COMPARATIVE ANALYSIS OF IRRATIONAL BELIEFS AND ALEXITHYMIA TO PREDICT ANXIETY, NEUROTICISM, AND DEPRESSION.

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To the Graduate Council:

I am submitting a thesis written by Scott Edward Culhane entitled "A Comparative Analysis of Irrational Beliefs and Alexithymia to Predict Anxiety, Neuroticism, and Depression." I have examined the final copy of this thesis and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science with a concentration in research psychology.

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Paul J. Watson, Chairperson

We have read this thesis and recommend its acceptance:

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TABLE OF CONTENTS

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LIST OF TABLES

Abstract

Anxiety, neuroticism and depression are highly studied human disturbances in the field of psychology. There are many theories as to the cause of these distresses. Followers of Albert Ellis' Rational Emotive Behavior Therapy have hypothesized that the maintaining of irrational beliefs causes emotional distress. Others have theorized that a condition known as alexithymia is responsible for emotional distresses. Literally "no words for feelings," alexithymia is a condition where individuals are unable to describe their feelings, they are unable to distinguish between their feelings and bodily sensations, and they have a tendency to overemphasize the concrete details of external events. This project was conducted to compare the two theories and to determine whether they worked together to best predict the emotional distresses, or if one theory was superior to the other.

Several self-report questionnaires were administered to college students. These questionnaires included the Survey of Personal Beliefs, the Malouff-Schutte Belief Scale, the Toronto Alexithymia Scale-20 (TAS - 20), the Beck Depression Inventory, the neuroticism subscale of the Eysenck Personality Questionnaire-Revised, and the Hospital Anxiety and Depression Scale. Multiple regression analysis demonstrated that an TAS - 20 subscale, Difficulty Identifying Feelings, was an especially important predictor of all emotional dysfunction measures. The irrational belief constructs were not as important in explaining variance in anxiety, depression, and neuroticism. These data had a number of implications about attempts to relate irrational beliefs to emotional disturbance,

about the scales used to measure irrational beliefs, and about the use of alexithymia to predict emotional disturbance.

Comparative Analysis of Irrational Beliefs and Alexithymia to Predict Anxiety, Neuroticism, and Depression

Introduction

The purpose of this research project was to examine how irrational beliefs and alexithymia relate to self-reported neuroticism, anxiety, and depression. Irrational beliefs and their effects on emotional disturbance have been analyzed by followers of Albert Ellis and his Rational Emotive Therapy (RET), now known as Rational Emotive Behavior Therapy (REBT). Ellis' REBT emphasizes "(1) integration of cognition, emotion, and behavior in disturbance; (2) importance of primary and secondary cognitions in emotional and behavioral dysfunction; and (3) primacy of absolutistic musts and commands that underlie irrational beliefs leading to anxiety and depression" (1987). People become neurotically anxious and depressed by holding irrational, or what Ellis calls major dogmatic, absolutist, "Musturbatory" beliefs (Ellis, 1990).

In Ellis' ABC model of human psychological disturbance, the Activating events of life (A) have emotional consequences (C). These consequences (C) can be healthy or unhealthy depending on the belief (B) used to interpret the activating event (A). For example, a person who loses a job (A) may become clinically depressed (C). Ellis (1994) argues that this clinical depression results from irrational beliefs (B) used to understand the job loss. The depressed individual might believe, for example, that losing the job means he is absolutely incompetent and doomed to failure for the rest of his life (B). It is this

interpretation rather than the job loss that in theory truly causes the clinical depression.

Ellis' treatment of such an emotionally disturbed person is to eliminate the irrational beliefs and replace them with rational beliefs. Through recognizing, disputing, and changing irrational beliefs, the patient's emotional disturbances should be alleviated. Therefore, the clinically depressed person might have to change his belief system from " I am absolutely incompetent and doomed to life-long failure" to "It is unfortunate I lost my job but it is not 100% terrible. I can work hard and get a better job in the future." It is the change of the belief system, Ellis argues, that will help the person have healthy emotions.

Assessing irrational beliefs has not always been successful. Previous scales, such as the Irrational Beliefs Test (IBT; Jones, 1968 as cited in Zurawski & Smith, 1987) and the Rational Behavior Inventory (RBI; Shorkey & Whiteman, 1977 as cited in Zurawski & Smith, 1987), were presumed to be adequate measures of irrational beliefs. The two scales demonstrated significant correlations with measures of psychological disturbance (Smith & Alfred, 1986 as cited in Zurawski & Smith, 1987). However, the items in the RBI and IBT did not simply measure irrational beliefs. A component of emotional distress was also included in the items. It was hypothesized that this component of emotional distress, rather than the so-called irrational beliefs, actually accounted for the correlation of the RBI and the IBT with measures of anxiety and depression. In short, Zurawski and Smith (1987) argued that, instead of assessing only an independent measure of irrational beliefs, the RBI and the IBT also contained

inherent measures of neuroticism, accounting for the correlation of the two scales with emotional distress.

Research shows that some scales designed to measure irrationality and not neuroticism can be successful in predicting self-functioning. Malouff and Schutte's Belief Scale has demonstrated construct and discriminant validity (Malouff, Valdenegro, & Schutte, 1987). Patients who received Ellis' REBT have demonstrated lower irrational belief scores, as opposed to those in a control group or those who received other types of therapy (Malouff & Schutte, 1986). Another scale, the Survey of Personal Beliefs (SPB), was developed to measure the five core irrationalities as conceptualized by Ellis (Kassinove, 1986). The SPB has adequate convergent validity and temporal stability (Demaria & Kassinove, 1988 as cited in Kendall, Haaga, Ellis, Bernard, DiGiuseppe & Kassinove, 1995; Demaria, Kassinove, & Dill, 1989).

However, it is not clear whether Ellis supplies the best explanation of the relationship between cognitive and emotional functioning. Other approaches may make sense. Alexithymia, for instance, may be more important. Sifneos (1973) first introduced the idea that individuals have "alexithymic" characteristics. Alexithymia literally means "no words for feelings." More formally, alexithymia is defined as a person having difficulty in identifying and describing feelings, as problems in differentiating feelings from bodily sensations during emotional arousal, as involving a low imaginative fantasy life, and as a tendency to overemphasize the concrete details of external events (Deary, Scott, & Wilson, 1997, p. 552). The concept of alexithymia derives from clinical observations of

patients with psychosomatic disorders, who had difficulties describing their emotions and talking about feelings and fantasies (Deary et al., 1997).

Alexithymia was first conceptualized in the early 1970's, from the observations of the common problems expressed by clinical patients. Patients suffering from "classical" psychosomatic illnesses had different psychological traits then those of a typical neurotic patient (Salminen, Saaryarvi, & Aarela, 1995). However, an assessment of a person's alexithymic characteristics was not possible until the development of a valid and reliable measure. Instead, the evaluation was limited to the observations of the clinician.

Early development of scales to measure alexithymia was plagued by problems of validity. Early scales included the Beth Israel Hospital Questionnaire (BIQ), which is an observer-rated instrument. This measure is problematic because it cannot easily assess the lack of appropriately processed affect in non-clinical situations (Salminen et al., 1995). Other reports also show that the inter-rater reliability depends on the characteristics (experience, bias, and style) of the interviewer (Bagby, Taylor, & Atkinson, 1988).

A self-report scale was developed using the BIQ as a basis. This scale was the Schalling-Sifneos Personality Scale (SSPS). Another alexithymia measurement was taken from the answers on the Minnesota Multiphasic Personality Inventory (MMPI-A). However, findings suggest that the MMPI-A lacks construct validity, and the SSPS has poor internal consistency and an unstable factor structure (Bagby et al., 1988). Also, there appears to be a very slim or no relationship between the BIQ, the MMPI-A, and the SSPS (Bagby et al.,

1988). The concept of alexithymia was finally measured successfully with the Toronto Alexithymia Scale (TAS; Taylor, Ryan & Bagby, 1985 as cited in Bagby et al., 1988).

Several studies have been conducted relating alexithymia to the emotional distresses of anxiety, neuroticism, and depression. Different measures have been used to detect these emotional disturbances; however, a general consensus exists that there is a relationship between alexithymia and these disturbances. More specifically, alexithymia correlates positively with scores of depression (Deary et al., 1997; Hendryx, Haviland, & Shaw, 1991; Loas, Dhee, Gayant & Fremaux, 1996; Sexton, Sunday, Hurt, & Halmi, 1998), anxiety (Deary et al., 1997; Fukunishi, Kikuchi, Wogan, & Takubo, 1997; Hendryx et al., 1991; Taylor, Parker, Bagby, & Acklin, 1992) and neuroticism (Deary et al., 1997; Taylor et al., 1992; Wise, Mann, & Shay, 1992; Wise & Mann, 1994).

Present Project

This project analyzed the comparative abilities of irrational beliefs and alexithymia to predict the emotional disturbance of anxiety, neuroticism, and depression. Recent research now shows that alexithymic people not only have difficulties in a verbal expression of emotions, but they also have a deficiency in their cognitive processing, thus causing emotions to remain indistinguishable and inadequately regulated (Taylor, Bagby, & Parker, 1991 as cited in Salminen et al., 1995). Perhaps psychological problems reflect not the presence of cognitive irrationalities, as suggested by Ellis, but rather the absence of any cognitive processing in the first place, as suggested by the concept of alexithymia.

As a measure of alexithymia, the Toronto Alexithymia Scale-20 (TAS-20) was used. This 20-item scale includes three subscale measuring alexithymia. The first subscale records Difficulty in Identifying Feelings (TAS-DIF), which includes not only difficulties in identifying feelings but in describing them as well. An example of a question from this subscale is, "I don't know what's going on inside me." The second subscale is Difficulty in Describing Feelings (TAS-DDF), which measures an inability to express feelings verbally. An example of a question from this subscale is, "It is difficult for me to find the right words for my feelings." The final subscale is Externally Oriented Thinking (TAS-EOT), which measures the concrete, restricted, and stereotypic cognitive style of subjects (also known as pensee operatoire) (Acklin & Bernat, 1987). An example of a question from this subscale is, "I prefer to just let things happen rather than to understand why they turned out that way." The TAS-20 demonstrates good internal consistency, test-retest reliability, and validity (Bagby, Parker, & Taylor, 1994).The original TAS had 26 items, which included a fourth factor of daydreaming, originally believed to be an important characteristic of alexithymia. This factor was dropped in the revised version of the TAS, the TAS-20. The use of the TAS or TAS-20 is important because the scales have answered many of the criticisms of previous alexithymia scales. These criticisms included low inter-rater reliability, unreplicated findings, and findings of different factor structures between two separate scales. Likewise, Bagby et al. (1988) conducted a comparative study of the TAS, SPSS, and the MMPI-A. They concluded that the

TAS had the highest internal reliability and highest correlation with measures of functional somatic symptoms.

Several studies have been conducted correlating the TAS (and the revised TAS-20) with the emotional distresses of anxiety, neuroticism, and depression. Different measures have been used to detect the emotional disturbances. Scores on the TAS have correlated significantly and positively with measures of depression (Loas et al., 1996; Sexton et al., 1998) and anxiety (Taylor et al., 1992; Wise et al., 1992). Similarly, Wise and Mann (1994) found correlations of the TAS-20 with measures of neuroticism.

Many questions about the validity of the alexithymia concept have been raised. Concerns include whether or not alexithymia is a separate construct or just a measure of depression. Parker, Bagby, and Taylor (1991) measured the relationship between depression and alexithymia to see if they were distinct or essentially identical constructs, and found the two to be separate from each other. Similarly, Deary et al. (1997) measured the construct of neuroticism and alexithymia to see if they were distinct or overlapping constructs. Their factor analytical findings suggested that while there was some overlap, there was a component that was unique to neuroticism and one that was unique to alexithymia.

In this project, two measures were used to record Ellis' irrational beliefs. Malouff and Schutte (1986) developed the first of these measures. Their Belief Scale appeared to be a valid and reliable measure of irrational beliefs, demonstrating good internal consistency and test-retest reliability (Malouff &

Schutte, 1986: Malouff, et al., 1987). The Malouff-Schutte Belief Scale (MSBS) is a 20 item, self-report scale, which gives a global score of a person's irrational beliefs.

Malouff, Schutte and McClelland (1992) examined the relationship between anxiety and irrational beliefs. In their study, they found a significant positive partial correlation, after controlling for social desirability, between irrational beliefs and state anxiety. Likewise, Templeman (1990) found MSBS scores to be positively correlated with levels of anxiety as well as depression. Templeman's study also found that the MSBS scores of those being admitted into psychiatric treatment were higher than those of non-psychiatric populations, but returned to normal levels upon discharge.

The other irrational belief scale was the Survey of Personal Beliefs (SPB). Kassinove (1986) developed this 50-item scale out of the model used by Berger (1983 as cited in Kassinove, 1986) to develop his Belief Scale for Parents. The SPB consists of five subscales. The first subscale of the SPB measures Awfulizing (AFW). This subscale monitors a person's tendency to evaluate events as completely catastrophic. An example of an AWF statement is, "Some situations in life are truly terrible." The second subscale is Low-Frustration Tolerance (LFT), which measures a person's inability to deal with frustrating events; therefore, the person believes the events cannot be dealt with. An example of a LFT item is, "There are some things that I just can't stand." The third subscale is Self-Directed Shoulds (SDS), which measures a person's beliefs about how they must be perfect. An example of a SDS item is, "In some areas I

absolutely should be more competent." The fourth subscale is Other Directed Shoulds (ODS), which measures the person's beliefs about how others must be perfect. An example of an ODS statement is, "Absolutely, people must obey the law." The final subscale is Self-Worth (SW), which measures the person's tendency to evaluate his or her total self. An example of SW is, "Being ignored, or being socially awkward at a party would reduce my sense of self worth."

In at least some studies, the SPB has demonstrated internal consistency for each of the five subscales (Demaria, et al., 1989). A test-retest correlation of .87 also was observed for the total SPB (Demaria, 1986 as cited in Demaria, et al., 1989). Direct correlations among the SPB subscales have been shown to be significant (Chang & D'Zurilla, 1996; Chang & Bridewell, 1998; Watson, Sherbak, & Morris, 1998; Watson et al., in press). As it pertains to emotional distress, Nottingham (1992) found a significant correlation of the SPB total score with measures of anxiety and depression among psychiatric inpatients.

However, Watson et al. (1998) found unacceptable coefficient alphas for three subscales. SDS, ODS, and LFT had coefficient alphas below .60, and the other two, AFW and SW, were below .65. Watson et al. (in press) did not find a coefficient alpha above .68 for any of these five subscales, and thus essentially replicated the earlier findings. Research by Chang and D'Zurilla (1996), correlating the SPB with depression and anxiety, yielded ambiguous results. Of the five subscales, only LFT predicted both depression and anxiety. Anxiety was predicted only by the ODS and SW subscales. Of these two, ODS had a relationship with anxiety that was opposite of what REBT predicts.

In this project, two irrational belief scales, the MSBS and the SPB, were administered for two reasons. First, as noted above, at least some previous research has suggested that some SPB subscales may display poor internal reliability and have little or no validity (Kendall et al., 1995). This meant that the MSBS needed to be added to the analysis, since it appears to be an internally reliable and valid scale. Second, however, Ellis has argued that two of the five SPB irrational beliefs hold more conceptual significance then the others, LFT and AWF (Watson et al., in press). This meant that the SPB had to supplement the MSBS in offering an evaluation of those irrational beliefs that Ellis thinks to be crucial.

Measures of alexithymia and irrational beliefs were correlated with the Neuroticism subscale of the Eysenck Personality Questionnaire-Revised (EPQ-R-N). The EPQ-R-N has 12 questions relating specifically to neuroticism or anxiety. This scale was of particular interest, because those 12 items significantly correlated with the TAS-DIF and the TAS-DDF, but not the TAS-EOT in a previous study (Deary et al., 1997).

The alexithymia and irrational belief measures also were correlated with the Hospital Anxiety and Depression Scale (HAD). The HAD, developed by Zigmond and Snaith (1983), has demonstrated not only reliability in detecting states of depression and anxiety, but also in detecting the severity of the disorder. With both the anxiety and depression sections of the HAD, significant positive correlations were found with two of the three factors of the TAS-20, the TAS-DIF and the TAS-DDF (Deary et al., 1997).

And finally, the irrational beliefs and alexithymia scales were correlated with the Beck Depression Inventory (BDI), a commonly used scale to detect depression. Loas et al. (1996) found significant associations between the BDI and the TAS. Furthermore, Hendryx et al. (1991) found a significant correlation of the BDI with the TAS-DIF factor (.52, $p < .01$) of the TAS-20 and with the TAS-DDF factor (.39, $p < .01$).

This project examined the comparative ability of alexithymia and irrational beliefs to predict psychological dysfunction. To accomplish that objective the procedure employed hierarchical multiple regressions. The use of such analyses was important in understanding how irrational beliefs and alexithymia play a role, if any, in predicting emotional dysfunction. Several contrasting outcomes could have been obtained from this research using this procedure.

One possible outcome was that each, alexithymia and irrational beliefs, would be significant predictors of emotional distress when controlling for the other. Such an outcome would have revealed that the combination of the two successfully predicted the emotional dysfunction better than each would have when measured separately.

Another possible finding was that no significant results would appear in the multiple regressions. In such a case, neither alexithymia nor irrational beliefs would be relevant to the prediction of the emotional distresses. This possibility seemed very unlikely considering the previous studies showing significant linkages of alexithymia (Hendryx et al., 1991) and irrational beliefs (Chang & D'Zurilla, 1996) with emotional dysfunction.

A final possibility was that only alexithymia or only irrational beliefs would be a significant predictor after the other set of constructs had been entered into the prediction equation. Thus, the other set of constructs would have been eliminated as making a unique contribution to the prediction of emotional dysfunction

In short, the goal of this study was to obtain findings that would help clarify the cognitive processes associated with psychological dysfunction by conducting a comparative analysis of alexithymia and irrational beliefs.

Method

All scales were administered to a large sample of undergraduates from the University of Tennessee at Chattanooga. The students received extra credit in their psychology course for their voluntary contribution to the project. Of the 311 students who completed the survey, the mean age was 19.15 (SD = 3.5). The study consisted of 102 male subjects and 209 females. In the sample, 75.9% identified themselves as White/Caucasian, with 19.9% Black/African-American, 1.3% Hispanic, and 1% each for Middle Eastern, Oriental/Asian, and "Other."

Procedure

Students in a college freshman class were asked to participate in a survey conducted as part of the author's masters thesis. The students then signed an informed consent form (Appendix A). It was announced that all responses would be kept strictly confidential. To ensure confidentiality, students were asked not to put identifying information on their answer sheets. Completion of the surveys took approximately 45 minutes.

The survey packet consisted of a cover sheet, which inquired about the demographics of the subject. The demographics data included the sex, age, and race of the subject (Appendix B). Upon completion of the demographics page the subjects then began the self-report questionnaires.

The first questionnaire was the Survey of Personal Beliefs (SPB) (Appendix C), a 50-item scale measuring five of Ellis' core irrationalities. The SPB consists of 10 items per subscale and uses a four-point Likert scale with choices of strongly agree, agree, disagree and strongly disagree. Reverse scored items were randomly presented within the questionnaire. The potential scores on the SPB ranged from 0 to 40 on each factor, with zero indicating no irrational beliefs and 40 revealing the highest level of irrational beliefs.

The second instrument the subjects responded to was the Malouff-Schutte Belief Scale (MSBS) (Appendix D), a 20-item measure giving a total score of self-reported irrationalities. It used a five-point Likert scale. The subject chose whether to strongly agree, agree, strongly disagree, disagree, or remain neutral with the statements. There were no reverse scored items in this questionnaire. The potential scores on the MSBS ranged from 0 to 80, with a score of zero indicating the person was free of irrational beliefs, and a score 80 indicating the highest possible level of irrational beliefs.

The third questionnaire in the packet was the Beck Depression Inventory (BDI) (Appendix E). This 21-item scale was designed to measure the level of a person's self-reported depression. The questionnaire was slightly modified from its original version. The original version of the BDI consisted of four statements

per item, and asked participants to select the statement which best described the subject's feelings. In the revised version of the BDI, employed in this project, the beginning of each question had the following phrase added: "Which of the following is true." The potential scores on the BDI ranged from 0 to 33, with zero revealing no depression and 33 indicating the highest level of depression.

Fourthly, the neuroticism subscale of the Eysenck Personality Questionnaire – Revised (EPQ-R-N) (Appendix F) was given. This 12-item subscale yielded a total score of a person's level of neuroticism. The subject answered questions about characteristics of a neurotic individual, deciding whether or not the item applied to them with either a yes or a no. Thus, the potential scores on the EPQ-R-N ranged from 0 to 12, with zero indicating no neuroticism and 12 being the most highly neurotic.

The fifth section in the package was the Toronto Alexithymia Scale – 20 (TAS-20) (Appendix G). This 20-item scale was the revised version of the original Toronto Alexithymia Scale. As noted previously, the TAS-20 measures three of the proposed characteristics of alexithymia. These include Difficulty Describing Feelings (DDF), Difficulty Identifying Feelings (DIF), and External Oriented Thinking (EOT). Five questions were related to DDF, seven questions were related to DIF, and eight questions were related to EOT. The TAS-20 uses a 4 point Likert scale, in which the subject decides which of the responses best relates to his or her level of agreement. The four choices were strongly agree, agree, disagree, and strongly disagree with no opportunity for a neutral answer. Reversed scored items appeared randomly within this scale. The potential scores

ranged from 0 to 60, with 0 representing no alexithymic characteristics, and 60 representing a highly alexithymic person.

The final section of the packet contained the Hospital Anxiety and Depression Scale (HAD) (Appendix H). This 14-item scale had seven questions for both anxiety and depression. Each item was given along with four possible responses, and the subject chose the response that was truest of the subject. Reverse scored items were presented randomly. The potential scores on the HAD range from 0 to 21 on each section, with zero indicating no anxiety or depression and with 21 being most highly anxious or depressed.

Data Analysis

Correlations with all other measures were obtained for all scales. In addition, multiple regression techniques were employed to assess which group of measures (alexithymia or irrational beliefs) were more successful in predicting anxiety, neuroticism, and/or depression. In the multiple regressions, one set of independent variables, either alexithymia or irrational belief measurements, was entered in the first step of the multiple regression. The other set was then added in the next step, thereby regressing the dependent variables on all the independent variables. The order of the independent variable sets was then reversed. Therefore, a total of 8 multiple regressions were conducted, two for each of the four dependent variables.

It was necessary to do a hierarchical multiple regression for two reasons. First, because of the large number of subscales, it was important to see which subscales added to the predicted variance. Secondly, it was important to identify

which construct, alexithymia or irrational beliefs, added the most predicted variance as a whole. A procedure in which all variables were entered into the multiple regression equation simultaneously would not reveal the $\underline{R}^2$ change associated with the addition of alexithymia alone or irrational beliefs alone.

Results

Correlations among all scales demonstrated many significant relationships. The correlations between the subscales of the TAS (Table 1) yielded significant associations among all three subscales. Of the three subscales, only EOT had a low coefficient alpha (a = .56). The other two alexithymia subscales, DIF and DDF, had coefficient alphas of .81 and .75, respectively.

Similarly, the five subscales of the SPB and the MSBS were all intercorrelated (Table 2). The correlations among the irrational belief measures ranged from .22 between ODS and SW to as high as .57 between AWF and LFT.

Table 3 shows the correlations of the six irrational belief measures with the three alexithymia measures. There were a few significant correlations, both positive and negative. The significant positive correlations ranged from .13, between the MSBS and DDF, to .22, between the MSBS and the DIF. The significant negative correlations ranged from -.13, between the SDS and DDF, to -.16, between the SDS and EOT.

Table 4 shows the correlations among the four emotional dysfunction scales, all of which were significantly related to each other. None of the four scales displayed any internal reliability problems with the coefficient alphas ranging between .72 to .90. The BDI had the highest coefficient alpha (.90)

followed by the EPQ-R-N with a coefficient alpha of .83. The two HAD scales had coefficient alphas of .73 for anxiety and .72 for depression.

As Table 5 shows, the four largest relationships of the alexithymia and irrational belief measures with the emotional dysfunction variables were for the relationships observed with DIF. Specifically, the correlation of the DIF with the Beck Depression Inventory (.54, $p < .001$), the EPQR-N (.48, $p < .001$), the HAD-Anxiety Scale (.47, $p < .001$), and the HAD-Depression Scale (.47, $p < .001$) were the highest by far in comparison with all other significant correlations. EOT was only significantly correlated with the HAD-Depression Scale (.19, $p < .01$). The DDF consistently displayed significant correlations with the emotional dysfunction scales.

Similarly, two of the six irrational belief measures, the MSBS and LFT, were consistent in their significant correlations with emotional dysfunction. Three of the remaining four irrational belief measures, ODS excluded, were significant predictors of anxiety and neuroticism, but very poor predictors of depression. The lowest significant correlation was between the SW subscale and the Beck Depression Inventory (.12, $p < .05$). The ODS subscale, did not have a single significant correlation, and along with the SDS, actually displayed a slightly negative correlation with the HAD-Depression Scale.

The multiple regression data suggested that one of the two groups of independent variables was a much more noteworthy predictor of the emotional dysfunctions. That predictor was alexithymia. In each of the four multiple regressions in which the first block was irrational beliefs, the addition of

alexithymia produced a significant $\underline{R^2}$ change ($p < .001$). The same cannot be said for the addition of irrational beliefs. While the addition of irrational beliefs did produce a small, but significant $\underline{R^2}$ change with the BDI, EPQR-N, and the anxiety subscale of the HAD, irrational beliefs did not produce a significant $\underline{R^2}$ change with the HAD depression subscale (.03, $p > .05$). In addition, the amount of variance explained by alexithymia far outweighed that explained by irrational beliefs.

Table 6 shows the betas, multiple r and the $\underline{R^2}$ change from the multiple regressions for the Beck Depression Inventory. In the first set of columns, irrational beliefs were entered in on step 1 and then alexithymia was added in the next step. Two measures, the MSBS and LFT, were significant irrational belief predictors of the dysfunction measure in the first step of the multiple regression. The use of the irrational belief measures alone resulted in a multiple r of .31. The addition of alexithymia resulted in a multiple r of .57 and a $\underline{R^2}$ change of .23. In the next regression procedure reversing the order in which these variables were entered, alexithymia explained .29 of the variance in depression, while the addition of irrational beliefs only added .03 to the explained variance. The only significant alexithymia subscale was the DIF, a pattern consistently repeated in every subsequent multiple regression.

Table 7 shows the multiple regressions of the EPQR-N. Similar to the BDI, the results of both multiple regressions showed that no scale was more robust than DIF in explaining the variance of the EPQ-R-N. The MSBS and the LFT subscale were the only significant irrational beliefs in both multiple

regressions. The irrational belief measures demonstrated a multiple r of .38 when entered first, with the addition of the alexithymia measures resulting in a R^2 change of .17. In the second multiple regression, alexithymia resulted in a multiple r of .48 when entered first, and the addition of irrational beliefs resulted in a R^2 change of .08.

Table 8 presents the multiple regressions of the Hospital Anxiety Scale. The first multiple regression found two irrational belief measures to be significant, the MSBS and LFT. The irrational belief measures demonstrated a multiple r of .36 when entered first, with the addition of the alexithymia measures resulting in a R^2 change of .17. In the second multiple regression, alexithymia produced a multiple r of .48 when entered first, and the addition of irrational beliefs resulted in a R^2 change of .07.

Table 9 presents the final multiple regression using the Hospital Depression Scale, and the results were somewhat surprising. The introduction of irrational beliefs alone uncovered two significant measures, the MSBS and LFT, and it produced a multiple r of .29. The addition of alexithymia produced a significant R^2 change of .17. When alexithymia was entered first, it produced a multiple r of .48. The addition of irrational beliefs did not produce a significant R^2 change (.03). The surprise was that SW became a significant negative predictor (-.12, $p < .05$) after the addition of alexithymia, rather than being the positive predictor suggested by Ellis' theory.

Because of the disparity in the number of subjects for each of the sexes, separate analyses were conducted for each sex. Both correlation and multiple

regression findings demonstrated no significant differences for the two sexes. In short, findings for the full sample were an accurate reflection of findings for each sex considered separately.

Discussion

The goal of this project was to determine which of two cognitive disorders, alexithymia or irrational beliefs, would better predict the emotional disorders of anxiety, neuroticism, and depression. A comparative analysis procedure employing hierarchical multiple regressions was implemented in order to answer the relevant questions "Is one set of predictors, irrational beliefs or alexithymia, better than another?" "Are the two predictors equally important?" "Is neither a valid predictor?"

Irrational beliefs, Ellis has hypothesized, cause people to become neurotically anxious and depressed. He also hypothesizes that teaching a person to hold rational beliefs, through REBT, is the best way to treat an emotionally disturbed individual. Malouff and Schutte (1986) confirmed this hypothesis by demonstrating a reduced level of distress in patients who receive REBT.

However, the findings of this study made it unclear whether the magnitude of irrational beliefs a person holds was the best predictor of emotional dysfunction. Alexithymia was perhaps a more relevant predictor of the relationship between cognitive and emotional functioning. Since the development of the TAS, studies have demonstrated consistent correlations of alexithymia with measures of emotional dysfunction. What was not known about alexithymia was how well it would predict anxiety, neuroticism, and depression when combined

with the irrational belief measures. The study here suggested that alexithymia, indeed, may be the better predictor.

When entered into the regression equations first, irrational beliefs accounted for between 8 and 14 percent of the explained variance for the emotional dysfunction measures. Of the six irrational belief measures, only LFT and the MSBS were successful predictors when entered into the multiple regression. The highest multiple R's were with the measures of anxiety and neuroticism, .38 with the EPQR-N and .36 with the HAD-Anxiety. The two depression scales were both at the low end of the range, .29 for the HAD-Depression and .31 for the Beck Depression Inventory.

The addition of alexithymia in these multiple regressions produced $\underline{R^2}$ changes between .17 and .23. The highest change was for the BDI. The combination of variables resulted in a multiple r of .57, mostly associated with the addition of alexithymia. The addition of alexithymia to the irrational belief measures in the other three dysfunction scale regressions resulted in $\underline{R^2}$ changes of .17 for each. Regardless of which regression was examined, the addition of alexithymia explained more variance then did the original entry of irrational beliefs.

Results for the multiple regressions, when alexithymia was entered first, demonstrated that alexithymia explained between 23 and 29 percent of the dysfunction variance. The multiple regression for the BDI was the strongest of the relationships with a multiple R .54, and the other three displayed the same multiple R of .48. In all four multiple regressions, only one measure of

alexithymia was a significant predictor, DIF. Specifically, DIF was significant with betas between .44 and .59.

In these analyses, the addition of the irrational belief measures did not always add a significant amount of explained variance. The three significant additions ranged from .03 to .08, with the EPQR-N at the high end of the range, and the BDI at the low end. The addition of irrational beliefs did not produce a significant addition of explained variance in the HAD-Depression scale (.03 $p >$ .05). The addition produced a .07 R^2 change in the HAD-Anxiety. Overall, the addition of irrational beliefs did not match the magnitude of explained variance that was associated with the addition of alexithymia.

Comparatively, this study therefore demonstrated that one of the two predictors was indeed superior to the other. The alexithymia measure was, generally, a better predictor of emotional dysfunction than was irrational beliefs. While irrational beliefs did significantly add to the explained variance of many of the dysfunction scales, it did not account for as large amounts of explained variance, and in the HAD-Depression, it did not produce any significant addition at all. No irrational belief scale was significant across all dysfunction measures in the combined multiple regressions. The MSBS and LFT both were significantly correlated with each dysfunction scale, but neither was a significant predictor of every dysfunction in the multiple regression. Only DIF was significant in every multiple regression, and it was the measure that explained the most variance in every multiple regression.

In short, the strongest data were obtained for the DIF. That addition, to the irrational belief measurements, explained more variance for every dependent variable then did the original entry of the irrational belief measurements. Also, when alexithymia was the first step of the multiple regression, the addition of the irrational belief measures did not always produce a significant change in $\underline{R^2}$. This indicated that irrational beliefs could not always add any predicted variance to measures of emotional dysfunction, not already explained by alexithymia.

Correlational findings revealed many significant correlations between the different irrational belief scales. These correlations were a replication of previous findings (Watson et al., in press). While several subscales of the SPB correlated with each other and with the MSBS, they did not always correlate with the measures of distress. The ODS and SDS were the two least valid subscales. The ODS did not correlate with any measure of dysfunction, and the SDS only correlated with the EPQR-N. While AWF and SW had strong correlations with one or two distress measures, only the MSBS and the LFT were consistently significant across all dysfunction measures.

The previous alexithymia research demonstrated a strong, and consistent relationship of the TAS with the emotional dysfunction scales used here. As expected, the DIF and DDF were significantly correlated with all the measures of emotional dysfunction. The alexithymia correlation results replicated many of Deary et al.'s (1997) findings. Deary and his colleagues (1997) demonstrated the same significant correlations of the DIF and DDF measures with the dysfunction scales, a pattern found consistently in the alexithymia literature. The EOT was

only significant with the HAD-DEP, a somewhat surprising finding, because of the lack of a similarly significant result with the BDI.

In short, these correlational data supported previous findings for both alexithymia and irrational beliefs. However, since no previous research has examined the two together, a hypothesis was not made about the relationship among the two. Correlations between irrational beliefs and alexithymia were significant, but moderate. Very low correlations were found between the DIF and three of the irrational belief measures, and between the DDF and two of the irrational belief measures. EOT was moderately significantly correlated only with SDS. These findings lent support for some relationship of alexithymia with irrational beliefs.

The TAS-20 had good internal reliability for two of the subscales, DIF and DDF. EOT had a marginally acceptable coefficient alpha, but was not particularly impressive when compared to the alphas of the other two. This scale also did not demonstrate good validity in that it did not correlate with the dysfunctions it was hypothesized to predict.

The MSBS also had good internal reliability with its coefficient alpha of .77, and it demonstrated good validity. However, the other irrational belief measures, within the SPB, had marginal coefficient alphas at best. The low alphas and the lack of significance in the correlations with measures of anxiety, neuroticism, and depression promoted the conclusion that the SPB was not a particularly good scale and may demand some revision. Later findings may promote a stronger recommendation for combining irrational beliefs and

alexithymia to predict emotional dysfunction if a better irrational belief survey can be developed. There were no problems with the dysfunction measures, all of which had acceptable coefficient alpha levels and correlated with each other as predicted.

Future research in the area of emotional distress apparently should not ignore the multitude of findings supporting the relationship of distress and alexithymia. Users of the TAS (or TAS-20) have presented several strong cases supporting such a relationship. A reworking of the TAS-20, however, may be in order. The lack of many significant findings for the EOT when correlated with emotional dysfunction suggests that it did not measure the same maladjusted characteristics as the DDF and DIF.

Again, irrational beliefs, if actually as important as conceptualized by Ellis, apparently need to be measured more effectively. Many of the subscales in the SPB correlated only with the other SPB subscales. Of course, the problem may not be with the scales. While other irrational belief measures, such as the General Attitude and Belief Scale (DiGiuseppe, Leaf, Exner, & Robin, 1988 as cited in Kendall et al., 1995) do exist, it may not be the failure of the measures, but rather the failure of the so-called irrational beliefs to predict emotional dysfunction. In other words, irrational beliefs may not be as important as Ellis hypothesizes. The strong correlations of the MSBS with emotional dysfunction, but the relative unimportance of the MSBS as a predictor in the multiple regressions may support such a conclusion.

Irrational beliefs have been linked to emotional issues other then anxiety, neuroticism, and depression. Self-esteem levels, perhaps, would be better predicted by alexithymia than by irrational beliefs. Watson et al. (in press) found moderate correlations of the SPB with a measure of self-esteem. However, a stronger relationship may exist between alexithymia and self-esteem. Likewise, Watson et al. (1998) found correlations of the irrational belief scales with measures of self-esteem, as well as social responsibility, powerlessness and normlessness. These variables also may be better predicted by examining their relationship with alexithymia.

Other predictors may also deserve to be analyzed comparatively with alexithymia. Chang (1996) found negative life stress, independent from irrational beliefs, significantly contributed to symptoms of depression. Similarly, a study by Chang and Bridewell (1998) concluded that variables such as optimism and pessimism, while partially independent from irrational beliefs, might predict variables other then emotional dysfunction. Future research may need to look at the comparative relationships of alexithymia with these potential predictors.

A potential limitation of this study was that it was applied only to a college population. The subject pool consisted of 311 undergraduate students. Different results may have been reported if this study had been conducted on a clinical population. However, Ellis has argued that irrationalities exist inherently in all humans (Ellis, 1987 as cited in Watson et al., in press). Therefore, relationships between irrational beliefs and dysfunction, should exist, according to Ellis, even with a non-clinical population.

A further limitation of this study was the sole reliance on self-report questionnaires to gather data. This use of self-report measures of emotional dysfunctions may have been inadequate because significant results may have resulted in part from using a common self-report methodology for measuring all the variables of interest.. A need may exist for using clinical observations to collect perhaps more accurate assessments of emotional dysfunctions.

Finally, the ultimate meaning of the correlations is unknown. Is it that alexithymia causes the emotional dysfunctions, or is it possible that depression, anxiety or neuroticism cause alexithymia? The actual relationship would need to be identified more in depth by using a noncorrelational approach. Also, perhaps more importantly, is there a third variable which regulates the relationship between the two dysfunctions, emotional and cognitive. In other words, the possibility exists that the constructs of alexithymia and the emotional dysfunctions are simultaneously controlled by another variable.

The goal of this project was to determine whether two independent constructs contributed equally, unequally, or not at all to the prediction of anxiety, neuroticism, and depression. This study suggested that alexithymia was the superior predictor. Even with a reliable and valid measure, the MSBS, irrational beliefs did not explain the amount of variance in emotional dysfunction that the alexithymia measures predicted. Future research on emotional dysfunction cannot ignore the high levels of predicted variance demonstrated by alexithymia.

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Tables

Table 1

Means and Correlations of the Toronto Alexithymia Scale 20 (n = 311)[1]

	Scale statistics			Intercorrelations		
Subscale	Mean	SD	Alpha	1	2	3
1. TAS-EOT	9.33	2.86	.56	--	.23***	.26***
2. TAS-DIF	7.65	3.45	.81		--	.56***
3. TAS-DDF	6.64	2.82	.75			--

*p<.05. **p < .01. ***p<.001.

[1]Alexithymia includes the Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT) Subscales of the Toronto Alexithymia Scale 20.

Table 2

Means and Correlations of the Irrational Beliefs Measurements (n = 311)[1]

	Scale statistics			Intercorrelations					
Scale	Mean	SD	Alpha	1	2	3	4	5	6
1. MSBS	38.96	8.33	.77	--	.39***	.46***	.23***	.30***	.52***
2. AWF	21.21	3.61	.64		--	.57***	.34***	.47***	.42***
3. LFT	17.28	3.56	.64			--	.31***	.30***	.38***
4. ODS	17.50	2.76	.39				--	.41***	.22***
5. SDS	20.72	3.30	.62					--	.28***
6. SW	16.85	4.10	.70						--

*p<.05. **p < .01. ***p<.001.

[1]Irrational beliefs include the Malouff-Schutte Belief Scale (MSBS) and the Awfulizing (AWF), Self-directed Shoulds (SDS), Other-directed Shoulds (ODS), Low Frustration Tolerance (LFT), and Self-worth (SW) Subscales of the Survey of Personal Beliefs.

Table 3

Correlations of the Irrational Belief and Alexithymia Measures (n = 311)[1]

	Alexithymia		
Scale	TAS-DDF	TAS-DIF	TAS-EOT
Irrational Beliefs			
MSBS	.13*	.22***	.08
AWF	-.03	.02	-.02
LFT	-.03	.19***	.05
ODS	-.06	-.09	-.07
SDS	-.13**	-.09	-.16**
SW	.05	.15**	.00

*p<.05. **p < .01. ***p<.001

[1]Irrational beliefs include the Malouff-Schutte Belief Scale (MSBS) and the Awfulizing (AWF), Self-directed Shoulds (SDS), Other-directed Shoulds (ODS), Low Frustration Tolerance (LFT), and Self-worth (SW) Subscales of the Survey of Personal Beliefs. Alexithymia includes the Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT) Subscales of the Toronto Alexithymia Scale 20.

Table 4

Means and Correlations of the Emotional Dysfunction Measurements (n = 311)[1]

	Scale statistics			Intercorrelations			
Scale	Mean	SD	Alpha	1	2	3	4
1. BDI	7.74	7.91	.90	--	.69***	.56***	.69***
2. EPQR-N	4.67	3.53	.83		--	.63***	.48***
3. HAD-ANX	7.83	3.45	.73			--	.56***
4. HAD-DEP	3.52	3.01	.72				--

*p<.05. **p < .01. ***p<.001.

[1]Cognitive Dysfunction include the Beck Depression Inventory (BDI), Eysenck Personality Questionnaire Revised-Neuroticism (EPQR-N), and the two subscales of the Hospital Anxiety and Depression Scale (HAD-ANX and HAD-DEP).

Table 5

Correlations of the Emotional Dysfunction Measurements, Alexithymia, and Irrational Beliefs (n = 311)[1]

Scale	BDI	EPQR-N	HAD-ANX	HAD-DEP
Alexithymia				
DIF	.54***	.48***	.47***	.47***
DDF	.25***	.27***	.31***	.26***
EOT	.07	.03	.08	.19**
Irrational Beliefs				
MSBS	.24***	.33***	.34***	.21***
AWF	.11	.21***	.19**	.07
LFT	.26***	.33***	.26***	.20***
ODS	.04	.09	.06	-.02
SDS	.03	.12*	.11	-.01
SW	.12	.21***	.20***	.05

*p<.05. **p < .01. ***p<.001

[1]Irrational beliefs include the Malouff-Schutte Belief Scale (MSBS) and the Awfulizing (AWF), Self-directed Shoulds (SDS), Other-directed Shoulds (ODS), Low Frustration Tolerance (LFT), and Self-worth (SW) Subscales of the Survey of Personal Beliefs. Alexithymia includes the Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT) Subscales of the Toronto Alexithymia Scale 20. Cognitive Dysfunction include the Beck Depression Inventory (BDI), Eysenck Personality Questionnaire Revised-Neuroticism (EPQR-N), and the two subscales of the Hospital Anxiety and Depression Scale (HAD-ANX and HAD-DEP).

Table 6
Summary of Hierarchical Regression Analysis for the Beck Depression Inventory (n = 311)[1]

	IB Then ALEX				ALEX Then IB			
Variable	Multiple R	R2 Change	β		Multiple R	R2 Change	β	
Step 1	.31	.10***			Step 1	.54	.29***	
MSBS			.19**		DDF			-.07
AWF			-.06		DIF			.59***
LFT			.24**		EOT			-.04
ODS			-.04					
SDS			-.05		Step 2	.57	.03*	
SW			-.02					
					MSBS			.10
Step 2	.57	.23***			AWF			-.01
					LFT			.13*
DDF			-.05		ODS			.03
DIF			.54***		SDS			.00
EOT			-.05		SW			-.07

*p<.05. **p < .01. ***p<.001.

[1]Irrational beliefs include the Malouff-Schutte Belief Scale (MSBS) and the Awfulizing (AWF), Self-directed Shoulds (SDS), Other-directed Shoulds (ODS), Low Frustration Tolerance (LFT), and Self-worth (SW) Subscales of the Survey of Personal Beliefs. Alexithymia includes the Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT) Subscales of the Toronto Alexithymia Scale 20. Cognitive Dysfunction include the Beck Depression Inventory (BDI), Eysenck Personality Questionnaire Revised-Neuroticism (EPQR-N), and the two subscales of the Hospital Anxiety and Depression Scale (HAD-ANX and HAD-DEP).

Table 7

Summary of Hierarchical Regression Analysis for the EPQR-N (n = 311)[1]

	IB Then ALEX			ALEX Then IB		
Variable	Multiple R	R2 Change	β	Multiple R	R2 Change	β
Step 1	.38	.15***		Step 1 .48	.24***	
MSBS			.22**	DDF		.09
AWF			.00	DIF		.49***
LFT			.23**	EOT		.05
ODS			-.04			
SDS			.00	Step 2 .56	.08***	
SW			.02			
				MSBS		.14*
Step 2	.56	.17***		AWF		.04
				LFT		.16*
DDF			.05	ODS		.01
DIF			.42***	SDS		.05
EOT			-.09	SW		-.02

*p<.05. **p < .01. ***p<.001.

[1]Irrational beliefs include the Malouff-Schutte Belief Scale (MSBS) and the Awfulizing (AWF), Self-directed Shoulds (SDS), Other-directed Shoulds (ODS), Low Frustration Tolerance (LFT), and Self-worth (SW) Subscales of the Survey of Personal Beliefs. Alexithymia includes the Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT) Subscales of the Toronto Alexithymia Scale 20. Cognitive Dysfunction include the Beck Depression Inventory (BDI), Eysenck Personality Questionnaire Revised-Neuroticism (EPQR-N), and the two subscales of the Hospital Anxiety and Depression Scale (HAD-ANX and HAD-DEP).

Table 8

Summary of Hierarchical Regression Analysis for the HAD-Anxiety[1]

	IB Then ALEX			ALEX Then IB		
Variable	Multiple R	R2 Change	β	Multiple R	R2 Change	β
Step 1	.36	.13***		Step 1 .48	.23***	
MSBS			.27***	DDF		.07
AWF			.02	DIF		.44***
LFT			.15 *	EOT		.04
ODS			-.06			
SDS			-.00	Step 2 .55	.07***	
SW			.01			
				MSBS		.13**
Step 2	.55	.17***		AWF		.05
				LFT		.08
DDF			.09	ODS		-.01
DIF			.38***	SDS		.05
EOT			-.04	SW		-.02

*p<.05. **p < .01. ***p<.001.

[1]Irrational beliefs include the Malouff-Schutte Belief Scale (MSBS) and the Awfulizing (AWF), Self-directed Shoulds (SDS), Other-directed Shoulds (ODS), Low Frustration Tolerance (LFT), and Self-worth (SW) Subscales of the Survey of Personal Beliefs. Alexithymia includes the Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT) Subscales of the Toronto Alexithymia Scale 20. Cognitive Dysfunction include the Beck Depression Inventory (BDI), Eysenck Personality Questionnaire Revised-Neuroticism (EPQR-N), and the two subscales of the Hospital Anxiety and Depression Scale (HAD-ANX and HAD-DEP).

Table 9

Summary of Hierarchical Regression Analysis for the HAD-Depression Subscale[1]

IB Then ALEX				ALEX Then IB			
Variable	Multiple R	R2 Change	β		Multiple R	R2 Change	β
Step 1	.29	.08***		Step 1	.48	.23***	
MSBS			.22**	DDF			-.02
AWF			-.04	DIF			.46***
LFT			.20**	EOT			.09
ODS			-.07				
SDS			-.06	Step 2	.51	.03	
SW			-.09				
				MSBS			.13*
Step 2	.51	.17***		AWF			.00
				LFT			.11
DDF			-.00	ODS			-.01
DIF			.42***	SDS			.01
EOT			.08	SW			-.12*

*p<.05. **p < .01. ***p<.001.

[1]Irrational beliefs include the Malouff-Schutte Belief Scale (MSBS) and the Awfulizing (AWF), Self-directed Shoulds (SDS), Other-directed Shoulds (ODS), Low Frustration Tolerance (LFT), and Self-worth (SW) Subscales of the Survey of Personal Beliefs. Alexithymia includes the Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT) Subscales of the Toronto Alexithymia Scale 20. Cognitive Dysfunction includes the Beck Depression Inventory (BDI), Eysenck Personality Questionnaire Revised-Neuroticism (EPQR-N), and the two subscales of the Hospital Anxiety and Depression Scale (HAD-ANX and HAD-DEP).

Appendices

APPENDIX A

RESEARCH PARTICIPATION CONCENT FORM

I, _____ (please sign your name), agree to participate in the present research project. My participation is completely voluntary and will be rewarded with extra credit for my psychology class. I also understand 1.) that completion of this project will take one hour or less, 2.) that I can terminate my participation at any time and still receive the extra credit, 3.) that the outcomes of this project will be presented as group findings and will not reveal the identity of any particular individual, and 4.) that my responses to all research questions will be kept completely anonymous and confidential. Indeed, there will be no information entered on the research answer sheets that will identify me with my particular responses, and I will receive my extra credit by supplying below all necessary background information including my name, social security, number and psychology class and section number for which I am to receive the extra credit.

Background Information: PLEASE PRINT

NAME (Last, First, Middle Initial):_____

Social Security Number:_____

Psychology Class and Section Number:_____

APPENDIX B

RESEARCH QUESTIONNAIRE
FA99SPB

In the following questionnaire, there are 6 sections that record a number of your beliefs, attitudes, characteristics, and experiences. We would like you to read carefully the instructions for each section and then respond to all items within that section. When you have decided what your response will be to any particular item, you should note the letter, which corresponds to your answer and blacken the proper space on your answer sheet using a No. 2 pencil. Work fairly rapidly, not brooding over any one statement too long. Except for questions measuring some of your personal characteristics (e.g., your age and sex), there are no right or wrong answers. Some people will agree and others will disagree with each of the statements. All your answers will be kept strictly confidential.

Before beginning, we would like for you to supply the following information:

A. Write **FA99SPB** on your answer sheet where it says "INSTRUCTOR."

B. In the first column for your student number, we would like you to indicate your sex:
0- Male
1- Female

C. In the next two columns of the student number, please enter your age.

D. In column 4, please indicate your race and darken in the appropriate space:

0- African American/Black
1- Caucasian/White
2- Hispanic
3- Middle Eastern
4- Oriental/Asian
5- Other

Make sure that you have darkened in the appropriate spaces in these four columns. The remaining columns presented for your social security numbers should be left empty, and you also **should not** enter in your name at the top of the answer sheet.

Now begin the sections of this questionnaire. Please take care in understanding and responding to the instructions in each section. Throughout please respond to all items, and enter your responses clearly on the answer sheet.

APPENDIX C

SECTION 1

ITEMS 1-50: People have different ideas and beliefs. We are interested in your opinion about the following statements. Read each statement carefully, and then for each, you should indicate your reaction on the answer sheet as follows:

A. Strongly Disagree
B. Disagree
C. Agree
D. Strongly Agree

1. Dealing with some people can be very unpleasant, but it can never be awful or horrible.
2. When I make a mistake I often tell myself, "I shouldn't have done that."
3. Absolutely, people must obey the law.
4. There is nothing that I "can't stand."
5. Being ignored, or being socially awkward at a party would reduce my sense of self worth.
6. Some situations in life are truly terrible.
7. In some areas I absolutely should be more competent.
8. My parents should be reasonable in what they ask of me.
9. There are some things that I just can't stand.
10. My "self worth" is not higher because of my successes in school or on the job.
11. The way some children behave is just awful.
12. I absolutely should not have made certain obvious mistakes in my life.

13. Even if they had promised, and it was important to me, there is no reason why my friends have to do what I want.
14. I can't deal with it when my friends (or my children) behave immaturely, wildly, or improperly.
15. There are "good people" and "bad people" as can be seen by watching what they do.
16. There are times when awful things happen.
17. There is nothing that I must do in life.
18. Children must eventually learn to live up to their obligations.
19. Sometimes I just can't tolerate my poor academic achievement in school or at work.
20. Even when I make serious or costly mistakes, or hurt others, my self worth does not change.
21. It would be terrible if I could not succeed at pleasing the people I love.
22. I would like to do better at school (or at work) but there is no reason why I absolutely must do better.
23. I believe that people definitely should not behave poorly in public
24. I just can't take a lot of pressure and stress.
25. The approval or disapproval of my friends or family does not affect my self worth.
26. It would be unfortunate, but certainly not terrible, if someone in my family had serious medical problems.

27. I definitely have to do a good job on all things that I decide to do.

28. It's generally OK for teenagers to act different by eating pizza for breakfast and leaving clothing and books all over the floor in their room.

29. I can't stand some of the things that have been done by my friends or members of my family.

30. A person who sins or harms others repeatedly is a " bad person."

31. It would be awful if someone I loved developed serious mental problems, and had to be hospitalized.

32. I have to make absolutely sure that everything is going well in important areas of my life.

33. If it's important to me, close friends should want to do the favors that I ask of them.

34. I can easily tolerate very unpleasant situations and uncomfortable, awkward interactions with friends.

35. The way others evaluate me (friends, supervisors, teachers) is very important in determining the way I rate myself.

36. It's terrible when my friends behave poorly and inappropriately in public.

37. I clearly should not make some of the mistakes I make.

38. There is no reason why my family members must act the way I want them to.

39. It's unbearable when lots and lots of things go wrong.

40. I often rate myself based upon my success at work or school, or upon my social achievements.

41. It would be terrible if I totally failed in school or at work.

42. There is no reason why I should be a better person than I am.

43. There are clearly some things that other people must not do.

44. There are some things about people at work (or in school) that I just can't stand.

45. Serious emotional or legal problems would lower my sense of self worth.

46. Even very bad and distasteful situations like failing, or losing a lot of money or a job, are not terrible.

47. There are some good reasons why I must not make errors at school or at work.

48. Absolutely, my friends and family should treat me better than they sometimes do.

49. I can easily accept it when my friends don't behave the way I expect them to behave.

50. It is important to teach children that they can become "good boys" and "good girls" by performing well in school and earning the approval of their parents.

GO ON TO THE NEXT SECTION

APPENDIX D

SECTION 2

ITEMS 51-71: Carefully read each of the following statements and indicate on your answer sheet the letter that best reflects your level of agreement. Use the following response options:

A. Strongly Disagree

B. Disagree

C. Neither Agree nor Disagree

D. Agree

E. Strongly Agree

Notice that in this section you respond to items in terms of **FIVE**, not four response options.

51. To be a worthwhile person I must be thoroughly competent in everything I do.

52. My negative emotions are the result of external pressures.

53. To be happy, I must maintain the approval of all the persons I consider significant.

54. Most people who have been unfair to me are generally bad individuals.

55. Some of my ways of acting are so ingrained that I could never change them.

56. When it looks as if something might go wrong, it is reasonable to be quite concerned

57. Life should be easier than it is.

58. It is awful when something I want to happen does not occur.

59. It makes more sense to wait than to try to improve a bad life situation.

60. I hate it when I cannot eliminate an uncertainty

61. Many events from my past so strongly influence me that it is impossible to change.

62. Individuals who take unfair advantage of me should be punished.

63. If there is a risk that something bad will happen, it makes sense to be upset.

64. It is terrible when things do not go the way I would like.

65. I must keep achieving in order to be satisfied with myself.

66. Things should turn out better than they usually do.

67. All rocks float on the top of water.

68. I cannot help how I feel when everything is going wrong.

69. To be happy I must be loved by the persons who are important to me.

70. It is better to ignore personal problems than to try to solve them.

71. I dislike having any uncertainty about my future.

GO ON TO THE NEXT SECTION

APPENDIX E

SECTION 3

ITEMS 72-92: Carefully read each of the following statements and indicate which option is most true of you.

72. Which of the following is true:

A. I do not feel sad.

B. I feel sad.

C. I am sad all the time and I can't snap out of it.

D. I am so sad or unhappy that I can't stand it.

73. Which of the following is true:

A. I am not particularly discouraged about the future.

B. I feel discouraged about the future.

C. I feel I have nothing to look forward to.

D. I feel that the future is hopeless and that things cannot improve.

74. Which of the following is true:

A. I do not feel like a failure.

B. I feel I have failed more then the average person.

C. As I look back on my life, all I can see is a lot of failures.

D. I feel I am a complete failure as a person.

75. Which of the following is true:

A. I get as much satisfaction out of things as I used to.

B. I don't enjoy things the way I used to.

C. I don't get real satisfaction out of anything anymore.

D. I am dissatisfied or bored with everything.

76. Which of the following is true:

A. I don't feel particularly guilty.

B. I feel guilty a good part of the time.

C. I feel quite guilty most of the time.

D. I feel guilty all of the time.

77. Which of the following is true:

A. I don't feel I am being punished.

B. I feel I may be punished.

C. I expect to be punished.

D. I feel I am being punished.

78. Which of the following is true:

A. I don't feel disappointed in myself.

B. I am disappointed in myself.

C. I am disgusted with myself.

D. I hate myself.

79. Which of the following is true:

A. I don't feel I am any worse than anybody else.

B. I am critical of myself for my weaknesses or mistakes.

C. I blame myself all the time for my faults.

D. I blame myself for everything bad that happens.

80. Which of the following is true:

A. I don't have any thoughts of killing myself.

B. I have thoughts of killing myself, but I would not carry them out.

C. I would like to kill myself

D. I would kill myself if I had the chance.

81. Which of the following is true:

A. I don't' cry any more than usual.

B. I cry more now than I used to.

C. I cry all the time now.

D. I used to be able to cry, but now I can't cry even though I want to.

82. Which of the following is true:

A. I am no more irritated now than I ever am.

B. I get annoyed or irritated more easily than I used to.

C. I feel irritated all the time now.

D. I don't get irritated at all by the things that used to irritate me.

83. Which of the following is true:

A. I have not lost interest in other people.

B. I am less interested in other people than I used to be.

C. I have lost most of my interest in other people.

D. I have lost all of my interest in other people.

84. Which of the following is true:

A. I make decisions about as well as I ever could.

B. I put off making decisions more than I used to.

C. I have greater difficulty in making decisions than before.

D. I can't make decisions at all anymore.

85. Which of the following is true:

A. I don't feel I look any worse than I used to.

B. I am worried that I am looking old or unattractive.

C. I feel that there are permanent changes in my appearance that make me look unattractive.

D. I believe that I look ugly.

86. Which of the following is true:

A. I can work about as well as before.

B. It takes an extra effort to get started at doing something.

C. I have to push myself very hard to do anything.

D. I can't do any work at all.

87. Which of the following is true:

A. I can sleep as well as usual.

B. I don't sleep as well as I used to.

C. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.

D. I wake up several hours earlier than I used to and cannot get back to sleep.

88. Which of the following is true:

A. I don't get more tired than usual.

B. I get tired more easily than I used to.

C. I get tired from doing almost anything.

D. I am too tired to do almost anything.

89. Which of the following is true:

A. My appetite is no worse than usual.

B. My appetite is not as good as it used to be.

C. My appetite is much worse now.

D. I have no appetite at all anymore.

90. Which of the following is true:

A. I haven't lost much weight, if any, lately.

B. I have lost more than 5 pounds, and I am not purposely trying to lose weight by eating less.

C. I have lost more than 10 pounds, and I am not purposely trying to lose weight by eating less.

D. I have lost more than 15 pounds, and I am not purposely trying to lose weight by eating less.

E. None of the above is true of me.

91. Which of the following is true:

A. I am no more worried about my health than usual.

B. I am worried about physical problems such as aches and pains: or upset stomach; or constipation.

C. I am very worried about physical problems and it's hard to think of much else.

D. I am so worried about my physical problems that I cannot think about anything else.

92. Which of the following is true:

A. I have not noticed any recent change in my interest in sex.

B. I am less interested in sex than I used to be.

C. I am much less interested in sex now.

D. I have lost interest in sex completely.

GO ON TO THE NEXT SECTION

APPENDIX F

SECTION 4

ITEMS 93-104: Carefully read each of the following statements and indicate on your answer sheet the letter that best reflects your level of agreement. Use the following response options:

A. Yes

B. No

93. Does your mood often go up and down?

94. Do you ever feel 'just miserable' for no reason?

95. Are you an irritable person?

96. Are your feelings easily hurt?

97. Do you often feel 'fed-up'?

98. Would you call yourself a nervous person?

99. Are you a worrier?

100. Would you call yourself tense or 'highly-strung'?

101. Do you worry too long after an embarrassing experience?

102. Do you suffer from 'nerves'?

103. Do you often feel lonely?

104. Are you often troubled about feelings of guilt?

GO ON TO THE NEXT SECTION

APPENDIX G

SECTION 5

ITEMS 105-125: Carefully read each of the following statements and indicate on your answer sheet the letter that best reflects your level of agreement. Use the following response options:

A. Strongly Disagree

B. Disagree

C. Agree

D. Strongly Agree

105. I am often confused about what emotion I am feeling.

106. It is difficult for me to find the right words for my feelings.

107. I have physical sensations that even doctors don't understand.

108. I am able to describe my feelings easily.

109. I prefer to analyze problems rather than just describe them.

110. When I am upset, I don't know if I am sad, frightened, or angry.

111. I am often puzzled by sensations in my body.

112. Two plus two equals twelve

113. I prefer to just let things happen rather than to understand why they turned out that way.

114. I have feelings that I can't quite identify.

115. Being in touch with emotions is essential

116. I find it hard to describe how I feel about people.

117. People tell me to describe my feelings more.

118. I don't know what's going on inside me.

119. I often don't know why I am angry.

120. I prefer talking to people about their daily activities rather than their feelings.

121. I prefer to watch "light" entertainment shows rather than psychological dramas.

122. It is difficult for me to reveal my innermost feelings, even to close friends.

123. I can feel close to someone, even in moments of silence.

124. I find examination of my feelings useful in solving personal problems.

125. Looking for hidden meanings in movies or plays distracts from their enjoyment.

GO ON TO THE NEXT SECTION

APPENDIX H

SECTION 6

ITEMS 126-140: Carefully read each of the following statements and indicate on your answer sheet which response is most true of you.

126. I feel tense or 'wound up':

A. Most of the time

B. A lot of the time

C. From time to time, occasionally

D. Not at all

127. I still enjoy the things I used to enjoy:

A. Definitely as much

B. Not quite so much

C. Only a little

D. Hardly at all

128. I get a sort of frightened feeling as if something awful is about to happen:

A. Very definitely and quite badly

B. Yes, but not too badly

C. A little, but it doesn't worry me

D. Not at all

129. I can laugh and see the funny side of things:

A. As much as I always could

B. Not quite so much now

C. Definitely not so much now

D. Not at all

130. Worrying thoughts go through my mind:

A. A great deal of the time

B. A lot of the time

C. From time to time but not too often

D. Only occasionally

131. I feel cheerful:

A. Not at all

B. Not often

C. Sometimes

D. Most of the time

132. I am a student at:

A. University of Georgia

B. Stanford University

C. University of Tennessee at Chattanooga

D. University of Chicago

133. I can sit at easy and feel relaxed:

A. Definitely

B. Usually

C. Not often

D. Not at all

134. I feel as if I am slowed down:

A. Nearly all the time

B. Very often

C. Sometimes

D. Not at all

135. I get a sort of frightened felling like 'butterflies' in the stomach:

A. Not at all

B. Occasionally

C. Quite often

D. Very often

136. I have lost interest in my appearance:

A. Definitely

B. I don't take so much care as I should

C. I may not take quite as much care

D. I take just as much care as ever

137. I feel restless as if I have to be on the move:

A. Very much indeed

B. Quite a lot

C. Not very much

D. Not at all

138. I look forward with enjoyment to things

A. As much as ever I did

B. Rather less than I used to

C. Definitely less than I used to

D. Hardly at all

139. I get sudden feelings of panic:

A. Very often indeed

B. Quite often

C. Not very often

D. Not at all

140. I can enjoy a good book or radio or TV program:

A. Often

B. Sometimes

C. Not often

D. Very seldom

STOP – <u>Please turn in your questionnaire materials</u>, and <u>THANKS</u> for your help!!!

VITA

Scott Edward Culhane was born in Wayne, New Jersey on September 9, 1976. He attended public school primarily in Jackson, Tennessee at the Madison County Public School System. A graduate of North Side High School in May of 1994, he then entered the University of Tennessee at Knoxville in August of 1994. He graduated from the University of Tennessee at Knoxville in May of 1998 with a Bachelor of Arts in Political Science and a second Bachelor of Arts in Psychology with an academic concentration. He then entered the University of Tennessee at Chattanooga in August of 1998. He received his Master of Science degree in Psychology, with a concentration in research, in May of 2000.

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