

**RORSCHACH CORRELATES OF STATE AND TRAIT ANXIETY
IN COLLEGE STUDENTS**

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RORSCHACH CORRELATES OF STATE AND TRAIT ANXIETY
IN COLLEGE STUDENTS

An Abstract
Presented to the
Graduate and Research Council of
Austin Peay State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
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ABSTRACT

This study was made to determine whether Elizur's anxiety scoring (AL) for Rorschach content was related to Spielberger's State-Trait Anxiety Inventory (STAI). The definition of anxiety presented by Elizur implies that his technique measures anxiety as a long-term, relatively stable personality characteristic rather than a transitory emotional state, but no research existed to show whether AL was correlated with state and/or trait anxiety as defined and measured by Spielberger.

The subjects were 40 students attending Austin Peay State University, located in Clarksville, Tennessee. The STAI was administered in small groups, with a repeat measure of STAI state anxiety and the Rorschach given individually following a delay of at least five days. Testing covered the Spring and Summer 1986 quarters.

Results of correlative analyses indicated that the STAI trait anxiety measure correlated significantly with AL at the .001 level. Test-retest correlations for STAI state anxiety measures and STAI state and trait anxiety measures obtained in the same testing session also reached significance at the .001 level. State anxiety scores obtained just prior to Rorschach testing were related to STAI trait anxiety scores ($p < .01$), and initial STAI state anxiety scores correlated with AL ($p < .01$).

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Graduate and Research Council:

I am submitting herewith a Thesis written by Debra Jean Lauer Haisel entitled "Rorschach Correlates of State and Trait Anxiety in College Students." I have examined the final copy of this paper for form and content, and I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Counseling and Guidance.

John D. Martin
Major Professor

We have read this thesis
and recommend its acceptance.

Linda Rudolph
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TABLE OF CONTENTS

CHAPTER	PAGE
1. INTRODUCTION.....	1
2. METHOD.....	9
The Sample.....	9
Description of the Instruments.....	9
Administration and Scoring.....	11
3. RESULTS.....	13
4. DISCUSSION.....	15
REFERENCES.....	18

LIST OF TABLES

TABLE	PAGE
1. Correlations Between the STAI Scales for State and Trait Anxiety and Elizur's Rorschach Anxiety Scores (<u>AL</u>).....	14
2. Means and Standard Deviations.....	14

CHAPTER 1

Introduction

Although Freud is credited as the first psychologist to formally study anxiety as "the fundamental phenomenon and the central problem of neurosis" (Freud, 1936, p. 85), the topic of anxiety as a pervasive human condition has been of interest for many centuries. References to fear, dread, and anxiety were clearly depicted by ancient Egyptian scribes in their hieroglyphics, and early Greek and Roman philosophers strove to understand this peculiarly debilitating subjective torment (Cohen, 1969).

As early as the 11th century, writings began to appear regarding the motivating power of anxiety. In his treatise on the universality of anxiety, the Arab philosopher Ala Ibn Hazm declared:

I have constantly tried to single out one end in human actions which all men unanimously hold as good and which they all seek. I have found only this: the aim of escaping anxiety. . . .

No one is moved to act or moved to speak a single word who does not hope by means of this action or word to release anxiety from his spirit. (Kritzeck, 1955/56, pp. 572-574)

Many historians, theologians, philosophers, and psychologists would support this statement about anxiety as a prime motivator of human behavior, and there is a general agreement that anxiety has been increasing since the onset of early modern culture (Bouwsma, 1980). Anxiety is credited with providing

the impetus for the Renaissance, the colonization of America, and man's relentless preoccupation with the passage and the significance of time.

Assuming that modern man lives in an "Age of Anxiety" (Spielberger, 1983, p. 1), it is not surprising that the past fifty years have been marked by a plethora of studies based on clinical observations of human anxiety. Since 1950, scientific emphasis has been skewed towards experimental research on anxiety (Spielberger, 1966). This research has been facilitated by conceptual advances clarifying anxiety as a term that describes two related yet distinct theoretical constructs. The state-trait dichotomy, as it was described by Cattell (1966), enabled psychologists to discuss anxiety as an unpleasant but temporary emotional state or as a relatively stable and enduring psychological trait. This model led to research on the interrelationships of anxiety, fear, and stress. While popular literature often uses these terms interchangeably, anxiety is a distinct phenomenon that may be identified by its unique combination of experiential, physiological, and behavioral manifestations (Spielberger, 1979).

To Freud, anxiety was "something felt" that involved subjective feelings of tension, apprehension, and worry (Freud, 1924). He attributed these experiential qualities with creating the unique "character of unpleasure" that surrounded anxiety reactions (Freud, 1924). He theorized that these unpleasant feelings arose when libidinal energy was repressed to avoid threatening mental images or lustful

ideas. Thus blocked from normal expression, the repressed energy accumulated and was transformed into free-floating anxiety or into physical or mental symptoms that served as anxiety equivalents. Freud later revised his views on the experiential manifestations of anxiety to include perceived presence of danger, located either in the external environment or in the internal world of thoughts and feelings.

Freud described physiological and behavioral changes that accompany anxiety, including tachycardia, respiratory disturbances, sweating, restlessness, tremors, nausea, and vertigo. The reactions are similar to those accompanying intense fear. Freud described the relationship between fear and anxiety in terms of the potential danger and the rationality of the assessment of danger to the organism. If the intensity of the anxiety, experienced as a highly unpleasant emotional state, was proportional to the magnitude of the external danger that evoked it, then the experience was an objective anxiety reaction. Anxiety states evoked from the forbidden ideas and threatening impulses of the id were considered neurotic anxiety.

Although Freud's work on libidinal energy has been largely discredited, he still contributed immeasurably to the current knowledge of the unconscious nature of anxiety. In fact, his observation that individuals manufacture their own internal stimuli to evoke the anxiety response was critical to the development of the concept of trait anxiety. Spielberger (1972) described trait anxiety as a relatively stable and enduring tendency to respond to the environment

with experiential and behavioral manifestations of anxiety. Persons high in trait anxiety tend to view the world as more dangerous and threatening than people with low trait anxiety. Persons high in trait anxiety also experience more frequent elevations in state anxiety, responding to a wider range of potentially threatening situations than people with low trait anxiety. Persons high in trait anxiety are especially prone to elevations in state anxiety when encountering situations that involve interpersonal relationships and threaten self-esteem (Spielberger, 1983). Situations have been created in research settings to test the effects of experiencing failure or having one's personal adequacy evaluated on anxiety. For persons high in trait anxiety, these situations are perceived as highly threatening, while individuals low in trait anxiety do not consistently recognize any threat (Spence & Spence, 1966; Spielberger, 1962; Spielberger & Smith, 1966). However, in situations involving the threat potential of physical danger (i.e., electric shock or imminent surgery), persons high in trait anxiety do not respond differently from persons low in trait anxiety (Hodges & Spielberger, 1966; Auerbach, 1973; Martinez-Urrutia, 1975; Spielberger, Auerbach, Wadsworth, Dunn, & Taulbee, 1973).

The State Trait Anxiety Inventory (STAI) was developed to differentiate transitory anxious states from enduring proneness to anxiety (Spielberger & Gorsuch, 1966). Early uses involved assessing the effects of anxiety on learning and performance, but investigators quickly recognized the instrument as a valuable tool in the assessment of stress

and stress-related psychiatric and medical disorders. As experimental data on the exceptionally versatile psychometric properties of the STAI grew, other disciplines adopted the STAI as a research tool. In a bibliography compiled by the test's author (Spielberger, 1983), over 2,000 publications were listed as having reports of the use of the STAI in the fields of criminal justice, nursing and medicine, physical education and sports psychology, anthropology, drama, music, political science, sociology, and counseling and guidance.

The STAI has exceptional value in the area of counseling and guidance because of its sensitivity to changes in state anxiety over time as well as its reliability in measuring trait anxiety. It has been used in evaluating process and outcome in relaxation training, psychotherapy, biofeedback, behavior modification, and cognitive therapy (Spielberger, 1983). For example, Beck (1983) observed that successful cognitive therapy with depressed patients is usually accompanied with an increase in anxiety. Thus, the STAI may be used to monitor desirable changes as a result of therapy with depressed patients.

Correlations between the STAI's state and trait scales vary according to the amount and kind of stress associated with the conditions under which the state anxiety scale is administered. Median correlation for seven samples, including normative samples of working adults, students, and military recruits, was .65 (Spielberger, 1983), with correlations tending to be even higher when the STAI scales are given in one session. Correlations are lower if subjects are placed

in situations involving threat of physical harm, since such conditions do not markedly affect trait anxiety scores. The same study revealed a median reliability coefficient for the trait anxiety scale for college students of .765; reliability for state anxiety scores with the same sample was only .33.

The STAI trait anxiety scale correlates well with the IPAT Anxiety Scale (Cattell & Scheier, 1961), and the Taylor Manifest Anxiety Scale (TMAS)(1953). In fact, the IPAT, the TMAS, and the STAI are nearly equivalent in their ability to measure trait anxiety since their correlations approach the reliability of the instruments. The Affect Adjective Checklist (Zuckerman, 1960) also correlates moderately with the STAI trait anxiety scale. The Activity Preference Questionnaire (APQ) developed by Lykken, Tellegen, and Katzenmeyer (1973) yields both Social and Physical Trait Anxiety scores, and analysis has revealed that the STAI trait anxiety scale correlates significantly with the APQ-Social Anxiety scale but does not correlate with the APQ-Physical Anxiety scale (Blankstein, 1976).

The Rorschach anxiety scoring procedure used in this study was developed by Elizur (1949) to measure experienced anxiety rising from an internal arousal or drive. Though his construct of anxiety was developed before Cattell made the state-trait distinction, Elizur certainly implied that his procedure would measure anxiety as a long-term personality characteristic rather than transitory emotional states. Fear, guilt, phobias, extreme shyness, and marked sensitivity were listed as the behavioral manifestations of an inner state

of insecurity that persisted despite changes in the environment. Elizur designed his technique to assess the subjective level of anxiety experienced, but he did not intend his scoring to describe how individuals express or reduce anxiety states.

Like the STAI, Elizur's anxiety scoring technique has been adopted by many disciplines for unusual applications. In addition to more traditional usage in explaining motivation behind normal and psychopathological behavior, Elizur's method has been used to measure process and outcome in psychotherapy (Gallagher, 1954), probable length of hospitalization for schizophrenics (Grauer, 1953; Stotsky, 1952), and prognosis for tuberculosis patients (Cohen, 1954). It is especially helpful in situations where the subject may be tempted to "fake good" to appear more satisfactory to the examiner due to the difficulty in concealing personality characteristics when responding to the Rorschach.

Since Elizur's anxiety construct appears analogous to Cattell's trait anxiety construct, researchers have tried to study the stability of Elizur's scores (AL) over time as well as the correlations between AL and other measures of trait anxiety. Elizur (1949) was the first to challenge his own system by studying correlations between AL and two paper-and-pencil measures of anxiety (a self-administered questionnaire and a set of self-ratings). Anxiety scores from the self-ratings and questionnaires correlated significantly with AL, as did detailed interview ratings of anxiety with the same subjects. In fact, if one uses the interview results as an appropriate criterion, AL proves to be a better measure of

anxiety than the paper-and-pencil measures. It can be argued that the Rorschach provides a more accurate measure of anxiety, thus outweighing the economical benefits of objective tests.

More recently, Rorschach AL has been compared to other anxiety measures, including the TMAS, the multiple-choice TAT, the Draw-A-Person, and the Minnesota Multiphasic Personality Inventory (MMPI). The data obtained are conflicting and generally negative. Since there is no good theoretical basis for these tests not to be related, it can be argued that subjects are able to use conscious control to reveal or conceal anxiety on tests like the TMAS, but that the more subtle manifestations measured by AL cannot be faked. Obviously, this hypothetical interpretation needs empirical data to support its validity, but it may be that tests like the TMAS only reveal such trait anxiety that the subject is willing to admit on direct questioning (Goldfried, Stricker, and Weiner, 1971). A review of research literature disclosed no prior attempts to relate the STAI with AL.

The twofold purpose of this study was to assess the relationships between AL and the STAI as well as examining any changes in state anxiety scores under test-retest administrations of the STAI. In particular, the hypotheses to be tested are the following:

1. There will be a significant positive correlation between the AL and STAI trait anxiety scores.
2. STAI state anxiety scores will correlate more closely with STAI trait anxiety scores when the scales are given in one testing session.

CHAPTER 2

Method

The Sample

The sample consisted of 40 undergraduate students at Austin Peay State University, Clarksville, Tennessee, who were tested during the Spring and Summer 1986 quarters. The 25 females and 15 males ranged in age from 18 to 50 years, with a mean age of 25.4 years.

Description of the Instruments

The State-Trait Anxiety Inventory (Form Y) consists of two 20-item, 4-point self-rating scales that ask the subject to respond according to how he/she feels "right now, at this moment" (state anxiety) and how he/she generally feels (trait anxiety). The STAI-Y state and trait anxiety scales are printed on opposite sides of a single-page test form that is designed to be self-administering and appropriate for individual or group testing. Although many of the items on the scales have face validity as measures of anxiety, this term is not used on the test form. The administrator is cautioned to refrain from using the word anxiety while giving the STAI, in favor of the title "Self-Evaluation Questionnaire" which is printed on the test form. Extensive validity and normative data and ease in administration and scoring have made the STAI the most widely-used measure of anxiety throughout the world. The current study utilized Form Y, a revision of the original Form X, because it claims to give a "purer" measure of anxiety and one that is more independent of depression.

The Rorschach anxiety scoring system developed by Elizur consists of specific scoring criteria that are easily learned and can be used without difficulty. Scoring of protocols for anxiety using Elizur's guidelines is made without regard for card, location, or determinants related to percepts. This popular system follows the current trend of emphasizing the content of responses rather than the formal elements. The scoring criteria are based on the degree to which anxiety is "expressed obviously and explicitly" in a response. Images that present less obvious feelings of anxiety, or that present a clear but symbolic representation of anxiety, are given less weight in calculating anxiety levels. The questioning of subjects during Rorschach administration differs from the traditional free association and inquiry approach. Examiners may need to invite elaboration on certain responses that seem to herald a scorable percept, but the responses are scored identically whether they are revealed during free association or inquiry. Despite the fact that the Rorschach is a projective test, interscorer reliability on Elizur's scales is impressive. Studies comparing the reliability between two scorers have yielded correlations of .99 (Sanders and Cleveland, 1953) for experienced scorers to .77 (Elizur, 1949) for inexperienced scorers. It is clearly possible for an examiner to become quite proficient with Elizur's scales in a very short period of time. Forsyth's (1959) study of intrascorer reliability lends further integrity to Elizur's system: with an interval of one month, he found a .98 correlation between two sets of scores that he calculated.

Administration and Scoring

Subjects were advised that they would be participating in a study to determine the degree to which the Rorschach was related to a "Self-Evaluation Questionnaire." Consent forms were obtained and the STAI-Y was administered in small groups. Following a delay of at least five days, a repeat measure of STAI-State anxiety was obtained just prior to the administration of the Rorschach on an individual basis. Subjects were not aware that anxiety was the specific construct under investigation. Subjects were informed that their responses would be kept confidential and that they would receive feedback on their test results upon completion of the study. This insured maximum objectivity and accuracy.

Scoring of the STAI was accomplished by hand according to the instructions in the accompanying test manual. STAIs with less than three omitted items were given prorated full-scale scores obtained by determining the mean weighted score for the scale items to which the subject responded and then multiplying this value by 20. Products thus obtained were rounded to the next higher whole number. Subjects who left three or more items blank were omitted from the study without penalty because of the questionable validity of the scale with numerous omitted items.

Elizur's anxiety scoring of the Rorschach lists five categories of responses that express obvious to symbolic anxiety. To determine the overall anxiety level of a protocol, weights were assigned to the responses according to the following guidelines. If the expressive behavior of the

of fear (i.e., "a girl running away"), the response was scored A. If the emotions and attitudes expressed or implied (whether related to the subject or the percept) clearly reflected fear, sorrow, pity, or unpleasantness (i.e., "darkness and gloom"), the response was scored A. Percepts that expressed the same attitudes to a lesser extent (i.e., "man with a cornered look") were scored a. A response that reflected cultural stereotypes of fear (i.e., "blood and gore") was scored A; if the percept reflected only a moderate degree of unpleasantness (i.e., "spider"), the response was scored a. Symbolic connotations of anxiety (i.e., "black signifies death") and responses reflecting both anxiety and hostility (i.e., "man being hanged") were scored a. A weight of 2 was assigned to A responses and a weight of 1 was assigned to a responses. Overall anxiety level was obtained by summing the weights.

CHAPTER 2

Results

Using the Pearson product-moment method, correlation coefficients were obtained that confirmed both hypotheses. Table 1 summarizes the correlations. In addition to the correlations between the STAI trait anxiety scores and AL (Hypothesis One) and STAI state and trait anxiety scores obtained during the same testing session (Hypothesis Two), test-retest scores for the STAI state anxiety scale were strongly correlated. The above correlations were significant beyond the .001 level. State anxiety scores obtained just prior to Rorschach testing were related to STAI trait anxiety scores ($p < .01$), and initial STAI state anxiety scores (given during the same session as the STAI trait scale) correlated with AL ($p < .01$). Table 2 summarizes means and standard deviations for all variables.

TABLE 1
Correlations Between the STAI Scales
for State and Trait Anxiety
and Elizur's Rorschach Anxiety Scores (AL)

Variables	r	Significance
STAI-Trait with <u>AL</u>	.792	.001
STAI-State (1st testing) with STAI-Trait	.579	.001
Test-Retest STAI-State scores	.664	.001
STAI-State (2nd testing) with STAI-Trait	.426	.01
STAI-State (1st testing) with <u>AL</u>	.457	.01
STAI-State (2nd testing) with <u>AL</u>	.255	n.s.

TABLE 2
Means and Standard Deviations

Variable	Mean	SD
STAI-State (1st testing)	35.075	12.628
STAI-State (2nd testing)	37.2	11.841
STAI-Trait	37.825	9.086
<u>AL</u>	13.825	7.585

CHAPTER 4

Discussion

Statistical analysis of data derived from the present study confirm that Elizur's anxiety construct is analogous to Spillenecker's trait anxiety measure. Since the correlations obtained are extremely close to the reliabilities of the instruments, AL and the STAI trait anxiety scale are essentially equivalent measures of trait anxiety. However, it is important that "trait anxiety" as measured by these instruments may be unidimensional (i.e., measuring levels of trait anxiety as related to interpersonal experiences). Further studies of AL with measures of trait anxiety due to physical danger or ambiguous threats would further clarify Elizur's construct as well as provide valuable data on the validity of AL (Blankstein, 1976).

The significant positive correlation found between AL and the STAI state anxiety scores obtained during the first testing session is unremarkable considering the equally strong correlation between this state anxiety score and the STAI trait anxiety score. As noted previously, STAI state and trait anxiety scores are typically well correlated when given during the same testing session.

Test-retest correlation for the STAI state anxiety scores was unusually high, suggesting that the testing situations were too similar. Other studies that have found much lower correlations between test-retest state anxiety scores have employed experimental conditions between test administrations that would tend to have an effect on the

transitory affective states of the subjects (i.e., brief relaxation training, a difficult IQ test, and a film that graphically depicted serious injuries sustained in woodworking accidents). It is possible that the subjects involved in the present study perceived both testing situations as evaluations of personal adequacy (since they were not informed of the specific construct being studied), and therefore gave similar responses in both settings. The consistency in state anxiety scores in this study undoubtedly contributed to the correlation between the STAI trait anxiety scores and the second STAI state anxiety scores, and the high correlation between the STAI trait anxiety scores and the first STAI state anxiety scores undoubtedly affected the STAI state anxiety scores (1st testing) as correlated with AL.

Although the present study lends important support to Elizur's construct as a measure of trait anxiety, studies on the stability of AL are needed. Multidimensional studies of trait anxiety measures with AL are needed before Elizur's construct can be fully understood. Once the facets of trait anxiety are uncovered, research can begin to synthesize this knowledge with data on how anxiety is expressed and managed by individuals. Understanding the theory and mechanics of anxiety would provide an important piece in the puzzle of predicting human behavior. One important caveat exists that should guide research into this area:

We often think that when we have completed our study of one we know all about two, because "two" is "one and one." We forget that we have still to

make a study of "and." That is to say . . . the
study of "and" . . . is the study of organization.

(Eddington, 1958)

Hopefully, research into the organization and process of
anxiety will flourish and clarify our knowledge of this
very common but exquisitely threatening human condition.

References

- Anstbach, S. (1973). Trait-state anxiety and adjustment to surgery. Journal of Consulting and Clinical Psychology, 40, 264-271.
- Beck, A. (1983, April). [Interview with Charles Spielberger, author of State-Trait Anxiety Inventory]. Manual for the State-Trait Anxiety Inventory. Palo Alto: Consulting Psychologists Press.
- Blankstein, K. (1976). Relationships between Spielberger trait anxiety and Lykken social and physical trait anxiety. Journal of Clinical Psychology, 32, 781-782.
- Bouwsma, W. (1980). Anxiety and the formation of early modern culture. In B. Malament (ed.), After the Reformation (pp. 490-514). Philadelphia: University of Pennsylvania Press.
- Cattell, R. (1966). Patterns of change: Measurement in relation to state dimension, trait change, lability, and process concepts. Handbook of Multivariate Experimental Psychology. Chicago: Rand McNally & Company.
- Cattell, R., & Scheier, I. (1961). The meaning and measurement of neuroticism and anxiety. New York: Ronald Press.
- Cohen, D. (1954). Rorschach scores, prognosis, and course of illness in pulmonary tuberculosis. Journal of Consulting Psychology, 18, 405-408.
- Cohen, J. (1969). Personality dynamics. Chicago: Rand McNally Company.
- Eddington, A. (1958). The nature of the physical world. Ann Arbor: University of Michigan Press.

- Elizur, A. (1949). Content analysis of the Rorschach with regard to anxiety and hostility. Rorschach Research Exchange and Journal of Projective Techniques, 13, 247-284.
- Forsyth, R. (1959). The influence of color, shading, and Welsh anxiety level on Elizur Rorschach content test analyses of anxiety and hostility. Journal of Projective Techniques, 23, 207-213.
- Freud, S. (1924). Collected papers (Vol. I). London: Hogarth Press.
- Freud, S. (1936). The problem of anxiety. New York: W. W. Norton and Company.
- Gallagher, J. (1954). Test indicators for therapy prognosis. Journal of Consulting Psychology, 18, 409-413.
- Goldfried, M., Stricker, G., & Weiner, I. (1971). Rorschach handbook of clinical and research applications. Englewood Cliffs: Prentice-Hall, Inc.
- Grauer, D. (1953). Prognosis in paranoid schizophrenia on the basis of the Rorschach. Journal of Consulting Psychology, 17, 199-205.
- Hodges, W., & Spielberger, C. (1966). The effects of threat or shock on heart rate for subjects who differ in manifest anxiety and fear of shock. Psychophysiology, 2, 287-294.
- Kritzeck, J. (1955/56). Philosophers of anxiety. Commonweal, 63, 572-574.
- Lykken, D., Tellegen, A., & Katzenmeyer, C. (1973). Manual for the Activity Preference Questionnaire (APQ). Minneapolis: University of Minnesota Press.

- Martinez-Urrutia, A. (1975). Anxiety and pain in surgical patients. Journal of Consulting and Clinical Psychology, 43, 437-442.
- Sanders, R., & Cleveland, S. (1953). The relationship between certain examiner personality variables and subjects' Rorschach scores. Journal of Projective Techniques, 17, 34-50.
- Spence, J., & Spence, K. (1966). The motivational components of manifest anxiety: Drive and drive stimuli. In C. D. Spielberger (Ed.), Anxiety and behavior (pp. 291-326). New York: Academic Press.
- Spielberger, C. (1962). The effects of manifest anxiety on the academic achievement of college students. Mental Hygiene, 46, 420-426.
- Spielberger, C. (1966). Theory and research on anxiety. In C. D. Spielberger (Ed.), Anxiety and behavior (pp. 220-224). New York: Academic Press.
- Spielberger, C. (1972). Anxiety as an emotional state. In C. D. Spielberger (Ed.), Anxiety: Current trends in theory and research (Vol. I). New York: Academic Press.
- Spielberger, C. (1979). Preliminary manual for the State-Trait Personality Inventory (STPI). St. Petersburg: University of South Florida Press.
- Spielberger, C. (1983). Manual for the State-Trait Anxiety Inventory (STAI). Palo Alto: Consulting Psychologists Press.
- Spielberger, C., Auerbach, S., Wadsworth, A., Dunn, T., & Taubee, E. (1973). Emotional reactions to surgery. Journal of

Consulting and Clinical Psychology, 40, 33-38.

Spielberger, C., & Gorsuch, R. (1966). Mediating processes in verbal conditioning. Final report to the National Institutes of Health, U.S. Public Health Service on Grants MH 7229, MH 7446, and HD 947.

Spielberger, C., & Smith, L. (1966). Anxiety (drive), stress, and serial-position effects in serial-verbal learning.

Journal of Experimental Psychology, 72, 589-595.

Stotsky, B. (1952). A comparison of remitting and nonremitting schizophrenics on psychological tests. Journal of Abnormal and Social Psychology, 47, 489-496.

Taylor, J. (1953). A personality scale of manifest anxiety.

Journal of Abnormal and Social Psychology, 48, 285-290.

Zuckerman, M. (1960). The development of an affect adjective checklist for the measurement of anxiety. Journal of Consulting Psychology, 24, 457-462.