ABSTRACT

Title of Document: IS TEST ANXIETY A FORM OF SPECIFIC SOCIAL PHOBIA?

Tyish S. Hall, Master of Arts, 2005

Directed By: Samuel M. Turner, Ph.D., Department of Psychology

Test anxiety is characterized by a fear of negative evaluation, specifically in academic domains. This evaluative fear is often driven by social concerns that are consistent with those that are found in individuals with social phobia. The current study was designed to determine if test anxiety is a type of specific social phobia. 57 subjects completed a battery of self-report measures, underwent a semi-structured interview, and participated in a behavioral assessment task. Results showed that test anxious individuals were similar to socially phobic individuals in personality characteristics, in subjective ratings of anxiety as well as in the prevalence of feared situations. However, despite these similarities test anxious individuals did not show significant functional impairment during the behavioral assessment task as evaluated through level of performance, number of negative cognitions, and psychophysiological reactivity. Based on these results, test anxiety cannot be considered a type of specific social phobia.

IS TEST ANXIETY A FORM OF SPECIFIC SOCIAL PHOBIA?

By

Tyish S. Hall

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Master of Arts
2005

Advisory Committee:
Dr. Samuel Turner, Chair
Dr. Deborah Beidel
Dr. Barry Smith

Acknowledgements

I would like to give special thanks to my mentor and committee chairman, Dr. Samuel M. Turner, for his guidance and patience throughout this project. Also, I would like to thank my committee member Dr. Deborah C. Beidel for all her support and advice. To my final committee member, Dr. Barry Smith, I would also like to extend my appreciation and gratitude for his assistance in this endeavor.

Many thanks to my mother and father for all their love, support, and encouragement. They always know the right thing to say when I need it the most. Also, special thanks to my younger brother for helping me through the long nights at the office and putting a smile on my face when times got tough. Last but not least, I would like to thank my husband for being my rock through it all even from afar. Although we have been on separate continents for most of this project he has been a constant source of strength, motivation, and support. Thanks for always believing in me!

Table of Contents

List of Tables

Introduction

According to Sieber, O'Neil, and Tobias (1977), test anxiety refers to the set of phenomenological, physiological, and behavioral responses that accompany concern about negative consequences resulting from possible failure on an exam or similar evaluative situations. Simply put, test anxiety can be characterized as an excessive degree of fear, worry, and apprehension before, during, and/or after testing situations. Symptoms are manifested through physiological reactivity and negative cognitions centered around concern regarding poor performance (Alfano, Beidel, & Turner, 2002; Beidel, 1988; McDonald, 2001).

Furthermore, Zeidner (1998) described test-anxious students as those who have a particularly low response threshold for anxiety in evaluative situations and who tend to view evaluative situations in general, and test situations in particular, as personally threatening. As a result**,** those with test anxiety tend to react with threat perceptions, reduced feelings of self-efficacy, self-derogatory cognitions, anticipatory failure attributions, and more intense emotional reactions and arousal at the very first sign of failure.

Research investigating the overall prevalence rate of test anxiety in school age children has produced variable results. Data generated from an inventory specifically designed to measure the test anxiety construct (Test Anxiety Scale for Children; Hill & Wigfield, 1984), indicated that 4-5 million children in elementary and secondary schools experience strong, debilitating evaluation anxiety. Similarly, Eysenck and Rachman (1965) found that 20% of all school aged students experienced examination fears. In

addition, Spielberger, Pollens and Worden (1984) found that 20-40% of college students feared various social evaluative situations including test taking.

A number of studies have examined whether test anxiety manifests itself differently depending on a persons age, gender, and race/ethnicity. These studies show that in general, test anxiety increases with age until college at which point it begins to decline (Hembree, 1988; McDonald, 2001; Zeidner, 1998). In Hembree's 1998 meta-analytic study of test anxiety, students in early elementary school experienced small levels of test anxiety. However, there was a sharp increase in grades 3-5. He also found that rates of test anxiety remained fairly constant during the high school years and declined in college. In two longitudinal studies conducted by Sarason and colleagues, consistent elevations in test anxiety were found throughout elementary school using the TASC (Sarason et al., 1965; Hill & Sarason, 1966). Manley and Rosemire (1972) found that junior high school students experienced higher levels of test anxiety than their senior high school counterparts as measured by the TASC.

Test anxiety has been reported to differ as a function of gender. In general, women are considered to be more sensitive to evaluative stimuli and consequently show more anxiety in the face of negative evaluation than men (Zeidner, 1998). Thus, it seems likely that females would exhibit higher levels of test anxiety than males (Hembree, 1988; Hill & Sarason, 1966; McDonald, 2001; Zeidner, 1998). Although findings have not consistently indicated that females have a higher prevalence of test anxiety than men, available data suggest that this might be the case. For example, Hill and Sarason (1966) found that female students consistently reported higher levels of test anxiety than their male counterparts from elementary school through college. Similarly, Zeidner and Nevo

(1992) assessed 243 male and 283 female students in conjunction with Scholastic Aptitude Testing and found that on average, the female students received scores one third of a standard deviation higher than the male students on the Test Anxiety Inventory (TAI; Spielberger; 1980). They also found that female students scored higher on the emotionality component of the TAI**,** but males and females garnered equal scores on the worry scale. Despite these findings, it may be the case that these differences are due to reporting bias. Specifically, females may over-report test anxiety symptoms while males may under-report them.

With respect to race, results have been inconsistent. Some studies have suggested that minorities score higher than Caucasians on measures of test anxiety. In Hembree's 1988 meta-analytic study, African American students displayed significantly higher test anxiety than their Caucasian counterparts. Other cultural differences were also identified in Hembree's study. He reported that, similar to African American students, Hispanic students scored significantly higher on measures of test anxiety when compared to Caucasians. In another study, B.G. Turner et al. (1993) found that although 41% of the 626 African American children they sampled using the TASC suffered from test anxiety, when compared to their Caucasian counterparts, the difference did not reach statistical significance. Why these inconsistencies exist has not been determined, although many have speculated that disparities in IQ, SES, and academic environment were contributing factors. It also has been hypothesized that the differences found between Caucasian and minority populations occurred because the population used to norm the test anxiety measure was not consistent with the population they were addressing. Specifically, that the test anxiety measure may not have fully captured the symptomatology expressed by

minorities because the measure was validated using those symptoms characteristic of Caucasian individuals with this condition.

In 1975, Sarason made a distinction between two types of test anxiety. Type A and Type B test anxious groups were specified. His description of Type A test anxiety included those who get upset before, during, and after tests because of relatively isolated unfortunate experiences. On the other hand, Type B test anxiety was depicted as a more pervasive problem, characterized by anxiety and worry in other areas as well as conflict and ambivalence over achievement and being evaluated. This delineation of etiology led many to further explore the properties of the latter group and resulted in the general conclusion that fear of negative evaluation is the primary factor in test anxiety (Beidel & Turner, 1998; Zatz & Chassin, 1985).

According to the Diagnostic and Statistical Manual (DSM-IV; American Psychiatric Association, 1994), social phobia can be defined as a marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. At the crux of social phobia is a fear of negative evaluation, which is consistent with the core fear of test anxious individuals.

The commonality of core fears has led many to speculate that test anxiety is a subtype of social phobia rather than a separate disorder (Beidel & Turner 1998; McDonald, 2001). However, this hypothesis has not been explored empirically. The DSM-IV (1994) states that there are eight diagnostic criteria that distinguish social phobia from other disorders. The first is a marked and persistent fear of social or performance situations in which embarrassment might occur. Secondly, exposure to the feared situation almost invariably provokes anxiety, which may take the form of a

situationally bound or situationally predisposed panic attack. The third criterion states that the person recognizes that the fear is excessive or unreasonable. The fourth criterion requires that the feared social or performance situations are avoided or else endured with intense anxiety or distress. If the avoidance, anxious anticipation, or distress in the feared social or performance situation interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia, they will have met criterion number five. Criterion number six requires that individuals under the age of 18 must endure these symptoms for at least six months. The seventh criterion states that fear or avoidance is not due to the direct physiological effects of a substance or general medical condition and is not better accounted for by another mental disorder. The last criterion establishes that if a general medical condition or another mental disorder is present, the fear in the first criterion is unrelated to it.

When the change was made from the DSM-III to the DSM-III-R, the criteria were more explicit in their description of the nature of social phobia. Within this description, specifications were made that identified two possible subtypes of this disorder, a generalized and a specific subtype. The generalized subtype was characterized as a pervasive form of social phobia. In this subtype, fears were related to most social situations and usually included fears that manifested in both public performance and social interactional situations. The specific subtype encompasses a fear of single performance situations as well as the experience of anxiety in several, but not most, situations. It is this specific subtype of social phobia that appears to be very similar in nature to the pervasive form of test anxiety.

Based on the commonality of core fears, the distinction between generalized and specific subtypes of social phobia, the differentiation between Type A and Type B test anxiety, and the similar symptomatology between test anxiety and social phobia, further investigation into the relationship of these two conditions is required to elucidate the nature of their differences. The purpose of this study was to determine whether test anxiety could be considered a form of specific social phobia.

Methods

College students with test anxiety were assessed to determine whether their symptoms were similar to those exhibited by other individuals with specific social phobias. To make this determination, characteristics of both test anxious and non-test anxious populations were evaluated. This evaluation allowed for further comparisons of overall symptomatology across established characteristics of phobias. Six specific domains were examined based on identified characteristics of impairment in phobic individuals: (1) feared situations, (2) depressive mood states, (3) psychophysiology, (4) subjective anxiety, (5) negative cognitions, and (6) performance.

Hypotheses

Based on past findings, it was expected that individuals with test anxiety would exhibit characteristics of individuals with phobias, including marked avoidance when possible and increased arousal when faced with an anxiety-provoking situation. Given the expectation of increased arousal, it also was hypothesized that those with test anxiety would not perform as well as controls on the behavioral assessment task. Furthermore, it was predicted that the severity of social phobia symptoms would be positively correlated with the presence of test anxiety. In addition, the relationship between test anxiety and

other co-occurring disorders was investigated with the expectation that individuals with test anxiety would have a higher prevalence rate of co-occurring psychiatric disorders as compared to their non-test anxious counterparts.

Subjects

Students taking introductory psychology courses at the University of Maryland-College Park were recruited for this study through the departmental subject pool using the Experimetrix web enrollment. Each student who qualified for this study received class credit for his or her participation. A total of 60 students were selected to participate based on their self-report of test anxiety, (29 individuals with test anxiety and 31 without test anxiety). The Test Anxiety Inventory (TAI; Spielberger, 1980) was used to screen for test anxiety. Previously established cutoff scores, males: TA = 50, C = 26; females: TA = 56, C = 28 (Spielberger, 1980), were applied to make this distinction. For this study the mean scores for both the test anxious population and the non-test anxious population were as follows: males TA = 57.35 (5.00), C = 23.21 (1.85); females TA = 61.78 (3.63), C = 24.00 (1.90). Once selected, each participant was asked to read and sign an informed consent form that outlined the risks and benefits of the study. After consent was obtained, each participant underwent a computerized diagnostic assessment, filled out self-report measures, and completed a behavioral assessment task in randomized order. The tasks will be described in detail below.

Assessment

Diagnostic Interview

Composite International Diagnostic Interview (CIDI; WHO, 1990). All participants underwent a computerized diagnostic interview using the CIDI to asses Axis I disorders. The CIDI is a product of a joint project undertaken by the World Health Organization and the former United Sates Alcohol, Drug Abuse, and Mental Health Administration. The CIDI uses the definitions and criteria found in the ICD-10 and DSM-IV to assess psychiatric disorders. Sufficient psychometric properties of the CIDI have been established both when administered by a clinician or lay person as well as when self-administered (Blanchard & Brown, 1998; WHO, 1993; Peters & Andrews, 1995; Witchen, 1994) When administered by a clinician or lay person, the Kappa coefficient ranged from **.**5-.99 (Wittchen, 1994). Studies of concurrent validity, CIDI vs. Clinician's checklist as well as CIDI vs. independent clinicians' diagnosis yielded Kappas of .77 and .73-.83 respectively (Wittchen, 1994).

Self-Report Inventories

Functional Impairment Questionnaire. Each participant was interviewed using an adapted version of the social phobia component of the Anxiety Disorders Interview Schedule (ADIS for DSM-IV**;** Silverman & Albano, 1996)**.** The adaptation of the social phobia module consisted of questions that were reworded to reflect worries and fears experienced in situations specific to test evaluative situations. This adaptation was specifically designed to delineate the extent of fear and avoidance individuals may experience due to test anxiety.

Social Phobia and Anxiety Inventory (SPAI; Turner et al., 1996). The SPAI was used to measure social phobia symptoms. The SPAI has high test-retest reliability, differentiates social phobics from normal controls and other anxiety patients (Turner et al., 1996), has adequate concurrent and external validity (Beidel et al., 1989a; 1989b), and is one of the few self-report measures of social phobia that has been shown to reflect both statistically reliable and clinically significant change as a result of treatment (Beidel et al., 1993).

Beck Depression Inventory-II (BDI-II; Beck, 1996). The BDI-II is a well-known 21 item self-report inventory designed to assess symptoms of depression. Internal consistency has been demonstrated using psychiatric and non-psychiatric populations signified by alpha coefficients of .92 and .93 respectively (Beck, Steer, & Brown, 1996). Test-retest reliability has been reported to be .93 based on a one week re-testing interval on a psychiatric population. Concurrent validity has been established using the Hamilton Psychiatric Rating Scale for Depression (.71), the Beck Hopelessness Scale (.68), and the Beck Anxiety Inventory (.60).

Eysenck Personality Inventory- Revised (EPQ-R; Eysenck & Eysenck, 1991). The EPQ-R is a 94-item self-report inventory that assesses three major dimensions of personality, Extroversion-Introversion, and Pyschoticism. It also includes a lie scale measuring valid responding. Test-retest reliabilities were high for each scale, (psychoticism, .71; extroversion, .92; introversion, .89; lie scale, .83).

Behavioral Assessment Task

To determine anxiety during testing situations, each subject participated in a behavioral assessment task designed to assess physiological response, subjective distress, anxiety symptoms, and actual performance.

Each participant was given an age-appropriate reading comprehension test taken from an American College Testing practice exam (ACT**;** Lindquist & McCarrel, 1959)**.** This format was used to ensure that all participants would have minimal difficulty with the material. Before taking the test each participant was informed that they would be given a limited amount of time to read a short passage and answer the ten questions that followed. To increase the face validity of the task, participants were visibly timed using a handheld stopwatch. Each subject was given 8 minutes to read the material and 7 minutes to answer the questions.

Psychophysiological Assessment

Blood pressure and pulse rate were monitored with an IBS Corporation SD-700-A automatic blood pressure/pulse rate monitor. Readings were taken at two-minute intervals according to the following schedule: Baseline (0,2,4,6); Anticipatory (0,2,4,6), and Examination (0,2,4,6).

Cognitive Assessment

After completion of the task, subjects recorded any thoughts that were present during the reading or examination part of the task on a designated form. The thoughts were then categorized as positive, negative or neutral by independent raters unaware of the subject's group assignment. Inter-rater reliability was established for approximately 20% of the cognitive responses (kappa = .86 overall).

Finally, the participants rated their level of distress using the Subjective Units of Distress Scale (SUDS), a nine point likert scale ranging from 0 (no distress) to 8 (extreme anxiety).

Results

After qualification through an initial screen, a total of 60 participants were selected for this study. 29 met criteria for test anxiety and 31 did not based on the score they received on the TAI. Of the 29 test anxious individuals, 3 were disqualified due to a diagnosis of current depression, which was revealed in the results from the CIDI diagnostic schedule. The total sample population was primarily Caucasian, (64.9%), in accordance with the overall demographic structure of the Washington metropolitan area (see Table 1). The sample consisted of 31 male and 26 female participants. Chi-Square analyses were conducted to determine if significant differences existed between gender, age, race/ethnicity, and group (test anxious vs. non-test anxious). The results were nonsignificant, $p < .05$.

Table 1

Demographic Information

Demographic Variable	High TA (n = 26)	Low TA (n = 31)	*P*
Age	M = 19.08 SD = .935	M = 19.52 SD = 2.42	NS
Gender	(F) n = 9 (M) n = 17	(F) n = 17 (M) n = 14	NS
Race/Ethnicity			NS
African-American Asian Caucasian Hispanic Other	n = 3 n = 5 n = 14 n = 2 n = 2	n = 2 n = 2 n = 23 n = 2 n = 2	

No significant differences were found; all *p* values were greater than .05

Using the CIDI, 7 (10.5%) of the 57 subjects qualified for a diagnosis of social phobia. Chi Square analysis revealed that no differences existed between the test anxious and non-test anxious groups with regard to the proportion of socially anxious individuals in each population [X^2 (1, 57) = .428, p >.05]. This means that although test anxious individuals had fears associated specifically with testing situations, as expected, they were not more likely to have other fears associated with general social phobia.

It was predicted that those who had test anxiety would perform more poorly than those without test anxiety on an analogue task. T-tests were used to compare group

differences between the subject's scores on the ACT reading comprehension test as well as speed in answering the questions that followed. The results revealed no significant differences (p = .387 and p = .063 respectively; See table 2).

T-tests were used to compare overall group differences on diastolic and systolic blood pressure, pulse rate, and subjective ratings of distress at baseline as well as during the behavioral assessment (see Tables 3 & 4). Change scores were calculated by subtracting the average time 1 score, (the anticipatory phase), from the average baseline score and by subtracting the average time 2 score (the examination phase) from the average baseline score for each variable. The two groups did not differ on diastolic and systolic blood pressure readings or their pulse rates over time; however, significant differences were found in their reported subjective ratings of distress. Test anxious individuals and controls differed significantly at each assessment point as well as in overall change in anxiety from baseline to time 2 (see Table 5 & Graph 1). This suggests that individuals with test anxiety reported greater anxiety before, during, and after the task. Test anxious participants also experienced a greater increase in overall distress from baseline through the examination phase.

Table 2

Analogue Task

	TA Mean (SD) n = 26	**Control** Mean (SD) n = 31	**T value**
ACT Comprehension	6.50 (2.25)	7.39 (1.76)	1.67
ACT Speed (mins.)	6.03 (.91)	5.44 (1.34)	-1.90

No significant differences were found; all *p* values were greater than .05

Table 3

Psychophysiological Readings

T – test analyses of the change in blood pressure or pulse from baseline to anticipatory or examination phase

	TA Mean (SD) n = 26	**Control** Mean (SD) n = 31	**T value**
Change			
BP-T1 SBP	1.29 (5.45)	1.64 (4.02)	.277
BP-T2 SBP	1.72 (7.68)	1.38 (5.13)	-2.00
Change			
BP-T1 DBP	-2.70 (8.45)	-1.24 (3.69)	.87
BP-T2 DBP	-1.45 (6.71)	-3.91 (5.19)	-1.54
Change			
BP-T1 P	-2.86 (4.52)	-2.81 (4.68)	.03
BP-T2 P	-7.02 (6.41)	-6.70 (6.38)	.19

SBP = Systolic Blood Pressure; DBP = Diastolic Blood Pressure; P = Pulse
BP = Baseline phase; T1 = Anticipatory phase; T2 = Examination phase
No significant differences were found; all *p* values were greater than .05

Table 4

SUDs Change Scores

T – test analyses of the change in SUDs from baseline to anticipatory or examination phase

	TA Mean (SD) n = 26	**Control** Mean (SD) n = 31	**T value**
Change BP-T1	.74 (.76)	.37 (.70)	-1.91
Change BP-T2	2.25 (1.51)	1.40 (1.44)	-2.16*

BP = Baseline phase; T1 = Anticipatory phase; T2 = Examination phase

* T-value significant; $p < .05$

Table 5

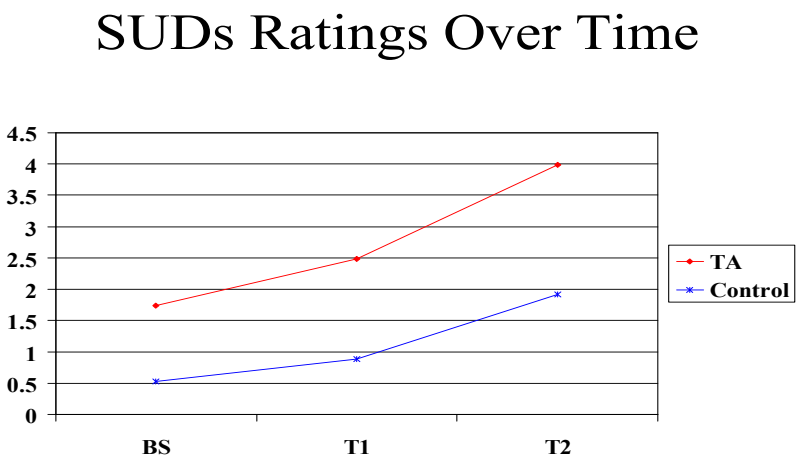
SUDs Actual Scores

T-test analyses of subjective ratings of anxiety during each phase of the behavioral task

	TA Mean (SD) n = 26	**Control** Mean (SD) n = 31	**T value**
Avg. SUDS Baseline	1.74 (1.18)	.52 (.83)	-4.59*
Avg. SUDs Anticipatory	2.48 (1.34)	.89 (1.17)	-4.79*
Avg. SUDs Exam	3.99 (1.94)	1.92 (1.78)	-4.19*

* T-value significant; $p < .01$

Graph 1



T-tests were conducted to identify differences between groups on cognitive responses before and during the test. No differences were found with regard to the number of positive, negative, or neutral responses recorded by the subjects ($p > .05$; see Table 6).

Table 6

Cognitions

T-test analyses of the number of positive, negative, and neutral cognitions

	TA Mean (SD) n = 26	**Control** Mean (SD) n = 31	**T value**
Total Pos. Cogs	.50 (.81)	.94 (1.06)	1.71
Total Neg. Cogs	.88 (1.28)	.58 (.81)	-1.09
Total Neut. Cogs	1.38 (1.24)	1.45 (1.21)	.207

There were no significant differences; all *p* values were greater than .05

Group differences were noted on several self-report rating scales. Using the EPQ-R differences were found to exist on the extraversion and neuroticism scales [$F(1,56) = 8.389$, $p < .01$ and $F(1,56) = 25.752$, $p < .01$], where the mean score for extraversion was highest for the control group and the mean score for neuroticism was highest for the test anxious group (see Table 7). In addition, Pearson's correlation coefficients were used to investigate the relationship between social anxiety symptoms, depression symptoms, and the degree of test anxiety. Significant positive correlations were found among each possible combination. A low correlation was found between

higher test anxiety scores as measured by the TAI and more severe social anxiety symptoms as measured by the SPAI, r = .383, $p < .01$ (see Table 8). Furthermore, high levels of depressive symptoms were minimally correlated with severe social anxiety symptoms and highly correlated with higher levels of test anxiety, r = .262, $p < .05$ and r = .601, $p < .01$ respectively.

Table 7

Self-Report MANOVA Scores

	High TA Mean (SD) n = 26	**Low TA** Mean (SD) n = 31	**F value**
BDI-II	14.38 (7.26)	5.55 (4.83)	33.09*
SPAI TOT	54.81 (24.90)	30.12 (29.13)	11.58*
EPQR_P	7.77 (4.89)	8.42 (3.88)	.314
EPQR_E	12.62 (4.77)	16.19 (4.54)	8.39*
EPQR_N	14.54 (4.93)	7.58 (5.33)	25.75*
EPQR_L	7.65 (3.11)	7.97 (3.68)	.118

* F-value was significant; $p < .01$

Table 8

Correlation Table

	SPAI (N = 57)	TAI (N = 57)	BDI-II (N = 57)
SPAI	----	.383**	.262*
TAI	.383**	----	.601**
BDI-II	.262*	.601**	----

** Correlation was significant; $p < .01$
* Correlation was significant; $p < .05$

Components of functional impairment were assessed by comparing fear and avoidance in specific testing situations. Ratings of fear and avoidance were summed and the total score for each experimental group was compared. T-tests were used to determine whether the test anxious individuals were fearful in and avoided more testing situations than their non-test anxious counterparts. The results indicated that the two groups were significantly different in both areas. Specifically, test anxious individuals were fearful in more testing situations and practiced avoidance more often than the non-test anxious participants [fear TA = 4.73(1.78), C = 2.03(1.72), $p < .01$ and avoidance TA = 2.95 (1.68), C = .77(1.21), $p < .01$]. Also, using Fisher's Exact Test, it was determined that the groups differed in the number of fears reported on seven of the eight specific fear questions and on the rates of avoidance in five out of seven situations (see Tables 9 & 10). Overall, the two groups only reported similar levels of fear when asked

to read aloud/give an oral report and similar levels of avoidance when asking the teacher a question/asking for help during a test or when reading aloud/giving an oral report.

Table 9

Feared Situations

Percent of individuals in each group that responded yes to each question

	% Yes Responses Within Group (T) n = 26 (C) n = 31	Fisher's Exact Test N = 57
#1 Answering questions in class that pertain to test items	T = 53.8% C = 9.7%	13.18**
#2 Oral reports or reading aloud for a grade	T = 61.5% C = 41.9%	2.17
#3 Turning in written reports for a grade	T = 53.8% C = 19.4%	7.39**
#4 Asking teacher a question or asking for help during test	T = 34.6% C = 9.7%	5.29*
#5 Taking tests	T = 80.8 % C = 35.5%	11.78**
#6 Studying for tests	T = 42.3% C = 6.5%	10.33**
#7 Writing on the chalkboard for a grade	T = 52.0% C = 19.4%	6.58*
#8 Forgetting answers to a test/ "blanking"	T = 96.2% C = 58.1%	11.07**

T = Test anxious group; C = Control group

** Fisher's Exact Test was significant; $p < .01$

* Fisher's Exact Test was significant; $p < .05$

Table 10

Avoided Situations

Percent of individuals in each group that responded yes to each question

	% Yes Responses Within Group (T) n = 26 (C) n = 31	Fisher's Exact Test N = 57
#1 Answering questions in class that pertain to test items	T = 57.7% C = 11.1%	12.81**
#2 Oral reports or reading aloud for a grade	T = 56.0% C = 28.6%	4.09
#3 Turning in written reports for a grade	T = 34.6% C = 0.0%	11.26**
#4 Asking teacher a question or asking for help during test	T = 28.0% C = 14.3 %	1.51
#5 Taking tests	T = 45.8% C = 0.0%	16.28**
#6 Studying for tests	T = 40.0% C = 10.7%	6.12*
#7 Writing on the chalkboard for a grade	T = 56.5% C = 17.9%	8.27**

T = Test anxious group; C = Control group

** Fisher's Exact Test was significant; $p < .01$

* Fisher's Exact Test was significant; $p < .05$

Finally, the prevalence of other disorders was examined between the two groups. Chi-squared analysis indicated no significant differences in the proportion of co-occurring diagnoses between the test anxious and the non-test anxious populations.

Discussion

It has been speculated that test anxiety, specifically Type A test anxiety, is related to social phobia (Beidel & Turner 1998; McDonald, 2001). However, there have been no studies to date that directly addressed this issue. This study was designed to investigate whether test anxiety is a form of specific social phobia. To accomplish this, the characteristics associated with test anxious individuals during an anxiety provoking task as well as through self-report and interview measures were examined to determine if those individuals manifested a clinical presentation characteristic of a phobia, particularly specific social phobia.

It is important to note the significant differences found in this study between those with test anxiety and those without test anxiety. The results showed several significant distinctions. First, although the groups did not differ on blood pressure (systolic & diastolic) or pulse ratings, test anxious individuals reported elevated ratings of subjective distress in all phases of the anxiety provoking event as well as larger increases in levels of anxiety from baseline to the end of the examination. In addition, test anxious individuals endorsed a greater number of feared situations and exhibited higher avoidance rates of those feared situations than their non-test anxious counterparts. Higher neuroticism and lower extraversion scores were also associated with the test anxious population. Finally, test anxious individuals had significantly more socially phobic and depressive symptomatology than individuals without test anxiety. Consistent

with a school-aged population from previous studies (Hembree, 1988; Nottleman & Hill, 1977; Wigfield & Eccles, 1988), these differences suggest that functional impairment may also exist in an undergraduate population with test anxiety.

Previous studies have found that the following symptoms are associated with social phobia: persistent and heightened fear of social or evaluative situations, functional impairment in at least one situational domain, frequent avoidance of feared situations and consistently elevated physiological states when placed in the feared situations (Beidel & Turner, 1998; Beidel, Turner, & Morris, 1998; Fairbrother, 2002; Goisman, 1983). In addition, DSM-IV criteria differentiate between specific and generalized subtypes of this disorder through the pervasive nature of the fears. The specific subtype is described as one in which a person fears a single performance situation as well as one who fears several, but not most, situations. This is in contrast to the generalized subtype where a person fears most social/evaluative situations.

Overall, the results of this study suggest that test anxious undergraduate students do not consistently exhibit similar symptomatology to individuals with a specific social phobia. Although the test anxious subjects in this study displayed marked avoidance and experienced many fears associated with test taking they did not exhibit elevated physiological states or severe levels of fear. Additionally, behavioral assessment in this study revealed that they do not exhibit the same performance impairment as has been reported for socially anxious individuals during similar tasks. Furthermore, diagnostic interview revealed that those with test anxiety were not likely to have an elevated number of co-occurring disorders. In contrast, test anxious individuals did exhibit elevated levels of social phobia symptoms.

In determining whether test anxiety is consistent with the category of a phobia, several domains were evaluated, personality variables, evaluative fears/worries, avoidance, depressive symptomatology, social anxiety symptoms, physiological arousal, performance, cognitions, and comorbidity. Personality characteristics of test anxious individuals were consistent with those found in socially anxious individuals. This study revealed that test anxious individuals scored low on the extraversion scale and high on the neuroticism scale. Extraversion and neuroticism are personality traits that have been associated with pessimistic, moody, reserved, anxious, and rigid personality schemes (Eysenck & Eysenck, 1994). Previous studies have shown that both introversion and neuroticism are consistent personality characteristics exhibited by socially phobic individuals as well (Beidel, Turner, & Morris, 1998; Beidel, Turner, & Morris, 2000; Stemberger, Turner, Beidel, & Calhoun, 1995). These similarities suggest that personality traits of test anxious individuals are analogous to those with social phobia, indicating the possibility of similar personal dispositions.

Consistent with previous studies, test anxious individuals reported a greater number of test evaluative fears and greater avoidance of feared situations. Differences were found in seven of the eight possible feared situations and in five out of seven possible avoidance situations. The large number of endorsed fears in regard to specific feared situations and high levels of avoidance are similar to what is characteristic of phobic individuals (Goisman, 1983; Turns, 1985).

Beidel and Turner (1988) suggested that test anxious children might suffer from increased overall general anxiety. These investigators reported that when compared to children with low test anxiety, the high test anxious group reported more depressed mood

states as well as more fears and worries. In this study, test anxiety was positively correlated with symptoms of depression, but was not found to be associated with a higher prevalence of MDD. In addition, when symptoms of social phobia and anxiety were measured through self-report, those with test anxiety reported an elevated level of socially anxious symptoms. This elevated level of symptoms falls within the range that corresponds to cutoff points (one standard deviation above and below the mean, 73.4 +/- 20.4) used to differentiate socially anxious college students from non-socially anxious college students (Turner, Beidel, Dancu, & Stanley, 1989). Thus, although few participants with test anxiety actually met diagnostic criteria for social phobia, they nonetheless experienced considerable social distress in "typical" socially phobic situations, thereby reinforcing the notion of a higher degree of overall general arousal.

Next, to address whether those with test anxiety demonstrate the "typical" phobic response of increased physiological arousal and subjective distress when confronted with a feared situation, blood pressure, pulse, and level of subjective distress were evaluated during an academic testing situation. Previous research has documented consistent elevated heart rate as well as larger heart rate changes in socially anxious individuals during an evaluative task when compared with non-socially anxious peers (Beidel, 1988). However, no significant differences were found between test anxious and non-test anxious groups when comparing diastolic, systolic, and pulse ratings in this study. This might have occurred because the undergraduate participants understood that their performance in this optional exercise would not affect their grades, thereby decreasing external evaluation pressure, resulting in less physiological symptom expression. However, consistent with previous outcomes, significant differences did occur when

participants were asked to subjectively rate their baseline, anticipatory and testing levels of anxiety. Beidel, Turner, and Morris (1998) found elevated subjective anxiety ratings when they compared individuals with social phobia to those without the disorder. Similarly, this study demonstrated that test anxious individuals reported higher levels of anxiety during all three phases of the behavioral assessment when compared to their non-test anxious counterparts. In addition, they exhibited a significantly larger increase in their level of anxiety over time from baseline through the examination phase. Nevertheless, despite this significant difference, when the mean anxiety rating of test anxious individuals in this study was compared to the anxiety rating associated with severe to very severe impairment, the test anxious individuals displayed only a moderate level of anxiety. Thus, although their reports of anxiety were elevated, they did not reach the level that might be expected within a phobic population.

Several studies have shown a relationship between test anxiety and poor test performance in school-aged children (Nottleman & Hill, 1977; Hembree, 1988; Wigfield & Eccles, 1989). The results of this study did not support these previous findings. Although small differences were found when the mean test scores and completion times were compared, overall performance differences were not statistically significant. These inconsistent findings might be explained by differences in the evaluative task and the overall motivation of the undergraduate population to succeed during the task (Cassady, 2004). It was shown that the task elicited only moderate rather than severe or extreme levels of distress. Additionally, sample size and/or an atypical sample could have been factors that contributed to this difference. It is conceivable that only overachieving

students took advantage of the extra credit opportunity thereby creating an atypical sample.

In 1989, Wigfield and Eccles reported that test anxious individuals were prone to more frequent negative cognitions during evaluative situations. Analysis of cognitive data in this study suggests the opposite. The prevalence of negative cognitions in the test anxious population did not significantly differ from that in the non-test anxious population, and in fact were virtually non-existent. However, it is important to note that these findings were based on non-structured self-reports and should be interpreted with caution.

The co-occurrence of test anxiety with a DSM-IV diagnosis of social phobia also was examined. Although those in the test anxious group endorsed higher levels of social anxiety symptoms, most did not meet full DSM-IV criteria for social phobia. In fact, only four (15.4%) of the 26 high test anxious subjects received a DSM-IV diagnosis of social phobia, a percentage that was not significantly different from the number of social phobics in the control group. This finding suggests that although test anxious individuals may experience fear in numerous testing situations, as expected, the majority do not endorse anxiety in other situations typically associated with generalized social phobia.

To summarize the findings of the current study, it appears that the overall characteristics of test anxious undergraduates are different from non-test anxious undergraduates and that the symptomatology of test anxious individuals is similar, but not identical, to that of individuals with phobias (see table 11). The results indicated that although differences from the normal population existed in the test anxious population, several of the differences did not reach a level of severity commensurate with what would

be expected of a phobic population. This suggests that test anxiety should not be considered a type of phobia, thus indicating that it cannot be characterized as a type of specific social phobia.

Table 11

Test Anxiety vs. Phobic Symptoms

A comparison of the results from this study to symptoms characteristic of social phobia

Characteristics of a Phobia	Supported
Inc. Anxiety:	
Psychophys.	No
SUDs	No*
Inc. Avoidance	Yes
Negative Cognitions	No
Elevated # of Fears	Yes
Elevated SPAI Scores	Yes
Elevate Depressive Sx	Yes
Performance	
Comprehension	No
Speed	No
Personality Traits	
Low Extraversion	Yes
High Neuroticism	Yes

* Although the test anxious SUDs ratings were significantly elevated compared to controls, only moderate levels of anxiety were reported overall in the test anxious sample.

This study represents a critical first step in unraveling the relationship of test anxiety to specific social phobia. Although, results from this investigation indicate that those with test anxiety do not reliably have an overall clinical presentation consistent with that of a phobia, a percentage of test anxious individuals may meet diagnostic criteria for generalized or specific social phobia. These limited cases will need to be assessed independently to determine if qualitative differences exist. In addition, it is important to note that those who present with this condition are able to function at varying levels despite similar classification based on self-reported levels of anxiety. It is conceivable that many of the participants in this study failed to show severe performance impairment during the behavioral assessment task because of enhanced coping skills that make it possible for them to attend college and function in stressful environments. Those with the most severe test anxiety may have such significant functional impairment that they avoided evaluative settings by not enrolling in college and thus were self-selected out of this sample. To more accurately assess performance impairment, future studies should include subjects with test anxiety who did not attend college, multiple reports from additional informants, such as report cards, teacher reports, and/ or parental reports, a testing situation with external consequences, (i.e. a test that would impact their class grade) as opposed to one that relies upon internal motivation to general competition. Longitudinal investigations that follow test anxious subjects from childhood through early adulthood might also prove to be beneficial. These variables would allow for a more informative picture regarding overall functional impairment of test anxious individuals.

Appendixes

Appendix A

Literature Review

Introduction

A review of the literature reveals that Test Anxiety is a condition that has been of interest to scholars since the beginning of the twentieth century (Zeidner, 1998). The earliest scientists focused on physiological indicators of anxiety during testing situations through the use of glycosuria measurements before and after examinations. Later researchers introduced the use of self–report measures that operationalized test anxiety and allowed for programmatic research within the field (Zeidner, 1998). Conceptual distinctions also evolved which ranged from focus on multi-dimensional features of the condition (Liebert & Morris, 1967) to the discussion of personality states vs. traits (Spielberger et al., 1976). It is through these past efforts that our current understanding of test anxiety has developed.

According to Sieber, O'Neil, and Tobias (1977), test anxiety is a scientific construct that refers to the set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situations. Simply put, test anxiety can be characterized as an excessive degree of fear, worry, and apprehension before, during, and/or after testing situations whose symptoms are manifested through physiological reactivity and negative cognitions centered around concern regarding poor performance (Alfano, Beidel, & Turner, 2002; Beidel, 1988; McDonald, 2001).

Furthermore, Zeidner (1998) described test-anxious students as those who have a particularly low response threshold for anxiety in evaluative situations, tending to view evaluative situations in general, and test situations in particular, as personally threatening. As a result, the test anxious tend to react with threat perceptions, reduced feelings of self-efficacy, self-derogatory cognitions, anticipatory failure attributions, and more intense emotional reactions and arousal at the very first hint of failure.

Prevalence

The prevalence rates for test anxiety have been examined using two different methods. The first method originated through the use of inventories that focused on anxiety as a general construct. These measures incorporated over a hundred questions that asked about fears and worries an individual may have in a given situation. Once the inventories were completed, factor analysis was used to group the questions into major categories. From that point, researchers inferred information regarding the prevalence of test anxiety based on how often a particular question was answered within the overall category. The second method originated in the 1960s when Sarason and colleagues pioneered the development of the first operational self-report measure of test anxiety for both children and adults. The Test Anxiety Questionnaire (TAQ) and the Test Anxiety Scale for Children (TASC) paved the way for systematic examination of the effects of evaluative anxiety on learning and performance (Zeidner, 1998). Many other inventories followed, in particular the Test Anxiety Inventory (TAI; Spielberger, 1980) has become widely used in contemporary research. The prevalence data included in this review will primarily focus on the second method; using prevalence rates produced from inventories specifically designed to measure the test anxiety construct.

It has been reported that test anxiety is the most common source of distress in school-aged children (Angelino, Dollins, & Mech, 1956; Barrios, Hartman, & Shigetomi, 1981; Jerslid, Goldman, & Loftus, 1941; Sarason, Davison, Lighthall, Waite, & Ruebush, 1960) but the specific numbers on overall prevalence vary. Hill and Wigfield (1984) extrapolated from Hill and Sarason's 1966 study that used data generated from the TASC and suggested that 4-5 million children in elementary and secondary schools experience strong debilitating evaluation anxiety. Eysenck and Rachman (1965) found that 20% of all school age students experience examination fears and in terms of the college student population, Spielberger, Pollens and Worden (1984) found that 20-40% of these students fear various social evaluative situations, including test anxiety.

A Number of studies have examined ways in which the prevalence of test anxiety manifests itself in terms of age, gender, and race/ethnicity. A review of the literature reveals that in general test anxiety increases with age until the college years at which point it begins to decline (Hembree, 1988; McDonald, 2001; Zeidner, 1998). In Hembree's 1998 meta-analytic study of test anxiety, it was found that students in early elementary school experienced small levels of test anxiety. However, the prevalence of test anxiety exhibited a sharp increase in grades 3-5. He also found that levels of test anxiety remained fairly constant during the high school years with a tendency to decline in college. In two longitudinal studies conducted by Sarason and colleagues, consistent elevation in test anxiety was found throughout the elementary school years using the TASC (Sarason et al., 1965; Hill & Sarason, 1966). Manley and Rosemire (1972) found that junior high school students experienced higher levels of Test Anxiety than their senior high school counterparts as measured using the TASC.

Test anxiety differs based on gender. In general, women are considered to be more sensitive to evaluative stimuli and consequently show more anxiety in the face of negative evaluation than men (Zeidner, 1998). Thus, it would seem to follow that females exhibit higher levels of test anxiety than males (Hembree, 1988; Hill & Sarason, 1966; McDonald, 2001; Zeidner, 1998). Although it is not clear that females have a higher prevalence of test anxiety, available data suggest that they have higher levels of test anxiety than males. For example, Hill and Sarason (1966) found that female students consistently reported higher levels of test anxiety then their male counterparts from elementary school through high school and college. Similarly, Zeidner and Nevo (1992) assessed 243 male and 283 female students in conjunction with Scholastic Aptitude Testing and found that on average, the female students received scores one third of a standard deviation higher than the male students on the TAI. They also found that female students scored higher on the emotionality component of the TAI, but males and females garnered equal scores on the worry scale.

With respect to race, African Americans scored higher than Caucasians on the same measures. In Hembree's 1988 meta-analytic study, African American students displayed significantly higher test anxiety levels than Caucasian students. B.G. Turner et al. (1993) found that 41% of the 626 African American children they sampled using the TASC suffered from test anxiety. Although this percentage was higher than those of the Caucasian population, the difference did not reach statistical significance. However, from the fifth grade on this difference declines until essentially equivalent in the high school years. Other cultural differences were also identified in Hembree's (1988) study. He reported that, similar to African American students, Hispanic students scored

significantly higher on measures of test anxiety when compared to Caucasian students. Why these differences exist has yet to be determined although many have speculated that disparities in IQ, SES, and academic environment were contributing factors. It has also been hypothesized that the differences found between Caucasian and minority populations were due to the fact that the population used to norm the test anxiety measures was not consistent with the population they were addressing.

Characteristics

Test anxiety has been found to have a number of detrimental consequences for school age children. Beidel and Turner (1988) noted that test anxious children suffer from increased general anxiety. In a study of 50 children (25 test anxious and 25 non-test anxious) designed to assess comorbidity of test anxiety and other anxiety disorders in children, these investigators found that the test anxious group reported more fears and worries than the non-test anxious group. The fears and worries that the children experienced were not limited to testing or performance evaluative situations, but included worries about their own health/safety, as well as that of their family and friends. In addition, test anxious children reported more depressed mood states than their counterparts. Consistent with the findings from this study suggesting a heightened general anxiety state in test anxious children, Beidel (1988) found that children with test anxiety had significantly larger changes in heart rate during an evaluative task than their non-anxious peers. She also found that test anxious children maintained a constant elevated heart rate during the evaluative task.

In a review of the literature on the emotional effects of test anxiety, Wigfield and Eccles (1989) reported that test anxious individuals were prone to frequent negative

cognitions during evaluative situations, causing them to divide their attention between the task and their ruminations. Hence, it appears that test anxious individuals are preoccupied to some extent with their own ruminations during testing rather than focusing all attention on the task at hand. In addition to a general anxious state in the testing situation, and the tendency to attend to non-test related ideation during testing, Ollendick and Mayer (1984), as well as Campbell (1986), reported that test anxious children suffer from low self-esteem, dependency, and passivity.

With respect to social functioning, extant research has revealed three main findings: test anxiety routinely causes poor test performance, test anxiety is associated with social isolation, and those who are test anxious have less overall academic success. With respect to poor test performance, Nottleman and Hill (1977) evaluated test anxiety and off-task behavior in evaluative situations. Using 48 fourth and fifth grade students, they found that high test anxious students glanced away from their task much more frequently and showed the poorest performance overall on the two anagram tasks that were presented. A 1988 meta-analytic study conducted by Hembree using 562 reports of research produced further support for the negative effects of test anxiety on test performance. Hembree found that test anxiety and performance were significantly related from third grade on. From these studies he found that the relationship between test anxiety and performance was inverse in nature and that the relationship had a tendency to have a stronger correlation with the worry component of test anxiety than for the emotionality component. Similarly, ten years later, a review of the literature by Wigfield and Eccles (1988) reported that as many as 10 million students in elementary and

secondary school perform poorer on tests than they should because anxiety and deficiencies in test-taking strategies interfere with test performance.

The second overall finding in the area of social functioning suggested that test anxiety was associated with social isolation. Beidel and Turner (1988), using self-report indices found that test anxious children spent more of their free time engaged in solitary activities and were more likely to name someone they consider an enemy then their non-anxious peers. Hembree's (1988) meta-analytic study also lends credence to this conclusion. The Hembree findings revealed that high test anxious college students appeared significantly less sociable than their low test anxious peers. He also found that high test anxious college students possessed a lower sense of well-being, less self-acceptance, less self-control, less acceptance of responsibility, lower capacity for status, less tolerance, and lower intellectual efficiency than low test anxious students. Furthermore, Campbell (1986) noted that children who are test anxious might be more generally anxious about their competence in a number of areas that may interfere with cognitive development, achievement, and social relationships.

Finally, the third conclusion in the realm of social functioning suggested that test anxious individuals have less overall academic success. Hill and Sarason (1966) conducted a longitudinal study to assess the relation of test anxiety and defensiveness to test and school performance over elementary-school years. Their research revealed that high test anxious children scored lower on achievement tests, received lower report card grades, and were more prone to grade repetition than low test anxious children. Zeidner (1998) reported that when intelligence is introduced as a moderator, high test anxious individuals exhibit lower overall academic functioning then their low test anxious peers.

Finally, Zuriff (1997) noted that for some people test anxiety is a chronic life-long affliction that forces individuals to learn to cope with the disappointment of grades that do not accurately reflect their knowledge.

Comorbidity

It has been shown that anxiety disorders as a group are often comorbid with each other as well as with other DSM disorders (Beidel, Ferrell, Alfano, & Yeganeh, 2001; DSM-IV, 1994; McDonald, 2001; Turner & Beidel, 1988). Due to this prevalence of comorbidity in anxiety in general, it is important to be aware of any disorders that may be comorbid with test anxiety specifically. In their 1988 study, Beidel and Turner found that 60% of the test anxious children they sampled endorsed anxiety symptoms that met DSM-III criteria for an anxiety disorder. Of the 25 test-anxious children, 6 met diagnostic criteria for Social Phobia, 6 for Overanxious Disorder, 1 for Simple Phobia, and 2 for Separation Anxiety. Gitteleman (1984) also suggested that children with clinically significant social-evaluative distress might meet DSM-III criteria for overanxious disorder, a diagnostic classification that has recently been subsumed under Social Phobia in the DSM-IV. A further review of the literature investigating the comorbidity of test anxiety with other DSM disorders elucidates the fact that there is a dearth of information exploring this phenomenon. Although there have been studies that investigate the co-existence of anxiety disorders and Test Anxiety in children, few have revealed the coexistence of non-anxiety related disorders in any population. Turner and Beidel (1988) found that after tentatively diagnosing their sample of 60 children with test anxiety using the TASC, two children met diagnostic criteria for conduct disorder; two

for developmental reading disorder, one for depression, and three others had severe medical disorders.

Test Anxiety and Social Phobia

In 1975, I.G. Sarason made a distinction between two types of test anxiety. Type A and Type B test anxious groups were specified. His description of Type A test anxiety included those who get upset before, during, and after tests because of relatively isolated unfortunate experiences. On the other hand, Type B test anxiety was depicted as a more pervasive problem, which was characterized by anxiety and worry in other areas as well as conflict and ambivalence over achievement and being evaluated. This delineation of etiology led many to further explore the properties of the latter group. This further exploration resulted in the general conclusion that fear of negative evaluation is at the heart of test anxiety (Beidel & Turner, 1998; Zatz & Chassin, 1985).

According to the Diagnostic Statistical Manual (DSM-IV; American Psychiatric Association, 1994), social phobia can be defined as a marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. At the crux of social phobia, this definition translates into a fear of negative evaluation, which is consistent with the core fear of test anxious individuals.

The commonality of core fears has led many to believe that test anxiety is a subtype of social phobia rather than a separate disorder (Beidel & Turner 1988; McDonald, 2001). However, this hypothesis has not been explored scientifically.

DMS-IV Criteria

The question of whether test anxiety can be subsumed under the category of social phobia or whether it is a unique disorder itself cannot be scientifically investigated without first acknowledging the DSM-IV criteria established for social phobia. The DSM-IV states that there are eight diagnostic criteria that distinguish social phobia from other disorders. The first is a marked and persistent fear of social or performance situations in which embarrassment might occur. Secondly, exposure to the feared situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed panic attack. The third criterion states that the person recognizes that the fear is excessive or unreasonable. The fourth criterion requires that the feared social or performance situations are avoided or else endured with intense anxiety or distress. If the avoidance, anxious anticipation, or distress in the feared social or performance situation interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia they will have met criterion number five. Criterion number six requires that individuals under the age of 18 must endure these symptoms for at least six months. The seventh criterion states that fear or avoidance is not due to the direct physiological effects of a substance or general medical condition and is not better accounted for by another mental disorder. The last criterion establishes that if a general medical condition or another mental disorder is present, the fear in the first criterion is unrelated to it.

When the change was made from the DSM-III to the DSM-IV the authors were more explicit in their description of the nature of social phobia. Within this description specifications were made that identified two possible subtypes of this disorder, a general and a specific subtype. The general subtype was characterized as a pervasive form of social phobia. In this subtype fears are related to most social situations and usually include fears that arise in both public performance situations and social interactional situations. The specific subtype can be described as one in which a person fears a single performance situation as well as one who fears several, but not most, situations. This study seeks to investigate whether test anxiety can be classified as a specific subtype of social phobia or if it should be classified as a specific disorder unto itself.

Appendix B

INFORMED CONSENT FORM

Title	Is Test Anxiety a Form of Social Phobia?
Statement of Age of Subject (Please note: Parental consent always needed for minors.)	I state that I am over 18 years of age, in good physical health, and wish to participate in a program of research being conducted by Tyish S. Hall, B.S., in the Department of Clinical Psychology at the University of Maryland, College Park.
Purpose	The purpose of this research is to investigate the association between test anxiety and "specific" social phobia.
Procedures	The procedure involves one session during which I will be asked to fill out both manual and computerized questionnaires and participate in a behavioral assessment task. The behavioral assessment task will require me to read a short narrative and then answer 10 questions that pertain to the passage. During the behavioral assessment task my blood pressure will be monitored periodically by the researcher, a graduate student trained to use the IBS Corporation SD-700-A automatic blood pressure/pulse rate monitor. In addition, I will be asked to provide verbal feedback as well as to record my thoughts associated with the behavioral assessment task.
Confidentiality	All information collected in this study is confidential to the extent permitted by law. I understand that the data I provide will be grouped with data others provide for reporting and presentation and that my name will not be used.
Risks	The risks associated with this study are minimal. The students may experience some anxiety when engaged in the behavioral assessment. However, every participant has the option of discontinuing the behavioral task at any time and will be reminded of this fact prior to the behavioral assessment.
Benefits, Freedom to Withdraw, & Ability to Ask Questions	One benefit of this study is that it will help the investigator gain a better understanding of whether test anxiety is a form of social phobia, and hence, should be considered a diagnosable disorder. The results of this study could also lead to attainment of accommodations for individuals suffering from this disorder in academic and professional environments. In addition, it is possible that the assessment will identify significant symptomotology in me that is heretofore unrecognized. I am free to ask questions or withdraw from participation at any time and without penalty.
Medical Care	The University of Maryland does not provide any medical or hospitalization insurance for participants in this research study nor will the University of Maryland provide any compensation for any injury sustained as a result of participation in this research study, except as required by law.
Contact Information Of Investigator	Tyish S.Hall Department of Psychology Biology/Psychology Building College Park, MD 20742 301-405-0377
Signature	NAME OF SUBJECT _____ SIGNATURE OF SUBJECT DATE _____

Appendix C

Functional Questionnaire

Fear

Some people get very nervous in specific testing situations. I am going to describe some situations and ask you how you would feel in each situation. Just tell me "yes" or "no" if you have fear of the situation.

	Fear	**Fear Rating**	**Avoidance Distress**
Answering questions in class that pertain to a test item.	Y N	_____	Y N
Oral reports or reading aloud for a grade	Y N	_____	Y N
Turning in written reports for a grade	Y N	_____	Y N
Asking the teacher a question or asking for help during a test.	Y N	_____	Y N
Taking tests	Y N	_____	Y N
Studying for tests	Y N	_____	Y N
Writing on the chalkboard for a grade	Y N	_____	Y N
Forgetting answers to a test/ "blanking"	Y N	_____	Y N

Are there other times when being in a testing situation makes you nervous or scared?

_____
_____
_____

If "yes" can you tell me about that?

_____
_____
_____

Now I want to find out more details about some of the specific things that bother you in testing situations.

1. **Does it make a difference whether the test is multiple choice, fill in the blank, short answer or essay?**

Yes No Other

If "yes" Which is easier? _____

2. **Does it make a difference if you have studied for the test or if you have not?**

Yes No Other

If "yes" How does it differ? _____

3. **Does it make a difference if the test is timed or if it's not?**

Yes No Other

If "yes" How does it differ? _____

4. **Does the subject of the test make a difference?**

Yes No Other

If "yes" How does it differ? _____

5. **Does the length of the test make a difference?**

Yes No Other

If "yes" How does it differ? _____

6. **Does the size of the audience make a difference when giving an oral report?**

Yes No Other

If "yes" How does it differ? _____

7. **Do you almost always get scared or nervous in testing situations?**

Yes No Other

8. When you are in a testing situation do you ever cry, vomit, get upset or angry, or freeze up as if you cannot think or speak?

Yes No Other

If "yes" tell me about that.

_____

_____

Inference

Now, I want to find out how much you feel this problem interferes with your life. That is, how much has it interfered with your academic functioning, your career choice, and stopped you from doing the things you would like to do? If you could rate the degree of interference from 0-8 where 0 is not at all, 4 is some, and 8 is very much, what would you say?

_____

Appendix D

Reading Comprehension Test

DIRECTIONS: You will have eight minutes to read the following passage carefully to yourself. Please turn the pages one at a time and do not read ahead. If you have completed the reading before time is called please notify the tester. At the tester's signal you may turn the page and begin reading.

Outside, the rain continued to run down the screened windows of Mrs. Sennett's little Cape Cod cottage. The long weeds and grass that composed the bay, where the water was almost the color of the grass. Mrs. Sennett's five charges were vigorously playing house in the dining room. (In the wintertime, Mrs. Sennett was housekeeper for a Mr. Curley, in Boston, and during the summers the Curley children boarded with her on the Cape.)

My expression must have changed. "Are those children making too much noise?" Mrs. Sennett demanded, a sort of wave going over her that might mark the beginning of her getting up out of her chair. I shook my head no, and gave her a little push on the shoulder to keep her seated. Mrs. Sennett was almost stone-deaf and had been for a long time, but she could read lips. You could talk to her without making any sound yourself, if you wanted to, and she more than kept up her side of the conversation in a loud, rusty voice that dropped weirdly every now and then into a whisper. She adored talking.

To look at Mrs. Sennett made me think of eighteenth-century England and its literary figures. Her hair must have been sadly thin, because she always wore, indoors and out, either a hat or a sort of turban, and sometimes she wore both. The rims of her eyes were dark; she looked very ill.

Mrs. Sennett and I continued talking. She said she really didn't think she'd stay with the children another winter. Their father wanted her to, but it was too much for her. She wanted to stay right here in the cottage.

The afternoon was getting along, and I finally left because I knew that at four o'clock Mrs. Sennett's "sit down" was over and she started to get supper. At six o'clock, from my nearby cottage, I saw Theresa coming through the rain with a shawl over her head. She was bringing me a six-inch-square piece of spice cake, still hot from the oven and kept warm between two soup plates.

A few days later I learned from the twins, who brought over gifts of firewood and blackberries, that their father was coming the next morning, bringing their aunt and her husband and their cousin. Mrs. Sennett had promised to take them all on a picnic at the pond some pleasant day.

On the fourth day of their visit, Xavier arrived with a note. It was from Mrs. Sennett, written in blue ink, in a large, serene, ornamented hand, on linen-finish paper:

. . . Tomorrow is the last day Mr. Curley has and the Children all wanted the Picnic so much. The Men can walk to the Pond but it is too far for the Children. I see your Friend has a car and I hate to ask this but could you possibly drive us to the Pond tomorrow morning? . . .

Very sincerely yours,

Carmen Sennett

After the picnic, Mrs. Sennett's presents to me were numberless. It was almost time for the children to go back to school in South Boston. Mrs. Sennett insisted that she was not going; their father was coming down again to get them and she was just going to stay. He would have to get another housekeeper. She said this over and over to me, loudly, and her turbans and kerchiefs grew more and more distrait.

One evening, Mary came to call on me and we sat on an old table in the back yard to watch the sunset.

"Papa came today," she said, "and we've got to go back day after tomorrow."

"Is Mrs. Sennett going to stay here?"

"She said at supper she was. She said this time she really was, because she'd said that last year and came back, but now she means it."

I said, "Oh dear," scarcely knowing which side I was on.

"It was awful at supper. I cried and cried."

"Did Theresa cry?" "Oh, we all cried. Papa cried, too. We always do." "But don't you think Mrs. Sennett needs a rest?" "Yes, but I think she'll come, though. Papa told her he'd cry every single night at supper if she didn't, and then we all *did*." The next day I heard that Mrs. Sennett was going back with them just to "help settle." She came over the following morning to say goodbye, supported by all five children. She was wearing her traveling hat of black satin and black straw, with sequins. High and somber, above her ravaged face, it had quite a Spanish- grandee air. "This isn't really goodbye," she said. "I'll be back as soon as I get these bad, noisy children off my hands." But the children hung on to her skirt and tugged at her sleeves, shaking their heads frantically, silently	saying, *"No! No! No!"* to her with their puckered-up mouths.

(This passage is adapted from Elizabeth Bishop's short story "The Housekeeper" ©1984 by Alice Methfessel.)

DIRECTIONS: You will have seven minutes to answer the following ten questions. Choose the best answer to each question and write the corresponding letter in the space provided on the answer sheet. You may refer to the passage as often as necessary. When the tester calls "time" you must stop writing and put down your pencil immediately. If you finish before the tester calls "time" please notify the tester. At the tester's signal you may turn the page and begin answering the questions.

1. According to the narrator, Mrs. Sennett wears a hat because she:

A. is often outside.
B. wants to look like a literary figure.
C. has thin hair.
D. has unique taste in clothing.

2. Considering the events of the entire passage, it is most reasonable to infer that Mrs. Sennett calls the children bad (line 92) because she:

F. is bothered by the noise they are making.
G. doesn't like them hanging on her skirt.
H. doesn't want to reveal her affection for them.
J. is angry that they never do what she tells them.

3. Considering how Mrs. Sennett is portrayed in the passage, it is most reasonable to infer that the word *ravaged*, as it is used in line 89, most nearly means that her face reveals:

A. irritation and annoyance.
B. resentfulness and anger.
C. age and fatigue.
D. enthusiasm and excitement.

4. What is the main insight suggested by the conversation in lines 69--83?

F. The Curley family cries to manipulate Mrs. Sennett into doing what they want.
G. The narrator regrets that she is not going to Boston and is a little jealous of Mrs. Sennett.
H. Mrs. Sennett is happy to leave the Curley family because they are always whining and crying.
J. Mrs. Sennett intends to return to the Cape soon because she has discovered that they have been manipulating and taking advantage of her.

5. Which of the following does the passage suggest is the result of Mrs. Sennett's loss of hearing?

A. She is often frustrated and short-tempered.
B. She can lip-read.
C. She dislikes conversation.
D. She is a shy and lonely woman.

6. Given the evidence provided throughout the passage, the children probably silently mouth the word "no" (lines 94--97) because:

F. Mrs. Sennett has just called them bad, noisy children, and they are defending themselves.
G. they do not want to leave the Cape before the summer is over and are protesting.
H. they are letting the narrator know that Mrs. Sennett is thinking about returning to the Cape.
J. they are continuing their battle against Mrs. Sennett's intention to return to the Cape.

7. It is reasonable to infer from the passage that Mrs. Sennett asked "Are those children making too much noise?" (lines 11--12) because Mrs. Sennett:

A. concerns herself about the well-being of others.
B. wishes to change the subject to literary figures.
C. cannot supervise the children without the narrator.
D. is bothered by the noise the children make.

8. The details and events in the passage suggest that the friendship between the narrator and Mrs. Sennett would most accurately be described as:

F. stimulating, marked by a shared love of eccentric adventures.
G. indifferent, marked by occasional insensitivity to the needs of the other.
H. considerate, notable for the friends' exchange of favors.
J. emotional, based on the friends' long commitment to share their burdens with one another.

9. As it is used in line 3, the word *composed* most nearly means:

A. contented.
B. unexcited.
C. satisfied.
D. constituted.

10. At what point does Mr. Curley cry at the supper table?

F. Before Mary and the narrator sit and watch the sunset
G. Before Mrs. Sennett tells the narrator she doubts she will stay another winter with the children
H. Before the children spend a rainy afternoon playing house in the dining room
J. After the narrator learns that Mrs. Sennett will return to Boston

Appendix E

Cognitive Response Sheet

(Anticipatory)

What are your thoughts regarding the test you are about to take?

_____

_____

_____

_____

_____

_____

_____

_____

Cognitive Response Sheet

(Reflective)

What thoughts did you have while taking this test?

How do you feel you performed on this test?

REFERNECES

Alfano, C. A., Beidel, D. C., & Turner, S. M. (2002) Cognition in childhood anxiety: Conceptual methodological, and developmental issues. *Clinical Psychology Review*, 22, 1209-1238.

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, D.C.: Author

Angelino, H., Dollins, J., & Mech, E. V. (1956). Trends in the "fears and worries" of school children as related to socioeconomic status and age. Journal of Genetic Psychology, 89, 263-276.

Barrios, B.A., Hartman, D.B., & Shigetomi, C. (1981). Fears and anxieties in children. In E.J. Mash and L.G. Terdal (Eds.), *Behavioral assessment of childhood disorders* (pp. 2590304). New York: Guilford.

Beck, A.T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry 4*, 561-571.

Beck, A. T., Steer, R..A., Garbin, M.. G., (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review 8 (1),* 77-100.

Beidel, D.C. (1988). Assessment of anxious emotional states in children. Journal of Abnormal Psychology, 97, 80-82.

Beidel, D.C., Borden, J.W., Turner, S.M., & Jacob, R.G. (1989). The social phobic and anxiety inventory: concurrent validity with a clinic sample. Behavior Research and Therapy, 27, 573-576.

Beidel, D.C., Ferrell, C., Alfano, C.A., & Yeganeh, R. (2001) The treatment of childhood social anxiety disorder. Social Anxiety Disorder, 24, 831-846.

Beidel, D.C., & Turner, S. M. (1988). Comorbidity of test anxiety and other anxiety disorders in children. *Journal of Abnormal Child Psychology*, 16 275-287.

Beidel D.C., Turner, S.M., & Cooley, M.R. (1993). Assessing reliable and clinically significant change in social phobia: Validity of the social phobia and anxiety inventory. Behavior Research and Therapy, 31, 331-337.

Blanchard, J.J., & Brown, S.B. (1998). Structured diagnostic interview schedules. In C.R. Reynolds (Ed.), Comprehensive Clinical Psychology, Volume 3 Assessment (pp. 97-103). Elsevier Science.

Campbell, S.B. (1986). Developmental issues. In R. Gittleman (Ed.), *Anxiety disorders of childhood* (pp.24-57). New York: Guilford.

Cassady, J.C. (2004). The impact of cognitive test anxiety on test comprehension and recall in the absence of external evaluative pressure. *Applied cognitive psychology*, 18, 311-325

Dusek, J.B. (1980). The development of test anxiety in children, In I. G. Sarason (Ed.), *Test anxiety: Theory, research, application* (pp. 87-110) Hillsdale, NJ: Erlbaum.

Eysenck, H.J., & Eysenck, S.B.G. (1994). Manual of the eysenck personality questionnaire. Sandiego, CA: Edits

Eysenck, H., & Rachman, S.J. (1965). The causes and cures of neurosis. London: Routledge and Kegan Paul.

Gittleman, R. (1984). Anxiety disorders in children. In L. Greenspoon (Ed.), Psychiatry Update (vol. 3, pp.78-81). Washington D.C.: American Psychiatric Association.

Goisman, R.M. (1983). Therapeutic approaches to phobia: a comparison. *American journal of psychotherapy*, 2, 227-234.

Hembree, R. (1988). Correlates, causes effects, and treatment of test anxiety. *Review of Educational Research*, 58, 47-77.

Hill, K. T., & Sarason, S.B. (1966). The relation of test anxiety and defensiveness to test and school performance over the elementary school process. Monographs of the Society for Research in Child Development, 31, (2, serial no. 104).

Hill, K. & Wigfield, A. (1984). Test anxiety: A major educational problem and what can be done about it. *Elementary School Journal*, 85, 105-126.

Jersild. A.T., Goldman, B., & Loftus, J.J. (1941). Acomparative study of the worries of children in two school situations. *Journal of Experimental Education*, 9, 323-326.

Liebert, R. & Morris, L. (1967). Cognitive and emotional components of test anxiety: A distinction and some initial data. *Psychological Reports*, 20, 975-978.

Manley, J., & Rosemier, R. (1972). Developmental trends in general and test anxiety among junior and senior high school students. The Journal of Genetic Psychology, 120, 219-226.

McDonald, A.S. (2001). The prevalence and effects of test anxiety in school children. Educational Psychology, 21(1).

Nottleman, E.D., & Hill, K.T. (1977). Test anxiety and off task behavior in evaluative situations. Child Development, 48, 225-231.

Ollendick, T. H., & Meyer, J.A. (1984). School phobia. In S.M. Turner (Ed.), Behavioral theories and treatment of anxiety (pp. 367-411). New York: Plenum Press.

Peters, L., & Andrews, G. (1995). A procedural validity study of the computerized version of the composite international diagnostic interview. Psychological Medicine, 25, 1269-1280.

Sarason, I.G. (1975). Test anxiety, attention and the general problem of anxiety. In C.D. Speilberger & I.G. Sarason (Eds.), Stress and Anxiety (vol.1, pp. 165-188). Washington D.C.: Hampshire/Wiley.

Sarason, I..G. (1980). Introduction to the study of test anxiety. In I.G. Sarason (Ed.), *Test anxiety: Theory, research and applications* (pp3-14). Hillsdale, NJ: Erlbaum.

Sarason, S. Davidson, K., Lighthall, F., Waite, R., & Ruebush, B. (1960). *Anxiety in elementary school children*. New York: Wiley.

Sarason, I.G., & Koeng, K.P. (1965). The relationship of test anxiety and hostility to description of self and parents. Journal of Personality and Social Psychology, 2,617-621.

Spielberger, C.D. (1980). Preliminary professional manual for the test anxiety inventory: TAI. New York: Counseling Psychologists Press.

Spielberger, C., Anton, W., & Bedell, J. (1976). The nature and treatment of test anxiety. In M. Zuckerman & C.D. Speilberger (Eds.), Emotion and Anxiety: New concepts, methods, and applications (pp.317-345). Hillsdale, NJ: Erlbaum.

Tryon, G. (1980). The measurement and treatment of test anxiety. Review of Educational Research, 50, 353-372.

Turner, B.G., Beidel, D.C., Hughes, S., & Turner, M. W. (1993). Test anxiety in african american school children. School Psychology Quarterly, 8, 140-152.

Turner, S.M., Beidel, D.C., & Dancu, C.V. (1996). SPAI: Social phobia & anxiety inventory manual. New York: Multi-Health Systems Inc.

Wigfield, A., & Eccles, J. (1989). Test anxiety in elementary and secondary school students. Educational Psychologist, 24(2), 159-183.

Wine, J. (1971). Test anxiety and direction of attention. *Psychological Bulletin*, 76, 92-104.

Wittchen, H.U. (1994). Reliability and validity studies of the who-composite international diagnostic interview (cidi): A critical review. Journal of Psychiatric Research, 28, 57-84.

World Health Organization. (1993) Composite international diagnostic interview-version 1.1. Geneva: WHO

Zatz, S., & Chassin, L. (1983). Cognitions of test anxious children. Journal of Consulting and Clinical Psychology, 51, 526-534.

Zatz, S., & Chassin, L. (1985). Cognitions of test anxious children under naturalistic test-taking conditions. Journal of Consulting and Clinical Psychology, 53, 393-401.

Zeidner, M. (1998). Test anxiety. New York: Plenum Press.