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THE EFFECT OF SEX AND TYPE OF MENTAL STATUS ON STIMULUS
PREFERENCE IN THE DRAWING-COMPLETION TEST

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
DOCTOR OF PHILOSOPHY

BY
LANNES W. BALDWIN JR.
Norman, Oklahoma
1972

THE EFFECT OF SEX AND TYPE OF MENTAL STATUS ON STIMULUS
PREFERENCE IN THE DRAWING-COMPLETION TEST

APPROVED BY

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THE EFFECT OF SEX AND TYPE OF MENTAL STATUS ON STIMULUS
PREFERENCE IN THE DRAWING-COMPLETION TEST

CHAPTER I

INTRODUCTION AND PROBLEM

Introduction

This study is an analysis of stimulus preference on the Drawing-Completion Test (Kinget, 1952). Kinget states that males and females respond differently in their preference for stimuli. The researcher, therefore, attempted to determine (1) the stimulus choice patterns of males and females on the Kinget Drawing-Completion Test and (2) correlate these responses on the Drawing-Completion Test with the masculinity-femininity scales on the Guilford-Zimmerman Temperament Survey (Guilford and Zimmerman, 1949) and the Strong Vocational Interest Blank (Campbell, 1969).

In recent years clinical psychologists have become increasingly interested in psychological testing, especially as it concerns affective or non-intellectual aspects of behavior. These tests are often referred to as personality tests. One approach to the study of personality which has shown phenomenal growth among clinicians has been projective techniques. In such tests, the subject is given a

relatively unstructured task that permits wide latitude in its solution. The assumption underlying such methods is that the individual will project his characteristic modes of response into such a task (Swink, 1966). Projective techniques are more or less distinguished in their purpose, thereby reducing the chances that the subject can deliberately create a desired impression. Among the many projective techniques that have been used are: sentence-completion tests, drawings, free-association tests, and interpreting pictures or inkblots.

Freud introduced the term "projection" into the psychoanalytic literature in 1894 (Abt and Bellak, 1950), and L. K. Frank (1939) later applied it to a group of more indirect methods to study various aspects of personality, now known as the projective techniques. In its original psychoanalytic usage, projection meant to "eject unconscious, unacceptable impulses of one's own from oneself to perceive them as belong to others" (Kerlinger, 1964). A person often attributes to the outside world any desire, trait, or feeling which would cause pain to the ego if acknowledged to be within himself. The idea of projection has now been broadened to include values, attitudes, needs, and wishes. In fact, it is now felt that men project some part of themselves into everything they do.

Frank (1939) emphasized the importance of projective techniques in the following statement.

When we asked an individual to tell what he believes or feels or to indicate in which categories he belongs, this social pressure to conform to the group norms operates to bias what he will say and presses him to fit himself into the categories of the inventory or questionnaire offered for self-diagnosis. . . . The most important things about an individual are what he cannot or will not say (p. 395).

The projective mechanism has proved useful to persons interested in understanding the dynamic personality and adjustment of the individual. The implication of the mechanism was that the individual shapes the world and creates within it meaning which bears the indelible stamp of his own personality. Formulating methods which would capitalize on the process of projection, thereby yielding significant information, was accomplished by presenting persons with situations having limited structure and maximum ambiguity, then instructing them to organize the situation meaningfully (Swink, 1960).

A basic principle of projective methods is that the more unstructured and ambiguous the stimulus, the more a person can and will project his emotions, needs, motivations, attitudes, and values; while a highly structured stimulus leaves very little choice to the individual. However, as Kerlinger (1964) points out, the less structured the stimuli, the more difficult it is to interpret objectively, and the more difficult it is to establish the validity and reliability of the instrument. "There is little doubt that projective devices are among the most imaginative and significant creations of psychology . . . but--and the 'but'

is a large one--the price paid is high; projective tests and measures are always on shaky reliability and validity grounds" (p. 527).

Thus, projective techniques have been used as a method of getting into the unconscious world of the individual. Three of the most widely known projective techniques are the Rorschach (1942) Thematic Apperception Test (Murray, et al., 1938), and the Draw-a-Person Test (Machover, 1949). Other methods used for projection are drawing pictures, finger painting, molding clay, playing with toys, telling stories, associating words to other words, writing autobiographies, etc. Kerlinger (1964) refers to the variety and richness of material which the projective methods provide as being "at once the delight of the clinician and the despair of the experimentalist." The projective techniques are

probably the most controversial of psychological measurement instruments. They have been extravagantly praised and extravagantly blamed. In evaluating them, we must not confuse noble sentiments and mythology with reliable and valid methods of observation. . . . Too few attempts have been made to put projective techniques to hard imperical tests (p. 537).

Kerlinger then talks about a "balanced view of projective methods," and suggests three standards which should be followed. First, projective methods must be considered as methods of observation and measurement, just as any other methods are. Second, projective methods must be subjected

to the same type of reliability testing and emperical validation as any other psychometric procedures. Third, independent and constant judges must agree on the scoring and interpretation of the data.

The Drawing-Completion Test

The Drawing-Completion Test is a projective technique used in the investigation of personality. The originator of the test blank was the German psychologist Wartegg who devised the blank in the late twenties or early thirties (Hammer, 1958). Kinget became acquainted with the work of Wartegg in 1943. She attempted to examine the Wartegg blank critically and worked it into a serviceable tool for individual diagnosis. The Drawing-Completion Test consists of a series of eight squares on a black background in which are presented different graphic stimuli (see Appendix A). The subject is asked to complete or develop the stimuli into drawings in his own way. Kinget (1952) provided an elaborate scoring scheme which is used in interpreting the Drawing-Completion Test.

Kinget (1952) describes the basic qualities of the stimuli as being either masculine or feminine. Stimuli 1, 2, 7, and 8 are described as being "organic" and "feminine," while stimuli 3, 4, 5, and 6 are described as being "technical-constructive" and "masculine."

Kinget then goes a step further by saying that men show a preference for the technical-constructive stimuli,

while women prefer the organic stimuli. The "stimulus preference" is evidenced by the fact that a "masculine" person "shows affinity for" and "resonates to" stimuli 3, 4, 5, and 6. A "feminine" person would, on the other hand, "show affinity for" and "resonate to" stimuli 1, 2, 7, and 8. These ideas are further described by Kinget (1952) as follows:

The stimuli can further be classified into two groups, according to the organic quality of some of them (1, 2, 7, and 8), or to the technical-constructive quality of the four remaining. These groups are also called the feminine and the masculine groups. As they are used here, these denominations do not refer to analytical symbolism but simply to the commonly accepted greater affinity of women for the organic-emotional sphere and that of men for material-technical things (p. 37).

It is, however, of particular significance in the D.-C.T. because of the symbolic value of the stimuli in regard to sex. As indicated on page 37 these stimuli can be classified into masculine and feminine. The first group includes stimuli 3, 4, 5, and 6, whose straight geometric character calls for completion into material-technical objects and involves primarily the rational and organizational functions of the minds. Because of the predominance of these functions in the typically masculine makeup, this group of stimuli is considered representative for the male sex. The remaining stimuli 1, 2, 7, and 8 have the round and supple character of the organic world which generally appeals more to the predominantly emotional-imaginative character of the feminine mind (p. 124, 125).

Six years later, Kinget (Hammer, 1958) described even more clearly the concept of stimulus preference as follows:

While the stimuli are qualitatively highly diversified they can nevertheless be organized into two

categories according to the similarity of some of their predominant qualities. Thus we have the group of the curved and dotted and the group of the straight and square stimuli. Wartegg calls these respectively the feminine and the masculine groups. As used here, these labels do not refer to any Freudian symbolism but simply to the supposedly greater affinity of women for the world of animate reality whose organic, round, flexible, and growing quality is symbolized by the curved line, and the corresponding greater affinity of men for the world of objective reality with its technical-constructive properties more aptly symbolized by the straight lines (p. 351).

"Order of execution" is another expression used by Kinget. This is described as the "marked preference for either the masculine or feminine stimuli as expressed through the subject starting the series with these stimuli and completing three or all of them in immediate succession" (Kinget, 1952).

Kinget has thus given stimulus preference an important place in the Drawing-Completion Test. In this, stimuli 1, 2, 7, and 8 are described as feminine and that the feminine person will resonate to them. Stimuli 3, 4, 5, and 6 are described as masculine person will show affinity for them. "The individual's affinity for the qualities represented by either of these groups of stimuli appears to constitute a valuable criterion for judging the relative masculine or feminine character of his personality" (Hammer, 1958).

Stimulus Preference

The concept of stimulus preference as used by Kinget is related to the concept of sexual identification or masculinity-femininity (MF). Sanford (Lynn, 1959) said the term "identification" has been employed in so many different ways that it can hardly mean anything very precise. Lynn (1959) differentiated between "sex-role preference," "sex-role adoption," and "sex-role identification." Lazowich (1955) talked about the nature of identification and gave several categories of definitions, one of which equates identification with imitation of the same-sex parent.

Much has been written about "sexual identification." Stoller (Marmor, 1965) prefers the term "gender identification" to "sexual identification." Stoller says that "sexual identification" refers more to the biological aspects of sexual differences, while the term "gender identification" connotes psychological aspects of behavior related to masculinity and femininity." Most often, the two are relatively congruent, that is, males tend to be manly and females womanly. However, "sex and gender may be independent of each other" (Marmor, 1965).

Gender identity, as discussed by Stoller, is determined by parental and cultural attitudes, and the infant's external genitalia. In early childhood one is supposed to

develop a gender identity but sometimes he may not adequately know to which gender or sex he belongs. Each person from early childhood may have "cross-gender impulses," or desires to be like the members of the opposite sex. There is good evidence that these impulses result from identification with people of the opposite sex starting in early life (Fenichel, 1926; and Koff, 1961). In some cases these identifications are reinforced by events in later childhood, adolescence, and adulthood. In others, they lie dormant and become overt only with special shifts in instinct, loss of ego control, or strong external pressures from individuals or society.

MF is an abstraction "a continuous variable which best represents the discrete variable, Male-Female" (Webster, 1953). The meaning of a MF scale on a psychological test depends on the individual test and type of questions asked. On the Strong Vocational Interest Blank (Campbell, 1969), the MF scale means that the person's interests are similar to most men (or most women, whichever the case might be). On the Guilford-Zimmerman Temperament Survey (Guilford and Zimmerman, 1949), the masculinity scale means that "the person behaves in ways characteristic of men" (or women) and that he is therefore likely to be better understood by men.

Review of the Literature

A number of studies have been done, especially in Europe and America, using the Drawing-Completion Test.

Most of the studies reported in the psychological abstracts are listed under Wartegg Drawing-Completion Test and were conducted in Europe. Some of these studies were conducted with psychiatric patients. Luza (1954) analyzed the early symptoms and progress of schizophrenia using the Wartegg Test on four schizophrenic patients. The investigator studied such characteristics of the drawings as form level, stereotypy, repetition, spatial orientation, etc. Bauer (1952) studied 100 boy and girl patients from 6 to 16 years of age from several psychiatric groups. "Distinctive characteristics" were found in the drawings of all groups mentioned except for the group of neurological disorders. In a two part study, Bochnik (1954) gave successive Wartegg Test protocols to five subjects while under varying degrees of influence of alcohol. In the second part of Bochnik's study, a series of Wartegg Test protocols was given to seven "extreme" psychiatric patients on different days. He concluded that a series of Wartegg protocols given on different days is more meaningful than a single protocol. Muller-Sur (1952) explored the usefulness of the Wartegg Test, using a group of 400 subjects, half of which were schizophrenic. He concluded that for maximum value the Wartegg Test should always be used with other tests.

Most of the studies in America have dealt with the general characteristics of the test or cross-cultural studies. Murfett (1962), Harris (1963), Franklin (1963),

and Pepper (1964) scored Drawing-Completion Test protocols for either human content or human movement and interpreted them as a measure of fantasy activity. Human content and movement scores were predicted to increase significantly as a result of inducing inhibitions in subjects. All studies were supportive generally of the hypotheses with the exception of Murfett's.

Keith, Jordan, and Matheny (1966) studied the usefulness of the Drawing-Completion Test as a predictor of academic achievement for school-age children in the United States and in Africa in an effort to predict potential dropouts. Among the United States children, the Drawing-Completion Test scores were found to be significantly related to: intelligence quotients, arithmetic and reading achievement, and grade point averages. Among the African children, significant differences were obtained on the Drawing-Completion Test scores for high and low achieving students.

Jamison (1959) made cross-cultural comparisons between 90 Navajo and white children in the third and sixth grades within specified scoring categories. She obtained significant differences between the two groups in mode of execution and affinity for stimuli, the latter indicating that white children have a greater affinity for "feminine" stimuli.

Laird (1964) administered the Drawing-Completion Test to gifted and non-gifted high school students and scored it for creativity. His findings revealed that the gifted are significantly more creative on the Drawing-Completion Test than are the non-gifted.

Three studies have been found which dealt partially with the concept of stimulus preference as indicated by Kinget. Sluyter (1964), although not dealing directly with stimulus preference, compared the masculine-feminine content of the drawings with the MF scale on the Minnesota Multiphasic Inventory (Dahlstrom and Welsh, 1960). For this part of his study, he used 16 married subjects, and found "no strong relationships" for either females or males.

Wyche's study (1965) was concerned with the relationship between femininity and creativity. She hypothesized that "since many of the traits that are characteristic of creativity seem to describe femininity, one might expect a relationship to exist between femininity and creativity." In order to examine this relationship she measured creativity from the Drawing-Completion Test and measured femininity from the Drawing-Completion Test and the Guilford-Zimmerman Temperament Survey.

The subjects used by Wyche included 65 females and 15 males who were students at the University of Oklahoma. The following criteria were used in judging creativity:

By creativity I mean the imaginative elaboration of the drawings apart from artistic beauty; in other words, making much of the minimal stimuli. I would like you to concentrate on creativity labeled as productivity as in contrast to bareness of response (p. 11).

The results of the study indicate that no relationship was found between Kinget femininity and creativity, between Kinget femininity and Guilford-Zimmerman femininity, and between Guilford-Zimmerman femininity and Kinget creativity. She questioned the construct validity of the MF scale on the Guilford-Zimmerman Temperament Survey and found that scoring the Drawing-Completion Test for masculinity-femininity did not differentiate between men and women. She therefore concluded that "as far as this study goes there is no relationship between femininity and creativity."

Swink (1966) studied the meaning of the eight Drawing-Completion Test stimuli and their relationship to choices of stimuli with which to begin drawing. He used the Semantic Differential technique (Osgood, 1948) as an instrument with the Kinget Drawing-Completion Test. His subjects consisted of 69 female students at the University of Oklahoma. He hypothesized two clusters: stimuli 1, 2, 7, and 8 plus the concept "femininity;" and another cluster stimuli 3, 4, 5, and 6 plus the concept "masculinity."

Two distinct clusters of variables emerged from Swink's data, but their components did not fit his hypotheses. Cluster 1 contained stimuli 3, 4, 5, and 6. Cluster 2 contained stimuli 2 and 8 and all concepts rated.

The results did not support classification of Drawing-Completion Test stimuli as "feminine" and "masculine." Evidence was presented for classifying stimuli 2, 7, and 8 as "organic." Thus, he concluded that the relationship between feminine stimulus preference and the measure of "femininity" was statistically insignificant in the case of both theoretical and observed "feminine" stimuli.

Much research has been done relating sexual identity to other projective techniques, especially the House-Tree-Person (Buck, 1948) and the Draw-a-Person tests. A number of researchers (Buck, 1948; Machover, 1949; Jolles, 1952; Levy, in Abt and Bellak, 1950; and Frank, 1955) have found evidence to indicate in drawing a human figure a person will draw a figure of his own sex first. On the other hand, Granick and Smith (1953) found no relationship between the sex sequence of human figures drawn and scores on the MF scale of the MMPI. They concluded,

Insofar as the MMPI M-F Scale is a measure of psychosexual identification, the data would tend to refute the hypothesis of Machover and Buck suggesting that sexual inversion may be involved in the choice of the opposite sex as the first response to the request of the examiner to 'draw a person' . . . It is logical to suppose that the sex of the person one is inclined to draw as one's first response to the Draw-a-Person Test may be related to internal and external stimuli far removed from psychosexual identification and self-portraiture" (Granick and Smith, 1953, p. 73).

Another aspect of sexual identification or sexual inversion is found from those writers who have related homosexuality with paranoia. This is a Freudian idea and indicates that

such persons have a problem of sexual identification. A large amount of information in the literature indicates that paranoid schizophrenics are basically struggling against their homosexual tendencies, and that these tendencies are actually their reason for their paranoia (Klaf and Davis, 1960; Grauer, 1955; Karon and Rosberg, 1959; Searles, 1965; and Stekel, 1950). In his analysis of Dr. Schreber's autobiography, Freud suggested that paranoid psychotic symptoms develop as a defense against emerging unconscious homosexual wishes.

. . . Paranoic insanity is traceable back to the repressed homosexual component of the sexual instinct. The persecution ideas of paranoics (by men) is the projection outward of his own thoughts. The subject is pursued by his own homosexual fantasies and out of those fancies he constructs his notion of a pursuer. Love is transmuted by the subject into its bipolar opposite, hatred (Stekel, 1950).

Stekel not only talks about paranoid psychotics, but also talks about "the latent homosexuality of drinkers." Stekel (1950) quotes Julisburger as saying "the homosexual or homopsychic component of man and woman finds one of its outlets, as sublimation, in the form of companionship and social drinking." Thus, the above named writers suggest that both the paranoid schizophrenic and the alcoholic have a basic sexual identification problem.

Statement of the Problem

From a review of the literature it is evident that few studies have dealt directly with the concept of stimulus

preference and most of these used small samples or subjects of only one sex. The study by Swink is the most important to date on this subject, but his study included only female subjects. It is therefore appropriate to ask: (1) Is there a significant difference in the stimulus preference (stimuli chosen first) by males and females on the Drawing-Completion Test? (2) Is there a significant difference in the stimulus preference (stimuli chosen first) of subjects who are considered "normal" and subjects who have been diagnosed in different classifications of mental illness? (3) Is there a significant positive correlation between masculinity and femininity as measured by the Drawing-Completion Test, and masculinity and femininity as measured by the Guilford-Zimmerman Temperament Survey and the Strong Vocational Interest Blank?

Purpose of the Study

The purpose of this study was to analyze the stimulus preference on the Drawing-Completion Test of a group of "normals" and two categories of mentally ill subjects. Specifically, the researcher attempted to determine (1) the stimulus choice patterns of males and females on the Kinget Drawing-Completion Test and (2) correlate these responses on the Drawing-Completion Test with the masculinity-femininity scales on the Guilford-Zimmerman Temperament Survey and the Strong Vocational Interest Test. Various writers have indicated that certain categories of mental

illness (especially paranoid schizophrenics and alcoholics) are related to the problem of sexual identity. The following three groups were therefore used for this study: (1) paranoid schizophrenics, (2) alcoholics, and (3) a selected sample of "normals." The two groups of mentally ill were selected from the Central State Mental Health Center. Twelve male and twelve female subjects were used for each of the three categories of mental status. Thus, a total of 72 subjects were used.

Hypotheses to be Tested

For the purpose of this study the following hypotheses, stated in the null form, were tested:

1. There is no significant difference between the stimulus response patterns of male and female subjects on the Drawing-Completion Test.
2. There is no significant difference between the stimulus response patterns of "normals" and psychiatric subjects on the Drawing-Completion Test.
3. There is no significant difference between the stimulus response patterns of paranoid schizophrenics and alcoholics on the Drawing-Completion Test.
4. There is no significant positive correlation between the masculinity-femininity scores on the Drawing-Completion Test, Guilford-Zimmerman

Temperament Survey, and the Strong Vocational Interest Blank.

Operational Definitions

For the purpose of this study the following terms and their accompanying definitions will be used:

1. "Paranoid schizophrenic" was used for those patients at the Central State Mental Health Center who have been diagnosed by a psychiatrist as "schizophrenia, paranoid type" according to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1968).
2. "Alcoholics" was used for those patients at the Central State Mental Health Center who have been diagnosed such by a psychiatrist according to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1968).
3. "Normals" was used for those persons not connected with the Central State Mental Health Center who have stated that they have never been treated for psychological problems in a mental hospital, or by a psychiatrist or psychologist.
4. "Patients" was used to refer to those persons who have received or are receiving psychiatric

treatment at the Central State Mental Health Center.

5. "Creativity" of the drawings was judged by the imaginative elaboration of the drawings apart from artistic beauty, originality, expansiveness, and making much of the minimal stimuli.
6. "Appropriateness of the stimulus figure" was judged by the following criteria: (1) integration, when the drawing was incorporated into its natural or usual setting, (2) multiplication, when the stimulus object was repeated several times, and (3) when a few related though independent objects were added.

Instruments for Data Collection

The instrument used to test the first three hypotheses was the Drawing-Completion Test (Kinet, 1952). The Drawing-Completion Test was validated by Kinet on a sample of 383 "normal" subjects, approximately half males and half females, ranging in age from 18 to 50 years. The educational and occupational background ranged from grade school educated manual workers and homemakers, to college students and professional people. A three-fold criterion was used, consisting of a questionnaire, a forced-choice test, and a rating scale, all designed expressly to measure the psychological functions represented in the personality schema.

The fourth hypothesis was tested by correlating the masculinity-femininity scores on the Drawing-Completion Test, the Guilford-Zimmerman Temperament Survey (Guilford and Zimmerman, 1949), and the Strong Vocational Interest Blank (Campbell, 1969). The Guilford-Zimmerman Temperament Survey contains thirty questions for each of ten traits. Each question is scored zero or one. Norms were based on 523 college men and 389 college women in one southern California university and two junior colleges. The male sample includes many veterans, consequently the age range for them was from 18 to 30 years with a mean of about 23. "The final form of the survey was administered . . . to a group of seniors in a Southern California high school and to their parents. It was found that there was no significant difference in the mean scores of parents (whose ages ranged from 37 to 62) and their highschool offspring." The authors report that the internal validity or factorial validity of the scores is fairly well assured by the foundation of factor-analysis studies plus the successive item-analysis directed toward internal consistency and uniqueness. Kuder-Richardson reliability coefficients for the traits ranged from .75 to .87.

The manual for the Guilford-Zimmerman Temperament Survey (1949) describes the M-masculinity trait as follows:

On the positive side, a high raw score in this trait means that a person behaves in ways characteristic of men and that he is likely therefore to be better understood by men and to be more acceptable to them.

If the M score is very high, it may mean that the person is somewhat unsympathetic and callous.

The manual states that the mean score for men on the M trait is 19.9 and for women 10.8. The standard deviation for men is 3.97, and for women 4.12.

The Strong Vocational Interest Blank (Campbell, 1969) contains 399 items "that could just as well appear on a 'personality' inventory" (Buros, 1959). In addition to the occupational scales, there are several non-occupational scales one of which is the MF scale. This scale contrasts the interests of men and women working in the same occupation. The 1966 manual states that high scorers on the Men's form indicate strong "typically masculine" interests and low scorers indicate "typically feminine" interests. The reverse is true for the Women's form, where the scale is designated femininity-masculinity. The authors indicate that many men, especially highly educated ones, score low--toward the "feminine" end--because they have indicated preferences for cultural activities, working indoors, keeping their hands clean, etc.

The MF Scale was normed by using a random sample of 100 from Strong's original group of males and a sample of 100 women from the original group of females. The 1966 manual indicates that the mean score for Men-in-General on the MF Scale is 47.4 with a standard deviation of 9.6. Women-in-General have a mean score on the FM Scale of 52.0 and a standard deviation of 9.8. Buros (1959) states that

the scores on the Strong Vocational Interest Blank show high retest consistency.

Population and Sample

The population of psychiatric patients from which the sample was drawn was persons treated at the Central State Mental Health Center in Norman, Oklahoma. The Central State Mental Health Center is autonomous, but an integral part of Central State Hospital.

The sample of psychiatric patients for this study were selected from statistical data sheets for persons admitted to the Mental Health Center during the previous fifteen months. At the time of this study, the subjects were active in all phases of the Mental Health Center (inpatients, day hospital patients, outpatients) and some had been discharged. The criteria for selection was that they (1) had been diagnosed by a psychiatrist as "schizophrenia, paranoid type" or "alcoholism," (2) were between 35 and 53 years of age, and (3) had at least a tenth grade education.

The age range of 35 to 53 years was chosen because there are few female alcoholics admitted to the Mental Health Center under 35 years of age. The educational limitation of tenth grade and above was chosen in order to avoid unreliable results due to difficulty in understanding the tests. Table 1 shows the mean age and education for each of the six groups of subjects. (See Tables 23 - 28 for age, education, and occupation for each subject.)

TABLE 1
AGE AND EDUCATIONAL LEVEL OF PARTICIPANTS

Group	Mean Age	Educational Level (Mean Value)
Female Alcoholics	46.4	13.2
Male Alcoholics	40.7	12.1
Female Schizophrenics	44.1	12.3
Male Schizophrenics	44.3	12.4
Female "Normals"	42.3	12.7
Male "Normals"	41.5	12.3

The sample of "normal" subjects consisted of persons from outside the Central State Mental Health Center who indicated they had never received psychiatric treatment in a mental hospital, outpatient clinic, or with a private therapist; and who did not have a drinking problem. (See Appendix B for a sample of the biographical data sheets filled out by subjects.) The sample of "normal" subjects was chosen on the basis of age, education, and occupation. Persons were selected who were between 35 and 53 years of age, with at least a tenth grade education, and who were from similar occupations as the psychiatric patients.

The occupational category was found to be of special importance in finding persons similar to the psychiatric

patients. The Central State Mental Health Center is a state institution and is therefore used primarily by persons in the lower class, and middle class socio-economic groups. Persons in the higher socio-economic groups tend to go to private hospitals to receive psychiatric care rather than to a state institution. For this reason, the "normal" subjects were chosen from persons in the lower class and lower middle class socio-economic groups who would in some way match the type of persons admitted to the Mental Health Center.

Assumptions

Kinget has suggested that stimuli 1, 2, 7, and 8 of the Drawing-Completion Test are "feminine" and that women usually pick them first. Stimuli 3, 4, 5, and 6 are considered to be "male" since men usually choose them first. It is therefore assumed that:

1. The choice of different stimuli on the Drawing-Completion Test is associated with the sex of the subject.
2. The process of mental illness has some effect on the selective processes, so that subjects diagnosed as paranoid schizophrenic and alcoholic will choose the stimuli differently than "normals."
3. The Guilford-Zimmerman Temperament Survey and the Strong Vocational Interest Blank are

adequate instruments for measuring the masculinity-femininity dimension of the subjects.

4. The masculinity and femininity of subjects can be isolated and measured.

CHAPTER II

METHODOLOGY

In order to test the hypotheses stated, the stimulus selection patterns on the Drawing-Completion Test were compared for six different groups. These six groups were: male and female "normals," male and female paranoid schizophrenics, and male and female alcoholics. These two categories of psychiatric patients were chosen because: (1) Kinget implies that the selection of stimuli on the Drawing-Completion Test is closely associated with sexual identity or masculinity-femininity; and (2) a number of writers (Klaf and Davis, 1960; Grauer, 1955; Karon and Rosberg, 1959; Searles, 1965; and Stekel, 1950) say that the paranoid schizophrenic and alcoholic have a sexual identity problem.

For the purpose of this study, the researcher manipulated (controlled) two independent variables: (1) sex (male and female) and (2) diagnosed mental status (paranoid schizophrenics, alcoholics, and "normals"). The dependent variable of stimulus item choice on the Drawing-Completion Test was measured.

Selection and Number of Subjects

The sample of psychiatric patients for this study was selected from statistical data sheets for persons admitted to the Central State Mental Health Center during the previous fifteen months. Some of these patients were therefore inpatients, some were attending Day Hospital, some were outpatients, and some had been discharged. From the statistical data sheets a list was made for every person who had been diagnosed (1) schizophrenia, paranoid type, or (2) alcoholic. Other information obtained from the statistical data sheets was: sex, age, educational level, and marital status.

To begin with, information was gathered on admissions during the previous twelve months. An attempt was made to contact all persons in the two categories of mental status who were between 35 and 50 years of age, and with at least a tenth grade education. Because of difficulty in locating enough patients to participate in the study, the upper age limit was extended through 53 years and another list was made from the statistical data sheets for three prior months.

Few sober alcoholics were available through the Mental Health Center since they seldom remain more than 24 hours and few return for out-patient treatment. Those alcoholics admitted to the Mental Health Center who wish to participate in a 28 day alcoholic treatment program are transferred to Central State Hospital for this purpose. The

researcher therefore got ten of the male alcoholic subjects and three of the female alcoholic subjects from persons either involved in the alcoholic treatment program or who had just completed the alcoholic treatment program.

The sample of "normal" subjects consisted of persons from outside the Central State Mental Health Center who indicated that they had never received psychiatric or psychological treatment in a mental hospital, outpatient clinic, or with a private therapist; and who did not have a drinking problem. The sample of "normal" subjects was chosen on the basis of age, education, and occupation. Persons were selected who were between 35 and 53 years of age, with at least a tenth grade education, and who were from similar occupations as the psychiatric patients. Tables 23 - 28 give the age, educational level, and occupation for each subject.

The number of subjects in each of the three mental status groups was chosen to be 24, half male and half female. This meant a total of six groups of twelve subjects each, or a total of 72 subjects. These figures were arrived at from a sample selection technique recommended by Kirk (1968).

Administration of Tests

The tests were administered uniformly to all subjects. A test folder was given to each subject containing the following materials: a biographical data sheet (see

Appendix B), the Drawing-Completion Test blank (see Appendix A), written instructions for the Drawing-Completion Test copied directly from the manual (Kinet, 1952, page 28), Guilford-Zimmerman Temperament Survey test booklet and answer sheet, and the Strong Vocational Interest Blank test booklet and answer sheet. The directions for the Drawing-Completion Test were read aloud by the examiner in addition to the subject having a copy of the directions before him. The tests were administered individually or in groups of up to eight persons.

Tabulation of Scores

In order to test the first three hypotheses, stimulus responses on the Drawing-Completion Test were tabulated in two different ways. (1) The Drawing-Completion Test was scored by tabulating the four responses to the same-sex stimuli regardless of when the responses were made (see Tables 29 - 34). For females, the tabulation indicated on which of the eight responses the subject completed stimuli 1, 2, 7, and 8. For men, the tabulation indicated on which of the eight responses the subject completed stimuli 3, 4, 5, and 6. These responses were scored by allowing credit for the completion of the same-sex stimuli only. A female subject would therefore receive credit for completing stimuli 1, 2, 7, and 8 and no credit for completing the other four stimuli. A male subject would receive credit for completing stimuli 3, 4, 5, and 6, and no credit for completing the

other four stimuli. Eight points were given to subjects who completed a same-sex stimuli on his first response; seven points if he completed one on his second response; six points if he completed one on his third response; and one point if he completed a same-sex stimuli on his eighth response. This would mean that if a subject completed all four of his same-sex stimuli on his first four responses he would earn a total score of 26 ($8+7+6+5 = 26$). If the subject completed the stimuli in the order which they appear, with no preference for any of the stimuli, he would receive a score of 18. If a person chose his same-sex stimuli as his last four responses he would receive a score of ten ($4+3+2+1 = 10$).

The second way of tabulating the responses on the Drawing-Completion Test was to indicate which stimuli were completed in the first four responses (see Table 35 - 40). This manner of tabulating the responses would indicate exactly which stimuli on the Drawing-Completion Test were completed most often in the first four responses.

Statistical Procedures

The following statistical tests were chosen to test the hypotheses. Hypotheses One through Three, which relate to differences in stimulus response patterns, were tested by using the Mann-Whitney U Test. Spearman's Rho coefficient of rank correlation was used to test the fourth hypothesis which relates to the correlation of MF scores on the

Drawing-Completion Test, the Guilford-Zimmerman Temperament Survey, and the Strong Vocational Interest Blank. All hypotheses were tested at the .05 level of significance.

CHAPTER III

RESULTS

Seventy-two schizophrenic, alcoholic, and "normal" subjects were given the Kinget Drawing-Completion Test as an attempt to determine the differences between the stimulus response patterns of different mental status categories and sex groups. The responses of the subjects were used to test four hypotheses. The results of testing these hypotheses are given in the following sections. Each statistical test is accompanied with the data used in its computation, while the raw data and descriptive statistics are reported in the Appendices indicated.

Testing of Hypotheses

Results of Testing Hypothesis One

Hypothesis One was stated as follows: "There is no significant difference between the stimulus response patterns of male and female subjects on the Drawing-Completion Test."

The responses of each subject were scored in the manner described in the previous chapter. Tables 35 - 40 (Appendix C) show on which response each subject completed his or her same-sex stimuli, and give each subject a numerical score. The Mann-Whitney U Test was used to test Hypothesis One. The results are shown in Table 2.

TABLE 2
RESPONSE PATTERNS OF MALES AND FEMALES
ON THE DRAWING-COMPLETION TEST

Score	Frequency of Scores		Rank		Frequency x Rank	
	Male	Female	Male	Female	Male	Female
26	1	0	72		72	
22	2	1	70	70	140	70
21	2	3	66	66	132	198
20	3	3	60.5	60.5	181.5	181.5
19	2	3	55	55	110	165
18	17	13	37.5	37.5	637.5	487.5
17	1	2	21	21	21	42
16	1	6	16	16	16	96
15	4	3	9	9	36	27
14	1	1	4.5	4.5	4.5	4.5
13	1	0	3		3	
12	1	1	1.5	1.5	1.5	1.5
Totals	36	36	416	341	1355	1273

$$U = 607; Z = .11; p > .05$$

Table 2 shows that the results of the Mann-Whitney U Test for Hypothesis One were not significant. Therefore, the investigator could not reject the first null hypothesis and concluded that there was no significant difference in the responses of male and female subjects on the different stimuli of the Drawing-Completion Test. ($U = 607; Z = .11; p > .05$)

Results of Testing Hypothesis Two

Hypothesis Two was stated as follows: "There will be no significant difference between the stimulus response patterns of 'normals' and psychiatric patients on the Drawing-Completion Test."

The Mann-Whitney U Test was used to test the differences in the response patterns of "normals" and psychiatric subjects. The results of this test are shown in Table 3.

TABLE 3
RESPONSE PATTERNS OF "NORMAL" AND PSYCHIATRIC
SUBJECTS ON THE DRAWING-COMPLETION TEST

Score	Frequency of Scores		Rank		Frequency x Rank	
	Norm	Psych	Norm	Psych	Norm	Psych
26		1		72		72
22	2	1	70	70	140	70
21	2	3	66	66	132	198
20	1	5	60.5	60.5	60.5	302.5
19	2	3	55	55	110	165
18	7	23	37.5	37.5	262.5	862.5
17	0	3		21		63
16	3	4	16	16	48	64
15	5	2	9	9	45	18
14	2	0	4.5		9	
13		1		3		3
12		2		1.5		3

$$U = 507; Z = .20; p > .05$$

Table 3 shows that the results of the Mann-Whitney U Test for Hypothesis Two were not significant. Therefore, the investigator could not reject the second null hypothesis and concluded that there was no significant difference in the stimulus response patterns of the psychiatric subjects and "normal" subjects on the Drawing-Completion Test. ($U = 507$; $Z = .20$; $p > .05$)

Results of Testing Hypothesis Three

Hypothesis Three was stated as follows: "There will be no significant difference between the stimulus response patterns of paranoid schizophrenics and alcoholics on the Drawing-Completion Test."

The Mann-Whitney U Test was used to test the differences in the response patterns of the paranoid schizophrenics and alcoholic subjects. The results are shown in Table 4.

Table 4 shows that the results of the Mann-Whitney U Test for the third hypothesis were not significant. Therefore, the investigator could not reject the third null hypothesis and concluded that there was no significant difference in the stimulus response patterns of the paranoid schizophrenic and alcoholics subjects on the Drawing-Completion Test. ($U = 250.5$; $Z = .22$; $p > .05$)

TABLE 4

RESPONSE PATTERNS OF SCHIZOPHRENICS AND ALCOHOLICS
ON THE DRAWING-COMPLETION TEST

Score	Frequency of Scores		Rank		Frequency x Rank	
	Alch	Schiz	Alch	Schiz	Alch	Schiz
26	1		48		48	
22	1		47		47	
21	1	2	45	45	45	90
20	1	4	41	41	41	164
19	2	1	37	37	74	37
18	10	13	24	24	240	312
17	3		11		33	
16	2	2	7.5	7.5	15	15
15	1	1	4.5	4.5	4.5	4.5
13		1		3		3
12	2		1.5		3	
Totals	24	24	266.5	192	550.5	625.5

$$U = 250.5; Z = .22; p > .05$$

Results of Testing Hypothesis Four

Hypothesis Four was stated as follows:

There will be no significant positive correlation between the masculinity-femininity scores on the Drawing-Completion Test, Guilford-Zimmerman Temperament Survey, and the Strong Vocational Interest Blank.

Spearman's Rho coefficient of rank correlation was used to test the fourth hypothesis. The results of this test are shown in Table 5. (The raw scores are recorded in Tables 41 - 46 of Appendix C.)

TABLE 5
CORRELATION OF SUBSCORES BY GROUP

Group	MF Scores		
	Strong-Guil.-Zim.	Strong-Kinget	Guil.-Zim.-Kinget
Female/Alcoholics	.1032	.1207	.3025
Male/Alcoholics	.0672	.4738	-.1171
Female/Schizophrenics	.1189	-.2779	-.4055
Male/Schizophrenics	-.0856	.3269	.2465
Female/"Normals"	-.5069*	.2396	.2078
Male/"Normals"	-.1223	.0787	-.3374

* Significant; $p < .05$

Table 5 shows that the only significant correlation was between the Strong Vocational Interest Blank and the Guilford-Zimmerman Temperament Survey for female "normals." (A correlation of .506 is required for significance at the .05 level.) Siegel (1956) gives a formula to use as a correction factor for tied observations. Since the purpose of this correction formula is to reduce correlations inflated by tied observations, it was felt unnecessary to use the correction formula. If the formula were used, all the correlations would be somewhat lower than they are here, and even the correlation between the Strong

Vocational Interest Blank and the Guilford-Zimmerman Temperament Survey for female "normals" would not be significant. The investigator therefore felt that he could not reject the fourth null hypothesis, and concluded that there were no significant relationships between the MF scales on the Strong Vocational Interest Blank, Guilford-Zimmerman Temperament Survey, and Kinget Drawing-Completion Test.

Auxiliary Results

Three auxiliary propositions were tested concerning the Drawing-Completion Test. A description of these and their results follow.

Proposition One; MF Scores for Subjects High/Low on Drawing-Completion Test

An examination of the data (see Table 22) shows that 20 of the 72 subjects responded to the stimuli in the direct order in which they occur, with no preference for either the masculine or feminine stimuli. Thus, according to the scoring system, they received a Kinget score of 18 (a score of no difference). In addition to this, an examination of Tables 35 - 40 (Appendix C) shows that another ten subjects received a Kinget score of 18 (no difference) even though their responses were not in the direct order in which they occur. A total of 30 subjects, therefore, responded to the stimuli with no preference for either the masculine or feminine stimuli. Thus, the median score for

the 72 subjects was 18 (a score of no difference).

Since such a large number of subjects obtained a Kinget score of 18 (no preference for either masculine or feminine stimuli), it was appropriate to ask if there were significant differences in the MF scores on the Strong Vocational Interest Blank and the Guilford-Zimmerman Temperament Survey between those subjects who scored above 18 (the median) on the Kinget Drawing-Completion Test and those subjects who scored below 18 on the Kinget Drawing-Completion Test. This proposition was tested by the following series of the Mann-Whitney U Tests.

A Mann-Whitney U Test was computed between the Guilford-Zimmerman Temperament Survey scores for those female alcoholics who scored above the median on the Drawing-Completion Test and those who scored below the median on the Drawing-Completion Test. The results of this test are given in Table 6.

TABLE 6

A COMPARISON OF FEMALE ALCOHOLICS'
GUILFORD-ZIMMERMAN SCORES

G-Z scores for subjects above the median					
Kinget score	14	5			
G-Z scores for subjects below the median					
Kinget score	10	8	3	10	10

$$U = 4; p = .858$$

Table 6 shows that there was no significant difference in the MF scores on the Guilford-Zimmerman Temperament Survey for these two groups of female alcoholics ($U = 4$; $p = .858$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Guilford-Zimmerman Temperament Survey.

A Mann-Whitney U Test was computed between the Strong Vocational Interest Blank scores for those female alcoholics who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 7. Table 7 shows that there was no significant difference in the MF scores on the Strong Vocational Interest Blank for these two groups of female alcoholics ($U = 4$; $p = .858$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Strong Vocational Interest Blank.

TABLE 7

A COMPARISON OF FEMALE ALCOHOLICS'
STRONG SCORES

Strong scores for subjects above the median					
Kinget score	32	27			
Strong scores for subjects below the median					
Kinget score	31	22	31	55	56

$$U = 4; p = .858$$

A Mann-Whitney U Test was computed between the Guilford-Zimmerman Temperament Survey scores for those male alcoholics who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 8. Table 8 shows that there was no significant difference in the MF scores on the Guilford-Zimmerman Temperament Survey for these two groups of male alcoholics ($U = 3$; $p = .400$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Guilford-Zimmerman Temperament Survey.

TABLE 8

A COMPARISON OF MALE ALCOHOLICS'
GUILFORD-ZIMMERMAN SCORES

G-Z scores for subjects above the median				
Kinget score	20	17	21	14
G-Z scores for subjects below the median				
Kinget score	18	21	16	..

$$U = 3; p = .400$$

A Mann-Whitney U Test was computed between the Strong Vocational Interest Blank scores for those male alcoholics who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 9. Table 9 shows that there was no

TABLE 9
A COMPARISON OF MALE ALCOHOLICS'
STRONG SCORES

Strong scores for subjects above the median				
Kinget score	58	69	57	65
Strong scores for subjects below the median				
Kinget score	48	55	64	

$$U = 2; p = .228$$

significant difference in the MF scores on the Strong Vocational Interest Blank for these two groups of male alcoholics ($U = 2; p = .228$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Strong Vocational Interest Blank.

A Mann-Whitney U Test was computed between the Guilford-Zimmerman Temperament Survey scores for those female schizophrenics who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 10. Table 10 shows that there was no significant difference in the MF scores on the Guilford-Zimmerman Temperament Survey for these two groups of female schizophrenics ($U = .5; p = .300$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no

TABLE 10

A COMPARISON OF FEMALE SCHIZOPHRENICS'
GUILFORD-ZIMMERMAN SCORES

G-Z scores for subjects above the median			
Kinget score	9	5	5
G-Z scores for subjects below the median			
Kinget score	9	16	

$$U = .5; p = .300$$

significant differences in the MF scores on the Guilford-Zimmerman Temperament Survey.

A Mann-Whitney U Test was computed between the Strong Vocational Interest Blank scores for female schizophrenics who scored above the median on the Drawing-Completion Test and those who scored below the median. The results are given in Table 11.

TABLE 11

A COMPARISON OF FEMALE SCHIZOPHRENICS'
STRONG SCORES

Strong scores for subjects above the median			
Kinget score	53	46	56
Strong scores for subjects below the median			
Kinget score	63	66	

$$U = 0; p = .200$$

Table 11 shows that there was no significant difference in the MF scores on the Strong Vocational Interest Blank for these two groups of female schizophrenics ($U = 0$; $p = .200$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Strong Vocational Interest Blank.

A Mann-Whitney U Test was computed between the Guilford-Zimmerman Temperament Survey scores for those male schizophrenics who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 12. Table 12 shows that there was no significant difference in the MF scores on the Guilford-Zimmerman Temperament Survey for these two groups of male schizophrenics ($U = 3$; $p = .800$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Guilford-Zimmerman Temperament Survey.

TABLE 12

A COMPARISON OF MALE SCHIZOPHRENICS'
GUILFORD-ZIMMERMAN SCORES

<hr/>				
<hr/>				
G-Z scores for subjects above the median				
Kinget score	14	20	17	16
<hr/>				
G-Z scores for subjects below the median				
Kinget score	19	13		
<hr/>				

$$U = 3; p = .800$$

A Mann-Whitney U Test was computed between the Strong Vocational Interest Blank scores for those male schizophrenics who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 13. Table 13 shows that there was no significant difference in the MF scores on the Strong Vocational Interest Blank for these two groups of male schizophrenics ($U = 3$; $p = .800$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Strong Vocational Interest Blank.

TABLE 13

A COMPARISON OF MALE SCHIZOPHRENICS'
STRONG SCORES

Strong scores for subjects above the median				
Kinget score	52	34	49	49
Strong scores for subjects below the median				
Kinget score	46	49		

$$U = 3; p = .800$$

A Mann-Whitney U Test was computed between the Guilford-Zimmerman Temperament Survey scores for those female "normals" who scored above the median on the Drawing-Completion Test and those who scored below the median. The

results are given in Table 14. Table 14 shows that there was no significant difference in the MF scores on the Guilford-Zimmerman Temperament Survey for these two groups of female "normals" ($U = 14$; $p = .930$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Guilford-Zimmerman Temperament Survey.

TABLE 14

A COMPARISON OF FEMALE "NORMALS"
GUILFORD-ZIMMERMAN SCORES

G-Z scores for subjects above the median						
Kinget score	11	7	10	8	10	
G-Z scores for subjects below the median						
Kinget score	9	19	7	2	8	16

$$U = 14; p = .930$$

A Mann-Whitney U Test was computed between the Strong Vocational Interest Blank scores for those female "normals" who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 15. Table 15 shows that there was no significant difference in the MF scores on the Strong Vocational Interest Blank for these two groups of female "normals" ($U = 11$; $p = .536$). Thus, regardless of whether the subjects scored above or below

TABLE 15
A COMPARISON OF FEMALE "NORMALS"
STRONG SCORES

Strong scores for subjects above the median						
Kinget score	45	55	72	52	48	
Strong scores for subjects below the median						
Kinget score	48	44	60	59	39	48

$$U = 11; p = .536$$

the Kinget median, there were no significant differences in the MF scores on the Strong Vocational Interest Blank.

A Mann-Whitney U Test was computed between the Guilford-Zimmerman Temperament Survey scores for those male "normals" who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 16.

TABLE 16
A COMPARISON OF MALE "NORMALS"
GUILFORD-ZIMMERMAN SCORES

G-Z scores for subjects above the median				
Kinget score	17	17		
G-Z scores for subjects below the median				
Kinget score	20	26	20	19

$$U = 0; p = .134$$

Table 16 shows that there was no significant difference in the MF scores on the Guilford-Zimmerman Temperament Survey for these two groups of male "normals" ($U = 0$; $p = .134$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Guilford-Zimmerman Temperament Survey.

A Mann-Whitney U Test was computed between the Strong Vocational Interest Blank scores for those male "normals" who scored above the median on the Drawing-Completion Test and those who scored below the median. The results of this test are given in Table 17. Table 17 shows that there was no significant difference in the MF scores on the Strong Vocational Interest Blank for these two groups of male "normals" ($U = 2$; $p = .534$). Thus, regardless of whether the subjects scored above or below the Kinget median, there were no significant differences in the MF scores on the Strong Vocational Interest Blank.

TABLE 17

A COMPARISON OF MALE "NORMALS"
STRONG SCORES

Strong scores for subjects above the median				
Kinget score	47	40		
Strong scores for subjects below the median				
Kinget score	38	48	53	52

$$U = 2; p = .534$$

Proposition Two; Appropriateness
of Stimulus Choices

The investigator wanted to study the relationship between (a) the appropriateness of the stimulus drawings to the stimuli and (b) frequency of hospitalization. The investigator wanted to know if there was a significant difference in the number of responses judged "appropriate" to the stimuli between those psychiatric subjects hospitalized most frequently (more) and those psychiatric subjects hospitalized least frequently (less).

The number of hospitalizations was obtained for each of the psychiatric subjects. Selection was made from each of the mental status groups of the three subjects (25 percent) who were hospitalized most frequently and the three subjects (25 percent) who were hospitalized least frequently. The responses on the Drawing-Completion Test were examined for each of the twenty-four subjects selected (six female alcoholics, six male alcoholics, six female schizophrenics, and six male schizophrenics). Each drawing was categorized as appropriate or not appropriate. Appropriateness of the stimulus drawing was judged by the following criteria suggested by Kinget: (1) Integration, when the drawing was incorporated into its natural or usual setting; (2) Multiplication, when the stimulus object was repeated several times; and (3) When a few related though independent objects were added. The total number of

appropriate responses were tabulated for each group. Since the expected frequencies in each cell were less than five, a Chi square could not be performed. The Fisher exact probability test was used instead.

The results of the Fisher exact probability test for schizophrenic subjects are found in Table 18. (Since there were no schizophrenic subjects with 6 to 8 responses judged appropriate, these cells were dropped from the table leaving only a 2 x 2 table.) The computation of the Fisher exact probability test resulted in a probability of .2424, which indicates that there were no significant differences between the appropriateness of responses for those schizophrenic subjects hospitalized least frequently as opposed to those schizophrenic subjects hospitalized most frequently.

TABLE 18
COMPARISON OF APPROPRIATE RESPONSES
FOR SCHIZOPHRENIC SUBJECTS

	Number of Appropriate Responses		
	0-2	3-5	
Subjects Hospitalized "Less"	3	3	6
Subjects Hospitalized "More"	5	1	6
	8	4	12

$$p = .2424$$

The results of the Fisher exact probability test for alcoholic subjects are found in Table 19. Since this table shows three responses for each cell, it is evident that there is no significant difference and it was not felt necessary to provide any statistical tests.

TABLE 19
COMPARISON OF APPROPRIATE RESPONSES
FOR ALCOHOLIC SUBJECTS

	Number of Appropriate Responses		
	0-4	5-8	
Subjects Hospitalized "Less"	3	3	6
Subjects Hospitalized "More"	3	3	6
	6	6	12

Proposition Three; Creativity
of Stimulus Drawings

The investigator wanted to know if the subjects were more creative on feminine stimuli (1, 2, 7, and 8) or masculine stimuli (3, 4, 5, and 6). The stimulus drawings for each subject were judged as being creative or not creative according to criteria suggested by Kinget and Wyche (1965). The creativity of the drawing was judged by the imaginative elaboration of the drawing apart from

artistic beauty, originality, expansiveness, and making much of the minimal stimuli. The creative drawings were tabulated according to which stimuli were used. Chi square computations were made to determine whether the subjects were more creative on the masculine or feminine stimuli. The results of the Chi Square are found in Table 20.

TABLE 20
A COMPARISON OF CREATIVE RESPONSES
AND MENTAL STATUS GROUP

Subjects More Creative on			
	Masculine Stimuli	Feminine Stimuli	No Difference
Alcoholics	(4.7) 6	(5) 3	(14.3) 15
Schizophrenics	(4.7) 3	(5) 6	(14.3) 15
"Normals"	(4.7) 5	(5) 6	(14.3) 13
	14	15	43
			72

$$\chi^2 = 2.379; df = 4; p > .05$$

Fourteen subjects were more creative on masculine stimuli than feminine stimuli; fifteen subjects were more creative on feminine stimuli than masculine stimuli; and 43 subjects were equally creative on the masculine and feminine stimuli. The results of the Chi square indicate that there were no significant differences between the groups of subjects. ($\chi^2 = 2.379$; $df = 4$; $p > .05$) Therefore the investigator concluded that there were no differences in the responses by mental status groups or in creative responses on masculine and feminine stimuli.

Summary of Results

Hypotheses One through Three were related to differences in stimulus response patterns of males and females, and three categories of mental status. These responses were examined in two different ways. First, the subjects' responses to same-sex stimuli were tabled (Tables 35 - 40 in Appendix C) regardless of when they were completed, and each subject was given a numerical score for the Drawing-Completion Test. The analysis of these Kinget responses were made by use of the Mann-Whitney U Test. No significant results were found on any of the three U tests.

Secondly, Kinget suggests that the persons should complete three of the first four responses from same-sex stimuli. It was therefore appropriate that the first four responses of each subject be tabled in order to show which stimuli were used for these responses. This was done in

Tables 29 - 34 (Appendix C). Table 21 shows that only seven of the 72 subjects completed three of their first four responses from same-sex stimuli. On the other hand, Table 22 shows that twenty of the 72 subjects completed the stimuli in direct order in which they appear. An examination of the Kinget scores (Tables 37 - 42, Appendix C) shows that 30 of the 72 subjects obtained a score of 18, which is a score indicating no preference for either the masculine or feminine stimuli. Close examination of Tables 28 - 34 (Appendix C) reveals that the 36 male subjects responded to 71 feminine stimuli and 73 masculine stimuli in their first four responses. The 36 female subjects responded to 68 feminine stimuli and 76 masculine stimuli in their first four responses. These results, therefore, reinforce the statistical findings of no significant differences in the stimulus preferences of males and females.

TABLE 21
NUMBER OF SUBJECTS COMPLETING STIMULI
AS KINGET SUGGESTS

	Female	Male
Alcoholics	0	2
Schizophrenics	1	2
"Normals"	1	1

TABLE 22
NUMBER OF SUBJECTS COMPLETING STIMULI
IN ORDER OF APPEARANCE

	Female	Male
Alcoholics	4	3
Schizophrenics	5	5
"Normals"	0	3

In order to test the fourth hypothesis, a Spearman's Rho correlation was made on the MF scores on the Drawing-Completion Test, Guilford-Zimmerman Temperament Survey, and Strong Vocational Interest Blank. Only one of the eighteen correlations was significant, and it would not have been significant if the scores had been corrected for tied observations. The investigator, therefore, could not reject the null hypothesis.

CHAPTER IV

DISCUSSION

The purpose of this study was to determine what differences, if any, there were in the stimulus response patterns on the Drawing-Completion Test for males and females, and three categories of mental status. It was hypothesized that there would be no differences in the stimulus response patterns between males and females, psychiatric subjects and "normals," and paranoid schizophrenics and alcoholics. It was further hypothesized that there would be no significant correlation between the masculinity-femininity scores on three separate tests.

Kinget's statements about females "showing affinity for" and "resonating to" stimuli 1, 2, 7, and 8; and males "showing affinity for" and "resonating to" stimuli 3, 4, 5, and 6 were not supported by this study. Regardless of how the data are examined, there is no evidence of a difference in stimulus response patterns for males and females. When the first four responses of each subject are considered (as Kinget suggests), the females chose 68 feminine and 76 masculine stimuli. Males, in their first four responses, chose 71 feminine and 73 masculine stimuli. Statistically and arithmetically, the

two groups are evenly divided as to the number of responses made to masculine and feminine stimuli during their first four responses. Therefore, to the extent that this sample is typical of the general population, the generalization can be made that males and females do not "resonate to" certain stimuli on the Drawing-Completion Test. The results obtained in this study challenge the use of stimulus preference in the Drawing-Completion Test as an accurate measure of masculinity-femininity.

Twenty of the 72 subjects (approximately 28%) responded to the stimuli in the order in which they appear. This is especially significant when the instructions for administration are considered. In part, Kinget's instructions read as follows: "You may draw whatever you like and you may start with the sign you like best. You need not follow the order in which the squares are arranged, but I should like you to number your drawings in the order in which you make them" (p. 28). These instructions almost suggest that the person complete them in some order other than that in which they occur.

One might be able to question the use of paranoid schizophrenics and alcoholics as having sexual identity problems, since this assumption seems to be based on Freudian psychology and only partially supported by research. However, from the nature of their illness it was reasonable to expect a difference in responses between the three mental

status groups on the three instruments used. The fact that there were no differences between the sexes on the Drawing-Completion Test brings into question the use of this instrument as a measure of masculinity-femininity. The fact that there were no significant differences in the MF scores on the Guilford-Zimmerman Temperament Survey and Strong Vocational Interest Blank, suggests that there were, in fact, no differences in the groups. However, as pointed out previously, the concept of masculinity-femininity is very difficult to define and measure. There is a question as to whether various MF scales are measuring the same thing.

The correlations between the Strong Vocational Interest Blank, the Guilford-Zimmerman Temperament Survey, and the Drawing-Completion Test indicate that there were no significant relationships. The investigator can only conclude, therefore, that the MF scales on these three tests do not measure the same thing.

It should be pointed out that Kinget does say that in determining masculinity-femininity, drawing content should be considered in addition to order of execution. However, if the concept of stimulus preference is not valid, it should not be used at all in the consideration of masculinity-femininity.

Suggestions for Further Research

Since the preference for stimuli on the Drawing-Completion Test is influenced to some degree by the order in which they occur on the test blank, it is suggested that a study be made with test blanks on which the stimuli appear in random order.

Since there is a question as to whether, in fact, alcoholics and paranoid schizophrenics do have a sexual identity problem, the use of overt homosexuals could be used as an experimental group.

CHAPTER V

SUMMARY

This study was based on the Kinget Drawing-Completion Test which is a projective technique used in the study of personality. The test consists of a series of eight squares in which are presented different graphic stimuli. Kinget describes four of the stimuli as being masculine and says that men show affinity for them. The other four stimuli are described as being feminine and women are said to show affinity for them. The purpose of this study was to analyze the response patterns on the Drawing-Completion Test in order to determine if there was, in fact, a difference in the responses of men and women. Various writers have indicated that certain categories of mental illness (especially paranoid schizophrenics and alcoholics) are related to the problem of sexual identity. It was therefore hypothesized that there would be a difference in the response patterns for psychiatric patients (paranoid schizophrenics and alcoholics) and a sample of "normal" subjects. MF scores were obtained from three tests (the Drawing-Completion Test, Guilford-Zimmerman Temperament Survey, and Strong Vocational Interest Blank) and correlations computed among the subscores.

The sample of psychiatric subjects was selected from persons receiving treatment at the Central State Mental Health Center and diagnosed as either paranoid schizophrenic or alcoholic. A third sample of "normals" was obtained from persons who had not received psychiatric treatment. A total of 72 subjects was used.

Hypotheses were made concerning differences in stimulus response patterns of male and female subjects, "normal" and psychiatric subjects, and paranoid schizophrenics and alcoholics. These hypotheses were tested by using the Mann-Whitney U Test. No significant differences were found in testing the hypotheses. The last hypothesis was concerned with the correlation between the Drawing-Completion Test, Guilford-Zimmerman Temperament Survey, and Strong Vocational Interest Blank. Spearman Rho correlations were computed and no significant correlations were found.

Three secondary propositions were examined in addition to the four hypotheses stated. The first of these was a series of Mann-Whitney U Tests done in an attempt to find out what differences there were in MF scores on the Guilford-Zimmerman Temperament Survey and Strong Vocational Interest Blank between those subjects who scored above the median on the Drawing-Completion Test and those subjects who scored below the median on the Drawing-Completion Test. Of the twelve U-tests computed, none were significant.

The second proposition dealt with the appropriateness of the stimulus drawings. In each mental status group, the drawings of the 25% who were hospitalized least frequently were compared with the drawings of the 25% who were hospitalized most frequently. The drawings of these subjects were analyzed for appropriateness to the stimuli. The Fisher exact probability test was performed but no significant differences were found.

The third proposition dealt with the creativity expressed by the subjects in their stimulus drawings. An attempt was made to determine whether the subjects were more creative on the masculine stimuli or feminine stimuli. Again a Chi square revealed no significant differences.

The use of the Kinget Drawing-Completion Test as an indicator of masculinity-femininity was not supported by this study since no differences were found in the stimulus-response patterns of males and females.

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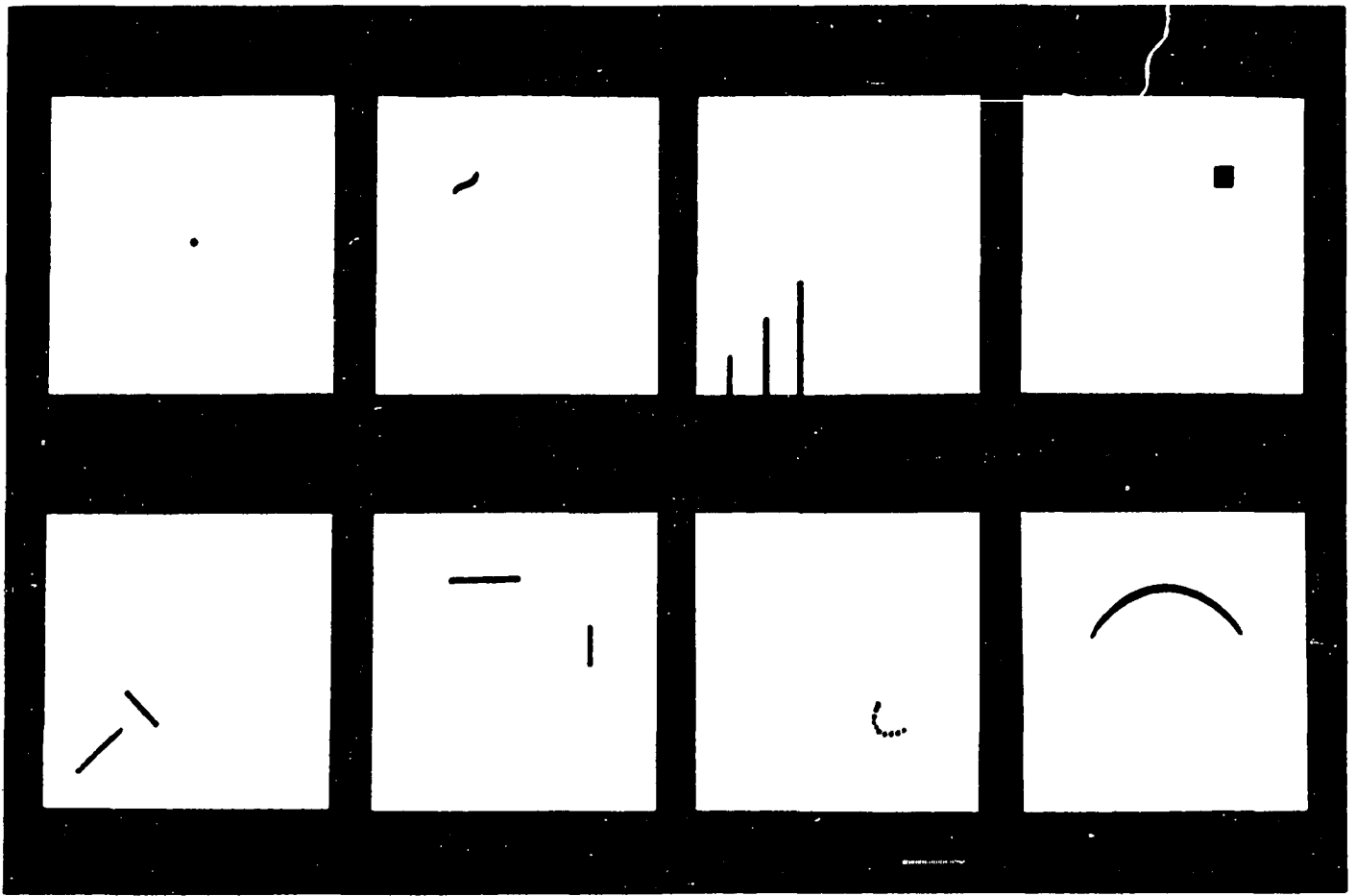
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APPENDIX A

DRAWING-COMPLETION TEST BLANK



DRAWING-COMPLETION TEST BLANK

APPENDIX B

BIOGRAPHICAL DATA SHEETS

BIOGRAPHICAL DATA SHEET FOR
PSYCHIATRIC SUBJECTS

DATA SHEET

Name_____

Sex_____

Educational Level_____

Age_____

Marital Status_____

Occupation_____

BIOGRAPHICAL DATA SHEET FOR
"NORMAL" SUBJECTS

DATA SHEET

Name_____ Sex_____

Educational Level_____ Age_____

Marital Status_____

Occupation_____

Have you ever received treatment for psychological problems
by a psychiatrist, psychologist, or in a mental institution?

Yes_____ No_____

Have you ever had a drinking problem? Yes_____ No_____

APPENDIX C

TEST DATA

TABLE 23
BIOGRAPHICAL DATA OF FEMALE ALCOHOLICS

Subject Number	Age	Educational Level	Occupation
1	51	16	Teacher/Social Worker
2	47	12	Data Processing
3	47	16	Secretary
4	44	12	Photographer
5	46	16	Secretary
6	45	12	Homemaker
7	45	12	Grocery Clerk
8	50	12	Homemaker
9	39	11	Waitress
10	46	12	Secretary
11	48	16	Saleswoman
12	49	12	Cook
Mean	46.4	13.2	
Range	39-51	11-16	

TABLE 24
BIOGRAPHICAL DATA OF MALE ALCOHOLICS

Subject Number	Age	Educational Level	Occupation
1	47	12	Waiter/Painter
2	35	11	Laborer
3	38	12	Salesman
4	39	10	Construction
5	41	12	Mechanic
6	49	12	Welder
7	45	12	Dry Cleaning
8	45	13	Salesman
9	35	16	Data Processing
10	46	12	TV Repairman
11	45	11	Carpenter
12	36	12	Shipping Clerk
Mean	40.7	12.1	
Range	35-49	10-16	

TABLE 25
BIOGRAPHICAL DATA OF FEMALE SCHIZOPHRENICS

Subject Number	Age	Educational Level	Occupation
1	50	12	Homemaker
2	49	12	Food Service
3	44	16	Portrait tinter
4	39	12	Homemaker
5	37	10	Homemaker
6	45	14	Homemaker
7	53	16	Teacher
8	42	11	Key Punch
9	39	11	Homemaker
10	47	10	Homemaker
11	38	12	Homemaker
12	46	12	Transcriber
Mean	44.1	12.3	
Range	37-53	10-16	

TABLE 26
BIOGRAPHICAL DATA OF MALE SCHIZOPHRENICS

Subject Number	Age	Educational Level	Occupation
1	42	13	Baker
2	53	10	Barber
3	53	15	Clerical Worker
4	35	14	Mechanic
5	36	16	Electronic Engineer
6	47	12	Oil Field Worker
7	48	10	Grocer
8	35	10	Laundry Worker
9	48	10	Musician
10	36	15	Laborer
11	53	14	Accountant
12	46	10	Auto Body Repairman
Mean	44.3	12.4	
Range	35-53	10-16	

TABLE 27
BIOGRAPHICAL DATA OF FEMALE "NORMALS"

Subject Number	Age	Educational Level	Occupation
1	41	12	Secretary Office Clerk
2	37	16	Homemaker
3	43	12	Homemaker
4	37	12	Office Clerk
5	38	13	Homemaker
6	44	12	Teletype Operator
7	39	10	Homemaker
8	48	12	Cafeteria Worker
9	51	16	Teacher
10	49	11	Nurse Aide
11	35	12	Manicurist/Beautician
12	46	15	Nurse
Mean	42.3	12.7	
Range	35-51	10-16	

TABLE 28
BIOGRAPHICAL DATA OF MALE "NORMALS"

Subject Number	Age	Educational Level	Occupation
1	46	12	Office Clerk
2	38	12	Tile Salesman
3	38	12	Grinder Machine Operator
4	52	10	Sheet Metal Worker
5	42	12	Mail Carrier
6	53	10	Mechanic
7	39	10	Grocery Clerk
8	35	16	Carpenter
9	38	16	Teacher
10	43	10	Barber
11	39	15	Carpenter
12	35	13	Meter Reader
Mean	41.5	12.3	
Range	35-53	10-16	

TABLE 29
STIMULUS-RESPONSE PATTERNS OF FEMALE ALCOHOLICS
(Responses 1-4)

Subject Number	Stimuli							
	1	2	3	4	5	6	7	8
1	4		2	3				1
2	1	2	3	4				
3	1	2	3	4				
4	1	3	2	4				
5	1	2			3	4		
6				4	2	1		3
7	1	3		2	4			
8	1	2	3	4				
9	4		3			2		1
10			3	4	2			1
11		1	2	4				3
12	1	2	3	4				
Totals	9	8	9	10	4	3	0	5

TABLE 30
 STIMULUS-RESPONSE PATTERNS OF MALE ALCOHOLICS
 (Responses 1-4)

Subject Number	Stimuli							
	1	2	3	4	5	6	7	8
1	1	4	2	3				
2	4		2		3			1
3	4	1	3					2
4		2	3		4			1
5	1	2	3	4				
6	1	2	3	4				
7	2		1		3	4		
8	1				4	2		3
9	1	2	3	4				
10	2	3	1	4				
11			1	2	3	4		
12		4	3	2				1
Totals	9	8	11	7	5	3	0	5

TABLE 31
STIMULUS-RESPONSE PATTERNS OF FEMALE SCHIZOPHRENICS
(Responses 1-4)

Subject Number	Stimuli							
	1	2	3	4	5	6	7	8
1	3	4				1		2
2	4	2	1		3			
3	1	2	3	4				
4	1	2	3	4				
5	3		2			4		1
6	1	2	3	4				
7	1	2	3	4				
8	1	2			3	4		
9				1		4	3	2
10	1	2	3		4			
11	4				3	2		1
12	1	2	3	4				
Totals	11	9	8	6	4	5	1	4

TABLE 32
STIMULUS-RESPONSE PATTERNS OF MALE SCHIZOPHRENICS
(Responses 1-4)

Subject Number	Stimuli							
	1	2	3	4	5	6	7	8
1		4		3		1		2
2	1		2			4		3
3	1	2	3	4				
4	1	2	3	4				
5	1	2	3	4				
6	1	2	3	4				
7	1	2	3	4				
8	1	2	3	4				
9			3	2	4			1
10		1	2	3		4		
11	4	3	2					1
12	3	4	1					2
Totals	9	10	11	9	1	3	0	5

TABLE 33
 STIMULUS-RESPONSE PATTERNS OF FEMALE "NORMALS"
 (Responses 1-4)

Subject Number	Stimuli							
	1	2	3	4	5	6	7	8
1	1	2	3	4				
2	1		2	3				4
3	1	2	3					4
4			3	2		4		1
5			1		3	4		2
6			3	2	4			1
7	1		2		3	4		
8	1	2	3			4		
9	1	2	3	4				
10	3		4			2		1
11		4	3			2		1
12		4	2		3			1
Totals	7	6	12	5	4	6	0	8

TABLE 34
 STIMULUS-RESPONSE PATTERNS OF MALE "NORMALS"
 (Responses 1-4)

Subject Number	Stimuli							
	1	2	3	4	5	6	7	8
1	2	1				4		3
2		2	1			4		3
3	4	1	3			2		
4	1	2	3	4				
5	4		2			3		1
6	1	3	2	4				
7	4				1	2		3
8	1	2	3	4				
9			3	4	2			1
10	1	2	3	4				
11	1	2	3			4		
12	1	2				3		4
Totals	10	9	9	5	2	7	0	6

TABLE 35

RESPONSE PATTERNS FOR SAME-SEX STIMULI AND KINGET
SCORES OF FEMALE ALCOHOLIC SUBJECTS

Subject Number	Kinget Responses	1	2	3	4	5	6	7	8	Total Score
	Response Score	8	7	6	5	4	3	2	1	
1		X			X			X	X	16
2		X	X					X	X	18
3		X	X					X	X	18
4		X		X				X	X	17
5		X	X			X		X		21
6				X			X	X	X	12
7		X		X				X	X	17
8		X	X					X	X	18
9		X			X	X			X	18
10		X				X	X		X	16
11		X		X		X			X	19
12		X	X					X	X	18

Mean = 17.3

Standard Deviation = 2.14

Variance = 4.60

TABLE 36

RESPONSE PATTERNS FOR SAME-SEX STIMULI AND KINGET
SCORES OF MALE ALCOHOLIC SUBJECTS

	Kinget Responses	1	2	3	4	5	6	7	8	
Subject Number	Response Score	8	7	6	5	4	3	2	1	Total Score
1			X	X			X		X	17
2			X	X		X	X			20
3				X			X	X	X	12
4				X	X		X	X		15
5				X	X	X	X			18
6				X	X	X	X			18
7		X		X	X		X			22
8			X		X	X	X			19
9				X	X	X	X			18
10		X			X		X	X		18
11		X	X	X	X					26
12			X	X			X	X		18

Mean = 18.4

Standard Deviation = 3.43

Variance = 11.71

TABLE 37
RESPONSE PATTERNS FOR SAME-SEX STIMULI AND KINGET
SCORES OF FEMALE SCHIZOPHRENIC SUBJECTS

	Kinget Responses	1	2	3	4	5	6	7	8	
Subject Number	Response Score	8	7	6	5	4	3	2	1	Total Score
1			X	X	X			X		20
2			X		X			X	X	15
3		X	X					X	X	18
4		X	X					X	X	18
5		X		X		X	X			21
6		X	X					X	X	18
7		X	X					X	X	18
8		X	X					X	X	18
9			X	X			X	X		18
10		X	X				X	X		20
11		X			X			X	X	16
12		X	X					X	X	18

Mean = 18.2

Standard Deviation = 1.64

Variance = 2.69

TABLE 38

RESPONSE PATTERNS FOR SAME-SEX STIMULI AND KINGET
SCORES OF MALE SCHIZOPHRENIC SUBJECTS

Subject Number	Kinget Responses	1	2	3	4	5	6	7	8	Total Score
	Response Score	8	7	6	5	4	3	2	1	
1		X		X		X	X			21
2			X		X	X	X			19
3				X	X	X	X			18
4				X	X	X	X			18
5				X	X	X	X			18
6				X	X	X	X			18
7				X	X	X	X			18
8				X	X	X	X			18
9			X	X	X			X		20
10			X	X	X			X		20
11			X				X	X	X	13
12		X				X	X		X	16

Mean = 18.1

Standard Deviation = 2.06

Variance = 4.26

TABLE 39
 RESPONSE PATTERNS FOR SAME-SEX STIMULI AND KINGET
 SCORES OF FEMALE "NORMAL" SUBJECTS

Subject Number	Kinget Responses	1	2	3	4	5	6	7	8	Total Score
	Response Score	8	7	6	5	4	3	2	1	
1		X	X				X		X	19
2		X			X			X	X	16
3		X	X		X				X	21
4		X				X	X		X	16
5			X			X		X	X	14
6		X				X		X	X	15
7		X				X		X	X	15
8		X	X			X	X			22
9		X	X			X			X	20
10		X		X			X	X		19
11		X			X			X	X	16
12		X			X		X	X		18

Mean = 17.6

Standard Deviation = 2.60

Variance = 6.81

TABLE 40
 RESPONSE PATTERNS FOR SAME-SEX STIMULI AND KINGET
 SCORES OF MALE "NORMAL" SUBJECTS

Subject Number	Kinget Responses	1	2	3	4	5	6	7	8	Total Score
	Response Score	8	7	6	5	4	3	2	1	
1					X	X	X	X		14
2		X			X	X			X	18
3			X	X			X	X		18
4				X	X	X	X			18
5			X	X			X	X		18
6			X		X			X	X	15
7		X	X			X		X		21
8				X	X	X	X			18
9			X	X	X	X				22
10				X	X	X	X			18
11				X	X		X		X	15
12				X		X	X	X		15

Mean = 17.5

Standard Deviation = 2.43

Variance = 5.91

TABLE 41
STRONG, GUILFORD-ZIMMERMAN AND KINGET SCORES
OF FEMALE ALCOHOLICS

Subject Number	Test		
	Strong	Guilford-Zimmerman	Kinget
1	31	10	16
2	62	1	18
3	55	15	18
4	22	8	17
5	32	14	21
6	31	3	12
7	55	10	17
8	48	11	18
9	62	9	18
10	56	10	16
11	27	5	19
12	45	15	18
Mean	43.8	9.3	17.3
Standard Deviation	14.48	4.47	2.14
Variance	209.61	20.02	4.60

TABLE 42
STRONG, GUILFORD-ZIMMERMAN AND KINGET SCORES
OF MALE ALCOHOLICS

Subject Number	Test		
	Strong	Guilford-Zimmerman	Kinget
1	48	18	17
2	58	20	20
3	55	21	12
4	64	16	15
5	57	19	18
6	46	16	18
7	69	17	22
8	57	21	19
9	66	20	18
10	47	17	18
11	65	14	26
12	53	16	18
Mean	57.1	17.9	18.4
Standard Deviation	7.75	2.27	3.42
Variance	60.08	5.17	11.71

TABLE 43

STRONG, GUILFORD-ZIMMERMAN AND KINGET SCORES
OF FEMALE SCHIZOPHRENICS

Subject Number	Test		
	Strong	Guilford-Zimmerman	Kinget
1	53	9	20
2	63	9	15
3	56	6	18
4	48	6	18
5	46	5	21
6	34	12	18
7	60	12	18
8	38	12	18
9	51	10	18
10	56	5	20
11	66	16	16
12	52	13	18
Mean	51.9	9.6	18.2
Standard Deviation	9.47	3.56	1.64
Variance	89.72	12.63	2.69

TABLE 44
STRONG, GUILFORD-ZIMMERMAN AND KINGET SCORES
OF MALE SCHIZOPHRENICS

Subject Number	Test		
	Strong	Guilford-Zimmerman	Kinget
1	52	14	21
2	34	20	19
3	49	16	18
4	40	13	18
5	51	10	18
6	44	16	18
7	29	10	18
8	39	15	18
9	49	17	20
10	49	16	20
11	46	19	13
12	49	13	16
Mean	44.3	14.9	18.1
Standard Deviation	7.28	3.12	2.06
Variance	52.93	9.72	4.26

TABLE 45
 STRONG, GUILFORD-ZIMMERMAN AND KINGET SCORES
 OF FEMALE "NORMALS"

Subject Number	Test		
	Strong	Guilford-Zimmerman	Kinget
1	45	11	19
2	48	9	16
3	55	7	21
4	44	19	16
5	60	7	14
6	59	2	15
7	39	8	15
8	72	10	22
9	52	8	20
10	48	10	19
11	48	16	16
12	48	13	18
Mean	51.5	10.0	17.6
Standard Deviation	8.87	4.45	2.60
Variance	78.64	19.82	6.81

TABLE 46
 STRONG, GUILFORD-ZIMMERMAN AND KINGET SCORES
 OF MALE "NORMALS"

Subject Number	Test		
	Strong	Guilford-Zimmerman	Kinget
1	38	20	14
2	52	12	18
3	62	17	18
4	56	15	18
5	47	20	18
6	48	26	15
7	47	17	21
8	64	24	18
9	40	17	22
10	56	15	18
11	53	20	15
12	52	19	15
Mean	51.3	18.5	17.5
Standard Deviation	7.84	3.90	2.43
Variance	61.48	15.18	5.91