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The Effects of Laboratory Induced State Anxiety and Frustration on m, Y, FY, and YF Rorschach Responses

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THE EFFECTS OF LABORATORY INDUCED STATE ANXIETY AND

FRUSTRATION ON M, Y, FV, AND VF RORSCHACH RESPONSES
(TITLE)

BY

GREGORY T. EELLS

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

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CHARLESTON, ILLINOIS

1991
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I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
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ABSTRACT

THE EFFECTS OF LABORATORY INDUCED STATE ANXIETY AND FRUSTRATION ON m, Y, FY, AND YF RORSCHACH RESPONSES

GREGORY T. EELLS

The purpose of this study was to investigate the relationship between laboratory induced anxiety and frustration on m, Y, FY, and YF Rorschach responses. Forty-eight subjects, 16 male subjects and 32 female subjects, ranging in age from 19 to 43 years of age were selected for this study. All subjects were enrolled in a psychology course for the summer term of 1991 at Eastern Illinois University. Frustration was induced by erroneously telling subjects that most people could solve the Tower of Hanoi puzzle in 5 minutes then giving the subjects a 5 minute time limit. Anxiety was induced by telling the subjects that they would receive several mild electric shocks after the testing. Subjects were divided into four groups. Group 1 was the control group, group 2 was the frustration condition, group 3 was the anxiety condition, and group 4 received both the frustration and anxiety conditions. The Rorschach Inkblot Test and the State-Trait Anxiety Inventory were administered to all of the subjects. A one-way analysis indicated that state anxiety was produced as measured by the STAI A-State scale ($F(1, 45) = 5.19, p > .05$). Two two-way analyses of variance were conducted on the influence of anxiety and

frustration on inanimate movement responses and shading responses. No significant main effects or interactions were observed. Pearson-product moment correlations, however, did reveal significant correlations between STAI A-State scores and inanimate movement responses, shading responses, and number of responses. This indicates that some possible relationship may exist outside of the experimental manipulations.

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CHAPTER I

STATEMENT THE PROBLEM

The assessment of personality has always been problematic due to the complexity of human behavior. Methodological difficulties arise in demonstrating the psychometric soundness of any assessment technique. Projective techniques have especially been criticized by academicians and researchers for not possessing this technical soundness. Projective techniques are based on the hypothesis that an individual gives structure to an ambiguous stimulus in a manner consistent with that individual's idiosyncratic pattern of conscious and unconscious needs, fears, desires, impulses conflicts and ways of perceiving and responding. (Cohen, Montague, Nathanson, Swerdlik, 1988). Researchers have argued that the basic assumptions on which projective tests are based lack any scientific evidence to support them (Murstein, 1961). The main criticism of projective tests is their lack of predictive validity in the clinical setting. Many of the projective tests have exhibited low correlations ranging from .20 to .40 when validated with other measures (Sundberg, 1977).

The most widely used of the projective techniques is the Rorschach Inkblot Test. It has stimulated a considerable amount of research as well as provoking a great deal of

controversy and criticism (Exner, 1974). The criticisms focused mainly on the validity of the test and the failures in finding support in the research (Exner, 1974). One of the most critical attacks against the Rorschach came from Zubin (1954). In his review of the related research he found seven major failures in the test. These failures include the lack of relation between Rorschach scoring categories and clinical diagnosis, the lack of predictive validity with respect to outcome of treatment or later behavior, and the inability to differentiate between groups of normal subjects. Zubin, Eron, and Schumer (1965) in a later review concluded that the clinical status of the Rorschach was not satisfactory and that the test is "essentially an interview."

Apologists for the Rorschach, however, argue that the studies these conclusions were based on were inadequate and supported by selective research. Many similar studies conducted on the Rorschach have yielded valid results (Exner, 1974).

Validity is defined as the extent to which a test is able to measure what it is intended to measure (Meyers, 1987). Testing the validity of the Rorschach means testing the accuracy of what each determinant purports to measure. One concept that is a critical element of Rorschach evaluations is anxiety. Research has suggested that several determinants are indices of anxiety. This study will

attempt to support the validity of some of those determinants; inanimate movement (m), pure diffuse shading responses (Y), diffuse shading form responses (YF), and diffuse form-shading responses (FY).

PURPOSE OF THE STUDY

The major problem of measuring the construct of anxiety is defining that construct. Spielberger, Gorsuch, and Lushene (1970) have considerably reduced the confusion in this area by making the distinction between state anxiety and trait anxiety. State anxiety refers to a transitory emotional state characterized by a feeling of tension. Trait anxiety on the other hand is a stable personality characteristic. This study will focus only on the concept of state anxiety.

Three of the five major Rorschach systems, give evidence that m, inanimate movement, is associated with the experience of frustration and environmental anxiety (Exner, 1974). The shading response has also been linked to anxiety. Rorschach and Oberholzer (1942) originally related the shading response to "the capacity for affective adaptability but it also indicates a timid cautious and hampered sort of adaptability" p.112. All of the prominent Rorschach systems have included some type of scoring for shading. Generally these systems have concurred that the

use of shading is in some way related to uneasiness, anxiety, and fear (Waller, 1960).

The lack of distinction between frustration and anxiety in the literature has proved problematic. Frustration has been defined as "the thwarting of a motive to attain a goal" p. 157 (Rathus and Navid, 1980). Research has indicated that there

is an increase in state anxiety when subjects are not able to successfully complete a task (Hodges, 1967). A distinction, however, has not been made between the state anxiety that arises through frustration and the state anxiety that arises from fear. This study will attempt to elucidate the differences between the two concepts by measuring the effects of frustration and fear of shock on responses to the State-Trait Anxiety Inventory. It will also try to establish a relationship between the resulting state anxiety and Rorschach m, Y, YF and FY responses.

HYPOTHESES

The hypotheses of this study are (a) that subjects in the anxiety group will report more Rorschach diffuse shading responses than the control subjects, (b) that subjects in the frustration group will report more Rorschach inanimate movement responses than control subjects, (c) that the subjects in experimental group that got both conditions will

elicit more diffuse shading responses as well as inanimate movement responses than the control group, (d) that the STAI A-State scores for all of the experimental groups will be higher than those of the control group, (e) that there will not be a significant difference in STAI A-Trait scores for the four groups, and (f) that there will be a strong positive correlation between STAI A-State scores and m, and diffuse shading responses.

DELIMITATIONS

1. This study was delimited to the study of only inanimate movement responses and diffuse shading responses. No attempt was made to measure the effect of state anxiety on any other Rorschach variables.

2. This study was delimited to adult college students. Generalizations to other populations may not be appropriate.

DEFINITION OF TERMS

The comprehensive system of scoring developed by Exner (1974) will be used in scoring the Rorschach protocols. The definitions of the following terms will be used in this study. The definitions pertaining to the Rorschach are defined by Exner (1974).

Determinant(s) - The feature(s) of the blot that contribute to or determine the formation of the subjects apperception.

Inanimate movement - A determinant, symbolized m, which is scored for responses involving the movement of inorganic, or insensate objects.

Pure diffuse shading response - A determinant, symbolized Y, which is scored for responses that are based exclusively on the light -dark features of the blot that are completely formless and do not involve reference to either texture or dimension.

Diffuse shading form response - A determinant, symbolized YF, which is scored for responses based primarily on the light-dark features of the blot. Form features are included but are of secondary importance.

Diffuse form shading response - A determinant, symbolized FY, which is scored for responses that are based mainly on the form features of the blot. The light-dark features are included as elaboration and/or clarification and are secondary to the use of form.

Weighted sum Y- A weighted scale of total diffuse shading responses. Pure diffuse shading responses are assigned a value of 1.5. Diffuse shading form responses are assigned a value of 1.0. Form diffuse shading responses are assigned a value of 0.5.

Anxiety - A general concept comprised of two more distinct concepts: state anxiety and trait anxiety. These concepts will be measured by the State-Trait Anxiety Inventory (STAI).

State anxiety - (A-State) A transitory emotional state or condition, of the human organism that is characterized by subjective consciously perceived feelings of tension and apprehension, and heightened autonomic nervous system arousal (Spielberger, Gorsuch, & Lushene, 1970).

Trait anxiety - (A-Trait) Relatively stable individual differences in the tendency to respond to various situations perceived as threatening with elevations in A-State intensity (Spielberger, Gorsuch, & Lushene, (1970).

Tower of Hanoi - A puzzle frequently used to illustrate how subgoals are used to solve problems. The puzzle consists of three pegs and a set of discs that vary in size. The initial state has all of the rings stacked on peg A in order of decreasing size. The goal is to move the stack, one ring at a time, to peg C, under the constraint that a larger ring can never be placed on a smaller ring (Reed, 1982).

CHAPTER II

REVIEW OF RELATED RESEARCH

Anxiety has been an important variable in clinicians evaluations. Neuringer (1962) reviewed the literature regarding the Rorschach and the measurement of anxiety. He found that much of the work in this area was "equivocal, inconsistent, and contradictory." Neuringer attributed much of this confusion to the lack of similarity in experimental designs, the use of different subject populations, and varying operational definitions of anxiety. He did, however, conclude that the Rorschach could be shown to be sensitive to anxiety. Neuringer found that highly intelligent verbal individuals with high state and trait anxiety under laboratory-induced stress exhibited fewer responses, whole locations, and popular responses, but offered more human movement and inanimate movement responses. Subjects experiencing real-life stress, state anxiety, had fewer responses, human movement responses, fewer inanimate movement responses, and color responses. These subjects exhibited more form responses and popular responses. Auerbach and Spielberger (1972) reviewed the Rorschach literature specifically according to the state-trait distinction. In their review they discovered elevations in shading, reaction time, confabulated wholes and fewer responses were frequently related with state

anxiety.

Other researchers have linked m specifically to state anxiety. Exner (1974) notes that m "apparently reflects the tension and discomfort experienced by the inability to attain a stabilizing relationship with the environment, and logically if carried to excess, can be disruptive and disorganizing to the overall response patterns of the individual." (p. 106) Research relating m responses to the experience of anxiety is some what limited. Several studies do, however, imply that this relationship does exist.

One such study was performed by Shalit (1965). In this study Shalit administered the Rorschach to 20 male subjects on two separate occasions at approximately a one year interval. The first administration was conducted as part of a selection routine for the Israeli Navy. The second administration, however, was given on board a ship during severe storm conditions. Shalit found a significant increase in the number of m responses while other movement responses remained virtually unchanged. Shalit concluded that the significant increase in the number of m responses was due to the stressful conditions under which the second testing was conducted.

A second study using similar stressful conditions was conducted by Exner and Walker (1973). In this study 20 depressed inpatients were administered the Rorschach one day

before their first ECT treatment. All of the subjects had previously taken the test shortly after their admission to the hospital. On this first testing fourteen of the subjects had produced at least one m response. The mean m for the group was 1.26 (SD=0.83). The protocols taken prior to ECT treatment showed 16 of the subjects produce m responses, including all 14 from the first testing. The mean for the group increased to 2.57 (SD=1.1). A third testing of these same subjects was conducted upon release from the hospital. This third administration of the Rorschach showed only six of the 20 subjects produced m responses and only one m was produced by each of these subjects.

Armbruster, Miller, and Exner (1974) tested 20 males in parachute jump training. All of the subjects were administered the Rorschach on one of their first three training days. All of the subjects were then retested one day prior to their first actual parachute jump. Results showed that only three subjects gave m responses in the first set of protocols. The protocols from the retest, however, showed 12 of the 20 subjects giving at least one m response.

Exner, Armbruster, Walker, and Cooper (1975) conducted a similar study with fourteen male subjects and 11 female subjects who were to undergo elective surgery. They were administered the Rorschach seven to ten days after surgery

arrangements had been settled. All of the surgeries were considered serious and required a minimum of seven days postsurgical care, none were considered "high-risk" operations. Two retests were then administered. The first was administered one day prior to surgery after admission to the hospital. The second was administered 60 to 70 days after discharge from the hospital. Initial testing revealed that six of the 11 female subjects and four of the 14 male subjects produced a total of 16 m answers. The first retest, the day prior to surgery, produced a total of 24 m responses for the female subjects and 17 m responses for the male subjects. Ten of the 11 female subjects gave m responses while nine of the 14 males gave m responses. The frequency of m between the two groups was highly significant. The second retest revealed the fewest number of m responses. Of the 25 subjects only 14 m responses appeared in eight subject's protocols.

The majority of the research done with m has been conducted in situations where the state anxiety that is being measured is the result of fear or apprehension. Little work has been done with state anxiety resulting from frustration.

The body of research concerning shading answers and the link to state anxiety is larger but more problematic to interpret. This difficulty in interpretation results from the differences in scoring and interpretation of the various

Rorschach systems, the tendency of some investigators to group all responses to grey-black features of the blot together, and the fact that the studies that have focused on the diffuse shading-anxiety hypothesis have used numerous types of behavioral criteria that indicate anxiety without trying to differentiate between types of anxiety. Several studies, however, have been conducted that do link the number of diffuse shading responses to anxiety (Exner, 1974).

One of the first studies conducted that focused on the use of diffuse shading to measure anxiety was performed by Eicher (1951). In this study subjects were administered a subtraction task. The "stress" group was given noncontingent electric shock during the subtraction task and were threatened with shock during the administration of the Rorschach. The "nonstress" group was neither shocked or threatened with shock. Subjects in the "stress" group exhibited higher diffuse shading responses.

Cox and Sarason (1954) worked with test anxiety and Rorschach shading responses. In this study the experimental group was told that the Rorschach was a test of imagination, intelligence, and creativity. The control group was given the Rorschach with standard instructions. A significant increase in the number of diffuse shading responses was noted in the experimental group.

Another study found that when anxiety decreased so did

the number of diffuse shading responses. In this study 12 of 24 high anxiety patients were treated with CO₂. The 12 treated patients exhibited a significant decrease in the number of Y variants (Lebo et al 1960).

Kaufman (1953) attempted to induce state anxiety through contrived negative personality evaluations. All 100 of the subjects were administered projective tests. Fifty of the subjects were given negative personality interpretations. The other 50 subjects received no personality evaluation. Both groups were administered the Rorschach and then asked to rate themselves on an "anxiety-tension" scale. The subjects that received the negative personality evaluations had significantly higher diffuse shading responses.

Forrest and Diamond (1967) investigated Rorschach correlates of state anxiety. They administered the Rorschach to 23 undergraduates who were assured they would not receive electric shock. The subjects GSR was monitored throughout the entire testing. Significantly higher GSR readings were correlated with m as well as with diffuse shading. It should be noted that no stress manipulation was employed. It was assumed that high GSR readings were an index of momentary anxiety even though this assumption has not been empirically validated.

This research would lead to the conclusion that there is a link between diffuse shading and anxiety. Other

literature, however, has not supported this link.

Schwartz and Kates (1957) experimentally induced anxiety through negative personality evaluations and found no link between the number of Y variant responses and induced anxiety. Other studies when testing the effects of anxiety produced in real life settings on Rorschach protocols found no increase in the number of diffuse shading responses (Berger, 1953).

Frank (1978), in reviewing the literature, reported that the evidence on the relationship between Y and anxiety produced in the laboratory and in real life was inconclusive. Frank, however, did concede that the relationship could possibly exist if the stress was sufficient to be truly experienced.

Viglione and Exner (1983) tested the hypothesis that state anxiety is related to Rorschach shading responses. They administered the Rorschach to 60 subjects. Thirty of the subjects were placed under high social-evaluative stress and the other 30 subjects were placed under minimal stress. The STAI X-1 was used to measure the presence of state anxiety. The high stress group reported more state anxiety as measured by the STAI X-1 but did not show more shading responses than the other group.

CHAPTER III

PROCEDURES

Description of the Sample

Participants in this study were 48 volunteer college students. There were 16 male subjects and 32 female subjects ranging in age from 19 to 43 years of age. The mean age of the participants was 23.02 years (SD=5.37). All of the subjects were enrolled in a psychology course for the summer term of 1991 at Eastern Illinois University. Some of the students received credit for participating in this study.

Instruments

In order to test the validity of Rorschach m, Y, YF, and FY responses as measures of frustration and anxiety, respectively, a situation had to be found or created in which subjects experience to some degree each of these conditions. In this study frustration was created by not allowing subjects to complete the Tower of Hanoi puzzle. Anxiety was created by telling subjects they would receive mild electric shock. An Apple IIE computer with Biofeedback software and a Galvanic Skin Response extension was used to create the illusion that the subjects would receive a shock.

To measure whether or not state anxiety was created the State-Trait Anxiety Inventory (STAI) was used.

Most research has substantiated the claim that the STAI is a reliable and valid measure of anxiety. Spielberger, Gorsuch, and Lushene (1970) evaluated the test-retest reliability of the STAI. Samples of 109 female subjects and 88 male subjects were administered the STAI. These subjects were then retested on the STAI one hour later. During the test-retest interval the subjects were exposed to either a brief period of relaxation training, given a difficult IQ test, or shown a film that depicted accidents resulting in serious injury or death. The test-retest correlations for the A-Trait scale were high, ranging from .73 to .86. The test-retest reliabilities for the A-State scale were expectedly low ranging from .16 to .54. A valid measure of transitory anxiety should vary with the unique situational factors.

Several studies have also been conducted that successfully support the construct validity of the STAI. In one such study 977 undergraduates at Florida State University were administered the STAI A-State scale with normal instructions. The students were then asked to respond to the STAI A-State scale according to how they believed they would feel prior to taking a final examination in an important course. The mean scores on the A-State scale were considerably higher in the second administration (Spielberger, Gorsuch, Lushene, 1970).

Hodges (1967) measured undergraduate student's A-State

scores during a rest period during two different stress conditions. The two different conditions were failure-threat and shock-threat conditions. In the failure-threat conditions subjects were told that they were not performing as well as others on a task. In the shock-threat condition subjects were told that they would receive several "strong but safe" electric shock (no shock was actually administered). Hodges discovered a significant increase in A-State scores in the stress conditions after the rest period.

Another study found that A-State scores increase along with such physiological measures as heart rate and blood pressure during anxiety producing situations (O'Neil, Spielberger, & Hansen, 1969). In this study the A-Trait scale of the STAI was also considered. O'Neil, Hansen, and Spielberger (1969) investigated the performance of students with high and low A-Trait scores in computer assisted learning. Students with high A-Trait scores had significantly higher A-State scores than students with low A-Trait scores.

Method

All testing was conducted individually in one setting where only the subject and the experimenter were present. Age and sex of each subject was recorded. Each subject was administered the Rorschach Inkblot Test according to the procedure outlined by Exner (1974). All of the

administrations of the test were audio-taped and all of the subjects were informed before the testing that they could terminate their participation in the experiment at any time.

Subjects were divided into four groups. Group 1 served as the control group. The following passage was read to subjects in this group:

You will be undergoing some simple psychological testing. Are there any questions?

The STAI was then administered followed by the Rorschach.

Group 2 was the frustration group. Subjects were asked to complete the Tower of Hanoi puzzle and were told erroneously that most people solve the puzzle in five minutes. The following instructions were read to these subjects:

You will be undergoing some simple psychological testing. Before the testing begins, however, I would like you to solve this puzzle. It is called the Tower of Hanoi. It is a simple puzzle that tests your problem solving abilities. To solve this puzzle you must move all of the discs one by one from peg A to peg C without ever placing a larger disc on top of a smaller disc. Most people are able to complete this task in five minutes. Therefore, you will be given a five minute time limit in which you must complete the task. Are there any questions?

If the subjects had any questions the experimenter simply restated the instructions. The STAI was then administered followed by the Rorschach.

Subjects in Group 3 served as the anxiety group. Subjects in this group had the Galvanic Skin Response receptors placed on their right hand and were told that they would receive several mild electric shocks immediately following the testing. The following instructions were then read to these subjects:

You will be undergoing some simple psychological testing. After the testing you will receive several mild electric shocks. Are there any questions?

Questions were answered by simply restating the instructions. The STAI was then administered followed by the Rorschach.

Subjects in Group 4 received a combination of both anxiety and frustration. Counterbalancing was used to control for order effects. The subjects in this group were read a combination of the same instructions read in Groups 2 and 3 depending on the order of the treatment that was administered. The subjects were then administered the STAI and the Rorschach Inkblot Test.

All subjects were properly debriefed following the experiment. They were told the basic nature of the study and all of their questions were answered.

Data Collection and Analysis

All of the data in this study were collected by the experimenter. It should be noted that the experimenter was not blind to what group each subject was in during the administration of the Rorschach. The researcher was, however, blind to what treatment condition the subjects were in when scoring the Rorschach test results. When scoring the Rorschach only inanimate movement and diffuse shading responses were scored.

The number of responses was also noted to test the validity of each Rorschach test.

In order to provide for inter-rater reliability 10 of the protocols were randomly selected and scored for inanimate movement and diffuse shading by a qualified independent examiner. The inter-rater reliability coefficient was 1.0.

Hypotheses a, b, and c were tested by the use of two two-way analyses of variance. Hypotheses d and e were tested by using two one-way analyses of variance. Hypothesis f was tested by the use of Pearson-product moment correlations.

Limitations

1. This study is limited to only college students enrolled in Psychology courses and may, consequently, be unrepresentative of a university populations.

2. The anxiety and frustration measured in this study was induced in the laboratory. It may not be appropriate to generalize the results of this study to similar studies that measure anxiety and frustration produced outside the laboratory.

3. It is possible that since the researcher was not blind to which treatment condition each subject was in while administering the tests, he may have unwittingly reinforced shading responses and inanimate movement responses. This could possibly affect the validity of the results.

Assumptions

1. By telling subjects that most people complete the Tower of Hanoi puzzle in five minutes and not allowing them to complete it would cause frustration.

2. By telling subjects that they would receive a mild electric shock that anxiety would be produced.

3. All measures used in this study were of at least interval quality data and yielded normally distributed results.

4. The counterbalanced order of the two experimental conditions in Group 4 will control for any influence which could occur as a result of the order of the conditions.

CHAPTER IV

RESULTS

Findings

Analysis of the data revealed that the experimental manipulations did result in state anxiety as measured by the STAI A-State scale, as predicted by hypothesis d. There was a significant difference between mean scores on the A-State scale, ($F(3,44) = 5.19, p < .01$). A Scheffe revealed that this difference existed between group 1 and group 4 and group 3 and group 4. Therefore state anxiety as measured by the STAI was only present in group 4.

The presence of the state anxiety, as hypothesis e. stated, was not a result of greater trait anxiety of the subjects in Group 4. A one-way analysis of variance conducted on the STAI A-Trait scores of subjects in the various groups yielded results that were not significant ($F(3,44)=2.78, p > .05$).

The presence of state anxiety in group 4 was not, however, reflected in the number of Rorschach m and Y responses as hypothesized. Two two-way analyses of variance were conducted to determine the influence of the anxiety and frustration conditions on m and Y. There were no main effects for the anxiety and frustration conditions on either m or weighted sum Y. No interaction existed between the two variables (See tables 2 and 3). Consequently, hypothesis a,

b, and c were not supported.

The overall number of responses (R) was also examined as an indices of anxiety. It was found that there was not a significant decrease in the number of responses ($F(3,44) = .848, p > .05$) when the subject was experiencing state anxiety as several studies cited earlier indicated.

Hypothesis f predicted that there would be a significant positive correlation between STAI A-State scores and Rorschach m and Y responses. STAI A-State scores were found to be significantly correlated with m ($r = .229, p < .05$) and with Y ($r = .334, p < .05$). The number of responses on the Rorschach was also found to be significantly correlated with A-State scores, $r = .336, p > .05$.

Summary TablesTable 1 : Means and standard deviations

	Group 1	Group 2	Group 3	Group 4
A-State (M)	36.83	37.58	34.92	46.75
SD	8.4	8.5	8.2	8.9
A-Trait (M)	33.00	35.92	36.50	41.25
SD	8.1	8.3	8.4	8.7
Weighted Sum Y(M)	1.58	1.29	.83	.88
SD	.99	1.4	.98	.97
m (M)	.67	1.00	.67	.58
SD	.85	1.15	.74	.86
Responses (M)	18.75	20.00	21.75	22.17
SD	13.46	3.45	8.38	12.15

Table 2: Two-way analysis of variance of m responses by fear and frustration conditions

source of variation	df	mean square	f	sig of f
main effects	2	.354	.387	.681
frustration	1	.188	.205	.653
fear	1	.521	.569	.455
2-way interactions	1	.521	.569	.455
frust. fear				
explained	3	.410	.448	.720
residual	44	.915		
total	47	.883		

Table 3
Two-way analysis of variance of weighted sum Y by fear and frustration conditions

source of variation	df	mean square	f	sig of f
main effects	2	213.542	1.506	.233
frustration	1	18.750	.132	.718
fear	1	408.333	2.880	.097
2-Way interactions	1	33.333	.235	.630
explained	3	153.472	1.083	.366
residual	44	141.761		
total	47	.883		

Table 4
One-way analysis of variance on STAI A-State scores for the control and experimental conditions.

source of variation	df	mean square	f ratio
between groups	3	333.7431	5.1894
within groups	44	64.3125	
total	47		

Table 5
One-way analysis of variance on STAI A-Trait scores for the control and experimental conditions.

source of variation	df	mean square	f ratio
between groups	3	140.1667	2.7829
within groups	44	50.3674	
total	47		

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the study

The data does not support the hypotheses that state anxiety and frustration are associated with m and Y Rorschach responses. Previous research has, however, demonstrated that in certain stress conditions the hypothesized relationship does exist. Closer examination of this present study may reveal why the hypothesized relationship did not occur.

The experimental manipulations successfully induced state anxiety in the subjects in group 4 as compared with the control group. The manipulations did not result in significantly higher levels of anxiety in group 2 and 3 compared with the control group. Consequently, the hypotheses that participants in group 2 and 3 would exhibit more m and Y responses were not valid. The hypothesis that subjects in group 4 would produce more m and Y responses, however, was still tenable.

One possible explanation for not observing the hypothesized relationship is the quick diminution of the effects of the experimental manipulations. In all experimental groups the subjects were administered the STAI followed by the Rorschach. It is possible that anxiety produced by the experimental manipulations decreased

significantly during the administration of the Rorschach. Viglione & Exner (1983) found this rapid diminution to occur in a similar study.

The number of Rorschach responses was also examined post hoc to determine if there is a relationship with state anxiety as several studies indicated (Neuringer, 1962, and Auerbach & Spielberger, 1972). There was not a significant difference between the number of responses given by subjects in control group and subjects in group 4 that reported experiencing anxiety.

Inanimate movement responses, shading responses, and the number of responses were found to be significantly related to STAI A-States scores. These correlations indicate some relationship could exist outside of the experimental manipulations.

It can be concluded that Rorschach m and Y responses, as well as the number of responses given, were not influenced by laboratory induced state anxiety. Correlations, however, indicate that some relationship may be present between existing state anxiety and Rorschach m, Y, FY, and YF responses.

Implications

The critical implication of this study is that the Rorschach is not affected by limited laboratory induced state anxiety. Such anxiety does not exert a demonstrable

effect on inanimate movement responses, shading responses, or the number of responses on the Rorschach protocols of normal subjects. Correlations between state anxiety present outside of the experimental manipulations, as measured by the STAI, and m , weighted sum Y , and number of responses suggest some relationship may exist.

Suggested Further Research

Further studies with more intense levels of laboratory induced state anxiety would be difficult to accomplish due to ethical considerations. Further research with state anxiety that occurs outside of the laboratory may be more productive.

Counterbalancing for order effects in the administration of the Rorschach and the STAI would also possibly give some insight into the diminution of anxiety throughout testing.

Further examination of the correlation between STAI A-State scores and inanimate movement, shading responses and number of responses would also help elucidate the relationship between the previously mentioned Rorschach responses and state anxiety.

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