separate clinical entity and afforded its own diagnostic category. Liebowitz, Gorman, Fyer, and Klien (1989) suggested that social phobia was a "neglected" anxiety disorder. A special issue of Clinical Psychology Review in 1989, however, solely concentrated upon social phobia. Although this new focus led Heimberg (1989) to comment favorably upon the attention, there continues to be some confusion regarding the correct classification of the disorder. Turner and Beidel (1989) have concluded that, relative to other anxiety disorders (e.g., agoraphobia, obsessive-compulsive disorder, and panic disorder), less is known about social phobia. Heimberg and Holt (1991) call for more research in the area of social phobia so that there can be a more coherent set of diagnostic criteria in future revisions of the DSM.

More recently, research in social phobia has attempted to clarify the relationship between social phobia and avoidant personality disorder. A series of articles in the 1992 volume of Journal of Abnormal Psychology compared generalized social phobia and avoidant personality disorder (i.e., Herbert, Hope, &

Bellack, 1992; Holt, Heimberg, & Hope, 1992; Turner, Beidel, & Townsley, 1992). There was also a related commentary article (i.e., Widiger 1992).

Theories of Social Phobia

Researchers investigating social phobia have typically used behavioral theories to describe its etiology and maintenance (Trower & Gilbert, 1989; Turner & Beidel, 1989; Wilson, 1980).

Response deficit theory. This theory assumes that individuals with social anxiety do not possess the skills needed to engage in satisfactory interpersonal relationships. As a result of negative emotion affiliated with past social failings, these individuals are assumed to avoid the situations in which they previously felt humiliated. According to this model, social skills training should be used as a primary intervention (Twentyman & McFall, 1975).

Cognitive construct theory. This theory of social phobia focuses upon the irrational perceptions individuals maintain regarding their ability to show competence in a social situation. In addition to these inaccurate views of their abilities, individuals feel a sense of urgency, which precipitates panic-related imagery and autonomic arousal when confronted with an

anxiety-provoking social situation (Beck, 1976; Ellis, 1977; Heimberg & Barlow, 1988; Meichenbaum, Gilmore, & Fedoravicious, 1971). The treatment indicated by this model includes cognitive restructuring and desensitization interventions in order to interrupt the irrational thought patterns and resulting panic (McGlynn & Metcalf, 1989).

Psychobiological theory. This theory of social phobia focuses upon species-specific evolutional survival mechanisms which were developed to deal with perceived threat. According to the theory, social behavior is organized by power relationships which make submissiveness/dominance a vital component (Trower & Gilbert, 1989). Socially anxious people strive to be more dominant, but have low efficacy expectations related to the development and maintenance of the dominance goal, and are therefore highly anxious when attempting a dominance strategy (e.g., assertiveness, public speaking). In order to preserve their current status, socially anxious persons settle for appeasement. If this appeasement strategy does not reduce the threat from more dominant individuals, more primitive strategies may be used, such as avoidance or escape. Therapeutic approaches indicated by this

theory include cognitive-behavioral methods, particularly ones which allow the patient to change an underlying philosophy from one of self-deprecation to one of self-acceptance (Trower & Gilbert, 1989).

Bioinformational theory of emotion. In the case of anxiety, relevant information is believed to be organized in memory via propositions which are arranged in associative networks. The memory related to an anxiety-provoking object or situation is said to be composed of three domains: (a) propositions that identify the anxiety-relevant stimuli; (b) propositions that are related to the overt behavioral, physiological, and verbal response systems; and (c) propositions which interpret the meaning of the stimulus and response systems. According to the theory, when a threshold of anxiety-relevant sensory information is identified as matching the relevant propositions in the memory of an individual, that particular anxiety network is activated, which leads to overt anxiety expression (e.g., behavioral avoidance and/or physiological responsivity and/or negative verbal reports).

Lang (1985) hypothesizes that anxiety disorders can be classified by the degree of organization of

their anxiety-related propositional networks in memory, and therefore their responsivity to anxiety-related events. More specifically, a higher degree of organization would be associated with a more consistent, intense reaction of anxiety imagery and responsivity elicited by specific trigger stimuli.

At one end of a continuum is a more consistent and graphic degree of imagery and responsivity due to a more highly organized memory network associated with a specific object or event (e.g., simple phobia). Towards the other end of the continuum are more diffuse, moderated reactions due to a less coherent organization of anxiety-related propositions in the memory structure that are associated with more disparate objects or events (e.g., generalized anxiety disorder).

There has been research directed at demonstrating differences between anxiety disorders, specifically the phobias, using Lang's model. For example, investigations involving the comparison of speech/social phobics and simple phobics have yielded results indicating differences between the two groups, supporting the idea that simple phobics have a more coherent memory structure and therefore more activating

imagery than speech/social phobics (Lang, Levin, Miller, & Kozak, 1983; Lang, Melamed & Hart, 1970; McNeil, Vrana, Melamed, Cuthbert & Lang, in press; Weerts & Lang, 1978). These researchers found between-group differences that included verbal report of greater imagery vividness and greater psychophysiological reactivity to imagery scenes for simple phobics relative to speech/social phobics. Assuming simple phobias represent the most highly organized and coherent memory networks and speech/social phobia is a more general anxiety representing a more diffuse memory network, these findings lend support to Lang's model.

Using a bioinformational theory paradigm, researchers have studied imagery in individuals with anxiety disorders and concluded that anxiety disorders can be differentiated on the basis of emotional imagery. Cook, Melamed, Cuthbert, McNeil, and Lang (1988) reported differences between simple phobics and other anxiety groups (social phobics and agoraphobics) on measures of psychophysiological reactivity to anxiety-relevant imagery scripts. This research suggests that there is more of a behavioral disposition for avoidance/escape in simple phobics, while social

phobics experience more distress due to problems of interpersonal dominance, and are not necessarily overtly avoidant. These differences could be due in part to the greater difficulty in avoiding social interactions than the specific stimuli that provoke simple phobics.

Moreover, McNeil et al. (in press) found that specific (dental) fearful individuals had cardiac reactivity in imagery that was positively related to imagery vividness and concordant with reported discomfort. Speech/social anxious subjects did not demonstrate such concordance. These and other findings were interpreted to suggest that there are fearful and anxious subtypes of individuals; fearful subjects show increased physiological activation to imagery as their imagery ability increases and the severity of their disorder worsens. This systematic relationship was not observed for anxious subjects, whose problems seemed more related to worry and rumination. These findings suggest interesting differences in the constructs of fear and anxiety.

The studies reported here represent a general trend of greater reactivity to imagery, in domains of verbal report and physiology, as the stimuli that

prompt the reaction are more precisely defined. It is inferred, then, that studies employing this paradigm would find that generalized social phobics would exhibit a lesser degree of psychophysiological reactivity due to anxiety-related imagery as compared to circumscribed speech phobics. Although no specific treatments for social phobia have been forwarded from the bioinformational theory, general clinical applications from the theory suggest the utility of its concepts and taxonomy when employing behavioral interventions such as skills training and cognitive restructuring (Lang, 1977; McNeil et al., in press).

Distinctiveness of Social Phobia

Social phobia has been demonstrated to be a reliable and valid clinical entity and has been reliably discriminated from agoraphobia and panic disorder (Brooks et al., 1989; Rapee et al., 1988; Turner & Beidel, 1989), in addition to generalized anxiety disorder (Reich, Noyes, & Yates, 1988). However, the diagnosis of social phobia presents the clinician with a challenging task. Social phobia features are widely represented across other anxiety disorders (Rapee et al., 1988; Turner & Beidel, 1989); it is also highly associated with avoidant personality

disorder (Barlow, 1988; Turner & Beidel, 1989; Turner, Beidel, Dancu, & Keys, 1986). Additionally, as previously mentioned, social anxiety exists in a variety of other psychological disorders (Richardson & Tasto, 1976; Turner & Beidel, 1989). Social phobia can be differentiated from most other disorders, except perhaps avoidant personality disorder, on the basis of the degree to which the social phobic symptoms produce distress and interference in the daily life of an individual (Rapee et al., 1988).

Social Phobia and Avoidant Personality Disorder

The distinction between social phobia and avoidant personality disorder is very uncertain. Although the DSM-III-R states that "there is no assumption that each mental disorder is a discrete entity with sharp boundaries (discontinuity) between it and other mental disorders" (American Psychiatric Association, 1987, p. xxii), it is implied that social phobia and avoidant personality disorder are independent, even if they overlap (Barlow, 1987). Generalized social phobia is described as representing pervasive anxiety experienced in a variety of social situations, and can be determined by the number of social situations which provoke anxiety (Holt et al., 1992). Avoidant

personality disorder is described as a "pervasive pattern of social discomfort, fear of negative evaluation, and timidity, beginning by early adulthood and present in a variety of contexts" (American Psychiatric Association, 1987, p. 351).

Individuals with avoidant personality disorder and those with social phobia are both concerned with others' evaluation of their performance, want to be accepted by others, and may experience interference in their daily lives due to their disorder (Turner & Beidel, 1989). In fact, an examination of the DSM-III-R criteria for the two disorders reveals that three of the seven criteria for diagnosis of avoidant personality disorder overlap with those of social phobia (e.g., Turner et al., 1992). This overlap contributes to the confusion in assessment and diagnosis of social phobia. It is possible that previous assessment and diagnostic data regarding social phobia has been contaminated by the presence of individuals with avoidant personality in experimental samples (Barlow, 1988; Brooks et al., 1989). If there is a meaningful distinction between social phobia and avoidant personality disorder, it should be possible to

demonstrate both quantitative and qualitative differences between the two groups.

The presumed independence of the generalized subtype of social phobia and avoidant personality disorder has recently been the subject of empirical investigation. Initially, Turner et al. (1986) compared 10 social phobics with 8 patients diagnosed with avoidant personality disorder, based upon Diagnostic and Statistical Manual - third edition (DSM-III; American Psychiatric Association, 1980) criteria. This study empirically differentiated the two groups on several dimensions. Those individuals diagnosed with avoidant personality disorder reported distress in a greater range of social situations, a greater number of somatic anxiety symptoms, appeared to be more hypersensitive in their interactions with others, and were more depressed. Additionally, behavioral skills data revealed that the avoidant personality disorder group was rated as having poorer overall skill in social interactions. Turner et al. (1986) tentatively concluded that the data supported the DSM-III position on separating these two conditions because the disorders could be differentiated on the basis of certain self-report measures, as well as on

measures of interpersonal skills. However, with the diagnostic changes made in DSM-III-R, some or all of the patients with avoidant personality disorder may have also met the criteria for an additional diagnosis of social phobia, had the DSM-III-R classification system been used.

The importance of this classification issue has been underscored by the previously-mentioned studies in the 1992 Journal of Abnormal Psychology, along with a commentary article. Researchers have compared generalized social phobia and avoidant personality disorder using the contemporary DSM-III-R criteria. A study by Herbert et al. (1992) examined 9 persons diagnosed with generalized social phobia and 14 persons diagnosed with avoidant personality disorder. The latter group was found to be associated with poorer overall psychosocial functioning, a higher rate of concurrent Axis I and Axis II disorders, and greater reported trait anxiety, social anxiety, fear of negative evaluation, and depression. Patients with avoidant personality disorder also gave higher ratings of distress during social role play tests. However, no significant differences between groups were found in the ratings of skill for the role-play tests. Herbert

et al. (1992) concluded that these results do not lend support to the notion that impairments in social competence distinguish avoidant personality disorder from generalized social phobia. Instead, these results suggest that avoidant personality disorder is a quantitatively more severe variant of social phobia.

Holt et al. (1992) compared a sample of 10 persons diagnosed with generalized social phobia and 10 diagnosed with generalized social phobia and avoidant personality disorder. The generalized social phobia with avoidant personality disorder group was more likely to endorse the following avoidant personality disorder criteria: unwillingness to get involved in relationships without certainty of being liked, avoiding activities involving significant interpersonal contact, and exaggerating the potential difficulties in doing something outside of normal routine. The generalized social phobia with avoidant personality disorder group presented with significantly more comorbid diagnoses of mood disorder, and rated their social phobias as more severe. Additionally, the generalized social phobia with avoidant personality disorder group was rated as having greater anxiety and avoidance, while self-reports of anxiety during

behavior tests did not discriminate between groups. Holt et al. (1992) concluded that avoidant personality disorder and generalized social phobia probably do not represent distinct categories and that avoidant personality disorder may simply identify the most severe social phobics on a continuum.

Finally, Turner et al. (1992) found only minimal differences between groups in their study of 15 persons with generalized social phobia and avoidant personality disorder, and 46 persons diagnosed with generalized social phobia. Self-report measures indicated that the generalized social phobia with avoidant personality disorder group was more depressed, more socially anxious, and reported poorer social functioning. No significant differences were found between the two groups during a speech behavior test for measures of speech length, reported distress, psychophysiological responsivity, or social skills ratings. Turner et al. (1992) suggested that the two groups are more similar than they are different, and recommended that the lack of specificity in the diagnostic criteria be addressed in future revisions of the current nosologic system.

While these three recent studies utilized slightly different methodologies, the results did not support

the current DSM-III-R distinction between social phobia and avoidant personality disorder. These empirical studies were unable to demonstrate meaningful differences between the two disorders, and call into question the validity of the current conceptualization of the two disorders.

According to Widiger (1992), all three studies made careful diagnoses on the basis of DSM-III-R criteria, using well-validated structured clinical interviews and verification of diagnoses. Widiger (1992) then concluded that the boundaries between the two disorders appear arbitrary, and suggested that the two disorders might be more accurately classified as a single diagnostic category.

Accordingly, the data are consistent across the three studies. In general, persons with generalized social phobia and avoidant personality disorder reported significantly more anxiety and general distress, and had more comorbid diagnoses compared to the groups diagnosed only with generalized social phobia. However, data from tests of overt behavior were somewhat inconsistent, but generally failed to yield meaningful distinctions between the two groups. Instead, the three studies taken together provide

little support for the current nosological distinction between generalized social phobia and avoidant personality disorder.

While each study demonstrated some empirical support for quantitative differences between generalized social phobia and avoidant personality disorder, qualitative differences between the groups were not found. Rather, the data suggest that avoidant personality disorder is simply a more severe variant of social phobia (Herbert et al., 1992; Holt et al., 1992) or that the two groups are more similar than they are different (Turner et al., 1992). Further, there was general agreement that the current classification system is problematic, and is in need of revision.

While these three studies are largely in agreement, further research is indicated. Studies making use of additional indicators, such as psychophysiological reactivity during behavior tests and treatment outcome variables, may provide a more comprehensive assessment of similarities and differences between generalized social phobia and avoidant personality disorder.

Classification of Social Phobia

There are two additional sources of confusion in the classification of social phobia that were identified by McNeil and Lewin (1986, 1992). The first is a lack of diagnostic categories with which to accurately describe the variety of social difficulties which individuals present clinically. Classification of social phobia as an intense anxiety related to one (e.g., public speaking) or two situations results in the same basic diagnosis (i.e., social phobia) as a condition which encompasses many social situations. Nevertheless, McNeil and Lewin (1986, 1992) and Heimberg et al. (1987, 1990) indicate that individuals with these conditions are quite different in their psychopathological manifestations. The accumulating data differentiating generalized social anxiety and phobia from discrete public speaking anxiety and phobia (McNeil & Lewin, 1986, 1992; Heimberg et al., 1987, 1990) suggests the use of more than one diagnostic category. Although Heimberg et al. (1990) conceptualized public speaking phobia and generalized social phobia as manifestations of a single social phobia diagnostic category, they wisely recommended further study regarding additional categorization

within the social phobia diagnosis. They report that the two types differ not only in degree of impairment, but in the types of interventions which might be effective for their respective treatments. New classification systems should address these differences.

Holt et al. (1992) suggest that social phobia be represented on a continuum of increasing severity from discrete social phobia (one or two highly circumscribed fears), to nongeneralized social phobia (several social or observational fears, but some areas of social functioning are not problematic) and generalized social phobia (fears of most or all social situations). Avoidant personality disorder may be the most severe instantiation of social phobia (cf. Widiger, 1992). The idea of dimensionality of anxiety disorders has also been suggested by Barlow (1988). Social phobia is a diagnostic entity which demands more attention from clinical researchers before it can be accurately conceptualized (Turner & Beidel, 1989).

A second area of confusion mentioned by McNeil and Lewin (1992) is the relative absence of data devoted to the description of behavioral avoidance/escape related to social anxiety and phobia. DSM-III-R suggests that

a diagnostic indicator of social phobia is behavioral avoidance of the phobic situation. However, social phobia researchers have paid little attention to behavioral avoidance or escape as diagnostic evidence of social phobia (McNeil & Lewin, 1992). Although researchers have included behavioral tests in their studies, there is little or no mention of a procedure allowing for avoidance or escape by participants. For example, in their review of behavioral assessment of social anxiety and social phobia, Glass and Arnkoff (1989) did not mention tests of behavioral avoidance as a method for assessment of anxiety in social situations. Assessment of social skills, however, was mentioned almost as a requirement in contemporary social anxiety and phobia research. Although avoidance/escape may be somewhat less important in social anxiety and phobia relative to simple phobia (Cook et al., 1988), it nevertheless is an important psychopathological manifestation (McNeil & Lewin, 1986, 1992). For example, Trower and Gilbert (1989) believe that behaviors characterized by social avoidance or escape are symptomatic of a more severe level of pathology.

An assessment of social phobia which does not include measurement of overt behavior, including avoidance and/or escape, is not complete. Moreover, when one considers the implications of experimenter demand and subject compliance in behavioral assessments (Bernstein, 1972; Miller & Bernstein, 1973), particularly in speech tests (Matias & Turner, 1986; Turner & Beidel, 1989), providing the opportunity to avoid/escape the phobic stimuli may more accurately reflect "real world" situations. Turner, Beidel, Dancu, and Keys (1986) found that social phobics report actual avoidance of social situations as a frequent problem, especially in public speaking situations.

Other researchers (Barlow, 1988; Rapee et al., 1988) contend that behavioral assessments afford the clinician and patient a unique and valuable observation of the crucial features of the patient's problem. Glass and Arnkoff (1989) contend that a comprehensive assessment of social difficulties is not complete without an observation of social behavior and skill. Given the importance of assessing behavioral signs of anxiety and evidence suggesting the use of overt behavioral measures to differentiate generalized social anxiety and phobia from discrete public speaking

anxiety and phobia, behavioral avoidance tests would be part of an ideal, comprehensive assessment for social phobia.

Three-Channel Response System

The notion of a three-channel response system has been addressed by Lang (1968) and others. According to Lang (1968), scientific inquiry about anxiety requires empirical measures, which lead to certain assumptions about anxiety. Specifically, it is assumed that anxiety is a response to some stimulus or stimuli. Responses are assumed to be expressed by way of three main systems: psychomotor responses (e.g., avoidance and escape), verbal responses (e.g., complaints of displeasure), and somatic responses (e.g., psychophysiological reactivity).

These three systems are seen as independent of each other such that they each represent and are driven by separate anxiety dimensions. Additionally, these dimensions may only have trivial effects upon each other at times. According to Lang (1968), these three different measurements produce separate estimates of anxiety intensity. Since anxiety manifests itself in different, independent ways, it is important to assess

each of the three channels in order to obtain a comprehensive assessment of problem anxiety.

Measures of Approach/Avoidance: Behavioral Assessment Test (BAT)

BAT's used in clinical research have evolved from the early work of Lang and his colleagues (McGlynn, 1988). They involve the use of natural and contrived settings, and utilize general strategies without generally accepted defined set of procedures. More specifically, a target anxiety stimulus is provided, either naturally or in a contrived way. Measures are recorded regarding the degree of approach or avoidance displayed by the subject.

The theory behind this methodology is that anxiety serves as an aversive drive state. Avoidance or escape behaviors reduce the salience of the cues that produce the anxiety, and are therefore negatively reinforcing. These behavioral escape/avoidance indices are seen as one part (i.e., overt behavior) of the three-channel response system (McGlynn, 1988). Nevertheless, verbal reports and psychophysiological responses can also be assessed in BAT's.

Assessment of Cognitive Processing

There are currently several assessment methods used by clinical researchers borrowed from experimental cognitive psychology. One such paradigm is an imagery assessment procedure based upon the previously-mentioned bioinformational theory (Lang, 1987). This paradigm assesses individual physiological and verbal response patterns evoked by prompted imagery, which is designed to access the anxiety-related propositional networks.

Imagery has been demonstrated as an effective method for accessing anxiety-related networks in memory, and the affiliated response components. Anxiety scripts, which suggest anxiety imagery, have previously been shown to affect increases in heart rate and self-reported affective responsivity, relative to action and neutral scripts (Lang, Kozak, Miller, Levin, & McLean, 1980; Lang, et al., 1983). This line of research has typically used anxiety, action, and neutral scripts. Anxiety scripts include physiological response information (e.g., "You breathe rapidly") and stimulus information (e.g., "You are giving a speech in front of a large audience"). Action scripts present cues for physiological activation without the emotional

component (e.g., riding a bicycle); neutral scripts describe situations only in nonactivating, nonemotional terms (e.g., sitting in a lawn chair). The imagery assessment evaluates the verbal and somatic response dimensions of the three-channel response system.

Statement of the Problem

The present study was designed to assess response differences between public speaking phobia individuals, persons with generalized social phobia, and people with diagnoses of both social phobia and avoidant personality disorder. In accordance with the three-channel response view, subjects were assessed in three dimensions: (a) the degree of behavioral avoidance/escape from simulated social situations, as well as social skill in those situations; (b) verbal responses to anxiety in response to questionnaires, imagery scripts and simulated social situations; and (c) psychophysiological reactivity to imagery and simulated social situations.

Previous research has suggested that public speaking phobia can exist independently from generalized social phobia, the former being a more circumscribed form of social phobia (Heimberg et al., 1987, 1990; McNeil & Lewin, 1986, 1992). Moreover, it

has been suggested that generalized social anxiety and phobia are more pervasive (e.g., more concomitant anxiety, more fear of negative evaluation) than anxieties and phobias of public speaking (Heimberg et el., 1987, 1990; McNeil & Lewin, 1986, 1992; Spitzer & Williams, 1985). In light of these findings, the current study attempted to clarify the DSM-III-R classification of social phobia by comparing individuals with generalized social phobia to persons with the most common type of circumscribed social phobia, speech phobia.

Specifically, the study attempted to provide empirical support for the notion of public speaking phobia as a relatively independent type of social phobia, perhaps resembling a more circumscribed type of anxiety analogous to simple phobia. This study utilized two structured clinical interviews to carefully identify patients. The study used questionnaires, speech and conversation BAT's, and an imagery procedure to assess each component of the three-channel response system.

The experimental questions of the current study concerned hypothesized differences among the groups. Specifically, in the area of verbal report, group

differences were predicted in self report of anxiety in social and evaluative situations, in addition to depression and general psychopathology. Groups were expected to respond differently to social and speech imagery scripts, compared to action and neutral imagery scripts. Additionally, the three groups were predicted to produce different ratings on all imagery scenes.

In measurements of overt behavior, it was expected the three groups would have differential skill ratings and manifest differential anxiety when exposed to the public speaking and conversation BAT's. Also, the three groups were predicted to report differential anxiety, and positive and negative thoughts in response to performance in the speech and conversation situations. Differences in overt avoidance/escape were anticipated as well.

In measurements of psychophysiological response, group differences were predicted in measurement of cardiac responsivity to imagery of speech situations. Also, it was predicted that the three groups would have differential cardiac reactivity in response to imagery of general social situations, as well as other scripts, and different cardiac responses to direct exposure in both the speech and conversation situations.

Method

Subjects

Subjects were 41 outpatients who were diagnosed with social phobia and/or avoidant personality disorder as a principal diagnosis. There were 12 with circumscribed speech phobia, 20 with generalized social phobia, and 9 with both generalized social phobia and avoidant personality disorder. Subjects were diagnosed on the basis of two structured clinical interviews. All patients were recruited with the understanding that they would be asked to pay a one-time $12.00 processing fee for scoring of an objective personality test, and that they would receive free psychological treatment for social phobia if they met the criteria for inclusion in the study. Individuals were recruited via advertisements and referrals from other mental health professionals.

Participants were chosen for inclusion based on the outcome of the diagnostic interviews. Persons who received a principal diagnosis other than social phobia or avoidant personality disorder were excluded from the study and referred elsewhere for appropriate treatment. Similar to Heimberg et al. (1990), individuals who met

the following criteria for diagnosis of social phobia were considered for further participation: (a) moderate to severe impairment in daily functioning (phobia impairment rating of two [0--4 scale] or greater from the clinical interview designed to diagnose clinical syndromes), and (b) 18 years of age or older. Secondary (or other) diagnoses in addition to the social phobia or avoidant personality disorder principal diagnosis did not exclude patients from the study.

Subjects were separated into three groups on the basis of their diagnostic interviews. Each patient was assessed regarding degree of fear and frequency of avoidance across social situations. The circumscribed speech phobia group included subjects who received ratings of three (0--4 scale; severe fear, often avoids) or greater for public speaking situations, no more than ratings of two (0--4 scale; moderate fear, sometimes avoids) on up to three other situations, and a rating of one (0--4 scale; mild fear, rarely avoids) or zero for other social situations, unless the fear/avoidance was due to a public speaking component (e.g., a meeting in which public speaking is required).

The generalized social phobia groups included persons who received fear and/or avoidance ratings of three (0--4 scale) or greater for two or more different social situations (e.g., attending parties, dating situations, talking to persons in authority), one of which did not include a public speaking component. Patients diagnosed with avoidant personality disorder met the DSM-III-R criteria for that disorder, as well as criteria for social phobia, generalized type.

Materials

Structured clinical interviews. As previously mentioned, diagnostic interviews were used to make final determination of inclusion in the study and group assignment. The current study addressed the issue of comorbidity through the use of the Anxiety Disorders Interview Schedule-Revised (ADIS-R; Di Nardo, Barlow, Cerny, Vermilyea, Vermilyea, Himadi, & Waddell, 1985). The ADIS-R has demonstrated interrater reliability for diagnosis of social phobia with reported kappa coefficients of .87 (P. A. Di Nardo, personal communication, September 28, 1990) and 1.0 (Beidel, Turner, Jacob, & Cooley, 1989). Since Barlow (1988) suggests the ADIS-R has good reliability and provides an assessment of the anxiety disorders that is more

comprehensive than the Structured Clinical Interview For DSM-III-R Axis I disorders (SCID; Spitzer, Williams, Gibbon, & First, 1990), it was used for differential diagnosis of anxiety disorders. In addition, the Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-II; Spitzer, Williams, Gibbon, & First, 1990) was used to identify avoidant and other personality disorders. The rationale for utilization of the ADIS-R was to insure that patients' primary problems were attributable to social phobia, as opposed to other anxiety disorders. The SCID-II was used to reduce the possibility of incorrectly diagnosing individuals suffering from personality disorder(s) as a sole or principal diagnosis (excepting avoidant personality disorder) with social phobia.

Verbal report instruments. This study included the administration of a number of verbal report instruments that were used to measure social anxiety, other anxieties, and psychopathology in general. These instruments are as follows, in order of administration:

1. Structured Clinical Interview for DSM-III-R Axis II Personality Disorders Questionnaire (SCID-II Questionnaire, Spitzer et al., 1990). The SCID-II

Questionnaire is a 113-item true/false instrument designed to be used in conjunction with the SCID-II interview.

2. Social Phobia and Anxiety Inventory (SPAI; Turner, Beidel, Dancu, & Stanley, 1989). The SPAI is a 45-item instrument designed to differentially assess social phobia versus agoraphobia. All items are in a 7 point (1--7), Likert-type format. The SPAI total score is derived via subtracting the agoraphobia subscale score from the social phobia subscale score. The agoraphobia scale correction is utilized to control for social anxiety symptoms that may be part of a larger syndrome of agoraphobia (Turner et al., 1989). The SPAI total score has a range of -78--192, where higher scores are indicative of more social anxiety.

3. State-Trait Anxiety Inventory Form - Y (STAI; Speilberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The STAI consists of two 20 item, 4-point (1--4) Likert-type scales designed to assess acute anxiety level (state) as well as chronic anxiety level (trait). The range of scores on each of the STAI scales is 20--80; higher scores are indicative of more anxiety.

4. Personal Report of Confidence as a Speaker (PRCS; Paul, 1966). The PRCS is a 30 item true/false

questionnaire designed to assess anxiety experiences in public speaking situations. The range of possible scores is 0--30; higher scores indicate greater anxiety.

5. Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1983). The SCL-90-R is a 90-item, 5-point (0--4) Likert-type checklist designed to assess psychological symptom patterns. It has nine primary symptom dimensions and three global indices of distress. Higher scores are indicative of greater psychopathology.

6. Social Avoidance and Distress Scale (SADS; Watson & Friend, 1969). The SADS is a 28-item true/false questionnaire designed to assess the degree of anxiety in a variety of social situations. The range of possible scores on the SADS is 0--28; higher scores are indicative of greater anxiety.

7. Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The BAI is a 21 item, 4-point (0--3) Likert type scale designed to measure various anxiety symptoms. The BAI has a range of 0--63; higher scores are indicative of more anxiety.

8. Beck Depression Inventory (BDI; Beck & Steer, 1987). The BDI is a 21 item, 4-point (0--3) Likert-

type scale designed to assess the presence and severity of the affective, motivational, cognitive, and psychomotor aspects of depression. The BDI has a range of 0--63; higher scores are indicative of more depression.

9. Fear of Negative Evaluation Scale (FNE; Watson & Friend, 1969). The FNE is a 30-item true/false inventory designed to asses the degree of anxiety in response to social-evaluative situations. The FNE has a range of 0--30; higher scores indicate greater levels of evaluation anxiety.

10. Fear Questionnaire (FQ; Marks & Mathews, 1978). The FQ is a 23 item, 9-point (0--8) Likert-type scale designed to assess degree of avoidance regarding various situations and negative thoughts associated with an individual's particular phobia, and the patient's perceived severity of phobic symptoms. Among other scales, the FQ has a total phobia scale which has a range of 0--120, and a social phobia subscale with a range of 0--40. For both these subscales, higher scores are indicative of greater avoidance.

11. The Fear Survey Schedule-III (FSS-III; Wolpe & Lang, 1977). The FSS-III is a 108 item, 5-point (0--4) Likert-type scale assessing the degree of general

fearfulness to a variety of objects and situations. The FSS-III total score has a range of 0--432; higher scores are indicative of greater general fearfulness.

12. The Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher, Dahlstrom, Graham, Tellegan, & Kaemmer, 1989). The MMPI-2 is a 567-item true/false inventory used as an objective measure of personality. The MMPI-2 contains three validity scales, and a number of other scales designed to assess a level of general psychopathology, as well as some specific content scales which measure fears (FRS) and anxiety (ANX).

13. The Social Interaction Self-Statement Test (SISST; Glass, Merluzzi, Biever, & Larsen, 1982). The SISST is a questionnaire used to measure self-reported positive and negative thoughts related to anticipated performance and actual performance in social situations. As in Turner, Beidel, and Larkin (1986), SISST pronouns were changed to be consistent with the gender of the person with whom the subject will interact, or changed to be plural, to describe interaction in speaking to a group.

14. Questionnaire upon Mental Imagery (QMI; Sheehan, 1967; shortened version of Bett's 1909

Questionnaire upon Mental Imagery; reprinted in Richardson, 1969). The QMI is a 35 item, 7-point (1--7) Likert-type scale assessing imagery ability across five sensory modalities; the QMI has a range of 35--245. Lower scores are indicative of greater imagery ability.

Laboratory, Apparatus and Materials

The laboratory is a suite of three adjacent rooms. There is a main control room in the center which is equipped with one-way mirrors for observation of patient activities in the procedure rooms to either side. The center room also contained physiological data acquisition equipment and sound equipment required for the study, in addition to an IBM PC/XT microcomputer. The microcomputer was employed to process cardiac data and affective ratings. A Scientific Solutions LabMaster interface board, which includes a programmable clock, was utilized to allow for computer automation and timing of laboratory procedures. Stimulus presentation and data acquisition were controlled through the use of Virtual Psychophysiological Monitor (VPM) software (Cook, Atkinson, & Lang, 1987). Cardiac reactivity data were collected and processed utilizing computer-interfaced

Colbourn Instruments (CI) modules consisting of a CI-S75-01 High Gain Bioamplifier/Coupler, and a Schmitt trigger apparatus (CI Bipolar Comparator, S21-06; CI Retriggerable One Shot, S52-12).

Medi-Trace Ag-AgCl pre-gelled disposable foam electrodes (Model #GC-11) were used in collection of EKG data. There were three electrodes attached to subjects' skin surface. The negative electrode was positioned to the right of the sternum below the clavicle, and medial to the pectoral muscles. The positive electrode was placed to the left of the sternum below the clavicle, and medial to the pectoral muscle. The grounding electrode was attached at the level of the lowest palpable rib on the left side of the chest in the anterior axillary line.

Prerecorded imagery scripts were presented using a Radio Shack model #CCR-81 audiocassette recorder. This audiocassette recorder was also used to play prerecorded instructions to subjects during the BAT's. An intercom system allowed two-way communication between the procedure rooms and the control room. As noted, periodic observation of the subject was possible via one-way mirrors between rooms.

There were four content areas represented in the imagery scripts: (a) public speaking anxiety, (b) general social anxiety, (c) action, and (d) neutral (see Appendix A). Each anxiety and action script contained physiologically-arousing response propositions in order to amplify reactivity to experimental stimuli. Two scripts depicted public speaking anxiety (i.e., a speech in class emphasizing the size of the audience and visibility of the participant, and a speech in class emphasizing the importance of the presentation for achieving a passing grade). Two scenes pertained to general social anxiety (i.e., entering a party of unfamiliar people while alone, experiencing disapproval and criticism from a professor). The action scripts (i.e., flying a kite, riding a bicycle) contained response propositions, but lacked affective information. Two neutral scripts (i.e., sitting in a lawn chair, sitting in a living room) did not contain response propositions or affective references.

Subjects made affective ratings in response to imagery trials by manually manipulating a computer-interfaced joystick. These affective ratings were based on three dimensions identified by Russell and

Mehrabian (1974) as representing fundamental verbal reports of emotional responses. These three domains were: (a) Valence (i.e., happy--sad); (b) Arousal (i.e., aroused--calm); and (c) Dominance (i.e., in control--controlled). These three affective ratings were recorded via a computer graphic display of a self assessment mannequin (SAM; Lang, 1980). Also, a rating of imagery vividness (vivid--not vivid) was recorded. Subjects manipulated a computer-generated three sided box, making it more or less complete, indicating more or less vividness. All four ratings varied on a 21-point (0--20) scale. All computer-generated graphics were displayed on an Emerson EC-131 video monitor. During the imagery procedure, subjects were seated in an overstuffed reclining chair in one of the procedure rooms.

A digital stopwatch was used to record subjects' interaction/avoidance/escape times during the BAT, which took place in one of the procedure rooms. Subjects were seated in a standard armless desk chair during both BAT's. A Panasonic camcorder (model #AG-170U) was used to record BAT's, in addition to the previously mentioned diagnostic interviews.

Procedure

Recruitment and procedure outline. Subjects were solicited for the study by two methods: (a) referrals from other mental health professionals, and (b) advertisements briefly describing the nature of the study. The initial screening and assessment generally encompassed at least the first five sessions, although administration of the ADIS-R interview typically required several sessions. All interviews and BAT's were videotaped for the purpose of obtaining inter-rater reliability measures for diagnoses and BAT's. Each of these sessions were completed on separate days. Table 1 presents the order and plans for each session.

Insert Table 1 about here

Session 1 (screening with the ADIS-R). Potential subjects who responded to recruitment advertisements or were referred by other mental health professionals were registered as patients at the Oklahoma State University Psychological Services Center (PSC). Informed consent statements (for both the PSC and this study) were then explained and signed. Subjects participated in a structured clinical interview (i.e., ADIS-R). All interviews were performed by one of two advanced

clinical psychology doctoral students. These interviews were videotaped and 25% of them were randomly selected and reviewed by another rater, a licensed clinical psychologist, who is the advisor for this study (cf. Beidel et al., 1989). Any disagreement was resolved in a consensus meeting between the interviewer and rater. In addition, a brief medical/social history designed for this study was administered to identify persons who might have a current medical condition (e.g., cardiac problems) which would preclude inclusion of some of their data.

Session 2 (screening with the SCID-II). Potential subjects who were accepted using the initial interview were further assessed using the preliminary self-report questionnaire which is part of the SCID-II, then the SCID-II diagnostic interview. In addition, several self-report questionnaires were administered, as detailed in Table 1. Clinical interview information from this session was reviewed as with the ADIS-R, following the same procedure for assigning diagnoses. Those individuals who were not appropriate for the study were referred elsewhere for more suitable treatment.

Session 3 (clinical team meeting). Subjects invited to participate in the study were introduced to the clinical team members with whom they would have contact. This meeting served to promote familiarity of the patients with the team members who conducted the stoop assessment/BAT and the imagery assessment. Patients also completed the MMPI-2.

Session 4 (Stroop assessment and behavioral assessment tests). Each subject first took part in Stroop color-naming tasks, including two versions of social anxiety Stroop tests and a modified color Stroop test. These Stroop tests were administered as part of another affiliated study; those data were not analyzed as part of this study.

There were two tests of actual behavior (i.e., BAT's) to assess approach-avoidance. An impromptu speech was utilized as a public speaking phobia evaluation. A conversation was incorporated as an assessment of generalized social phobia. A 10 minute prebaseline interval preceded the BAT's, and a 10 minute postbaseline interval followed completion of the BAT's. After each of these intervals, patients completed the STAI-State inventory.

Patients were presented with audiotaped instructions for both BAT's. Patients were encouraged to stop a test if/when they began to feel uncomfortable. A palm-sized, plastic replica of a traffic "stop sign" was clipped to patients' shirts. Each subject was instructed to grasp the "stop sign" to signal a desire to avoid or escape a speech or conversation. The instructions were of a "low demand" style (Miller & Bernstein, 1972) to allow for avoidance or escape.

Subjects sat in an armless chair during the BAT's. BAT preparation and performance procedures took place in one of the procedure rooms. The prebaseline and postbaseline procedures, in addition to completion of the verbal report instruments (i.e., STAI-State, SISST), took place in the other procedure room.

Before each task, subjects were given three minutes alone to prepare. The actual performance period for each of the tests was maximum of three minutes, although subjects were informed only that they were being asked to speak and/or interact for a "short while."

The speech was on a topic of the subject's "own choosing." It was delivered in front of a microphone

to an audience of three persons, two of whom were of the subject's opposite sex. Instructions were for the assistants to remain silent, to neither smile nor frown, and to look at the subject's face approximately 75% of the time.

In the conversation, the subjects were instructed to try to get to know the stranger, who was of the subject's opposite sex. In this task, the assistant was instructed to respond minimally and in a closed-ended fashion to questions, to neither smile nor frown, and to look at the subject's face approximately 75% of the time. The assistant did not initiate the conversation.

After the completion of each task (speech and conversation), subjects gave a self-report of their anxiety level during the performance (STAI-State). Also, an inventory about statements they made to themselves during the procedure (SISST) was completed after each BAT.

BAT's were videotaped with an observable camera. After the speech, three independent observers (who also served as audience members) rated the patient's skill level and degree of anxiety. After the conversation, one independent observer (who also served as the

stranger) made skill and anxiety ratings. At a later time, two other independent observers viewed and listened to the videotape, making the same ratings. The independent observers were trained to a criterion, such that all ratings made in training sessions were within one point of the median value of the three skill rating scores, and within two points of the median value of the three anxiety rating scores. Subjects' skill level was judged (five-point [1--5] Likert-type scale) on four dimensions (voice tone, gaze, voice volume, and overall skill) and level of anxiety (nine-point [1--9] Likert-type scale). These scales have been previously used in research for the purpose of assessment of social skill and anxiety (e.g., Beidel et al., 1985; Turner, Beidel, Dancu, & Keys, 1986).

In both behavior tests, the persons interacting with the subjects were trained clinical research assistants. The subjects had no prior interactions with the audience members or with the person with whom they were to converse. Also, assistants interacted with the subjects in only one of the two tasks.

Measures of each subject's heart rate were taken during a prebaseline (10 min) and a postbaseline (10 min). Heart rate was also recorded during preparation

for each BAT (3 min) and in the performance of the speech and interaction BAT's (3 min).

Session 5 (psychophysiological imagery assessment). During the imagery procedure, cardiac data as well as affective and imagery vividness ratings were collected in response to nine standard anxiety, action, and neutral prerecorded audio scripts. This phase began with the administration of the QMI questionnaire, followed by the imagery assessment procedure itself. Electrodes were attached, and the EKG signal was tested for clarity. Upon obtaining an adequate EKG signal, the SAM ratings procedure was explained to and demonstrated for the subject. Subsequent to this procedural explanation, the subject was given an opportunity to practice making the affective and vividness ratings using SAM. Video feedback of rating figures was presented via a video monitor in full view of the subject. After the subject demonstrated understanding of the ratings procedure, the imagery assessment began with the lights dimmed, the subject instructed to close his/her eyes, and the overstuffed chair partially reclined.

Each subject began with audiotaped relaxation instructions to prepare for a 3 min prebaseline EKG

data collection period. The first imagery trial was a practice neutral script (i.e., waiting at a bus stop) in order to aid the habituation of the subjects to the imagery procedure; these data were not included in analyses.

After the initial relaxation instructions and first neutral script, one script from each content area was randomly chosen to comprise one block of the scenes in the order ABCD. The remaining scripts from each content category were presented in the order CDBA to avoid consecutive presentation of two trials from the same category. Action and neutral scenes were interspersed to avoid successive presentation of anxiety scenes. In accordance with the previously-mentioned specifications, the order of script presentation was nonsystematically selected.

Cardiac data were recorded for four consecutive phases of each imagery trial: (a) a 30 s Baseline period preceding each script presentation, (b) a 30-50 s Read period during which the audiotaped script was presented (cardiac data from only the last 30 s of this period were recorded in order to control for variance due to differences in script length), (c) a

30 s Image period in which subjects imagined the script, and (d) a 30 s Recover period in which the individual was instructed to discontinue imagining the script and to commence relaxation. The onset of the recovery period was signalled via a one second 1,000 Hz tone. At the end of the recovery period, subjects were instructed to open their eyes. Subsequent to the recovery period, subjects recorded their affective and vividness responses. Upon completion of these ratings, subjects were instructed to close their eyes and prepare for the next trial. Intertrial intervals were of varying lengths, typically ranging from 10 s to 60 s in duration; cardiac responsivity was allowed to return to baseline before beginning the next trial. Finally, the last 3 min postbaseline of EKG data were collected.

Session 6 (feedback session). After all sessions (1--5) of the assessment were completed, the data were interpreted by one of the clinical psychology doctoral students and the licenced clinical psychologist previously mentioned. Each patient was given personal feedback regarding the results of his/her assessment as it related to his/her problems and upcoming treatment.

Sessions 7--18 (treatment). After the assessments were completed, each subject was provided the

opportunity for psychological treatment of their disorder. Patients were treated in a group format using well-documented behavioral treatments (e.g., Heimberg, Becker, Goldfinger, & Vermilyea, 1985; Heimberg, Dodge, & Becker, 1987). The treatment data were not analyzed as part of the current study.

Sessions 19--22 (post-therapy assessment). At the conclusion of the treatment, assessment procedures similar to the pre-therapy evaluations were conducted. However, the end-of-therapy data were not analyzed as part of the present study.

Sessions 23--26 (six month follow-up). Patients were assessed again six months after the end of treatment using evaluation procedures similar to those conducted at the beginning of therapy. As with the post-therapy assessment, these data were not analyzed as part of the present study.

Results

Data Reduction and Preliminary Analyses

The VPM computer program package (Cook et al., 1987) was used to calculate medians for heart rate (in beats per minute) for the initial and final three-minute baselines and the periods within each of the eight imagery script trials subsequent to the bus stop

practice script. Similarly, heart rate values were calculated for the separate periods within each of the BAT's.

Change scores were calculated for the read and image periods by subtracting the median heart rate value for the baseline period that preceded them. Heart rate data from the recovery periods were not used in statistical analysis as they were intended to provide a sufficient inter-stimulus interval for subjects to return to baseline (Cook et al., 1988). Additionally, read and image change scores were averaged to obtain an overall heart rate change score across read and image periods for each imagery content area, as per previous research in the area (Cook et al., 1988). For each subject, values for the two scripts within each imagery category (i.e., speech, social, action, and neutral) were averaged to obtain an overall heart rate change score. Means of these values, across subjects, were then calculated and used in statistical analyses.

Since a number of independent constructs were measured, and contrasts of interest identified previously, it was decided to perform univariate analyses of variance (ANOVA's) instead of multivariate

analysis of variance. One-way ANOVA's were utilized to examine differences in verbal report and BAT data across the three diagnostic groups. For imagery data, 3 (diagnostic group) X 2 (QMI group) X 4 (scene content) ANOVA's were employed, examining differences for heart rate and SAM ratings. In all analyses, significant ANOVA's were followed up by Tukey's Honestly Significant Difference (HSD) tests at the .05 alpha level.

Table 2 presents the frequencies of comorbid diagnoses by group. A Kruskall-Wallis ANOVA by ranks

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Insert Table 2 about here

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procedure was performed on the number of comorbid diagnoses in each group. The resulting ANOVA was significant (2, $\underline{KW}$ = 67.84, $\underline{p}$ < .001). In order to examine group differences, a follow-up procedure was performed. This analysis revealed that generalized social phobia with avoidant personality group had significantly more comorbid diagnoses (mean rank = 26.8) than the circumscribed speech phobia group (mean rank = 14.5). The generalized social phobia group (mean rank = 20.5) did not differ from the other two groups.

Verbal Report Data

Social anxiety/fear instruments. Table 3 presents data from the questionnaires, along with results from one-way ANOVA's. On the FNE, the generalized social

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Insert Table 3 about here

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phobia with avoidant personality disorder group reported significantly greater fear of negative evaluation than the generalized social phobia group, and both these groups reported greater social evaluative fears compared to the circumscribed speech phobia group. The generalized social phobia with avoidant personality disorder group, and the generalized social phobia group had significantly higher scores on the SADS and the Social Phobia subscale of the SPAI when compared to the circumscribed speech phobia group. However, the two generalized groups did not differ from one another on either instrument. On the Total subscale of the SPAI, which is designed to control for the presence of agoraphobic concerns in social phobia, the generalized social phobia with avoidant personality disorder group reported significantly more social fears than did the

circumscribed speech phobia group. However, neither of these groups differed from the generalized social phobia group. On the Social Phobia scale of the FQ, the generalized social phobia with avoidant personality disorder group reported significantly more social fears than the circumscribed speech phobia group, but neither of these groups were significantly different from the generalized social phobia group. There were no significant group differences on the PRCS.

General anxiety/fear and depression instruments. On the STAI-Trait, the generalized social phobia with avoidant personality disorder group reported significantly more trait anxiety than the generalized social phobia group, and both these groups reported more trait anxiety than the circumscribed speech phobia group. Also, the generalized social phobia with avoidant personality disorder group endorsed more depressive symptomatology on the BDI when compared to the circumscribed speech phobia group. However, neither of these groups were different from the generalized social phobia group. Lastly, comparisons on the BAI and the FSS-III yielded no meaningful group differences.

Imagery questionnaire. A one-way ANOVA was utilized on the QMI. This analysis was significant and the results from the ANOVA and follow-up Tukey's tests are presented in Table 3. As measured by the QMI, the circumscribed speech phobia group reported better imagery ability than the generalized social phobia with avoidant personality group. Neither of these groups was significantly different from the generalized social phobia group.

MMPI-2 scales. Table 4 presents data from the chosen MMPI-2 scales, along with results from one-way ANOVA's on raw scores from each scale. Scale 0 (Social Isolation) revealed meaningful differences between the

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Insert Table 4 about here

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two generalized groups and the circumscribed speech phobia group, with the generalized groups reporting more social isolation. There were no differences between the generalized social phobia with avoidant personality disorder group and the generalized social phobia group on this scale. On scale 2 (Depression), the generalized social phobia with avoidant personality disorder group scored significantly higher than both

the generalized social phobia group and the circumscribed speech phobia group. However, the latter two groups did not differ on this scale. On scale 7 (Psychasthenia), the generalized social phobia with avoidant personality disorder group scored higher than the circumscribed speech phobia group, but neither of these groups were distinct from the generalized social phobia group. The Anxiety scale (MMPI-2 content scale ANX) revealed meaningful differences between the two generalized groups and the circumscribed speech phobia group, with the generalized groups endorsing greater anxiety. There were no differences between the generalized social phobia with avoidant personality disorder group and the generalized social phobia group on this scale. Finally, the Fears scale (MMPI-2 content scale FRS) did not demonstrate meaningful differences among the three groups.

SCL-90-R scales. Table 5 presents data from the SCL-90-R scales, along with results from one-way ANOVA's. The generalized social phobia with avoidant

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Insert Table 5 about here

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personality disorder group reported significantly more interpersonal sensitivity (IPS scale), depressive symptomatology (DEP scale), and endorsed more inventory items (PST scale) compared to the circumscribed social phobia group. However, the generalized social phobia group did not differ from the other two groups on any of these measures. The remaining SCL-90-R scales did not yield significant differences among groups.

Imagery Data

Cardiac responsivity to imagery content. A 3 (diagnostic group) X 2 (QMI group) X 4 (scene content) ANOVA was utilized to examine differences among groups by imagery ability (as defined by the QMI) for each content area. A median split on QMI data was performed to operationally differentiate good and poor imagery ability within each group, with high scores indicative of poor imagery ability and low scores indicative of good imagery ability. The median QMI values for each group are as follows: circumscribed speech phobia = 61, generalized social phobia = 87, and generalized social phobia with avoidant personality disorder = 99. Results revealed a significant three-way interaction for heart rate F (6, 105) = 3.23, $p < .01$. Figure 1 presents the results of this analysis. Follow-up

Tukey's HSD tests revealed greater cardiac responsivity (measured by heart rate change from baseline) during

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Insert Figure 1 about here

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the action scene for the generalized social phobia with avoidant personality group who were poor imagers (M = 4.6, SD = 1.8) than their good imagery group counterparts during the neutral scene (M = -0.7, SD = 1.5). The generalized social phobia with avoidant personality subjects who were poor imagers also had greater cardiac responsivity compared to the circumscribed speech phobia group in the good imagery group during both action (M = -1.1, SD = 1.5) and neutral scenes (M = -.50, SD = 1.0). None of the remaining comparisons yielded significant differences.

Valence ratings. A 3 X 2 X 4 (group by imagery ability by content) ANOVA revealed a significant main effect for content F (6,105) = 168.57, p < .0001. Figure 2 presents the data from this analysis. All

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Insert Figure 2 about here

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three groups reported significantly more negative affective experience during fear/anxiety scenes than in nonfear/nonanxiety scenes. None of the interactions, nor any of the other main effects, were significant.

Arousal ratings. A 3 X 2 X 4 (group by imagery ability by content) ANOVA revealed a significant main effect for content F (6,105) = 90.34, $p < .0001$. Specifically, fear/anxiety scenes, speech (M = 16.8, SD = 3.9) and social (M = 15.6, SD = 4.2), were rated as more arousing by all subjects than both action (M = 13.0, SD = 3.2) and neutral scenes (M = 5.0, SD = 3.3). All three groups reported more arousal during fear/anxiety scenes than in nonfear/nonanxiety scenes. In addition, the two-way (imagery ability by content) ANOVA was significant, but is not presented here because it is unrelated to the major hypotheses of the current study. None of the other interactions, nor any of the other main effects, were significant.

Dominance ratings. A 3 X 2 X 4 (group by imagery ability by content) ANOVA revealed a significant group by content interaction F (6,105) = 28.13, $p < .01$. Figure 3 presents the data from this analysis.

Insert Figure 3 about here

Follow-up Tukey's HSD tests revealed that the circumscribed speech phobia group and the generalized social phobia group reported more perceived control than the generalized social phobia with avoidant personality group during the neutral scene. This finding did not hold true for other scenes. Additionally, all groups reported feeling a significantly greater degree of control during the nonfear/anxiety scenes than in the fear/anxiety scenes. None of the other interactions, nor any of the other main effects, were significant.

Vividness ratings. A 3 X 2 X 4 (group by imagery ability by content) ANOVA revealed a significant content main effect F (6,105) = 46.85, $p < .001$ for vividness (i.e., verbal report of clarity of imagery). All groups reported significantly greater imagery vividness in neutral scenes (M = 16.1, SD = 3.0) than speech (M = 14.1, SD = 4.2) or social anxiety scenes (M = 13.5, SD = 4.0). Additionally, all groups reported greater vividness in action scenes (M = 15.1, SD = 3.6) than in social anxiety scenes. No other

meaningful differences were found. None of the interactions, nor any of the other main effects, were significant.

Behavioral Assessment Test Data

Avoidance\escape. One-way ANOVA's were not significant for avoidance/escape in the speech condition F (2,40) = 2.65, $p < .08$, or the conversation condition F (2,40) = 2.12, $p > .10$. Figure 4 presents the mean values for escape/avoidance time in each of the groups for the two BAT's.

Insert Figure 4 about here

Psychophysiology. A 3 x 6 (group by trials) ANOVA revealed a significant interaction (F (5,140) = 2.72, $p < .01$). Figure 5 presents data for each group across

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Insert Figure 5 about here

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the six trials. Tukey's comparisons yielded various differences among groups. Importantly, the circumscribed speech phobia group had an increase in heart rate during the performance of the speech relative to prebaseline and postbaseline; this

difference was not observed for either the generalized social phobia group or the generalized social phobia with avoidant personality group.

Verbal report. Measures of anxiety included self report instruments, which assessed immediate positive and negative thoughts (SISST), and state anxiety (STAI-State). The STAI-State questionnaire was administered four times during the behavioral assessment (i.e., prebaseline, immediately after the speech, immediately after the conversation, and post-baseline), while the SISST was utilized immediately following the speech and conversation BAT's. A 3 X 4 (group by trials) ANOVA was utilized for the STAI-State. The 3 X 4 (group by trials) ANOVA revealed a significant interaction, F (38,114) = 2.28, $p < .05$. Figure 6 presents the results of Tukey's HSD comparisons of self report data within groups across the four parts of the BAT's. Prior to initiation of the behavioral tests, the

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Insert Figure 6 about here

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generalized social phobia with avoidant personality group reported greater state anxiety than the circumscribed speech phobia group, but neither of these

groups were different from the generalized social phobia group. This same pattern emerged during the speech behavior test: The generalized social phobia with avoidant personality group reported greater state anxiety than the circumscribed speech phobia group, but neither of these groups were different from the generalized social phobia group. During the conversation behavior test, both the generalized social phobia with avoidant personality group and the generalized social phobia group reported more state anxiety than the circumscribed speech phobia group. In the postbaseline, the generalized social phobia with avoidant personality group reported greater state anxiety than the circumscribed speech phobia group, but neither of these groups were different from the generalized social phobia group.

The generalized social phobia with avoidant personality disorder group reported greater anxiety during both the speech and conversation tests than either the prebaseline or postbaseline periods. The same pattern held for the generalized social phobia group, which also reported greater anxiety during both the speech and conversation tests than either the prebaseline or postbaseline periods. The circumscribed

speech phobia group reported greater state anxiety during the speech test than in the prebaseline, conversation, or postbaseline periods.

Table 6 presents data and four one-way ANOVA's for the SISST analyses. Follow-up Tukey's HSD tests were used for all comparisons. The generalized social

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Insert Table 6 about here

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phobia with avoidant personality disorder group reported more negative thoughts during the speech than either the generalized social phobia group or the circumscribed speech phobia group. Also, the generalized social phobia with avoidant personality group and the generalized social phobia group reported fewer positive thoughts than the circumscribed speech phobia group during the speech. During the conversation, both the generalized social phobia with avoidant personality group and the generalized social phobia group reported fewer positive thoughts and more negative thoughts than the circumscribed speech phobia group.

Skill ratings. Subjects' behavioral skill was rated for both behavior tests. Three independent,

trained undergraduate judges rated subjects on five behavioral dimensions (intonation, gaze, voice volume, overall skill, and overall anxiety) utilized in previous research (Turner et al., 1986). For the speech, the judges actually participated in the audience. For the conversation, one judge acted as the subject's conversation partner, and the other two rated a videotape of the conversation at a later date. Table 7 presents the average Pearson correlations for the ratings of the judges. Correlation coefficients were transformed into z-scores, averaged, then mean z-scores were transformed back to correlation coefficients. While the magnitude of some correlations for the conversation ratings was low, all correlations were statistically significant.

Insert Table 7 about here

A series of ANOVA's was utilized to examine group differences on each skill/anxiety dimension during both the speech and conversation tests. When ANOVA's were significant, follow-up Tukey's HSD tests were completed. Table 8 presents the data from these analyses. During the speech test, the generalized

social phobia with avoidant personality group was rated as having inferior intonation relative to the circumscribed speech phobia group, and inferior voice

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Insert Table 8 about here

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volume than both the generalized social phobia group and the circumscribed speech phobia group. There were no significant differences for the conversation.

Discussion

Distinctiveness of Circumscribed Speech Phobia

Review of positive results. In general, the notion of dimensionality of social phobia was well supported by the current study. On one end of the continuum are persons with circumscribed fears and/or anxieties and mild symptom severity (i.e., speech phobia). Moving along the continuum toward increasing symptom severity, persons with the generalized type of social phobia are represented. At the other end of the continuum are people who also have avoidant personality disorder.

The current study provides support for differences among the circumscribed speech phobia group and the generalized groups. Specifically, the circumscribed

group reported fewer social evaluative concerns, less general anxiety, and less social isolation compared to either generalized social phobia group. There was substantial support for differences between the two ends of the continuum, circumscribed (speech) phobia and generalized social phobia with avoidant personality disorder. Specifically, the generalized social phobia with avoidant personality group reported greater interpersonal anxiety and sensitivity, general anxiety, and more depressive symptomatology than the circumscribed speech phobia group. Additionally, the generalized social phobia with avoidant personality group reported poorer overall psychological adjustment than the circumscribed speech group. Moreover, the circumscribed group had fewer comorbid diagnoses than the generalized social phobia with avoidant personality disorder group. When imagining neutral scenes, the circumscribed speech group reported feeling a greater sense of personal control than the generalized social phobia with avoidant personality disorder group. It may be that persons with more generalized, pervasive fears/anxieties (as in avoidant personality disorder) feel vulnerable and as possessing ineffective coping strategies, even in nonprovocative situations.

All groups experienced some psychophysiological reactivity upon exposure to social situations, and demonstrated some avoidance/escape. The circumscribed group, however, was more comfortable with the social interactions than the avoidant group. Previous research (Heimberg et al., 1990) has demonstrated greater autonomic reactivity of a circumscribed speech phobia group compared to a generalized social phobia group during a simulated public speaking behavior test. In the current study, the circumscribed speech group was the only one to show a significant increase in heart rate during the speech BAT, relative to both prebaseline and postbaseline cardiac measures. Interestingly, although the circumscribed group experienced greater psychophysiological reactivity during the social situation that directly accessed their discrete phobia (the impromptu speech), they reported less overall anxiety and demonstrated greater proficiency in two social skill dimensions than the avoidant group. While psychophysiological arousal does not necessarily lead to impaired performance, it appears that the circumscribed group may have a different interpretation (i.e., less anxiety) of their psychophysiological reactivity when compared to the

generalized social phobia with avoidant personality disorder group. The generalized group with avoidant personality disorder reported a high degree of social discomfort and was less able to endure the social interactions.

Conclusions. The data from the current study provide substantial evidence for the notion that patients with circumscribed speech phobia differ from those diagnosed with generalized social phobia and comorbid avoidant personality disorder. Additionally, the utility of conceptualizing circumscribed social (i.e., public speaking) phobia and generalized social phobia on the basis of their differential response to social stimuli was partially supported in the current study. These results are consistent with other research (Heimberg et al., in press; McNeil & Lewin, 1992; Turner et al., 1992). It is perhaps to be expected that there were more differences between persons with circumscribed speech phobia and those with generalized social phobia and avoidant personality disorder, than between the circumscribed and the generalized social phobia group. The former comparison may be between groups that are further apart on a continuum of social phobia.

Among the measures that did not demonstrate the circumscribed speech phobia group to be different than either generalized groups was one which directly accessed the fears of the circumscribed group. Specifically, the circumscribed group reported equivalent fear of public speaking compared to the generalized groups. Additionally, the omnibus FSS-III did not discriminate among groups. Likewise, the SCL-90-R failed to yield group differences on most of the individual dimensions of psychiatric symptomatology. However, the factor structure of the SCL-90-R has been challenged (Cyr, Doxey, & Vigna, 1988; Cyr, McKenna-Foley, & Peacock, 1985). These researchers suggest that the SCL-90-R measures a single global distress or discomfort factor, rather than nine independent symptom dimensions of psychopathology. Therefore, this measure was utilized in an exploratory manner, and the lack of differences was not surprising.

Differences between Generalized Social Phobia and Avoidant Personality Disorder

Review of positive results. In the area of self report, the generalized social phobia group and the generalized social phobia group with comorbid avoidant personality disorder appeared different on some measures. Specifically, the former group endorsed fewer social evaluative concerns, trait anxiety, and general depressive symptomatology (on the MMPI-2 Scale 2, Depression). Additionally, the generalized social phobia group reported more perceived control while imagining emotionally neutral content scripts relative to the social phobia with avoidant personality disorder group.

During the BAT's, the generalized social phobia group did not report as much anxiety as the generalized social phobia with avoidant personality disorder group after exposure to fearful stimuli. Moreover, the former group had fewer negative cognitions, and showed more skill with respect to voice volume during the speech BAT.

Conclusions. While the two groups demonstrated some differences, it appears evident that there is a substantial overlap of symptom characteristics between

persons with generalized social phobia and those with avoidant personality disorder. The two generalized groups appear to be indistinguishable on most measures, and are more similar than they are different (cf. Turner et al., 1992). This conclusion is contrary to a previously-held belief that generalized social phobia can be differentiated from avoidant personality disorder by level of social skill (e.g., Turner & Beidel, 1989; Turner et al., 1989), assuming avoidant personality disorder as more associated with poor social abilities. These results are consistent with contemporary research which has demonstrated differences between the specific and the generalized groups (Turner et al., 1992), but was not able to reliably differentiate the two generalized groups (cf. Widiger, 1992).

Consistent with contemporary research utilizing similar skill ratings, those utilized in the current study revealed very few differences among groups. Both Herbert et al. (1992) and Turner et al. (1992) found that generalized social phobia could not be differentiated from a generalized social phobia with avoidant personality group on the basis of social skill. These studies, as well as one by Holt et al.

(1992), demonstrated some quantitative distinctions between the generalized groups, but were not able to reliably differentiate the two generalized groups, or document qualitative differences between the two groups. Consistent with Herbert et al. (1992) and Turner et al. (1992), similar skill ratings utilized in the current study revealed very few differences among groups. However, it should be noted that conversation voice volume and conversation skill would have been different among groups, had the .10 significance level been employed. Perhaps with more subjects, and therefore greater power, significant differences might emerge.

Implications for the DSM system

Taken together with contemporary research, data from this study support the notion that circumscribed speech phobia be considered a subtype of social phobia. (Perhaps other circumscribed social fears/anxieties should be included in a subtype as well.) These results support the idea that persons with generalized social phobia experience more social fear and discomfort, and greater general anxiety symptom severity, than those with more circumscribed fears. The current study provides valuable information

regarding verbal report, overt behavior and psychophysiologic reactivity, and thus provides a thorough assessment of possible differences within the social phobia diagnostic category, and between this classification and avoidant personality disorder. These results, therefore, make a unique contribution to the question regarding distinctions among the three groups studied here. The data are consistent with several recent empirical studies that have demonstrated quantitative differences, but failed to reveal qualitative (i.e., clinically meaningful) differences between persons with social phobia, and those social phobics with a comorbid diagnosis of avoidant personality disorder (Holt et al., 1992; Turner et al., 1992).

Accordingly, the results of the current study call into question the validity of the DSM-III-R classification of social anxieties, which represents generalized social phobia and avoidant personality disorder as different categories of psychopathology. Given that the two disorders appear comorbidly in this and other studies (Herbert et al., 1992; Holt et al., 1992; Turner et al., 1992), there appears to be considerable overlap between the two categories.

Indeed, Widiger (1992) has concluded that future revisions of the DSM should include more explicit diagnostic criteria to reduce the degree of overlap between the two categories. Further refinements in the diagnostic nosology may be necessary, as the DSM-III-R does not distinguish
generalized social phobia from avoidant personality disorder, if substantive differences in fact exist.

While the generalized social phobia group with comorbid avoidant personality disorder appears to present greater symptom severity in this and other studies (Herbert et al., 1992; Holt et al., 1992; Turner et al., 1992), clinicians must carefully consider the implications of describing social phobia in terms of DSM Axis I and/or Axis II disorders. Widiger (1992) suggests that diagnosis on Axis I versus Axis II can have considerable repercussions in areas such as research funding, treatment decisions, and third party payment of mental health services.

Other researchers (Barlow, 1988; Holt et al., 1992) have suggested the use of dimensional rather than categorical (e.g., DSM) diagnoses. Indeed, the current study supports the notion that social phobia be viewed on a continuum, with more circumscribed fears (e.g.,

public speaking) representing the least severe end of the continuum, generalized social phobia more moderate, and avoidant personality the most severe. Perhaps nongeneralized social phobia (Heimberg et al., in press) should be included between circumscribed and generalized social phobia. Holt et al. (1992) concluded that instead of the current DSM-III-R differentiation between generalized social phobia and avoidant personality, the two disorders are more accurately viewed on a continuum; persons diagnosed with avoidant personality using DSM-III-R may represent a more severe variant of social phobia.

Limitations of Results and Directions for Future Research

Limitations of the current study offer several possible explanations for some equivocal results. Also, the issue of unequal group sizes in the current study must be addressed. Milligan, Wong, and Thompson (1987) demonstrated that ANOVA's conducted with unequal (nonorthogonal) cell sizes are not robust to possible violations of basic assumptions of normality and homogeneity of variance, since partitioning of error variance is inconsistent when nonorthogonal cases are used. Consequently, actual Type I error rejection

rates can be influenced either in the conservative or liberal direction.

With this problem in mind, all results of the current study should be viewed with caution. While it is possible that Type I errors are present in reported significant results, it is also likely that type II errors exist in data interpretation. Additionally, while a very conservative follow-up procedure was used (Tukey's HSD procedure), it is possible that Type I error rate was inflated, given the large number of comparisons. However, the fact that the results of the present study are analogous to similar empirical investigations (Herbert et al., 1992; Holt et al., 1992; Turner et al., 1992) should be considered when judging its validity.

The imagery paradigm employed in the current study yielded few group differences. While direct exposure to fear relevant stimuli (in vitro exposure) produced significant group differences in fear/anxiety responsiveness, imaginal exposure failed to yield many group differences. Previous researchers have differentiated groups on various measures in which in vitro stimuli were used (Heimberg et al., 1988; McNeil & Lewin, 1992). Some investigators have utilized

response training, a procedure involving training of subjects in both progressive deep muscle relaxation and imagery enhancement strategies, designed to amplify responsiveness to imagery scripts. This procedure has enhanced differentiated reactivity equally across groups and corrected for limitations of degraded imaginal stimuli (McNeil & Brunetti, 1992; Miller et al., 1987). Perhaps response training would have enhanced the salience of the imagery procedure, and more of the predicted group differences would have emerged.

While the current study yielded two predicted differences in behavioral skill ratings during the speech BAT, it failed to demonstrate any expected differences during the conversation BAT. Several issues could explain these results. It may be that differences in social skill are small and difficult to detect. Another idea is that the conversation BAT is characterized by less observer visibility, and therefore could be experienced as less anxiety provoking than the speech. Therefore, the groups' performances would have been less distinguishable. Moreover, the inter-rater reliability for all the social skills ratings was less than desirable,

consistent with some prior research (Herbert et al., 1992). It is possible that the poor reliability was due, in part, to the methodology employed for judging behavioral skill. Future research should address this problem, aiming for standardization of assessed dimensions and improvement of methodologies. In the skill ratings of the conversation of this study, one judge rated the live performance, and two other judges viewed a videotape at some later date. In the speech BAT, all independent judges rated at the same time, and all judges viewed a live performance, and some group differences were found. Therefore, it is possible that the methodology employed for the conversation BAT was flawed, and is partially responsible for the lack of reliability in the judges' ratings, which could help explain the lack of group differences. Perhaps observation using a one-way mirror during the conversation would increase similarity among judges' observations.

Additionally, predicted group differences on measures of behavioral avoidance/escape were not supported. While results were in the predicted direction, it is possible that the small and variable sample sizes did not provide enough power for

statistical significance. Future research should address this problem by utilizing larger sample sizes, and groups with comparable numbers.

On the basis of previous research, it is assumed that all three clinical groups utilized in the current study are different from non-anxious/fearful populations (McNeil & Lewin, 1992; Turner et al., 1989) and from other anxiety disorders (Amies, Gelder, & Shaw, 1983; Rapee et al., 1988). However, it is possible that group differences are not as profound as predicted.

Finally, as in the current study, future research in the area should include a thorough initial assessment of fear/anxiety utilizing self-report, behavioral measures allowing for avoidance/escape, and psychophysiological responsivity. Research on the similarities and differences among clinical syndromes should include treatment outcome studies. Data on immediate and long term responsiveness to treatment will be an important part of an accurate conceptualization of social anxieties.

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Table 1

Experimental procedure

Session #1	Informed Consent ADIS-R Interview Medical/Social History
Session #2	SCID-II Questionnaire SCID-II Interview Questionnaires: SPAI, STAI-Trait, PRCS, SCL-90-R, SADS, BAI, BDI, FNE, FQ, FSS-III
Session #3	Clinical Team Meeting Questionnaire: MMPI-2
Session #4	Stroop Assessment Behavioral Assessment Test Questionnaires: STAI-State, SISST
Session #5	Questionnaire: QMI Imagery Assessment
Session #6	Feedback and Treatment Implications

Table 2

Frequency of comorbid diagnoses across groups

Diagnosis	Groups		
	CSP	GSP	GSP/APD
Simple phobia	1	8	1
Generalized anxiety disorder	2	3	2
Post-traumatic stress disorder	1	3	3
Organic anxiety disorder	0	1	0
Major depression	0	1	2
Dysthymia	0	1	1
Panic disorder without agoraphobia	0	1	1
Paranoid personality disorder	0	1	1
Agoraphobia without panic disorder	0	2	0
Alcohol dependence	0	1	1
Psychological factors affecting physical condition	0	0	1
Borderline personality disorder	0	1	0
Obsessive compulsive personality disorder	0	1	0
Passive aggressive personality disorder	0	0	1
Total	4	24	14

Note. CSP = circumscribed speech phobia (n = 12); GSP = generalized social phobia (n = 20); GSP/APD = generalized social phobia with avoidant personality disorder (n = 9).

Table 3

Mean scores for initial assessment verbal report instruments (standard deviations in parentheses)

Instrument	Range	Groups: Circumscribed Speech Phobia	Generalized Social Phobia	Generalized/ Avoidant	F
		Social Anxiety/Fear Instruments			
Fear of Negative Evaluation Scale (FNE)	0-30	15.3[a] (7.6)	21.8[b] (6.2)	28.2[c] (2.4)	11.61**
Social Avoidance and Distress Scale (SADS)	0-28	11.7[a] (5.7)	20.0[b] (5.8)	25.1[b] (1.4)	18.19**
Social Phobia Anxiety Inventory-Social (SPAI-SOC)	0-192	94.2[a] (31.0)	122.6[b] (28.0)	146.3[b] (20.0)	9.45**
Social Phobia Anxiety Inventory-Total (SPAI-TOT)	-78-192	75.8[a] (26.7)	96.5[a,b] (19.4)	116.6[b] (17.0)	9.48**
Fear Questionnaire Social Phobia Scale (FQ-SOC)	0-40	14.7[a] (6.6)	19.0[a,b] (6.6)	23.4[b] (7.7)	4.15*

(table continues)

Table 3 Continued

Personal Report of Confidence as a Speaker (PRCS)	0-30	22.9 (4.0)	22.8 (5.7)	24.1 (6.9)	.19^{NS}
Fear Questionnaire Social Phobia Scale (FQ-SOC)	0-40	14.7^{a} (6.6)	19.0^{a,b} (6.6)	23.4^{b} (7.7)	4.15*
		General Anxiety/Fear and Depression Instruments			
State-Trait Anxiety Inventory-Trait (STAI-Trait)	20-80	38.1^{a} (8.1)	49.1^{b} (10.5)	58.7^{c} (7.1)	13.27**
Beck Depression Inventory (BDI)	0-63	4.6^{a} (5.0)	11.1^{a,b} (7.3)	13.7^{b} (9.3)	4.85*
Beck Anxiety Inventory (BAI)	0-63	7.7 (6.9)	11.9 (7.9)	11.2 (7.7)	1.15^{NS}
Fear Survey Schedule-III (FSS-III)	0-432	86.7 (68.8)	101.7 (55.8)	125.2 (85.9)	.77^{NS}
		Imagery Questionnaire			
Questionnaire Upon Mental Imagery (QMI)	35-245	67.7^{a} (26.2)	93.1^{a,b} (26.3)	95.1^{b} (27.0)	3.37*

(table continues)

Table 3 Continued

Note. Higher scores indicate report of greater anxiety; lower scores on the QMI indicate better imagery ability.

Note. Tukey's Studentized range (HSD) Multiple Comparison Tests were conducted subsequent to significant ANOVA's. Means that do not share a common superscript differ significantly at $p < .05$.

Note. $df = (2,38)$ for all tests.
$^{*}p < .01$. $^{**}p < .0001$. ^{NS} Not significant at the .05 alpha level.

Table 4

Mean scores for Minnesota Multiphasic Personality Inventory - 2 (MMPI-2) Scales (standard deviations in parentheses)

		Groups			
Instrument	Range	Circumscribed Speech Phobia	Generalized Social Phobia	Generalized/ Avoidant	F
Scale 0 (Social Introversion)	0-69	32.4[a] (10.0)	43.0[b] (7.3)	50.3[b] (4.6)	14.26**
Scale 2 (Depression)	0-57	21.1[a] (4.4)	24.4[a] (5.0)	32.1[b] (5.9)	12.29**
Scale 7 (Psychasthenia)	0-48	28.6[a] (4.7)	33.3[a,b] (6.5)	38.2[b] (5.6)	6.88**
Scale ANX (Anxiety)	0-23	6.4[a] (4.3)	11.5[b] (4.6)	15.0[b] (3.5)	10.72**
Scale FRS (Fears)	0-23	5.3 (3.7)	4.6 (4.8)	4.7 (1.9)	.12[NS]

Note. Tukey's Studentized range (HSD) Multiple Comparison Tests were conducted subsequent to significant ANOVA's. Means that do not share a common superscript differ significantly.

Note. df = (2,38) for all tests.

Note. Values reported in this table are raw scores.

*p < .01. **p < .0001. NS Not significant at .05 alpha level.

Table 5

Mean scores for Symptom Checklist-90-Revised (SCL-90-R)
(standard deviations in parentheses)

Scale	Range	Groups: Circumscribed Speech Phobia	Generalized Social Phobia	Generalized/ Avoidant	F
Interpersonal Sensitivity	0-9	.71[a] (.76)	1.33[a,b] (.89)	1.66[b] (.88)	3.49*
Depression	0-13	.51[a] (.45)	1.18[a,b] (.80)	1.44[b] (.72)	5.19**
Positive Symptom Total	0-90	26.5[a] (17.3)	40.0[a,b] (17.5)	47.8[b] (13.9)	4.47*
Somatization	0-12	.36 (.39)	.55 (.59)	.54 (.45)	.57NS
Obsessive-Compulsive	0-10	.69 (.47)	.90 (.56)	1.11 (.57)	1.55NS
Anxiety	0-10	.68 (.55)	.86 (.57)	1.00 (.59)	.80NS
Hostility	0-6	.39 (.47)	.69 (.62)	.61 (.50)	1.09NS

(table continues)

(Table 5 continued)

Phobic Anxiety	0-7	.22 (.49)	.36 (.43)	.30 (.33)	.38^{NS}
Paranoid Ideation	0-7	.54 (.75)	.93 (.65)	1.11 (.71)	1.96^{NS}
Psychoticism	0-10	.35 (.61)	.46 (.43)	.55 (.43)	.42^{NS}
Additional Items	1-7	4.4 (3.96)	6.2 (5.02)	7.2 (3.15)	1.16^{NS}
Grand Total	0-360	46.4 (38.79)	76.0 (49.92)	86.6 (40.66)	2.69^{NS}
Global Severity	0-4	.5 (.4)	.9 (.5)	.9 (.4)	2.70^{NS}
Positive Symptom Distress Index	0-4	1.5 (.82)	1.8 (.47)	1.71 (.54)	1.12^{NS}

Note. Higher scores indicate report of greater anxiety.

Note. Tukey's Studentized range (HSD) Multiple Comparison Tests were conducted subsequent to ANOVA's. Means that do not share a common superscript differ significantly at $p < .05$.

Note. df = (2,38) for all tests.

$^{*}p < .05$. $^{**}p < .01$. ^{NS} Not significant at the .05 alpha level.

Table 6

Mean scores for self report during BAT's

(standard deviations in parenthases)

Test/ SISST Scale	Groups: Circumscribed Speech Phobia	Generalized Social Phobia	Generalized/ Avoidant	F
Speech				
SISST Positive	36.1[a]	26.8[b]	26.7[b]	3.49*
	(11.6)	(9.7)	(9.4)	
SISST Negative	39.7[a]	49.7[a]	62.2[b]	8.34**
	(13.3)	(12.9)	(10.2)	
Conversation				
SISST Positive	36.3[a]	27.7[b]	27.5[b]	3.74*
	(8.5)	(10.9)	(5.6)	
SISST Negative	29.3[a]	47.3[b]	56.7[b]	15.12**
	(10.0)	(13 .6)	(9.4)	

Note. Higher scores on the SISST Negative scale indicate report of greater number of negative self-statements. Higher scores on the SISST Positive scale indicate greater number of positive self-satements during performance of BAT.

Note. Tukey's Studentized range (HSD) Multiple Comparison Tests were conducted subsequent to significant ANOVA's. Means that do not share a common superscript differ significantly at $p < .05$.

Note. $df = (2,38)$ for all tests.

*$p < .01$. **$p < .0001$.

Table 7

Mean correlations of ratings on behavioral dimensions

Condition/Dimension	Correlation
Speech	
Intonation	.55**
Gaze	.59**
Voice Volume	.49**
Overall Skill	.57**
Overall Anxiety	.63**
Conversation	
Intonation	.34*
Gaze	.58*
Voice Volume	.33*
Overall Skill	.58**
Overall Anxiety	.63*

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

Table 8

Ratings of behavioral skill during BAT's

(standard deviations in parenthases)

BAT/ Dimension	Groups: Circumscribed Speech Phobia	Generalized Social Phobia	Generalized/ Avoidant	F
Speech				
Intonation	3.3[a]	3.0[a,b]	2.3[b]	3.26*
	(.9)	(.7)	(.4)	
Gaze	3.0	2.6	2.1	1.91[NS]
	(1.1)	(.8)	(.6)	
Voice Volume	3.4[a]	3.2[a]	2.4[b]	4.47*
	(.7)	(.6)	(.3)	
Overall Skill	3.1	2.8	2.3	1.74[NS]
	(.9)	(.8)	(.4)	
Overall Anxiety	4.9	5.5	6.0	.86[NS]
	(2.1)	(1.6)	(1.1)	
Conversation				
Intonation	3.2	2.9	2.6	1.77[NS]
	(.6)	(.7)	(.6)	
Gaze	3.2	2.8	2.5	1.81[NS]
	(.9)	(1.0)	(.9)	
Voice Volume	3.2	3.0	2.4	2.62[NS]
	(.8)	(.9)	(.6)	
Overall Skill	3.1	2.6	2.3	2.66[NS]
	(.8)	(.9)	(.7)	
Overall Anxiety	4.9	5.5	6.1	1.20[NS]
	(1.9)	(1.7)	(1.6)	

(table continues)

(table 8 continued)

Note. Higher Scores on intonation, gaze, voice volume, and overall skill indicate better performance. Higher ratings on overall anxiety indicate greater anxiety.

Note. Tukey's Studentized range (HSD) Multiple Comparison Tests were conducted subsequent to ANOVA's. Means that do not share a common superscript differ significantly at $p < .05$.

Note. Range of scores for intonation, gaze, voice volume, and overall skill is 1-5; the range of scores for overall anxiety is 1-9.

Note. $df = (2,34)$ for all tests.

* $p < .05$. ^{NS} Not significant at the .05 alpha level.

Figure Captions

Figure 1. Heart rate change across all groups and imagery ability categories for each imagery scene content area. Bars that do not share a common superscript differ significantly at $p < .05$.

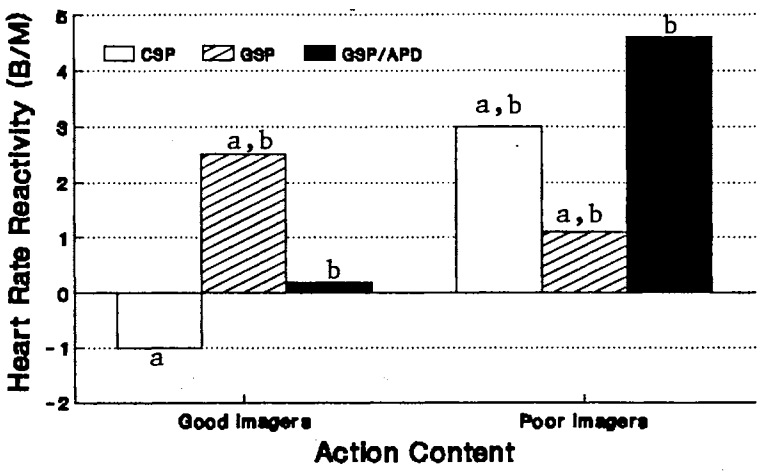
Figure 2. SAM valence ratings across all imagery scene content areas. Bars that do not share a common superscript differ significantly at $p < .05$.

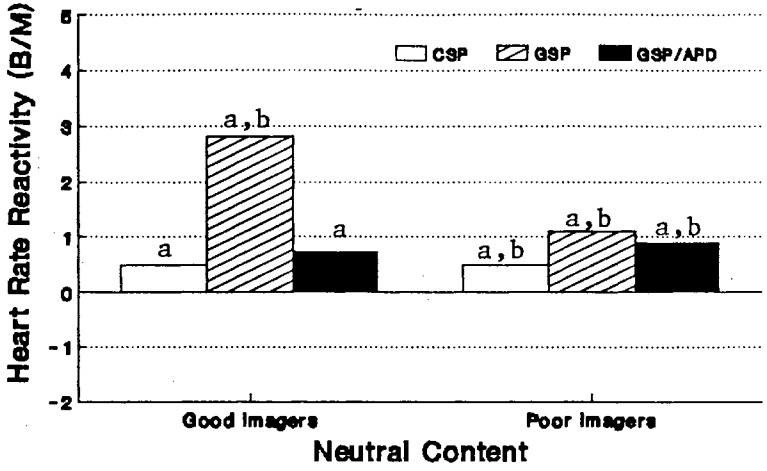
Figure 3. SAM dominance ratings across all imagery scene content areas, by group. Bars that do not share a common superscript differ significantly at $p < .05$.

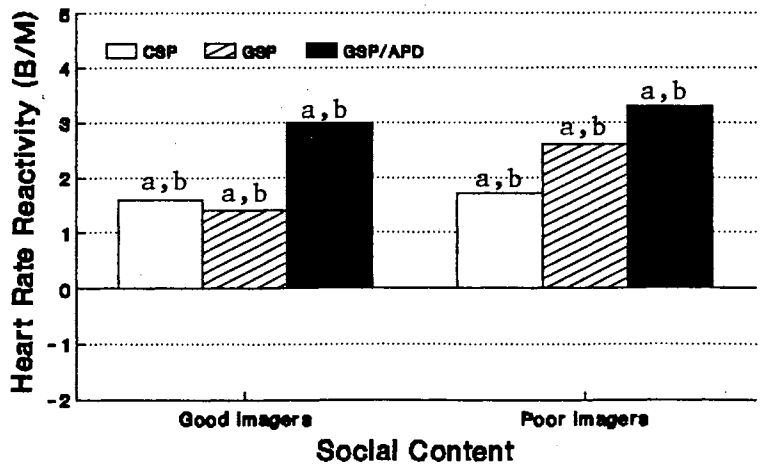
Figure 4. Avoidance/escape time for each group during speech and conversation BAT's.

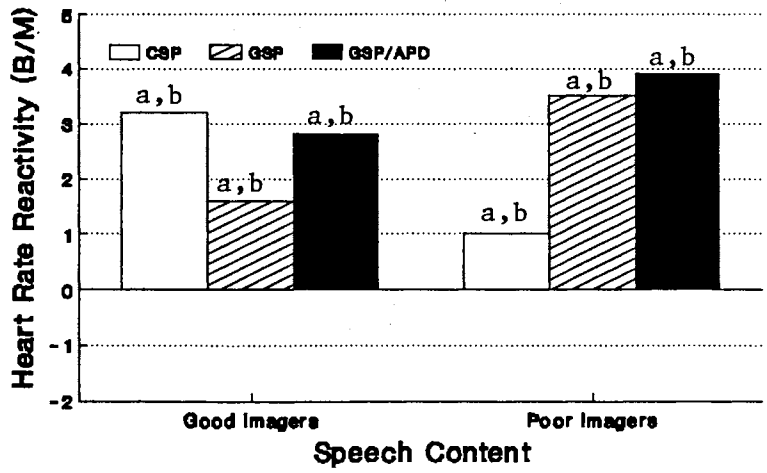
Figure 5. Heart rate reactivity in beats per minute (B/M) for each group across all trials for both BAT's. Bars that do not share a common superscript differ significantly at $p < .05$.

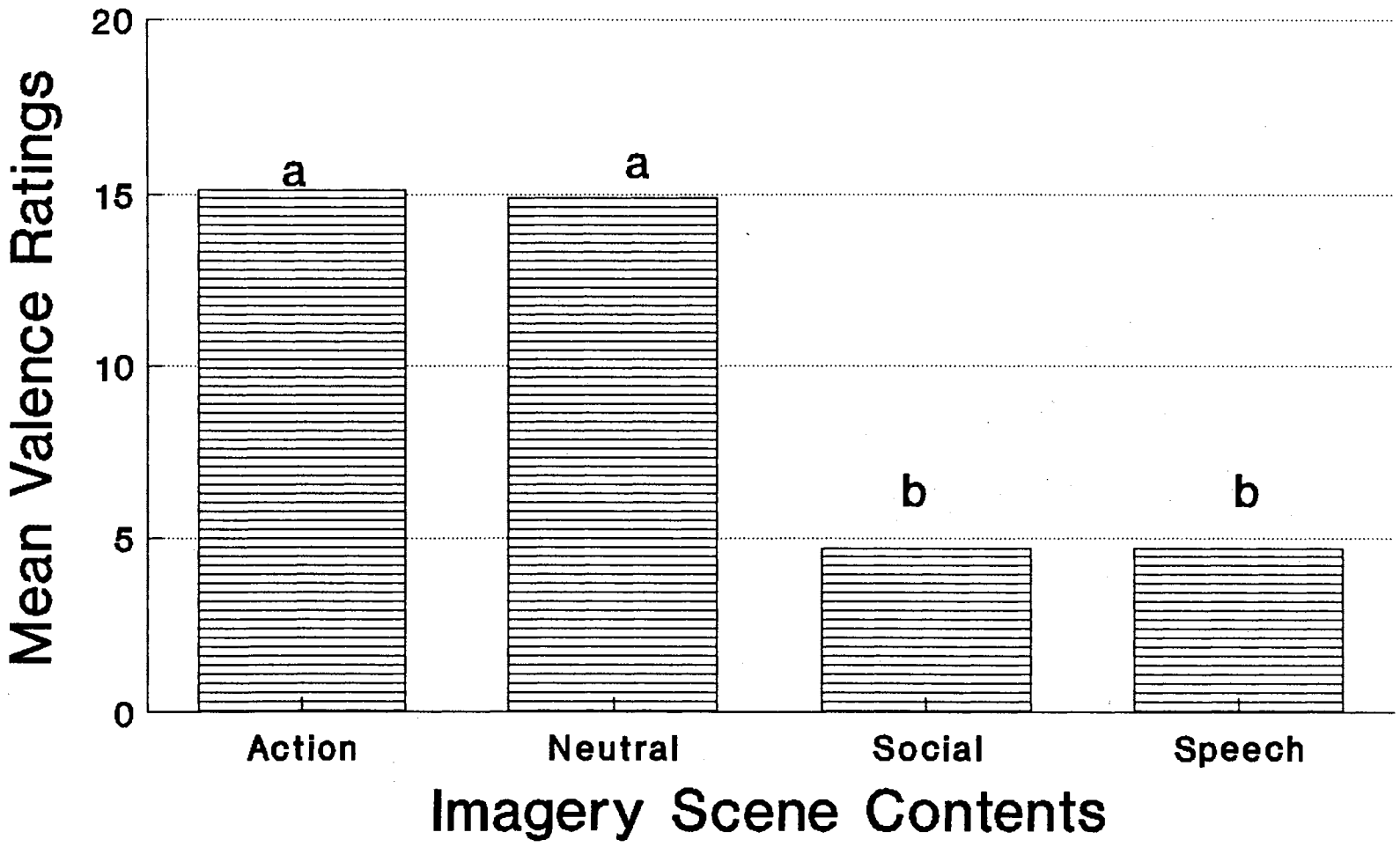
Figure 6. Self report of state anxiety (STAI-State) for each group across all BAT conditions. Bars that do not share a common superscript differ significantly at $p < .05$.


Heart Rate Reactivity (B/M)
CSP
GSP
GSP/APD
5
4
3
2
1
0
-1
-2
a
a,b
b
a,b
a,b
b
Good Imagers
Poor Imagers
Action Content


Heart Rate Reactivity (B/M)
CSP
GSP
GSP/APD
5
4
3
2
1
0
-1
-2
a
a,b
a
a,b
a,b
a,b
Good Imagers
Poor Imagers
Neutral Content


Heart Rate Reactivity (B/M)
CSP
GSP
GSP/APD
5
4
3
2
1
0
-1
-2
a,b
a,b
a,b
a,b
a,b
a,b
Good Imagers
Poor Imagers
Social Content


Heart Rate Reactivity (B/M)
CSP
GSP
GSP/APD
5
4
3
2
1
0
-1
-2
a,b
a,b
a,b
a,b
a,b
a,b
Good Imagers
Poor Imagers
Speech Content


Mean Valence Ratings
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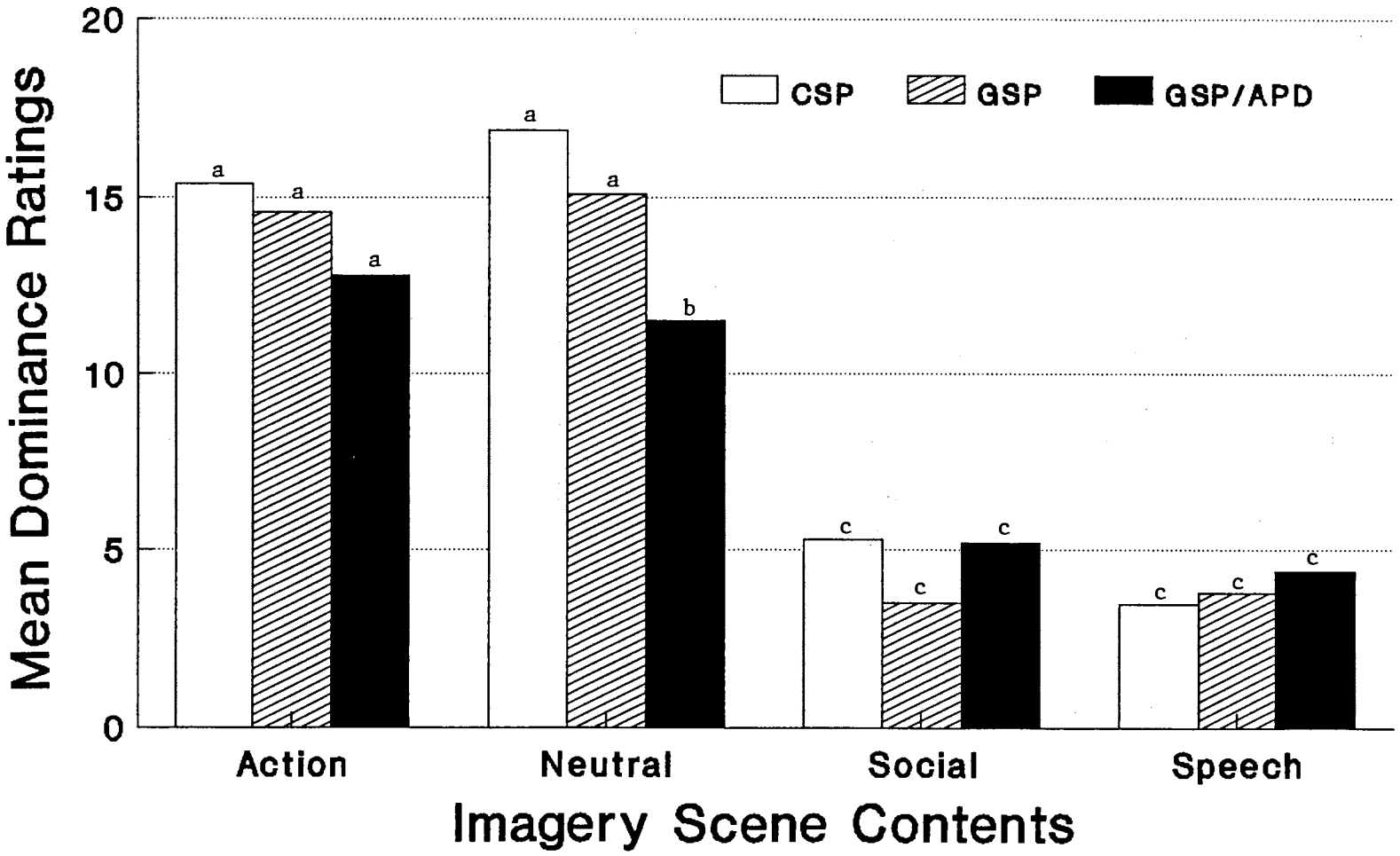
15
10
5
0
a
a
b
b
Action
Neutral
Social
Speech
Imagery Scene Contents


Mean Dominance Ratings
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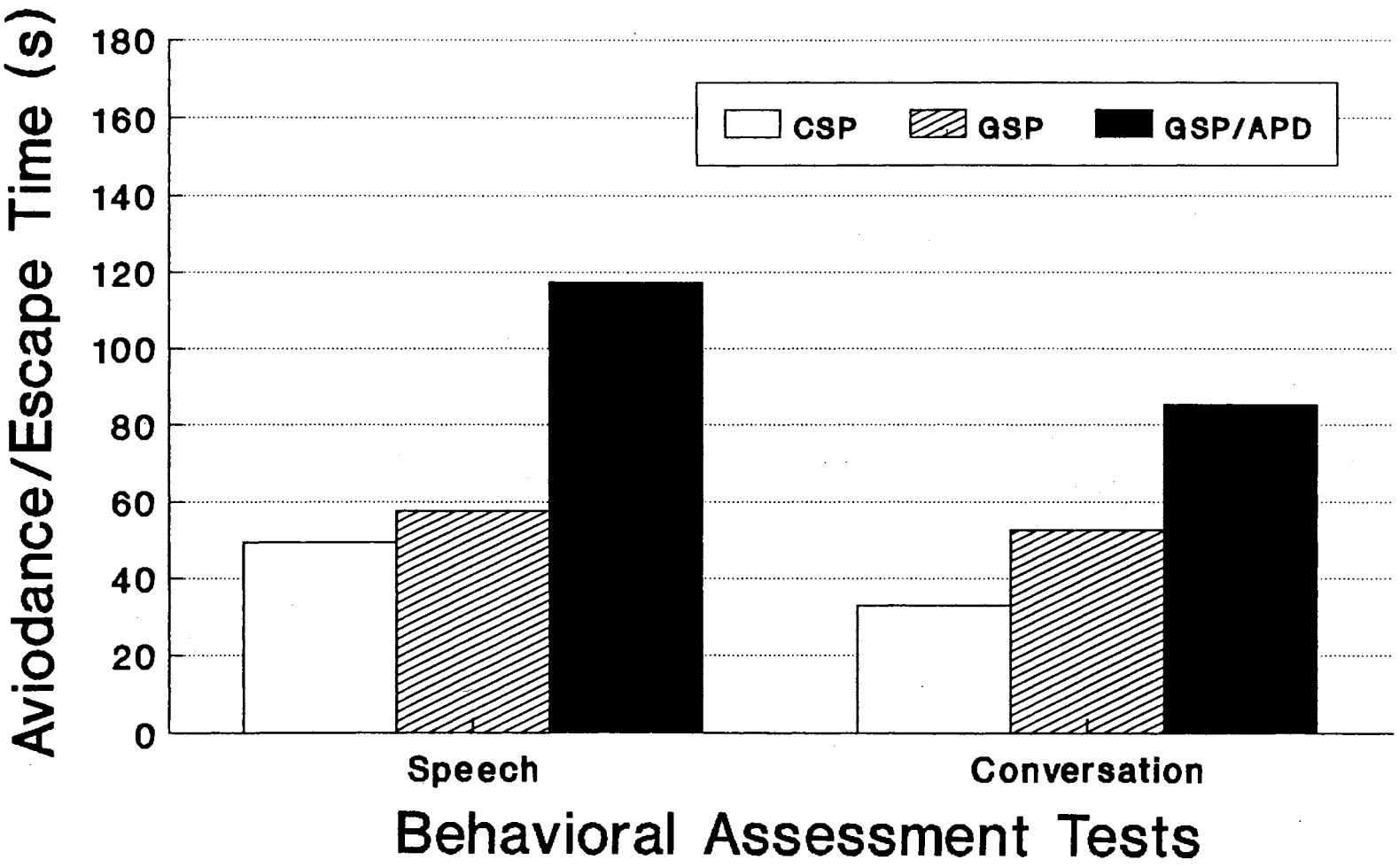
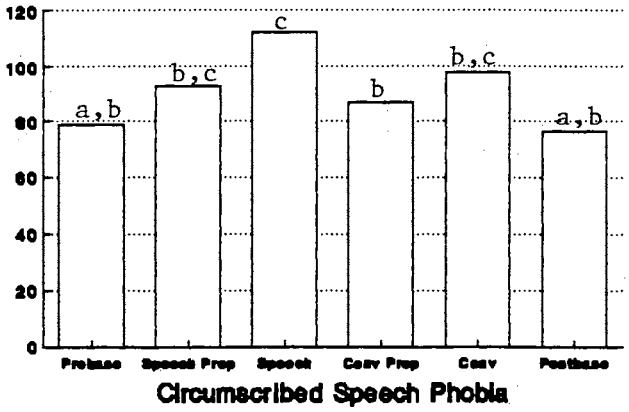
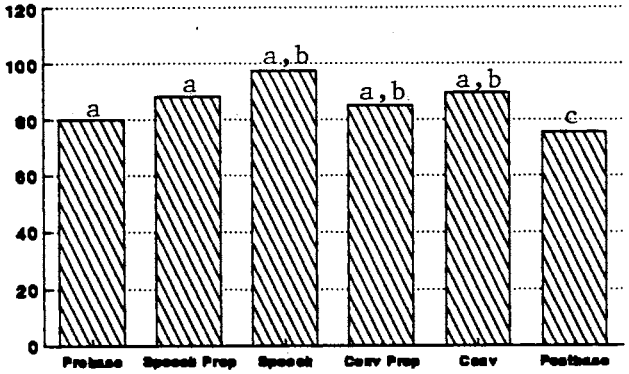
15
10
5
0
CSP
GSP
GSP/APD
a
a
a
a
a
b
c
c
c
c
c
c
Action
Neutral
Social
Speech
Imagery Scene Contents


Aviodance/Escape Time (s)
180
160
140
120
100
80
60
40
20
0
CSP
GSP
GSP/APD
Speech
Conversation
Behavioral Assessment Tests

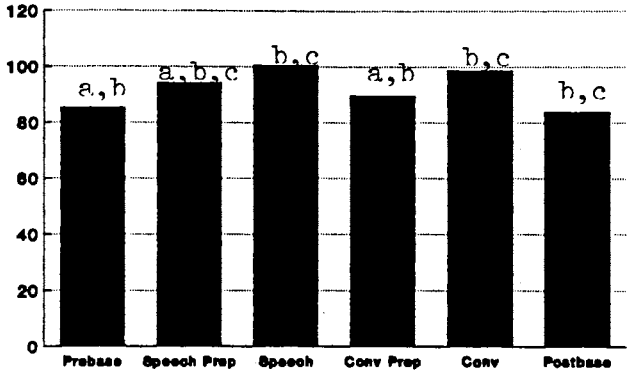
Heart Rate Reactivity (B/M)



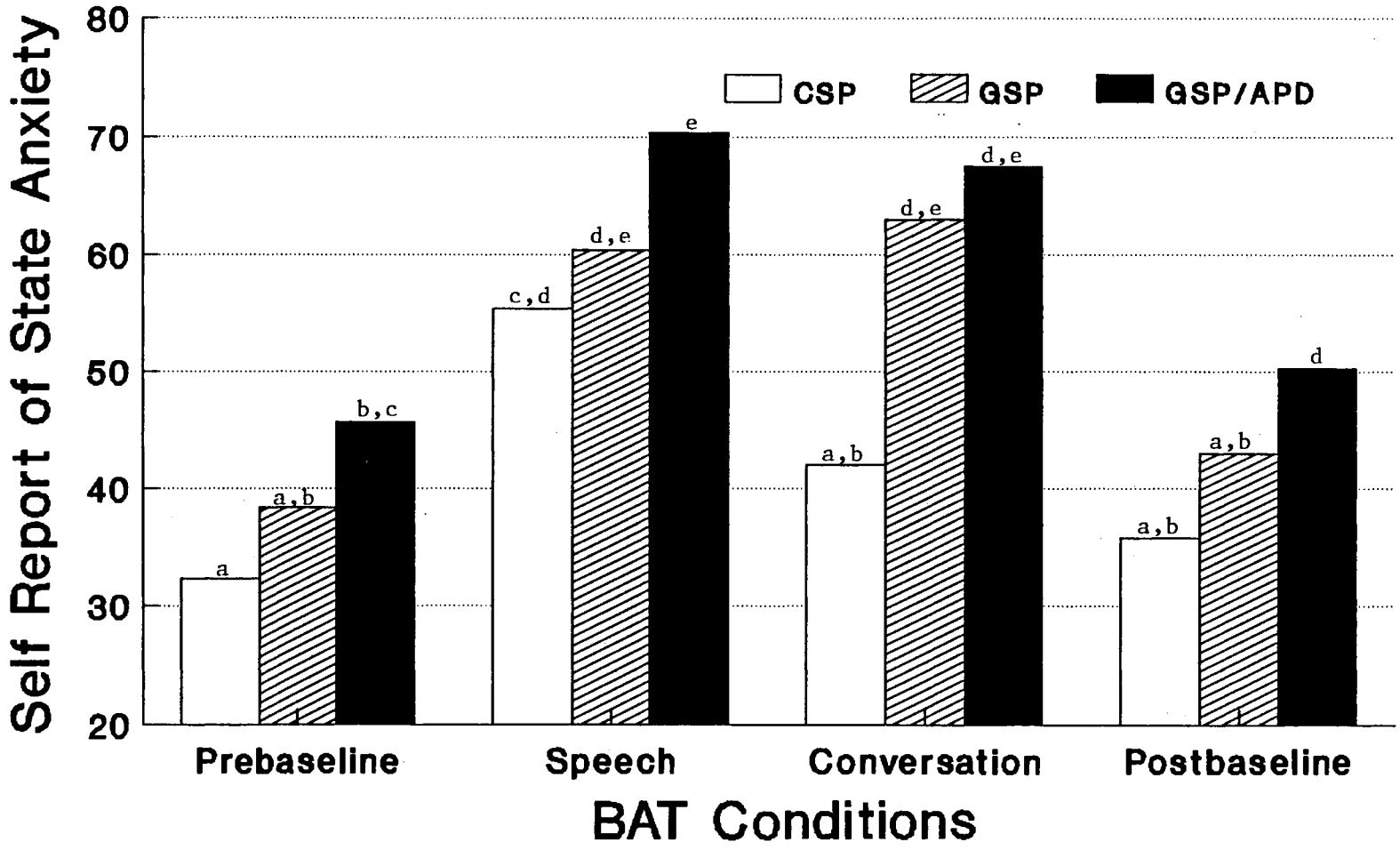
Circumscribed Speech Phobia



Generalized Social Phobia



Generalized/Avoidant


Self Report of State Anxiety
80
70
60
50
40
30
20
CSP
GSP
GSP/APD
a
a,b
b,c
c,d
d,e
e
a,b
d,e
d,e
a,b
a,b
d
Prebaseline
Speech
Conversation
Postbaseline
BAT Conditions

Appendix

Imagery Scripts

Public speaking anxiety scripts

A. Speech to class (grade contingent upon speech)

You have volunteered to give a presentation to a class in which you badly need to improve your grade. You have never addressed such a large group before. Your palms have become sweaty, and you tense up the muscles of your forehead. The hands of the clock inch forward, and your heart begins to race as the buzzer in the hall signals the start of class. As you walk to the front of the room, you breathe rapidly and glance around at the faces of the audience. The whole group looks up at you in silence, shifting restlessly in their seats.

B. Speech to class (large audience/visibility)

You are about to present some of your ideas to your class. Your heart pounds faster as you scan the room and notice for the first time how large the audience is. Originally, you did not notice how many professors and students were awaiting your presentation. Sweat pours from your forehead, as you fumble with your notes. As you stand up, your muscles are so tense that your hands begin to tremble uncontrollably. The audience watches your every move in silence. Your

breath catches in your throat as you try to utter your first words.

General social anxiety scripts

A. Reprimand from professor (social disapproval)

A few class meetings after turning in a required term paper in an important class, your instructor asks you to remain in the lecture hall when the period is over. Anticipating some problem, you notice that your muscles are so tense that your hands are trembling. After your classmates have left, your professor, speaking harshly, expresses a great deal of disappointment in your work on the paper, and you can feel your heart throbbing. You begin to perspire freely when errors in grammar, punctuation and logic are pointed out. You glance at the clock in the room as the professor continues criticizing the term paper.

B. Unfamiliar party (social visibility)

You walk into a party in which you do not know many people. The host of the part greets you and asks who you are. As you look around at the many people, you don't recognize anyone. You notice that your heart beats faster as people at the party stare at you. You begin to perspire profusely as you frantically search for someone you know. After a few minutes of standing

alone, you notice that your muscles are tight as you prepare to enter an ongoing conversation. After you exchange greetings, there is an awkward silence, and you begin to breathe rapidly as you cannot think of anything to say.

Action scripts

A. Bicycle action scene (riding a bicycle)

On a clear Saturday morning you are riding your bicycle on a quiet country road. You breathe and sweat runs down your face while you pedal rapidly over the road. Ahead of you is a steep hill, and you tense your face and neck muscles, working to climb the hill. Your eyes look to the right at several chickens which scatter when you pass a large red barn. A rooster crows loudly from within the barn. Your heart races as you near the top.

B. Kite action scene (flying a kite)

You breathe deeply as you run along the beach flying a kite. Your eyes trace its path as it whips up and down in spirals with the wind. The sun glares into your eyes from behind the kite, and you tense the muscles in your forehead and around your eyes to block out the sunlight. You perspire freely in the warm sun. Your heart races while you run along the sand, leading the

kite, whose long white tail dances beneath the soaring red diamond.

Neutral scripts

A. Neutral bus stop script (sitting at a bus stop)

You are sitting at a bus stop on the corner of a quiet, tree-lined street. It is a bright summer day and birds are flitting among the tree branches. You feel peacefully at ease under the trees and the white, billowy clouds which drift slowly by in the blue sky. Across the street, a man in a brown shirt dozes on his patio, while a sprinkler sprays sparkling droplets of water over his lawn.

B. Neutral lawn chair script (sitting in a lawn chair)

You are sitting in a lawn chair on your porch on a summer afternoon. Leaning back, relaxed, you feel a soft warm breeze blowing across the porch. A green lawn stretches out before you, and scattered trees sway gently in the wind. Comfortable and content, you are so relaxed you hardly move while you sit in the chair enjoying the pleasant summer day.

C. Neutral living room script (sitting in a living room)

You are in your living room reading on a Sunday afternoon. Leaning back in your chair, relaxed, you look out your window. It is a sunny autumn day. Red and brown leaves float slowly down from the trees. A yellow Volkswagen goes by in the street, scattering the blanket of leaves. A gentle breeze picks up a little spiral of leaves, which dances for a moment in the middle of the street before settling again on the ground.

Relaxation instructions

Position yourself in the chair as comfortably as you can. Uncross your feet or legs if they are crossed and allow your eyes to close. Now relax the muscles of your left forearm. Let your left forearm be limp, heavy, and calm. Let the relaxation spread to the muscles of your left arm. Let your left arm relax and be calm and warm. Relax the muscles of your right forearm. Let your right arm feel calm, warm, and relaxed. Now relax the muscles of your left leg. Let your left leg feel heavy, calm, and relaxed. And now, also relax your right leg. Let the muscles of your right leg feel calm, warm, and relaxed. Now relax the

muscles near your stomach. Let the muscles near your stomach feel calm, warm, and relaxed. Now relax your forehead. Let your forehead muscles be calm, and relaxed. Let this relaxation spread to the muscles of your neck and shoulders. Let your neck and shoulders feel calm, warm, heavy, and relaxed. And now relax the muscles around your eyes. Let the muscles around your eyes by heavy, calm, and relaxed. Relax all the muscles of your body. Let your whole body be warm, calm, heavy, and relaxed.

VITA

Martin L. Boone

Candidate for the Degree of

Doctor of Philosophy

Thesis: DIFFERENTIAL MANIFESTATIONS OF GENERALIZED SOCIAL PHOBIA AND CIRCUMSCRIBED SPEECH PHOBIA

Major Field: Clinical Psychology

Biographical:

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