12-1-1984

A Study of Selected Style and Content Variables in the Drawing of Depressed and Nondepressed Adults

Catherine F.S. Dawson

A STUDY OF SELECTED STYLE AND CONTENT VARIABLES IN THE DRAWINGS OF DEPRESSED AND NONDEPRESSED ADULTS

by
Catherine F. S. Dawson

Bachelor of Arts, Duke University, 1976
Master of Arts, University of North Dakota, 1980

A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Grand Forks, North Dakota

December
1984

This Dissertation submitted by Catherine F. S. Dawson in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.

Beeclah Hedahl
(Chairperson)

John O. Hall

Lola C. Tobin

James A. Clark

Fred Schmidt

This Dissertation meets the standards for appearance and conforms to the style and format requirements of the Graduate School of the University of North Dakota and is hereby approved.

A. William Johnson 10/23/84
Dean of the Graduate School

Permission

Title A Study of Selected Style and Content Variables in the Drawings of Depressed and Nondepressed Adults

Department Psychology

Degree Doctor of Philosophy

In presenting this dissertation in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the Library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my dissertation work or, in his absence, by the Chairman of the Department or the Dean of the Graduate School. It is understood that any copying or publication or other use of this dissertation or any part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of North Dakota in any scholarly use which may be made of any material in my dissertation.

Signature Catherine L. Rose

Date 8/24/1984

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGMENTS

I am very grateful to all of the people who have contributed to this project. In particular I would like to thank Dr. Beulah Hedahl for her continued support, encouragement, and direction as the Chairman of my committee. I especially appreciate her coming out of retirement to help me to complete the work. I would also like to thank Dr. James Clark for his clinical advice and enthusiasm for the topic as well as his invaluable advice regarding the statistical analyses. I would also like to thank my other committee members, Dr. Lila Tabor, Dr. John Noll, and Dr. Fredrick Schneider for reviewing the manuscript and providing important suggestions on extremely short notice. I am very grateful to Bev Rosencrans because without her expertise and speed as a typist and ability to do the impossible, the work would never have been completed on time.

I would like to thank Brett Schur for his thoughtful and accurate work in handling my data analyses. Finally, I would like to thank all those at the Veterans Administration Medical Center who referred subjects to me and who participated in the study, especially Dr. August Johnson who supervised my work.

Last, I am eternally grateful to my husband, Steven, and daughter, Rachel, who provided never flagging patience and love for me and belief in this project.

ABSTRACT

This study investigated differences between the drawings of depressed and nondepressed adults. A procedure for obtaining objective scores for structural and content variables was developed. Subjects were patients of the Veterans Administration Medical Center in Tucson, Arizona who were high and low scorers on the Beck Depression Inventory. Based on the research of Wadeson (1980) and Wright and McIntyre (1982) the following differences between the drawings of depressed and nondepressed subjects were hypothesized: the drawings of depressed subjects would have less color, more empty space, smaller forms, more missing details, and fewer extra details than those of nondepressed subjects. Based on other research (Exner, 1962), it was hypothesized that the drawings of depressed people would have more shading than those of nondepressed people. Specific contents were hypothesized to be more prevalent in the drawings of depressed subjects and subjects who reported suicidal ideation. It was further hypothesized that a linear combination of variables would significantly differentiate the drawings of depressed and nondepressed subjects.

The Depressed group left significantly more empty space in their drawings and included fewer extra details

than the Nondepressed group. The difference between the group means was in the predicted direction but was not significant for the variables: Size, Color, Missing Details, and Suicide Symbols. A discriminant function analysis of the variables did not discriminate between the drawings of the depressed and nondepressed subjects above a chance level.

It was concluded that there is support for some of the hypotheses and for continued research in the area of diagnostic drawings. Suggestions for future research include the exploration of other measures of depression as criteria for identifying the groups used to analyze drawing variables, and the investigation of the structural variables, Empty Space, Size, Color, Extra Details and Missing Details, in the drawings of other clinical groups.

INTRODUCTION

A recent proliferation of books about the theory and techniques of art therapy reflects a renewed interest in projective techniques as an aid in understanding personality and psychopathology. Though the clinical case lore provides compelling illustrations of the value of drawings for diagnostic and therapeutic purposes, obtaining controlled experimental backing has proved of considerable difficulty. The unstructured nature of the task, the subtlety and variation of the qualitative aspects of drawings, and the probable interaction of many of these variables contribute to the difficulty in obtaining significant predictors of pathology from drawings. Some investigators suggest that diagnostic drawings are more useful in illuminating dynamic issues and the creator's subjective experience of himself and his world than in discriminating among diagnostic labels. For example, Kinetic Family Drawings (Burns & Kaufman, 1970) are commonly administered to children in cases of known physical or sexual abuse. The children are often able to illustrate aspects of family relationships that they are unable to put into words.

This study investigates the manner in which the drawings of self-rated depressed patients differ from the

drawings of patients who rate themselves as not depressed. The self-rating method of assessing depression was used for several reasons. First, in a self-rating one assesses the subject's subjective experience. Second, the self-rating method produces a continuum of scores which spans a variety of diagnostic categories. Third, this method obviates the need for agreement among clinicians within this study as well as between studies in this area of research. Finally, the method has produced significant results in past studies.

Research on the drawings of depressed people is particularly scarce. Even reports of case studies are relatively few when compared with the reports of the drawings of other groups. Wadeson (1971, 1975, 1980) provides a very promising beginning. From many years of intensive art therapy with depressed patients, she gleaned a few qualitative variables which she found to significantly discriminate between the drawings of depressed patients on their most and least depressed days. These variables were less color, more empty space, less effort or completeness, and depressive affect or less affect. Recently, Wright and McIntyre (1982) substantiated several of these findings and extended them by operationally defining some of the qualitative variables in an objective manner. They found that the Kinetic Family Drawings of depressed subjects included fewer colors and occupied less space than those of normal subjects.

This study was based on the results of Wadeson (1971, 1975, 1980) and Wright and McIntyre (1982) and on the suggestions of reviewers of the literature regarding diagnostic drawings as a whole. A battery of five drawings including the House-Tree-Person test (Buck, 1948), Kinetic Family Drawing test and a free drawing was collected from depressed and non-depressed patients. Depression was defined by Beck Depression Inventory scores (Beck, 1967). Structural variables suggested by Wadeson (1971) and by Wright and McIntyre (1982) were objectively defined. These structural variables were hypothesized to discriminate the drawings of depressed from those of non-depressed subjects. Empirical validation of specific content variables thought to be indicative of depression and suicidal ideation was attempted.

LITERATURE REVIEW

Recently, there has been a resurgence of interest in the use of art to facilitate psychotherapy of adults and children (e.g., Gardner, 1980; Naevestad, 1977; Selfe, 1977; Landgarten, 1981; Wadeson, 1980; Robbins, 1980). These authors vary widely in their theoretical orientations, training, use of art materials, and in the client populations they serve. Most, however, hold a dynamic view that artistic productions involve a projection of the inner world of the creator allowing unconscious contents and processes to become available to the creator and others as in a dream (e.g., Hammer, 1958). Thus the way in which an individual approaches the relatively unstructured creative task and the style of the product as well as its content reflect the creator's sense of self, general mode of interaction in the environment, fears, needs, conflicts and defenses. Mainly the literature in art therapy, as in other forms of therapy, appears to be technically oriented. For example, Kwiatkowska (1978) discussed her method of treating families via art therapy and likewise Kramer (1971) discussed her methods and theoretical orientation to art therapy with children. Although these and other authors compellingly discussed

methods and cases with theoretical interpretations, a major problem is that controlled research on therapy outcomes is sadly deficient.

If therapy outcome research is deficient, it is not surprising that research on the utility of art for diagnostic purposes has lagged behind the theoretical and methodological literature on art therapy. As a whole, like the therapy outcomes research, the research on diagnostic drawings is a confusing array of confounding, contradictory and inconclusive studies. Further, much of the research is more than ten to fifteen years old and is therefore quite dated with respect to theoretical and statistical advances in both diagnosis and research design. Journals of art therapy contain a high proportion of case studies and studies in which authors report on their observations gleaned from years of clinical art therapy experiences. Though the descriptive accounts are invaluable, and often provide powerful illustrations of theoretical points, the conclusions drawn from this data are subject to debate. Chapman and Chapman (1967) in particular dramatically demonstrated the pitfalls of what they call the "illusory correlation." They asked judges to make inferences about patients based on drawings and statements they thought were about patients, but wnich had been randomly matched with the drawings unbeknownst to the judges. Both naive and experienced judges found

"clues" in the drawings to support inferences in accordance with false statements. Thus, Chapman and Chapman showed the importance of methodologically sound research to test the verity of clinical observations.

A complicating factor in evaluating the research on diagnostic drawings relates to the controversy regarding the reliability of diagnosis itself (e.g., Korchin, 1976). In some cases the failure of drawing variables accurately to differentiate groups may partly reflect the difficulty in making accurate and reliable diagnoses in general in order to assign subjects to experimental groups. In a review of the literature, Falk (1981) said that the researchers address the wrong question when they test the utility of drawing in predicting a diagnostic label. He said,

> Psychodiagnostic labels should be used as "guideposts" to help psychologists communicate. The DAP (Draw-a-Person) is then a tool for comprehending the individual patient's internal conflicts and predicting future behavior. Thus, the compelling questions for testing "validity" become, "Is the DAP helpful in better understanding patients?" and "Do elements of the DAP enable clinicians to classify groups of patients more accurately as abnormal vs. normal?" (Falk, 1981, p. 468).

Approaches to the Study of Diagnostic Drawings

Several approaches to research on diagnostic drawings are found in the literature. In one type abnormal and normal groups are to be differentiated by naive and experienced judges. Falk (1981) concluded in his review of this literature on children that in the majority of studies experienced judges were not significantly more accurate than naive judges and that both were most influenced by artistic quality in their judgments, a factor which in his opinion is actually unrelated to pathology in children.

However, one can argue that psychopathology directly affects the quality of children's drawings. For example, ego psychologists have said that the production of artistically interesting drawings requires regression in the service of the ego. Children or adults who are compulsive and over-controlled produce stereotypic drawings with little feeling or imagination while those who are easily overwhelmed by their emotions and by the regressive process produce a drawing which is so ideosyncratic that it communicates nothing. For example, Kramer (1971) viewed the artistic quality of the drawings of child patients as a manifestation of their level of functioning, the process of therapy, and their progress. Accordingly, one might expect both naive and experienced judges to infer pathology in general from drawings of poor quality.

Compared to global judgments, accurate diagnoses or hypotheses regarding the manifestation of psychopathology in life adjustment are expected to be more difficult to make, less accurate, and to require an understanding of unconscious and defensive processes.

In another type of research, drawing variables of varying degrees of specificity are objectively or subjectively rated and related to behavior or clinical judgments of pathology. These variables have been drawn from the writing of such theoreticians and observers as Machover (1949), Burns and Kaufman (1970, 1972) on Kinetic Family Drawings, and Buck (1948) on the House-Tree-Person (HTP). In contrast to Falk (1981), Swenson (1968) interpreted the literature with adults and children to indicate substantial empirical support of judges' ability to differentiate pathological from normal drawings on the basis of global but not specific factors. The judgments of pathology were often accurate, in spite of the similarity of the global ratings to ratings of overall quality and artistic ability. He noted that global ratings such as "quality of drawing," "severity of illness," and "impulsivity" have a higher inter-test and test-retest reliability than more specific factors. More specific ratings yielded more tenuous reliabilities and were generally more difficult to relate to pathology. Swenson

(1968) said that the smaller the behavioral sample or greater the specificity of the rating used, the less generalizable the interpretation. For example, the results of studies relating abnormal treatment of specific body parts of the Human Figure Drawing (HFD) (Machover, 1949) to specific psychopathologies were very inconclusive and generally those "content" factors have not reliably detected pathology.

In addition to global judgments and specific content variables, some investigators have explored the way in which the image is created (e.g., Koppitz, 1966).

In his review of the literature, Swenson (1968) used the terms stylistic formal, and structural interchangeably to describe variables referring to how the image was created as opposed to its content or quality. As examples he included variables such as size, placement, and shading. A basic assumption of this study was that structural or style variables provide a fruitful point of inquiry into what factors or configurations of factors contribute to the gestalts which successful judges identify as normal and as pathological.

The variables identified by Swenson are suggestive of the structural analysis of the Exner Comprehensive System of Rorschach Analysis (Exner, 1974, 1978, 1982). The Rorschach Inkblot Test may be considered to be

analogous to a projective drawing test because the individual, in a sense, mentally "creates" an image from the raw materials (form, color, and shading) of the ambiguous stimuli. The process of identifying the structural variables or determinants used by Exner (1974, 1978, 1982) provides a framework for reviewing some of the research on drawings. Some of the determinants of the Exner Comprehensive System are Color, Shading and Dimensionality. The determinants have been shown empirically to occur more or less frequently in the records of different clinical groups (Exner, 1974, 1978, 1982). The interpretations of these variables seem to be directly applicable to objective structural variables of subject-produced drawings.

Among the advantages of Exner's method are the clear scoring criteria and extensive norms provided by Exner's System which make it possible to test personality features such as the adequacy of reality testing in an objective manner. The structural variables form the foundation of personality assessment in Exner's method. Only after objective structural analysis does Exner proceed to a subjective clinical analysis of content. Thus, in spite of the fact that the system is objectively scored, it takes clinical experience and acumen in the use of the system to put the variables together to arrive at the most accurate and insightful personality assessment.

Clearly, the research on projective drawings to date is far from even approaching a goal of a comprehensive system of objective scoring criteria followed by clinical interpretation. Some researchers and reviewers would argue that a system analogous to the Comprehensive System is impossible with projective drawings because of their lack of structure, their ambiguity, unreliability, and the confounding effects of artistic ability. Nonetheless, it is in the context of this ultimate and perhaps grandiose goal that the present study was initiated.

In summary, there remains considerable controversy regarding the implications of the body of literature on diagnostic drawings. Much of the debate has become bogged down in questions about the validity of drawings. The debate takes place on two fronts. On one front the question is whether or not the discrimination of pathological drawings from normal drawings is possible, and whether or not clinical expertise increases the accuracy of such discriminations of pathology in general. On the other front, the discrimination of specific clinical groups is attempted on the basis of very specific variables such as the discrimination of paranoid schizophrenics from other psychotic individuals on the basis of the treatment of eyes on the human figure drawing. It is suggested here that, following the example set by Rorschach research, researchers on diagnostic drawings ought

to shift their focus to the effects of more specific clinical dynamics on a variety of stylistic variables. Falk (1981) said

> The goal of research no longer needs to be proving or disproving the validity and utility of human figure drawings as a psychodiagnostic tool. Rather it should be in establishing exactly what aspects of the DAP and similar projective devices are valuable and how they can be improved, standardized, and employed for greater utility (Falk, 1981, p. 469).

In this endeavor reviewers of the literature in the area of diagnostic drawings have suggested several considerations for future research. First, the behavioral sample from which the specific predictions are made should be as great as possible (Falk, 1981; Swenson, 1968). Therefore, predictions drawn from specific content and structural-stylistic variables may best be made on the basis of several drawings rather than a single drawing.

Secondly, as Falk (1981) suggested with regard to the Draw-a-Person test, diagnostic drawings may not be the best tool for distinguishing between categories of mental disorder. Rather, their best use may be in elucidating the internal conflicts, defensive structure, mood, hopes, fears and manner of relating to others. Thus, the literature suggests that future research should

focus on one or more of these factors rather than a specific diagnostic label.

Third, it appears that while global judgments of pathology may or may not be more likely to result in successful differentiation of pathological from normal groups, global judgments clearly do not greatly enhance our understanding of how drawings reflect the creator's internal world. Thus, if research is to demonstrate to skeptics the usefulness of drawings as part of a diagnostic battery, it is necessary to focus on the more specific and objective factors which are utilized alone and in combination by successful judges in making interpretative statements with useful psychotherapeutic treatment implications.

The Relationship of Specific Structural and Content Variables to Depression

This study investigated the ways in which the drawings of adults who rated themselves as depressed differed from those of adults who rated themselves as not being depressed. For the purposes of this investigation, depression was defined by a high score on the Beck Depression Inventory. The self-rating method has several advantages over other methods of identifying depressed people. First, it is sensitive to day-to-day fluctuations in the level of depression. Also, it allows for

a standard of comparison of results across studies since difficult diagnostic issues are avoided. Finally, it allows for depression to be utilized as either a categorical or continuous variable.

As noted above, the literature about depression and drawings is very scarce. There are only a few studies that are directly pertinent. Thus, some latitude in the selection of studies reviewed appeared to be appropriate. Some of the studies reviewed here are only tangentially related to the issue of depression in adults. For example, some of the studies reviewed used children rather than adults as subjects. Research investigations of self-esteem, shyness and anxiety were included here since they suggested variables to be considered in the study of depression.

Size of figure drawings has proved to be the variable most often associated with depression. Generally, researchers have investigated the theoretical assumptions of Machover (1949) and Hammer (1958) that the size of the human figure is a reflection of self-esteem and since depressed people have low self-esteem, it has been hypothesized that they draw smaller figures than those who are not depressed. The results of the studies linking drawing size and depression have been mixed. Lewissohn (1964) found that the human figure drawings of 50 depressed patients were significantly smaller than those

of 50 nondepressed patients. Koppitz (1966) found that tiny (less than two inches tall) figures were more prevalent in the drawings of children who were patients at a child guidance clinic than of school children. Further, children who were identified as being shy, withdrawn and depressed were more likely to draw tiny figures than those identified as being aggressive. Koppitz concluded,

> This Emotional Indicator seems to reflect extreme insecurity, withdrawal, and depression. While not all depressed and insecure children draw necessarily tiny figures, it can be assumed with a fair degree of confidence that children who draw tiny figures are timid and probably depressed. But the extent of the shyness and depression will not be revealed in the drawing (Koppitz, 1968, p. 59).

In contrast to the findings of Lewinsohn (1964) and Koppitz (1966), Bennett (1964) found no relationship between size of human figure drawing and self-concept in sixth graders. Salzman and Harway's (1967) results were also not supportive of a link between drawing size and depression. Salzman and Harway (1967) administered the Draw-a-Person test to psychotically depressed women shortly after their admission to an inpatient facility and following recovery from electroconvulsive shock treatments. Controls were volunteer women. The authors found

no differences between the before and after treatment drawings in the height or area of figure drawings in the depressed group. Further the difference between the depressed group and control group, though in the predicted direction, was not significant. Similarly, Sandman, Cauthen, Kilpatrick and Deabler (1968) compared the size of human figure drawings of depressed and nondepressed subjects defined by MMPI scale 2 elevations. There was a non-significant trend for smaller drawings in the depressed group than the nondepressed group and a low insignificant correlation within the depressed group between height and scale score.

Finally, Roback and Webersinn (1966) found in separate studies that when depression was defined by either MMPI scale 2 elevation (T is more than 67) or by doctors' ratings, drawings of the depressed group were significantly smaller than those of the nondepressed group for women but not men. As a whole, there was a non-significant trend in the predicted direction.

Thus, it would appear that while the evidence demonstrates the fallacy of diagnosing clinical depression or the severity of depression on the basis of the size of the human figure drawing alone, there is some converging support for a relationship of small magnitude between the size of a drawing and depression. Thus there is justification for including this variable along with

others in the evaluation of a battery of drawings for depressive features.

Shading in drawings is another variable often associated with pathology. The majority of studies have attempted to find a relationship between shading and anxiety and these attempts have been largely unsuccessful. Swenson (1968) pointed out that shading is more likely to be present in the drawings of higher quality to indicate contours and therefore drawing ability may mask or confound the affective component of shading. However, Exner's (1962) investigation of the relationship between anxiety and shading suggested that shading is related to discomfort in some way. Exner compared the Human Figure Drawings of four groups. The groups were labeled Psychoneurotic, Character Disordered, Normals under Experimentally-induced Fear, and Normal Controls. The Psychoneurotic group and Character Disordered groups appear to have been composed of patients who expressed some subjective discomfort, characterized as primarily depressive or anxious in nature. Exner found that the Character Disturbance group exhibited significantly more shaded drawings than any other group and that the Normal Control group used the least shading of all groups. These studies lend support to the hypothesis that shading and subjective discomfort are related.

Exner's (1974) review of the research on the shading variables of the Rorschach also suggests this interpretation of the shading variable. The presence of diffuse shading in the Rorschach responses, once thought to be a sign of anxiety, was found by Exner to reflect a type of depressive affect. He said,

> The diffuse shading answers are probably best interpreted as illustrating a form of psychological "helplessness" and/or withdrawal which may be accompanied by anxiety. . . . They are . . . painful affective experiences (Exner, 1974, p. 290).

It is suggested here that research should investigate the possibility of an association of extensive shading or preoccupation with shading in drawings with depressive affect.

The omission of details in drawings has been found to be a reliable variable significantly related to pathology in the majority of studies reviewed by Swenson (1968) and by Hiler and Nesvig (1965). Studies have demonstrated a significantly higher incidence of omissions in stressed subjects, poorly adjusted children, disturbed adolescents, nursing home residents, psychiatric inpatients and severely regressed schizophrenics. Hammer (1958) suggested that omission of essential details is more specifically related to depression.

> The drawings of significantly depressed subjects are characterized by a marked paucity of details or an inability to complete all of the drawings, however scantily, or both. . . . Inadequate detailing has been found to be the preferred drawing reaction of subjects with distinct withdrawal tendencies. The absence of adequate detailing conveys a feeling of emptiness and reduced energy, so characteristic of subjects employing defenses of withdrawal and, at times, depression (Hammer, 1958, pp. 64, 67).

In their clinical work with the art of psychiatric patients, Dax (1953) and Reitman (1950) observed a general poverty of ideas and lack of elaboration in the drawings of depressed people. Koppitz (1966) found the omission of body parts occurred more frequently in the drawings of shy and depressed children than in aggressive children. In particular, the omission of the nose and mouth and hands cut off occurred significantly more frequently in the drawings of shy and depressed children than in the drawings of aggressive children.

Wadeson (1980) suggested that the production of incomplete drawings and the more general resistance to drawing on the part of depressed patients may partially account for the dearth of studies on depression compared

to the many studies of the drawings of other populations. Further, she suggested that the inclusion of only those patients who are initially willing or who volunteer with enthusiasm results in a skewed sample of drawings. She said that investigators should endeavor to encourage even resistant patients to obtain the most representative sample possible.

Research on Kinetic Family drawings has prompted some hypotheses regarding the ways in which depression is reflected in drawings. In spite of the cautions against making general interpretations based on specific contents, Burns and Kaufman (1972) found many symbolic contents to be indicative of depression in children. In their case studies using the Kinetic Family Drawing test, they noted that preoccupation with water suggests severe depression in children (Burns & Kaufman, 1972, pp. 276-284). In addition, they noted that beds, rain, refrigerators, skin diving and stars suggest depressive characteristics. Burns and Kaufman offered no experimental support for their observations.

Empirical investigations have been conducted along more fruitful lines testing Burns and Kaufman's theories regarding actions and stylistic factors. The Kinetic Family Drawing test has been used with both children and adults to investigate self-esteem and depression. Elin and Nucho (1979) developed a scoring system for a

dimension of interaction versus isolation. They predicted that children with high self-esteem would depict family situations wherein they are actively engaged with family members. Low self-esteem was hypothesized to be reflected in barriers, compartmentalization and greater distance from the mother. More positive affect depicted on the self and mother figure was hypothesized to be more frequent in the drawings of children with high self-esteem and these figures were hypothesized to be more likely to have hands than those in the drawings of children with low self-esteem. Isolation-interaction scores distinguished the two self-esteem groups reliably. The scores of each of the individual variables composing the isolation-interaction scores were alone significantly different in the drawings of high versus low self-esteem children except for the variables, "compartmentalization" and "hands."

Holz, Brannigan and Schofield (1980) attempted to test the hypothesis that distances between self and family member figures on the Kinetic Family Drawing reflect feelings of intimacy and of alienation. Results from the Kinetic Family Drawings of college students did not support their hypotheses. Brannigan, Schofield and Holz (1982) attempted to retest their hypothesis with high school students. In the revised method, they noted

barriers and types of action between family members as well as the absolute distance between them. They also included a Stationary Family Drawing. Using the Comfortable Interpersonal Distance Scale and the Psychological Distance Scale, they found partial support for their hypothesis. They found a significant relationship for only the mother figure between barriers and remote distancing. The authors mentioned they felt that the college sample included in the previous study may have been inappropriate "since college students have been living away from home for some time and may feel distant from their families" (Brannigan, Schofield, & Holz, 1982, p. 55). It may be that their younger sample is subject to the same criticism. Since adolescence normally evokes separation-individuation concerns, the pattern found by Brannigan, Schofield and Holz (1982) may not be typical of much younger subjects or adult subjects.

Wadeson (1971, 1975, 1980) has provided the most interesting results and fruitful point of inquiry for further research in many aspects of art therapy and diagnostic drawings. While working at the National Institute of Health, she wrote of her extensive experiences in art therapy with schizophrenic, manic depressive, neurotic, depressed, alcoholic, and suicidal patients and groups as well as with art therapy students (Wadeson, 1980). Although participation in art therapy was a

required treatment, her methods involved the greatest possible freedom of expression for her patients in an atmosphere of gentle and persistent encouragement. About her choice of art medium she said,

> In much of my work the art product is a vehicle for psychological insight. Since I want to devote as much time as possible to processing the image and the experience of creating it, I prefer a quick and simple medium. Also I usually like to combine the possibility of control with smearing. For these purposes I have found wide soft pastels in a variety of vivid colors to be my "happy medium"--neither too tight nor too loose (Wadeson, 1980, p. 18).

After nine years of art therapy with hospitalized depressed patients, Wadeson (1971) chose seven variables observed to be particularly characteristic of depression in free drawings. Using trained psychiatric nurses' ratings of depression, Wadeson collected the drawings of ten patients on days when their ratings of depression were highest and lowest. Psychiatrists, acting as blind judges, then rated each of the drawings on each of the dimensions. Significant differences between the ratings given to the drawings on the most depressed day and the least depressed day were found on four of the seven variables and two of the remaining three showed a trend

in the predicted direction. The significant variables were: less color, more empty space, less effort or completeness and depressive affect or less affect. Nonsignificant trends indicated more constrictedness and less meaningfulness in the most depressed drawings. The hypothesis that the highly depressed drawings would be more disorganized than the less depressed drawings was not supported.

Following the work of Wadeson (1980), Wright and McIntyre (1982) developed a method of scoring Kinetic Family Drawings based on the Wadeson variables which significantly discriminated the drawings of depressed from non-depressed adults. The Family Drawing Depression Scale was comprised of five objective and ten subjectively rated subscales. The objective variables were: number of colors used, size of self, isolation of self, organization, and empty space. Wright and McIntyre did not indicate how organization was scored. The subjective variables were: isolation of self, isolation of family, detail, sexual differentiation, energy of self, energy of family, interest of self, interest of family hopelessness, and empty space. Using the Zung Self Rating Scale for Depression (Zung, 1965) to quantify the severity of depression, depressed patients were tested at admission as well as discharge from an inpatient care facility. Wright and McIntyre found that all five of the objective

measures significantly differentiated the family drawings of depressed from normal subjects. Size of self, isolation of self and empty space were significant discriminators of the admission and discharge drawings. All of the subjective variables were also found to be significant in discriminating the drawings of depressed from normal subjects. Only organization, detail, and sex differentiation were not successful in discriminating the admission and discharge drawings.

The Wadeson and Wright and McIntyre studies differ from most of the empirical investigations of drawings and depression because of the inclusion of color. Hammer (1958) suggested that crayon drawings be included following pencil drawings in the House-Tree-Person battery. He said that

> . . . by the addition of the chromatic phase to the projective drawing task, the clinician is provided with an instrument which a deeper personality layer, and hence, when taken with the achromatic drawings, provides a richer and more accurate picture of the hierarchy of the patient's conflicts and defenses (Hammer, 1958, p. 234).

Whether color drawings reflect a deeper aspect of psychological functioning or not, it does appear that the use

of color is an important distinguishing variable in the work of depressed patients.

Further, Wadeson (1971, 1980) and Wright and McIntyre (1982) included a measure sensitive to the fluctuation of depression and found that drawings were highly sensitive to the variation in the level of depression. Thus, the failure of some studies to find significant differences between the drawings of depressed and normal people may be due in part to their failure to take this variation into account by including a measure of severity of depression on the day the drawings were administered.

Some investigators have reported on specific indicators of suicidal ideation in human figure drawings and free drawings. Schildkraut (1972) collected 1500 human figure drawings from adolescents who came to a medical clinic outside of New York City. They observed that seemingly accidental marks occur in the drawings of suicidal patients. Virshup (1976) defined the "suicidal slash" as "a slip of the pen somewhere on a figure drawing which has no relationship to the continuity of the line. It is an inappropriate marking on the body, apparent, but unnecessary for drawing"(Virshup, 1976, p. 17). Virshup (1976) also noted loop themes in the drawings of a prisoner who later hanged himself. Finally, Wadeson (1975) analyzed 56 pictures drawn by suicidal patients at the National Institute of Health. In addition

to the loop and slash, Wadeson observed that the spiral is a common theme of depressed and suicidal patients. She said

> Half of the patients in this sample (12 out of 24) used a spiral to express thoughts of suicide. Other patients drew spirals but without the direct suicidal connotation. In describing what the spiral meant, patients spoke of a whirlpool, turmoil, anxiety, the feeling that one's possibilities were narrowing--leading in turn to a feeling of entrapped hopelessness. In each case the drawing of a spiral began with the largest circle and became progressively narrower (Wadeson, 1975, p. 81).

To date none of the suicidal warning signs have been subject to empirical testing.

In summary, there are few published reports of empirical research on the diagnostic drawings of depressed people. Early investigations were primarily observational or they tested simplistic hypotheses involving discriminating the drawings of depressed from nondepressed people on the basis of one factor such as size.

Wadeson's study (1971) is exciting because she was the first to synthesize her own and others' clinical observations into a few distinct qualitative variables which she was able to subject to empirical evaluation.

The reliability and validity of her results received partial confirmation by Wright and McIntyre (1982). Further investigation of the Wadeson variables is in order. It is suggested here that the results of these studies indicate the importance of a measure of the severity of depression on the day of testing and the importance of color in the drawings.

Summary and Statement of the Problem

This study explored whether the drawings of people who score high on the Beck Depression Inventory can be differentiated from those of people who score low on the basis of objectively scored variables. The groups of drawings were expected to differ with respect to six stylistic variables and two groups of content variables. Previous research on diagnostic drawings suggested two general considerations that were taken into account here. First, all variables were operationally defined in an objective manner to maximize clinical and research applicability. Secondly, a battery of five drawings was used because it has been suggested that a larger behavioral sample has greater predictive power than a smaller behavioral sample.

As part of the battery, the House, Tree, and Person drawings were chosen because of the frequency of their use in the research literature and the availability of norms for essential details (Buck, 1948). The Kinetic Family Drawing (1970) was included because of its use

in assessing depression in previous studies. Finally, the Free drawing was included to enhance the likelihood of eliciting symbols of depression and suicide as well as for exploratory purposes.

The first five hypotheses of this study were based on the results of Wadeson (1971, 1980). The first hypothesis was that depressed people use fewer colors overall than nondepressed subjects. This stylistic variable was operationalized by a score indicating the absolute number of different colors used in each drawing and a total score indicating the total number of different colors used across the five drawings.

The second hypothesis was that the drawings of depressed people contain more empty space than those of nondepressed people. A score was found by computing the empty area of the paper including the area within forms which is unmarked.

The third hypothesis was that the drawings of depressed people are less complete than those of nondepressed people. The measure of incompleteness was the number of missing essential details in the House, Tree, and Person drawings (Ogden, 1975).

The fourth hypothesis was that less effort is demonstrated by depressed people. Here this was operationalized by a score reflecting the amount of elaboration

or the inclusion of non-essential details in the drawings of depressed people and of people who were not depressed.

Fifth, it was hypothesized that the drawings of depressed people are smaller, that is, the figures encompass less space overall than the drawings of people who are not depressed.

The sixth hypothesis was based on other research. Based on evidence of the Rorschach shading variable, it was hypothesized that the drawings of depressed people contain more shading than those of people who are not depressed.

The seventh and eighth hypotheses concerned the content variables of the drawings. The content variables were grouped according to whether they were hypothesized to be related to depression or to suicidal ideation. The seventh hypothesis stated that depressed subjects have a greater total number of symbols of depression in their drawings. The symbols of depression scored here were water (Burns & Kaufman, 1972), spirals (Wadeson, 1971, 1980), no smile on the Person drawing, and isolation of the self in the Kinetic Family Drawing (Wright & McIntyre, 1982; Elin & Nucho, 1979).

Hypothesis eight stated that the total number of suicidal symbols is positively correlated with the intensity of suicidal ideation as operationally defined by the response to the Beck Inventory item number 9.

The ninth hypothesis stated that the six stylistic variables taken together significantly discriminate the drawings of high Beck Depression Inventory scorers from low scorers.

METHOD

Subjects

Subjects were 45 male and five female patients of the Veterans Administration Medical Center in Tucson, Arizona. They ranged in age from 22 years to 75 years, $\bar{x}$ = 47.94, sd = 14.22. Twenty-one patients were referred by physicians of the outpatient clinics and 29 were referred by staff of the Inpatient Psychiatric Unit. Individuals exhibiting symptoms of neurological impairment and patients with Schizophrenic or other Psychotic Disorder diagnoses were not invited to participate.

Beck Depression Inventory scores ranged from 3 to 49, $\bar{x}$ = 21.5, sd = 13.81. The cut-off for assignment to the Depressed and Nondepressed groups was set at 18 based on Beck's (1967) research showing a mean score of 10.9, sd = 8.1 in his Nondepressed group (Beck, 1967, p. 196). Twenty-five subjects scoring more than 18 composed the Depressed group. The Beck Depression Inventory scores of the Depressed group ranged from 19 to 49, $\bar{x}$ = 33.16, sd = 9.55. Twenty-five subjects scoring 18 or less composed the Nondepressed group. The Beck Depression Inventory scores of the Nondepressed group ranged from 3 to 18, $\bar{x}$ = 9.84, sd = 4.29.

Procedure

Each subject was interviewed in a single individual session. Initial questions elicited basic demographic data. The Beck Depression Inventory was administered according to instructions given by Beck (1967). Following the inventory, the drawings were administered.

Instructions for the drawings were adapted from suggestions made by Wadeson (1980). They were unstandardized and focused on dispelling anxiety and encouraging the individual to draw freely and spontaneously without regard to "artistic quality." The subjects were encouraged to use as much or as little time as they liked and to use the materials in the manner that pleased them. Each subject was given a box of 12 multi-colored soft pastels (Alpha Color Square Pastels by Weber Costellow, Chicago) and a piece of white 8" x 11" construction paper for each of the five drawings. Discussion during and between the drawings was discouraged and spontaneous comments were noted. The subject was seated alongside the examiner as is recommended for the Rorschach Inkblot Test administration.

The instructions for the five drawings were: (1) "Please draw a house.", (2) "Please draw a tree.", (3) "Please draw a whole person.", (4) "Please draw your family doing something. You may draw your family as it

was at any time in your life.", and (5) "Draw any kind of picture you wish." This order was chosen because the drawings progressed from the most to the least structure and the least to the most difficulty, thereby minimizing anxiety and maximizing effort.

Many subjects were unclear as to which people to include in the family drawing. It was suggested that subjects draw the family scene that immediately came to mind. This resulted in drawings which included families of origin and present families. Since most subjects found this drawing to be the most difficult, leeway in the manner the family was represented was deemed appropriate. For example, subjects often drew stick figures to represent family members in the Kinetic Family Drawing. While this manner of representation was strongly discouraged on the Person drawing, no comment was made on the Kinetic Family Drawing. Interestingly, the Free drawing appeared to alleviate the tension which was sometimes elicited by the Kinetic Family drawing. Many subjects seemed to take great pleasure in the drawing and many left with a good feeling about their overall participation.

When all the drawings were completed, subjects were asked to describe each drawing. Unclear content details in the drawings were resolved and subjects were asked about any missing essential details. Subjects

were thanked for their participation and were told the general purpose of the study. Interested subjects were encouraged to talk about and interpret their own drawings.

Scoring the Drawings

Color. Each drawing was scored for the absolute number of colors used. A total score was the number of different colors used over the five drawings. For example, a subject would receive a total color score of 5 if a different color was used to draw each of the five drawings. The subject would receive a score of 1 if the same color was used in all of the five drawings.

Empty space. The blank area of each drawing was determined by counting the blank squares found by superimposing a transparent grid, 16 squares to the square inch, over the drawing. This score was the number of entirely blank squares on the page. Included in this score were the blank squares inside of figures. The total score was the number of empty squares over the five drawings.

Completeness. The Buck (1948) norms as listed in Ogden (1975) were used to determine the expected essential details of the House, Tree, and Person drawings. For the House they are: one wall, a door, roof, and a window. For the Tree they are: a trunk and a branch. For the Person they are: head, trunk, two legs, two arms, two eyes, nose, mouth and two ears unless the ears

are hidden by clothes, hair or perspective (Ogden, 1975, pp. 65-102). The House, Tree, and Person drawings were scored for the number of these details which were missing. The total score was the number of details missing from the three drawings.

Elaboration. The House, Tree, and Person drawings were scored for the number of contents included in the drawings beyond those contents listed as essential details. The subject received one point for each discrete type of content. For example, a subject received one point for including several flowers and no points for including extra windows on the House drawing since this is a content area specified in Buck's essential details (Ogden, 1975). The total score was the number of extra details across the House, Tree, and Person drawings (Appendix A).

Size. This variable was the number of squares marked in any way and those unmarked squares which were enclosed by the drawn forms. The total score was the sum of the size scores over the five drawings.

Shading. This variable was the number of completely filled squares in each of the five drawings. The total score was the sum of the shading scores over the five drawings.

Content Variables

Symbols of depression. Spirals were scored if they occurred beginning from the outside continuing toward the center. Each drawing was scored for the presence of a spiral. Water was scored if it appeared in a drawing. The Person drawing was scored for the lack of a smile. When the facial expression was unclear the subject was asked to clarify. Finally, the Kinetic Family Drawings were analyzed for the isolation of the self figure in five ways. The drawing was scored for Barrier if the self figure was blocked from all other figures by some kind of object in the drawing. The drawing was scored for Encapsulation if the self figure was completely enclosed by a marking. The drawing was scored if the self figure was Alone in one quadrant of the paper and if the self figure was left out of the family drawing altogether. The total Depressive Symbol score was the sum of the scores.

Suicide symbols. The "suicidal slash" was scored according to the definition by Virshup (1976). "It is a slip of the pen somewhere on a figure drawing which has no relationship to the continuity of the line. It is an inappropriate marking on the body, apparent, but unnecessary for drawing" (Virshup, 1976, p. 17). These marks were scored on each of the five drawings and the total score was the sum.

Loops occurring alone as part of any drawing and weapons were scored in each of the five drawings. The total score for suicidal symbols was the sum of the scores for slash, loop, and weapon.

Statistical Analyses

Hypothesis 1: High scorers on the Beck Depression Inventory (BDI >18) use fewer colors over all the five drawings than do low scorers. A one-tailed simple t-test was used to test the significance of the difference between the means.

Hypothesis 2: High scorers on the Beck Depression Inventory (BDI >18) leave more blank space over all the five drawings than do lower scorers. A one-tailed simple t-test was used to test the significance of the difference between the mean total Empty Space scores.

Hypothesis 3: High scorers on the Beck Depression Inventory (BDI >18) have more missing essential details on the House, Tree, and Person drawings than do low scorers. A one-tailed simple t-test was used to test the significance of the difference between the mean total Missing Detail scores.

Hypothesis 4: High scorers on the Beck Depression Inventory (BDI >18) include fewer nonessential details on the House, Tree, and Person drawings than do low scorers. A one-tailed simple t-test was used to test the significance

of the difference between the mean total Extra Detail scores.

Hypothesis 5: High scorers on the Beck Depression Inventory (BDI >18) have smaller drawings than do low scorers. A one-tailed simple t-test was used to test the significance of the difference between the mean total size scores.

Hypothesis 6: High scorers on the Beck Depression Inventory (BDI >18) use more shading than low scorers across the five drawings. A one-tailed simple t-test was used to test the significance of the difference between the mean total Shading scores.

Hypothesis 7: The drawings of high scorers on the Beck Depression Inventory (BDI >18) contain more symbols of depression than the drawings of low scorers. A one-tailed simple t-test was used to test the significance of the difference between the mean total Depressive Symbol scores.

Hypothesis 8a: The total Suicidal Symbol score is positively correlated with suicidal ideation. Pearson product moment correlation was performed for the relationship of the total Suicidal Symbol scores to the scores on item 9 of the Beck Depression Inventory. Item 9 assesses the intensity of suicidal ideation.

Hypothesis 8b: The drawings of high scorers on item 9 of the Beck Depression Inventory (BDI9 = 3)

contain more suicidal symbols than the drawings of low scorers (BDI9 = 0). A one-tailed simple t-test was used to test the significance of the difference between the mean total Suicidal Symbol scores.

Hypothesis 9: The stylistic variables significantly discriminate the drawings of high scorers on the Beck Depression Inventory (BDI >18) from lower scorers. A discriminant function analysis was used to predict level of depression from the total scores for Color, Empty Space, Missing Details, Extra Details, Size, and Shading.

RESULTS

Tests of the Stylistic Variables (Hypotheses H1 - H6)

Color (H1). The total scores over the battery range from 1 to 11, $\bar{x} = 5.28$, sd = 3.22. The scores for the Depressed group range from 1 to 10, $\bar{x} = 4.72$, sd = 3.46. The scores for the Nondepressed group range from 0 to 12, $\bar{x} = 5.84$, sd = 3.46. In hypothesis 1 it was predicted that the Depressed group would use fewer colors over the battery than the Nondepressed group. Although the difference between the means is in the predicted direction, it is not significant ($t = -1.22$, $df = 48$). See Table 1.

Empty Space (H2). The total scores over the five drawings for Empty Space range from 3303 to 8630, $\bar{x} = 7134.12$, sd = 1076.34. The scores for the Depressed group range from 5515 to 8630, $\bar{x} = 7445.72$, sd = 901.34, while the scores for the Nondepressed group ranged from 3303 to 8199, $\bar{x} = 6822.52$, sd = 1162.16. In hypothesis 2 it was predicted that individuals who have high Beck Depression Inventory scores would leave more empty space in their drawings than those who have low scores. The means are significantly different in the predicted direction ($t = 2.12$, $df = 48$, $< .05$, one-tailed). See Table 1.

Table 1

t-tests of Stylistic and Content Variables (Hypotheses H1-H8)

	Depressed		Nondepressed				
	$\bar{x}$	sd	$\bar{x}$	sd	df	t	p
Color (H1)	4.72	3.00	5.84	3.46	48	-1.22	.057
Empty Space (H2)	7445.72	901.34	6822.52	1162.16	48	2.12	.0098
Missing Details (H3)	1.44	1.73	.96	1.02	38.8[a]	1.14	.065
Extra Details (H4)	4.76	3.87	6.68	3.73	48	-1.78	.020
Size (H5)	1758.52	1076.63	2160.68	1140.55	48	-1.278	.0518
Shading (H6)	162.64	314.32	454.6	959.45	29.1	-1.445	ns
Depressive Symbols (H7)	1.2	1.32	1.48	1.42	48	- .722	ns
	BDI9 = 3		BDI9 = 0				
Suicide Symbols (H8b)	1.875	1.25	1.615	1.24	48	.54	.148

[a]Computed with df. for unequal variances.

Missing Essential Details (H3). The Missing Essential Detail scores were computed for the House, Tree, and Person drawings. Since no subject left out an essential detail of the Tree drawings, the data presented refers only to the House and Person drawings. The scores range form 0 to 5, $\bar{x} = 1.2$, sd = 1.43. The Missing Detail scores for the Depressed group range from 0 to 5, $\bar{x} = 1.44$, sd = 1.73, while the scores for the Nondepressed group range from 0 to 4, $\bar{x} = .96$, sd = 1.02. Hypothesis 3 stated that the drawings of the Depressed group demonstrate more missing essential details than the Nondepressed group's drawings. The variances of the groups are significantly different, $F = 2.89$, $df = 24$, $p. < 05$. Using a t-test for unequal variances, the difference is not significant though it is in the predicted direction ($t = 1.193$, $df = 38.8$). See Table 1.

Extra Details (H4). The inclusion of Extra Details on the House, Tree, and Person drawings range from 0 to 17, $\bar{x} = 5.72$, sd = 3.89. Hypothesis 4 predicted that high scorers on the Beck Depression Inventory include fewer nonessential or extra details than low scorers. The Extra Detail scores for the Depressed group range from 0 to 17, $\bar{x} = 4.76$, sd = 3.88 and the scores for the Nondepressed group range from 1 to 17, $\bar{x} = 6.68$, sd = 3.73. The difference is significant in the predicted

direction ($t = -1.785$, $df = 48$, $p < .05$, one-tailed. See Table 1.

Size (H5). The Size scores over the five drawings range from 212 to 5767, $\bar{x} = 1959.6$, $sd = 1119.32$. The drawings of the Depressed group were predicted to be smaller than those of the Nondepressed group. The Size scores of the Depressed group range from 212 to 4029, $\bar{x} = 1758.52$, $sd = 1076.63$ and the scores for the Nondepressed group range from 793 to 5767, $\bar{x} = 2160.68$, $sd = 1146.55$. The difference is barely significant, $t = 1.278$, $df = 48$, $p = .0518$. See Table 1.

Shading (H6). The Shading scores over the five drawings range from 0 to 4369, $\bar{x} = 308.62$, $sd = 722.14$. The Shading scores were hypothesized to be greater for the Depressed group than the Nondepressed group. The Shading scores for the Depressed group range from 0 to 1349, $\bar{x} = 162.64$, $sd = 314.32$ and the scores for the Nondepressed group range from 0 to 4369, $\bar{x} = 454.6$, $sd = 959.95$. The difference is not in the direction predicted and hypothesis 6 is not supported here. The difference in the variances is significant, $F = 9.33$, $df = 24,24$, $p = .0001$, such that the Nondepressed group has almost three times the variability of the Depressed group. See Table 1.

Tests of the Content Variables (Hypotheses H7, H8a, H8b)

Depressive Symbols (H7). The total scores for the symbols of depression over the five drawings range from 0 to 5, $\bar{x}$ = 1.34, sd = 1.36. The scores for the Depressed group range from 0 to 4, $\bar{x}$ = 1.2, sd = 1.32, while the scores of the Nondepressed group range from 0 to 5, $\bar{x}$ = 1.48, sd = 1.42. The difference between the means is not in the direction predicted by Hypothesis 7. See Table 1.

Suicide Symbols (H8a, H8b). Hypothesis 8a predicted a significant positive association between the total number of suicide symbols over the battery and the score on the suicide ideation item of the Beck Depression Inventory. This study found a Pearson product moment correlation of .147, p = .30. The correlation is not significant.

Hypothesis 8b predicted that people who assert that they would kill themselves if they had a chance have higher total Suicide Symbol scores than those who do not make that assertion. The suicide symbol scores range from 0 to 6, $\bar{x}$ = 1.74, sd = 1.35. In the sample, eight subjects were identified as high BDI suicide item scorers. Their suicide symbol scores range from 0 to 4, $\bar{x}$ = 1.875, sd = 1.246. Twenty-six subjects indicated that they do not have any thoughts of killing themselves. Their suicide symbol scores range from 0 to 6, $\bar{x}$ = 1.615, sd = 1.24. Although the difference is in the

predicted direction, it is not significant ($t = .524$, $df = 48$). See Table 1.

Discriminant Analysis (H9)

The last hypothesis (H9) stated that the six stylistic variables, Color, Empty Space, Missing Essential Details, Extra Details, Size, and Shading, taken together, significantly discriminate the drawings of Depressed from Nondepressed subjects. This hypothesis was not supported by the data of this study. Together, the variables account for only 13 percent of the variance, $R^2 = .133$, $F = 1.11$, $p. = .37$. Of the fifty subjects, the discriminant function misclassified 17 (34%). The misclassified cases were about equally split between those who were depressed but classified by the discriminant function of drawing variables as Nondepressed (8) and those who were not depressed but were incorrectly classified by the discriminant function as Depressed (9). See Table 2.

Table 3 reports the within group (Depressed vs. Nondepressed) correlation matrices for the eight variables of the study. Many of the variables are significantly correlated. A significance test of the correlation matrices shows the intercorrelations to be higher than expected by chance, Depressed group $\chi^2 = 98.15$, $df = 28$, $p < .0001$, Nondepressed group $\chi^2 = 175.44$, $df = 28$, $p. < .0001$.

Table 2

Discriminant Function Analysis Using Style Variables to Predict Group (H-9)

Source	df	SS	MS	R^2	F	p
Model	6	1.672	.279	.134	1.11	.3742
Error	43	10.828	.252			

Table 3

Correlation Coefficients for Variables by Group

Variable	Size	Empty Space	Shading	Missing Details	Extra Details	Suicide Symbols	Depressive Symbols	Color
Depressed Group								
Size	1.0							
Empty Space	-.875[a]	1.0						
Shading	.51[a]	-.623[a]	1.0					
Missing Details	-.193	.110	-.148	1.0				
Extra Details	.652[a]	-.571[a]	.275	-.400[a]	1.0			
Suicide Symbols	.347[a]	-.262	.068	-.187	.610[b]	1.0		
Depressive Symbols	.363	-.207	.038	-.294	.310	.232	1.0	
Color	.803[a]	-.745[a]	.640[a]	-.295	.580[a]	.250	.297	1.0

Table 3--continued

Variable	Size	Empty Space	Shading	Missing Details	Extra Details	Suicide Symbols	Depressive Symbols	Color
Nondepressed Group								
Size	1.0							
Empty Space	-.846[a]	1.0						
Shading	.887[a]	-.856[a]	1.0					
Missing Details	.024	.077	.020	1.0				
Extra Details	.527[a]	-.490[a]	.456[a]	.409[a]	1.0			
Suicide Symbols	-.056	.230	-.144	.331	-.539[b]	1.0		
Depressive Symbols	.480[a]	-.419[a]	.465[a]	-.101	.480[a]	-.225	1.0	
Color	.591[a]	-.564[a]	.510[a]	.010	.626[a]	-.249	.271	1.0

[a]Probability of the correlation occurring by chance within a group is less than .05.

[b]Probability of the difference between the correlations of the Depressed and Nondepressed groups occurring by chance is less than .05.

Other Analyses

Group Differences in the Intercorrelations Among Variables.

Table 3 shows the correlation matrices of the content and stylistic variables separately for the Depressed and Nondepressed groups. Suicide Symbol scores are associated differently with the stylistic variables for Depressed and Nondepressed subjects. For the Depressed group a greater number of suicide symbols in drawings is associated with the following individual style variables: more size, less empty space, fewer missing details and more extra details. In contrast, in the Nondepressed group higher Suicide Symbol scores are associated with more empty space, more missing details and fewer extra details. The difference between the correlations of Suicide Symbols total scores and Extra Details for the Depressed and Nondepressed groups is highly significant. The Depressed group correlation ($r = .609$, $Z_r = .7073$) and the Nondepressed group correlation ($r = -.538$, $Z_r = -.6013$) are significantly different ($z = 4.3417$, $p = .000025$).

Unit

Since subjects were drawn from inpatient psychiatric and outpatient clinics, analyses were performed on the eight variables to determine whether there are significant differences between these groups. Multiple

regression analysis, using the Max R method, found no variable or combination of variables to be significantly associated with inpatient or outpatient group membership.

Age

Multiple regression analyses were performed in order to determine whether or not any variables or any combination of the eight variables is significantly associated with age. No variable or combination of variables significantly predicts age.

ANOVAs for Stylistic Variables

An analysis of variance was computed for each of the stylistic variables: Color, Shading, Empty Space, Extra Details, Missing Details, and Size. The design was a 2 X 2 X 5 model with two between subjects variables and one within subject variable. The two between subject variables were Unit (Inpatient, Outpatient) and Group (Depressed, Nondepressed). The within subject variable was Drawing (House, Tree, Person, Family, Free). Main effects for the within variable, Drawing, were not particularly noteworthy in these analyses since it is expected that the type of drawing will produce significant differences among Group and Unit merely by the differences in the subject matter of each drawing. For example, no subject from either group left out an essential detail from the Tree drawing. The most parsimonious

explanation for this Drawing effect may be that it is much easier to draw a whole tree than either a house or person. The tree has fewer essential details.

Table 4 shows the analysis of variance table for Color. There are no significant effects beyond the main effect for Drawing. Similarly, Table 5, the analysis of variance table for Size, has no significant effects other than the main effect for Drawing. The analysis of variance for Missing Essential Details was computed on only the House and Person drawings since the Missing Detail score was only computed for the House, Tree, and Person drawings and no subject omitted an essential detail from the Tree drawing. The only significant effect is a main effect for drawing: subjects omitted more details from the Person than from the House drawing (Table 6). The analysis of variance for Extra Detail scores was computed on the House, Tree, and Person drawings (Table 7). A significant main effect for Drawing was found such that subjects include most extra details on the Person, the House, and least on the Tree drawing. There are no other significant effects. The analysis of variance on Shading (Table 8) found no significant effects.

The analysis of variance of Empty Space (Table 9) found significant main effects for Group and Drawing, a significant interaction of Group and Drawing and a second-order interaction between Unit, Drawing, and Group.

Table 4

Analysis of Variance for Color

	df	ss	MS	F	p
Unit (Inpatient-Outpatient)	1	9.01	9.01	.87	.356
Group (Depressed-Nondepressed)	1	23.98	23.98	2.33	.134
Unit X Group	1	3.36	3.36	.32	.574
Subjects (groups)	46	473.80	10.3		
Drawing	4	22.67	5.67	2.73	.030
Unit X Drawing	4	4.0	1.00	.48	.750
Group X Drawing	4	5.07	1.27	.61	.656
Unit X Group X Drawing	4	8.95	2.24	1.08	.367
Drawing X Subject (group)	229	476.41	2.08		

Table 5

Analysis of Variance for Size

	df	ss	MS	F	p
Unit (Inpatient-Outpatient)	1	148124.13	148124.13	.586	.448
Group (Depressed-Nondepressed)	1	499340.95	499340.95	1.976	.167
Unit X Group	1	15027.82	15027.82	.059	.809
Subjects (group)	46	11624002.58	252695.7		
Drawing	4	901029.87	225257.46	4.65	.001
Unit X Drawing	4	173155.31	43288.83	.89	.471
Group X Drawing	4	215938.78	53984.70	1.11	.353
Unit X Group X Drawing	4	222213.52	55553.38	1.15	.334
Drawing X Subject (group)	229	11090128.27	48428.51		

Table 6

Analysis of Variance for Missing Details

	df	ss	MS	F	p
Unit (Inpatient-Outpatient)	1	.02	.02	.02	.888
Group (Depressed-Nondepressed)	1	.46	.46	.44	.510
Unit X Group	1	.61	.61	.58	.450
Subjects (groups)	46	47.94	1.042		
Drawing	1	11.18	11.18	30.22	<.0001
Unit X Drawing	1	.005	.005	.01	.921
Group X Drawing	1	.21	.21	.57	.452
Unit X Group X Drawing	1	.023	.023	.06	.807
Drawing X Subject (group)	92	34.44	.37		

Table 7

Analysis of Variance for Extra Details

	df	SS	MS	F	p
Unit (Inpatient-Outpatient)	1	.44	.44	.089	.767
Group (Depressed-Nondepressed)	1	12.996	12.996	2.62	.112
Unit X Group	1	3.24	3.24	.653	.423
Subjects (group)	46	228.09	4.958		
Drawing	2	93.63	46.85	10.62	<.0001
Unit X Drawing	2	2.50	1.25	.28	.756
Group X Drawing	2	5.25	2.625	.59	.556
Unit X Group X Drawing	2	4.14	2.07	.469	.62
Drawing X Subject (group)	138	608.69	4.41		

Table 8

Analysis of Variance for Shading

	df	ss	MS	F	p
Unit (Inpatient-Outpatient)	1	161431.19	161431.19	1.60	.212
Group (Depressed-Nondepressed)	1	304785.86	304785.86	3.029	.088
Unit X Group	1	3261.42	5261.42	.03	
Subjects (group)	46	4628462.61	100618.75		
Drawing	4	82564.5	20641.125	2.025	.092
Unit X Drawing	4	96403.55	24100.89	2.36	.054
Group X Drawing	4	77108.77	19277.19	1.89	.113
Unit X Group X Drawing	4	82264.60	20566.15	2.018	.093
Drawing X Subject (group)	229	2334023.21	10192.24		

Table 9

Analysis of Variance for Empty Space

	df	ss	MS	F	p
Unit (Inpatient-Outpatient)	1	484299.57	484299.57	2.35	.132
Group (Depressed-Nondepressed)	1	1484738.74	1484738.74	7.21	.010
Unit X Group	1	239.82	239.82	.001	.975
Subjects (group)	46	9470406.59	205878.4		
Drawing	4	1763283.27	440820.8	8.65	<.0001
Unit X Drawing	4	408958.79	102239.69	2.01	.094
Group X Drawing	4	681062.78	170265.69	3.34	.011
Unit X Group X Drawing	4	753854.49	188463.62	3.70	.006
Drawing X Subject (group)	229	11669507.25	50958.54		

Table 10

Bonferonni t-Tests for Empty Space

		House	Tree	Person	Family	Free
Depressed Inpatients	$\bar{x}$	1519.727	1434.68	1579.09	1470.19	1431.36
Depressed Outpatients	$\bar{x}$	1661.33	1625.67	1637.67	1490.33	1599.0
	t	-1.02	-1.38	- .42	.145	-1.207
Depressed Inpatients	$\bar{x}$	1519.73	1434.68	1574.09	1470.19	1431.36
Nondepressed Inpatients	$\bar{x}$	1417.14	1462.57	1574.44	725.57	1207.86
	t	1.05	- .285	.23	7.549[a]	2.283
Depressed Inpatients	$\bar{x}$	1519.73	1434.68	1579.09	1470.19	1431.36
Nondepressed Outpatients	$\bar{x}$	1460.11	1433.61	1496.44	1340.06	1261.56
	t	.83	.015	1.15	1.788	2.367
Depressed Outpatients	$\bar{x}$	1661.33	1625.67	1637.67	1490.33	1599.0
Nondepressed Inpatients	$\bar{x}$	1417.14	1462.57	1574.14	725.57	1207.86
	t	1.57	1.05	.408	4.91[a]	2.511

Table 10--continued

		House	Tree	Person	Family	Free
Depressed Outpatients	$\bar{x}$	1661.33	1625.67	1637.67	1490.33	1599.0
Nondepressed Outpatients	$\bar{x}$	1460.11	1433.61	1496.44	1340.06	1261.56
	t	1.43	1.35	1.003	1.067	2.397
Nondepressed Inpatients	$\bar{x}$	1417.14	1462.57	1574.14	725.57	1207.86
Nondepressed Outpatients	$\bar{x}$	1460.11	1433.61	1496.44	1340.06	1261.56
	t	- .47	.29	.77	-6.102[a]	- .53

[a] $p < .05$.

The Bonferroni t was used to analyze the significant second-order interaction of Group X Unit X Drawing for Empty Space. Thirty contrasts were performed in order to look for differences between Depressed and Nondepressed Inpatients and Outpatients for each of the five drawings. The per experiment error rate was set at .05, resulting in a per comparison alpha of .001. The results of these analyses appear in Table 10. The means within each drawing are remarkably consistent across groups. The only exception is the Kinetic Family Drawing where the Nondepressed Inpatient subjects left less empty space than the other groups. Their Empty Space scores were significantly lower than the Depressed Inpatient group ($t = 7.547$, $df = 229$, $p<.001$), the Depressed Outpatient group ($t = 4.91$, $df = 229$, $p<.001$), and the Nondepressed Outpatients ($t = 6.102$, $df = 229$, p .001).

DISCUSSION

This research was stimulated by the work of Wadeson (1980) who examined the art work of patients and staff at the National Institute of Mental Health. In particular, this study was conducted in order to substantiate some of Wadeson's findings about the drawings of depressives. Methodologically, it differed from Wadeson's study in several key ways. First, Wadeson's qualitative variables were objectively defined so that in this study each variable was scored quantitatively. Secondly, a battery of drawings was used which included four standard drawings in addition to Wadeson's single free drawing. Finally, while in Wadeson's study subjects were hospitalized depressed patients tested when they were judged to be on their most and least depressed days, in this study, subjects were high and low scorers on the Beck Depression Inventory.

In the present study, the results of the significance tests of the stylistic variables adapted from Wadeson's (1980) research give support to some of the hypotheses. Over the five drawings of the subjects of the Depressed group there was more empty space than in the five drawings of the Nondepressed group. This finding, using an

objective score to represent the empty area in all five drawings, replicated Wadeson's finding that the drawings of depressed people are emptier when they are more depressed than when they are less depressed. Further, on the component score of the House, Tree, and Person drawings the drawings of the Depressed group had fewer extra details than the Nondepressed group. Since elaboration was used here as a measure of effort invested in the drawings, this finding corroborated Wadeson's finding that the drawings of depressed people demonstrate less effort when patients are more depressed than when they are less depressed.

For the remaining stylistic variables adapted from Wadeson's (1980) qualitative variables, there was less evidence to support the hypotheses. Wadeson (1980) found that on their most depressed day subjects were judged to have used less color in their drawings. Here the Depressed group used fewer different colors over the five drawings than the Nondepressed group as predicted, but the difference was not significant. Wadeson (1980) found that drawings made on highly depressed days were judged to be less complete than on less depressed days. In this study, the House, Tree, and Person drawings of the Depressed group contained more missing essential details than the drawings of the Nondepressed group, but this difference was not significant. Finally, the five drawings

of the Depressed group were smaller than the five drawings of the Nondepressed group, and the difference is not quite significant. Likewise, Wadeson (1980) found a trend toward more constriction in the drawings of the high depression days compared with the low depression days. Thus, the differences in the group means of the quantitative variables used here, Color, Missing Details, and Size, were in the direction predicted by adapting Wadeson's qualitative variables: Color, Completeness, and Constriction, although the differences did not quite reach statistical significance.

In contrast to the results of the five stylistic variables adapted from Wadeson, the results of the analyses of the shading variable contradicted the relationship hypothesized here between shading and depression. It was hypothesized that depressed subjects would use more shading than the nondepressed subjects, but the depressed subjects actually used somewhat less shading than the nondepressed subjects. The difference in means was not significant. However, there was significantly more variability of the shading scores in the Nondepressed group than in the Depressed group. Thus, the interpretation of the use of shading may be complex and not very useful in individual cases.

It was predicted that all six stylistic variables together would significantly discriminate the drawings

of depressed and nondepressed subjects. The prediction was not borne out by the results of this study. The six stylistic variables can account for only 13% of the variance between groups. The strong intercorrelations among the variables reduced the individual contributions of the variables and their collective power of prediction. Therefore, predictions made on the basis of all six variables did not improve on the predictions made by the variables alone.

In summary, the results of the analyses of the stylistic variables suggest that two of the variables alone are useful in discriminating the drawings of depressed from normal people. These are Empty Space, a measure of the area of unmarked paper including space within figures, and Extra Details, a measure of elaboration beyond the expected details of the House, Tree, and Person drawings. Three of the stylistic variables, Color, Size, and Missing Details may be related to Beck Depression Inventory scores in the manner predicted, but the relationship appears to be weaker. The Shading variable produced results opposite to what was predicted; that is, Depressed subjects used less shading than Nondepressed subjects and the variances were significantly different. Therefore, Shading might best be dropped from consideration in future research on depression.

The analysis of the content variables suggests that they are not related to depression in the manner predicted. The Depressive Symbol scores, the sum on the scores of Water, lack of a Smile on the Person drawing, Spiral, and Isolation on the Family drawing, did not significantly differentiate groups. These symbols were relatively rare in the batteries of both groups and their occurrence did not appear to suggest either depression or lack thereof. The frequency of Suicidal Symbols, Slash, Weapon, and Loop, was similarly low in the batteries of the Depressed and Nondepressed groups. The score appears to bear little relation to the items regarding suicidal intent in the Beck Depression Inventory. Thus, the meaning or interpretation of the content variables is not readily apparent. It is noteworthy that the content variables, especially the presence of suicidal symbols, is associated with the style variables in a different manner in the Depressed and the Nondepressed groups. In the Depressed group, Loops, Slashes, and Weapons were associated with more energetic drawings. That is, these symbols were associated with bigger, less empty, more elaborate, more complete drawings. In contrast, in the Nondepressed group, the symbols were associated with less complete, less elaborated, emptier drawings. This suggests that the symbols may have a more complex relationship

to other drawing factors and to depression than was originally hypothesized.

In addition to testing specific hypotheses regarding characteristics of the drawings of depressed individuals, this study was undertaken in order to test the feasibility and usefulness of some methods of scoring drawing variables, administering drawings, and rating depression. The methodology employed here appears to have some strengths and weaknesses in comparison with past research. A primary strength is the objective operational definitions of the variables. For example, the Empty Space score, the sum of the blank area over the five drawings, appears to have represented what raters in Wadeson's study called "emptiness." Further, "completeness or effort" appears to be adequately represented by two scores, one representing the sum of the missing essential details and the other representing the number of contents beyond the essential details. Even though the variables Color and Size did not significantly discriminate between the drawings of high and low scorers on the Beck Depression Inventory, they may be useful objective indices of the qualitative variables used by Wadeson, Color and Constriction.

However, certain qualitative variables are very difficult to quantify. For example, in this study, no attempt was made to find objectively defined stylistic

variables to represent Wadeson's "depressive affect" or "less affect." The content variable, Depressive Symbols, was intended to address affective issues, but was not successful in discriminating groups and probably was not successful in extracting the characteristics which raters use to make global judgments of affect. Clearly, more research is needed to evaluate the usefulness of the stylistic variables defined here and to develop more ways to measure the characteristics which comprise successful qualitative judgments.

Another methodological issue is the use of a number of drawings rather than a single drawing. An obvious drawback is that the administration, scoring, and analysis of the battery is a more lengthy process for the subject and examiner than a single drawing. However, in this study the battery was shown to be indispensable for aspects of the analysis. For example, the House, Tree, and Person drawings were necessary in determining the Missing Detail and Extra Detail scores. Further, with the exception of the Shading variable, each of the stylistic variables was significantly affected by the type of drawing. This suggests that the variable norms may differ by the type of drawing and that when comparing results between individuals or between studies, the results are only comparable when the subject matter is the same. Comparing the results of a study using Person

drawings with the results of a study using a Family drawing may be like comparing apples and oranges.

The last methodological issue does not concern the drawings or drawing measures, but rather the manner in which groups are identified for comparison. Wadeson used psychiatrists' subjective appraisals of level of depression. Wright and McIntyre (1982) used inpatient psychiatric patients and nonpatients as well as a self-report rating scale. This study used the Beck Depression Inventory. The problems with using raters to judge level of depression are achieving satisfactory inter-rater reliability within a study and allowing for comparison across studies. The self-rating scale was chosen here for the advantage of having available normative data for separating groups and for comparing across studies. However, the self-rating scales may be strongly influenced by conscious and unconscious self-presentational issues. The self-presentational issues may have been particularly influential in the protocols of the VA subjects of this study. The VA setting and regulations may tend to elicit certain response styles even more strongly than other medical and mental health settings. For example, the eligibility requirements for receiving benefits and free mental health services may encourage the exaggeration or dramatization of symptomology. On the other hand, medical patients may tend to down play

their psychological problems. Even though it was stressed to each subject that participation or lack of participation in this study would not affect their medical or mental health treatment in any way, the self-presentational issues cannot be ruled out as influencing responses on the Beck Depression Inventory.

Future research on the characteristics of depression or other types of psychopathology on drawings might compare drawing variables with other projective indices in addition to diagnostic labels and self-rating scale scores. For example, Rorschach variables of the Comprehensive System (Exner, 1974, 1978) may be more useful in validating drawing variables than self-rating scales because similar conscious and unconscious processes may be presumed to be involved in both projective tests. Several Rorschach variables have been demonstrated to be related to aspects of depression (Exner, 1974, 1978, 1982). These may be related to the stylistic variables, Color, Empty Space, Missing Details, Extra Details, and Size. The Suicide Constellation of Rorschach variables, intended to predict impending self-destructive acts, may provide some clues about the process which may have been tapped by the Suicide Symbol variable used here. If the Rorschach was used in addition to clinical ratings and a self-rating scale such as the Beck Depression Inventory or the MMPI, the results of the relationship between the

drawing variables and the depression measures could be compared to determine which measures are most compatible with the drawing measures.

In summary, this study provides some support to the specific hypotheses about the characteristics of depressed peoples' drawings. Depressed people have more empty space in their drawings and use less elaboration than nondepressed people. Further, there is support for continued exploration of objective stylistic indices of drawings. Considerations for future research include comparing drawing variables with variables of the Rorschach as well as with self-rating scales and clinical ratings of psychopathology.

APPENDICES

APPENDIX A

ESSENTIAL DETAILS AND EXTRA DETAILS

HOUSE

Essential Details (Ogden, 1975)

Door

Window

Wall

Roof

Extra Details

Flowers

Grass

Tree, shrubs

Door knob

Carport

Chimney

Birds

Walkway

Porch

Driveway

Fence, boundary

Something inside the house

Air conditioner

Front steps

Sun

Sky

Pet

Hill

TREE

Essential Details (Ogden, 1975)

Trunk

Branch

Extra Details

Cones

Snow

Sprinkler

Presents

Decorations

Fruit

Grass

Flowers

Ground

Person

Birds

Roots

PERSON

Essential Details (Ogden, 1975)

Head

Trunk

Legs

Arms

Eyes

Nose

Mouth

Ears

Extra Details

Hands

Feet

Clothes Articulation

Furniture

Neck

Hair

Eyebrows

Purse

Flowers

Grass

Genitalia

Breasts

Book

Symbols

Weapon

APPENDIX B

CASE EXAMPLES

CASE EXAMPLES

Case #1

This patient was referred by a physician of the General Medical Outpatient Clinic. He was wheelchair-bound with rheumatoid arthritis and had very little manual dexterity because of the arthritis in his hands. In the interview, this man spoke easily of his early family life and of his own family. After the death of his first wife, this subject remarried and has lived happily with her. The subject's Beck Depression Inventory score placed him in the Nondepressed group. The drawings are characterized by light strokes and free use of color and elaboration. The Family drawing and Person drawing show some body distortion without any missing details. These drawings are somewhat more difficult than the other drawings for all subjects and this person's hand coordination handicap may partially account for the relatively poor drawings. However, the very graceful Free drawing of the deer in the woods suggests that the people drawings may also reflect a projection of this person's physical self-image. Nonetheless, in general these drawings are representative of those who, by their Beck Depression Inventory scores, and by their own report in an interview are positively adjusted and at ease.

Case #2

This patient was seen on the Inpatient Psychiatric Unit. He was admitted to the ward following a suicide attempt. He said that he had been depressed for two years. In the interview, he gave very little information about his life that related to his feelings of depression and was minimally responsive. He said that he had been the middle child in a very large family. At the time of testing, his marriage was intact and he had two children. This patient scored 45 on the Beck Depression Inventory, placing his drawings in the Depressed group. In contrast to the Nondepressed batteries, this battery of drawings shows a sparse use of color and elaboration and more empty space. The stick figure Person drawing reflects his negativism and lack of effort. The last drawing depicts this patient's avowed intention to kill himself by hanging.

Case #3

This patient was seen at the General Medical Outpatient Clinic. He has chronic heart disease, diabetes, and undiagnosed abdominal pain. He scored 7 on the Beck Depression Inventory placing him in the Nondepressed group. In the interview this patient volunteered that several friends had died within a month of the testing and that he no longer participates in his only hobby because of fatigue and "self-disgust." The stylistic features of

this battery are more typical of the drawings of depressed than nondepressed people. That is, his use of color and elaboration are limited. The drawings are constricted and leave much blank space. Althougn this patient's Beck Depression Inventory score is low, he revealed recent losses, diminished interests, fatigue, and low self-esteem which suggest that he was indeed more dysphoric than the self-report score reveals.

Case #4

This patient's battery is not typical of either the Depressed or the Nondepressed group and has some characteristics of each. He scored 32 on the Beck Depression Inventory which placed him in the Depressed group. He reported "flashbacks" from Viet Nam combat experiences, suicidal ideation and "nerves" as the reasons for his hospitalization and gave a history of polydrug and alcohol abuse and dependency. His mother died when he was two years old and he was cared for by an aunt until he entered military school at seven years old. He has been married six times and was in the process of separating from his wife at the time of the testing. The drawings are large, colorful and highly elaborated. There is little empty space and much shading. These are characteristics of the drawings of nondepressed people. However, the drawings also indicate conflict and carelessness. The facial expressions of some of the people are notably negative and

there is a missing detail on the Person drawing. The background information suggests that this patient's feelings of depression may be related to a characterological disturbance, including strong emotional reactivity, anger, and impulsivity in contrast to an apathetic, listless, withdrawn depression exhibited by the majority of the depressed subjects in this study.

SUMMARY OF SCORES ON CASE #1

BDI = 4

Total Color = 9

Total Size = 1825

Total Empty Space = 7159

Total Shading = 376

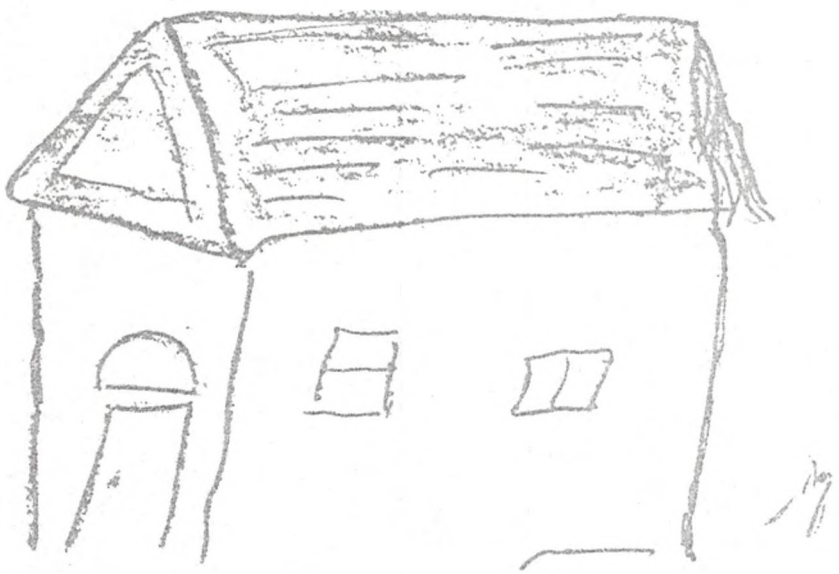
Total Missing Details = 0

Total Extra Details = 11

Total Suicide = 0

Total Depress = 1

	House	Tree	Person	Family	Free
Color	5	3	1	2	7
Size	557	374	225	159	510
Empty Space	1252	1419	1604	1611	1273
Shading	154	51	13	8	150
Missing Details	0	0	0	-	-
Extra Details	4	3	4		



SUMMARY OF SCORES ON CASE #3

BDI = 7

Total Color = 2

Total Size = 1038

Total Empty Space = 7946

Total Shading = 115

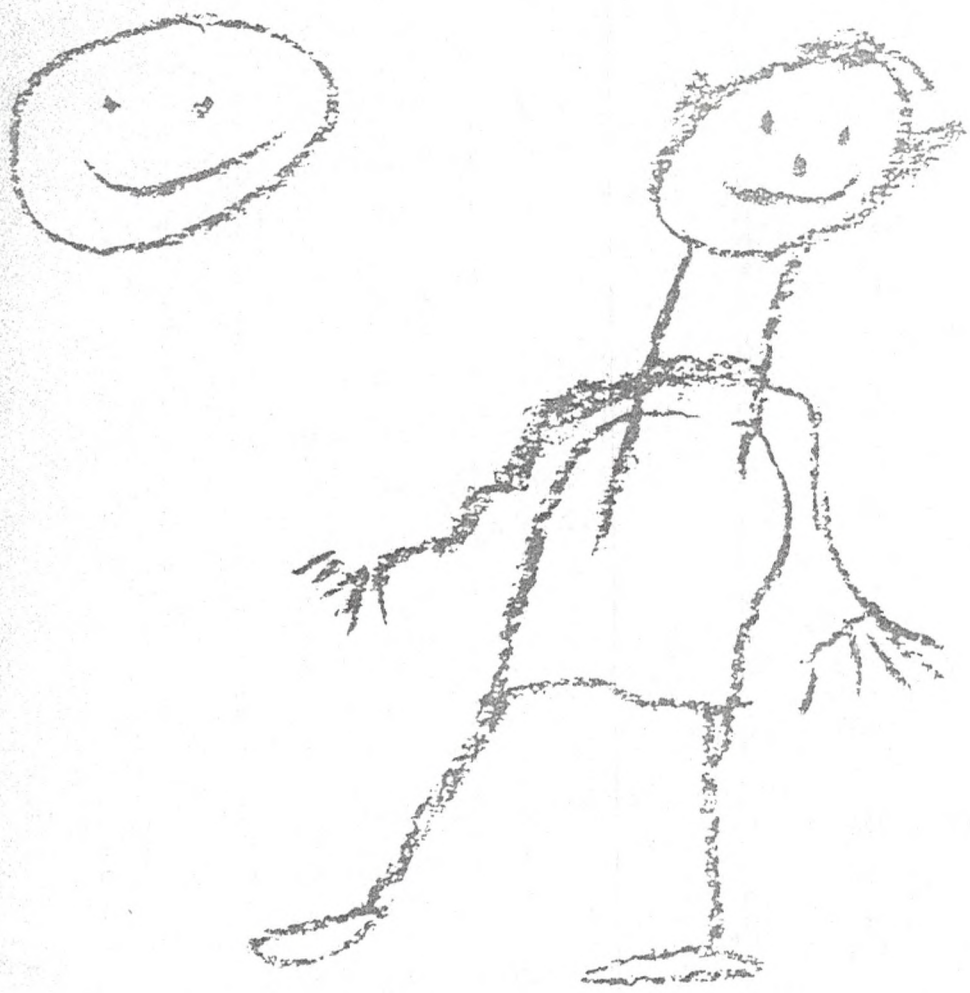
Total Missing Details = 0

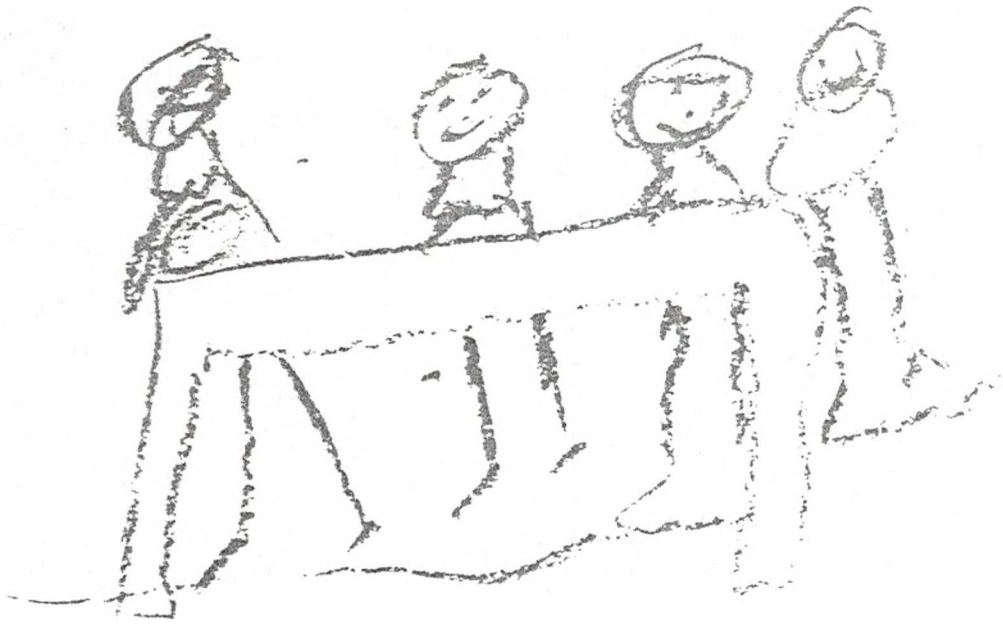
Total Extra Details = 6

Total Suicide Symbols = 1

Total Depressive Symbols = 1

	House	Tree	Person	Family	Free
Color	1	1	1	1	1
Size	99	117	307	351	164
Empty Space	1682	1647	1522	1495	1600
Shading	10	25	5	7	68
Missing Details	0	0	0	-	-
Extra Details	2	0	4		





SUMMARY OF SCORES ON CASE #4

BDI = 32

Total Color = 9

Total Size = 3796

Total Empty Space = 5746

Total Shading = 362

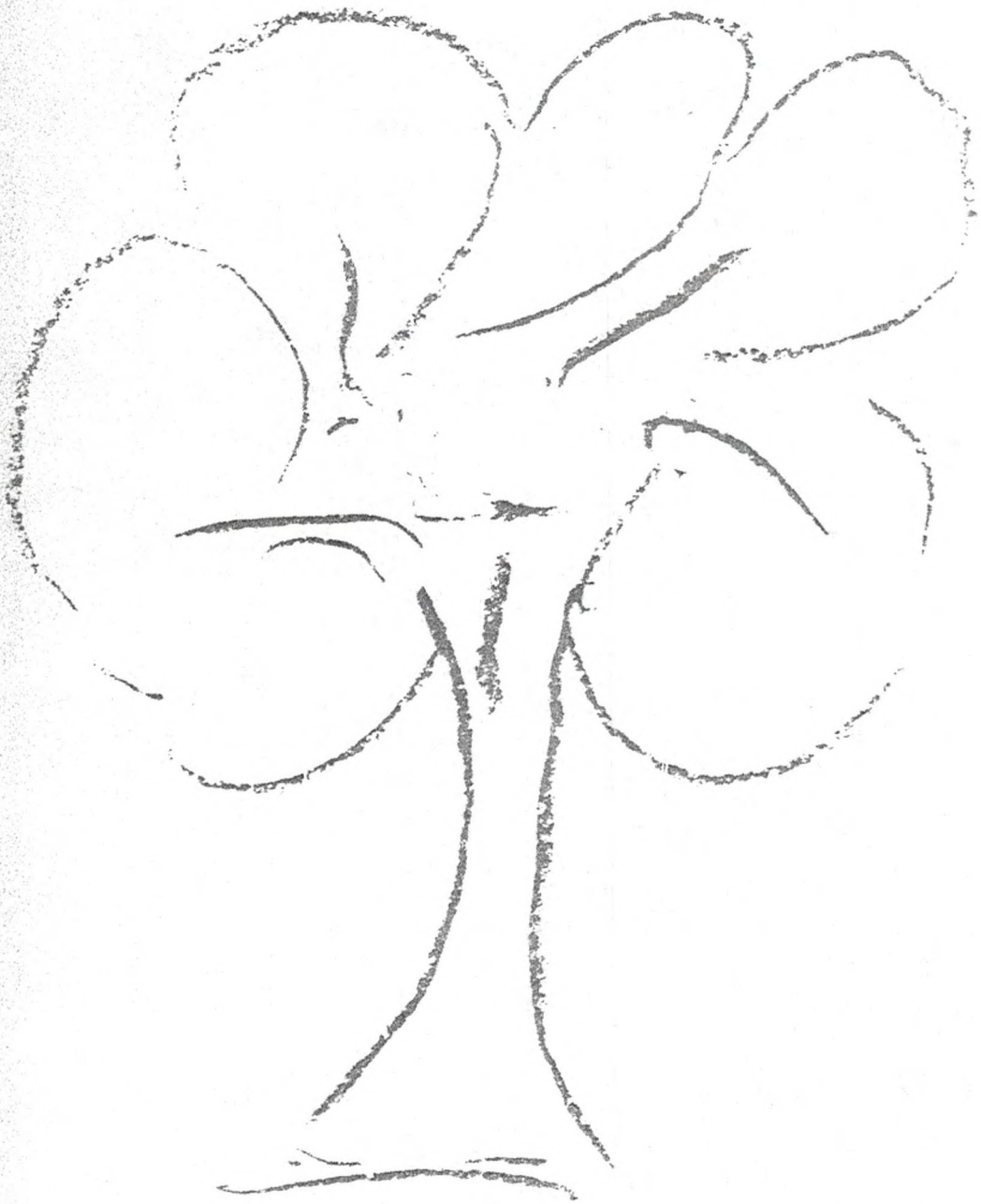
Total Missing Details = 1

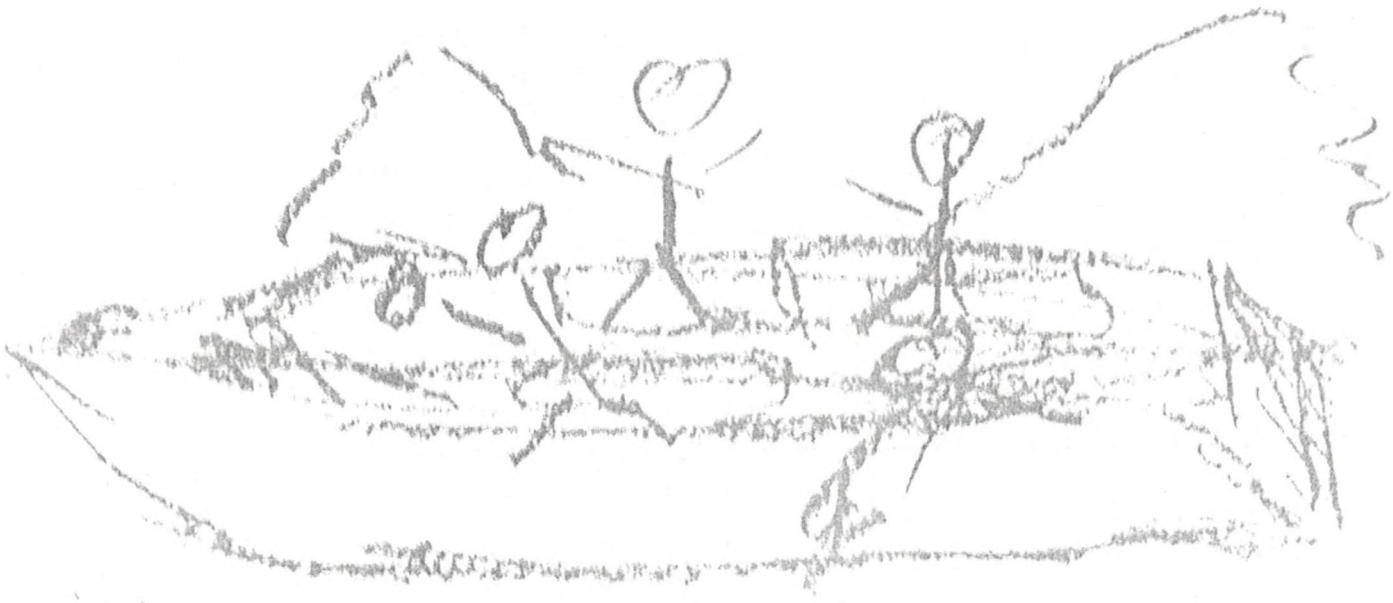
Total Extra Details = 17

Total Suicide Symbols = 4

Total Depressive Symbols = 1

	House	Tree	Person	Family	Free
Color	7	3	1	2	5
Size	1312	761	537	705	481
Empty Space	649	1393	1265	1145	1294
Shading	128	0	62	101	71
Missing Details	0	0	1	-	-
Extra Details	11	1	5	-	-





REFERENCES

REFERENCES

Beck, A. T. (1967). Depression: Causes and treatment. Philadelphia: University of Pennsylvania Press.

Bennett, V. (1964). Does size of figure drawing reflect self-concept? Journal of Consulting Psychology, 28, (3), 285-286.

Brannigan, G. G., Schofield, J. J., & Holz, R. (1982). Family drawings as measures of interpersonal distance. Journal of Social Psychology, 117, 155-156.

Buck, J. N. (1948). The H-T-P technique: A qualitative and quantitative scoring manual. Journal of Clinical Psychology, 4, 317-396.

Burns, R. C., & Kaufman, S. H. (1970). Kinetic family drawings (K-F-D). NY: Brunner/Mazel.

Burns, R. C., & Kaufman, S. H. (1972). Actions, styles and symbols in kinetic family drawings (K-F-D): An interpretive manual. NY: Brunner-Mazel.

Chapman, L. J., & Chapman, J. P. (1967). Genesis of popular but erroneous psychodiagnostic observations. Journal of Abnormal Psychology, 72, 193-204.

Dax, E. (1953). Experimental studies in psychiatric art. London: Faber & Faber.

Elin, N., & Nucho, A. O. (1979). The use of kinetic family drawings as a diagnostic tool in assessing the child's self concept. Art Psychotherapy, 6, 241-247.

Exner, J. E. (1962). A comparison of the human ficure drawings of psychoneurotics, character disorders, normals, and subjects experiencing experimentally induced fear. Journal of Projective Techniques, 26, 292-297.

Exner, J. E. (1974). The Rorschach: A comprehensive system. Vol. 1. NY: John Wiley & Sons.

Exner, J. E. (1978). The Rorschach: A comprehensive system. Vol. 2. NY: John Wiley & Sons.

Exner, J. E. (1982). The Rorschach: A comprehensive system Vol. 3. NY: John Wiley & Sons.

Falk, J. D. (1981). Understanding children's art: An analysis of the literature. Journal of Personality Assessment, 45(5), 465-472.

Gardner, H. (1980). Artful scribbles: The significance of children's drawings. NY: Basic Books.

Hammer, E. F. (1958). The clinical application of projective drawings. Springfield, Ill.: C. Thomas.

Hammer, E. F. (1969). DAP: Back against the wall? Journal of Consulting and Clinical Psychology, 33, 151-157.

Hiler, E. W., & Nesvig, D. (1965). An evaluation of criteria used by clinicians to infer pathology from

figure drawings. Journal of Consulting and Clinical Psychology, 29, 520-529.

Holz, R., Brannigan, G. G., & Schofield, J. J. (1981). The Kinetic Family Drawing as a measure of interpersonal distance. Journal of Genetic Psychology, 137, 307-308.

Koppitz, E. M. (1966). Emotional indicators in human figures drawings of children: A validation study. Journal of Clinical Psychology, 22, 313-315.

Koppitz, E. M. (1968). Psychological evaluation of children's human figure drawings. NY: Grune and Stratton.

Korchin, S. J. (1976). Modern clinical psychology. NY: Basic Books.

Kramer, E. (1971). Art as therapy with children. NY: Schoken.

Kris, E. (1952). Psychoanalytic exploration in art. NY: International Universities Press.

Kwiatkowska, H. (1978). Family therapy and evaluation through art. Springfield, Ill.: Thomas.

Landgarten, H. B. (1981). Clinical art therapy. NY: Brunner-Mazel.

Lewinsohn, P. M., & May, J. A. (1963). A technique for the judgment of emotion from figure drawings. Journal of Projective Techniques, 27, 79-85.

Lewinsohn, P. M. (1964). The relationship between human figure drawings and depression in psychiatric patients. Journal of Consulting Psychology, 28, 380-381.

Lewinsohn, P. M. (1965). Psychological correlates of overall quality of figure drawings. Journal of Consulting Psychology, 29, 504-512.

Machover, K. (1949). Personality projection in the drawing of the human figure. Springfield, Ill.: Charles C. Thomas.

Naevestad, M. (1977). The colors of rage and love: The process of love and change in psychotherapy elucidated by the patient's own drawings. Oslo, Norway: Universitetsforlaget.

Ogden, D. P. (1975). Psychodiagnostics and personality assessment. Los Angeles: Western Psychological Services.

Perry, J. W. (1973). The creative element in madness. Art Psychotherapy, 1, 61-65.

Reitman, F. (1950). Psychotic art. London: Rutledge & Kegan Paul.

Roback, H. G., & Webersinn, A. (1966). The size of figure drawings of depressed psychiatric patients. Journal of Abnormal Psychology, 71, 416.

Roback, H. B. (1968). Human figure drawings: Their utility in the clinical psychologist's armamentarium for personality assessment. Psychology Bulletin, 70, 1-19.

Robbins, A. (1980). Expressive therapy. NY: Human Services Press.

Salzman, L. F., & Harway, N. I. (1967). Size of figure drawing of psychotically depressed patients. Journal of Abnormal Psychology, 72, 205-207.

Sandman, C. A., Cauthen, N. R., Kilpatrick, D. G., & Deabler, H. L. (1968). Size of figure drawing in relation to depression. Perceptual and Motor Skills, 27, 945-946.

Schildkraut, M. (1972). Human figure drawing in adolescence. NY: Brunner-Mazel.

Selfe, L. (1977). Nadia: A case of extraordinary drawing ability in an autistic child. NY: Harcourt Brace Jovanovich.

Swenson, C. H. (1968). Empirical evaluations of human figure drawings: 1957-1966. Psychological Bulletin, 70(1), 20-44.

Swenson, C. H. (1957). Empirical evaluation of human figure drawings. Psychological Bulletin, 54, 431-466.

Virshup, E. (1976). On graphic suicide plans. Art Psychotherapy, 3, 17-22.

Wadeson, H. (1971). Characteristic of art expression in depression. Journal of Nervous Mental Disorders, 153, 197-204.

Wadeson, H., & Carpender, W. (1976). A comparison of art expression in schizophrenic, manic depressive bi-polar, and depressive unipolar patients. Journal of Nervous Mental Disorders, 162, 334-344.

Wadeson, H. (1975). Suicide: Expression in images. American Journal of Art Therapy, 14, 75-82.

Wadeson, H. (1980). Art psychotherapy. NY: Wiley & Sons.

Wright, J. H., & McIntyre, M. P. (1982). The family drawing depression scale. Journal of Clinical Psychology, 38(4), 853-861.

Zung, W. W. K. (1965). A self-rating depression scale. Archives of General Psychiatry, 12, 63-70.