The Arts in Psychotherapy, Vol. 15 pp. 11–21. © Pergamon Press plc, 1988. Printed in the U.S.A. 0197-4556/88 $3.00 + .00

THE DIAGNOSTIC DRAWING SERIES: A SYSTEMATIC APPROACH TO ART THERAPY EVALUATION AND RESEARCH

BARRY M. COHEN, MA, ATR, JEFFREY S. HAMMER, PhD, and SHIRA SINGER, MA, ATR*

If I[1] worked in the hospital laboratory and had to screen specimens for the presence of toxins or viruses I would have tools to use, procedures to follow, even norms against which to measure whatever I might find. However, I work as an art therapist in a psychiatric facility and often have to screen art productions for indicators of mental disorders.

What resources are available to me to aid in this complex and delicate task? At my immediate disposal are intuition and education, assets that all therapists share in varying degrees. The intuitive process is an important factor in psychotherapy, and has served art therapists well, particularly in their interpretive work. However, convincing other clinicians of the accuracy of one's intuition or the scope of one's education can itself be a challenge. The art therapy assessment tools in current use are designed for gathering information, but have never been formally researched, nor have their techniques been discussed in much detail in the literature. To confuse this process further, we are deprived of a standard baseline from which to measure deviation or change in the graphic productions of adults.

Education, intuition, and literature aside, the clinician also has experience to draw upon. I see hundreds of patients; thousands of their drawings pass through my hands each year. I "know" the patients' diagnoses and observe the nature of their graphic expression. I collect this information in my head and in portfolios. I compare it with the lore of psychiatric art. It is true that each patient is an individual. Artwork is highly personal. Still, I must help to formulate a label.

When I am face to face with a skeptical psychiatrist or dodging an insurance company through a patient's medical record, I want to know that the diagnostic decision I assist in formulating is based on more than subjective factors. I want to know that the diagnostic value of art expression is based on a sturdy foundation.

The recognition of drawings as potential clinical indicators originated in Europe a century ago. First in France (Simon, 1888) and then in Germany (Mohr, 1906), a handful of psychiatrists began to use picture-making as an aid to diagnosis in psychiatric settings. Five decades of this work are discussed in an exhaustive review by Anastasi and Foley (1941). English-speaking people owe a great debt to them for making accessible writing published in non-English sources.

The 1950s saw a great blossoming of drawing diagnostics in America. Although these tests were developed largely by psychologists, they have never been accepted by all practitioners within the mental health field. Despite repeated efforts the reliability and validity of these tests have never been satisfactorily established. The search for a better tool led to a number of symbolically-oriented "draw-a-this" and "draw-a-

*Barry Cohen, Director of Expressive Therapies at Mount Vernon Hospital in Alexandria, Virginia, is the author of the Diagnostic Drawing Series.
Jeffrey Hammer is an economist. He lives in Chevy Chase, Maryland.
Shira Singer, an art therapist, formerly with Fairfax Hospital in Falls Church, Virginia, now lives and works in Anchorage, Alaska.
[1]First author.

that" tests. This resulted in a variety of competitive instruments, creating what one might call a "horizontal sprawl" of mostly incompatible information.

Art therapists focused their attention more on therapy than diagnosis. Ulman (1976) and Kwiatkowska (1978) were among the first art therapists to formulate art-based assessments. The strength of these evaluations were in their sensitivity to the dynamic process of the patient, particularly when used by a well-trained therapist. Gantt and Howie (no date) devised a chart linking structural and symbolic elements of art productions with the *Diagnostic and Statistical Manual of Mental Disorders* (DSM III, 1980) diagnoses. This was accomplished by retrospectively correlating the known diagnosis of the patient with observed graphic qualities of the pictures. At present, however, no systematic study of these evaluation tools or observations has been published.

Several years ago, when my daily work seemed to be leaning heavily toward diagnostic evaluations, I began to realize that we were skating on thin ice. For instance, I thought about how easy it had become to use words like "schizophrenic" or "depressed" in relation to pictures. These terms are used almost casually in clinical practice, yet no one has ever substantiated such characteristics.

Gestalt psychology's isomorphic principle suggests that art expression can be an external manifestation of an internal or feeling state. There could, therefore, be a direct parallel between the structure of a picture and the disease or process within the individual who created it. This theory provided the conceptual support that allowed me to carry on with my professional responsibilities. It also provided the organizing principle for a formal investigation.

I was intrigued by the possibility of unifying the efforts of two fields by harnessing the research orientation of psychology and the attention to materials, process, and individuality of art therapy. It seemed necessary to construct a new assessment tool that would elicit the graphic messages from the patients about themselves, their world, and how they function within it. This information had to be obtained in a single brief session inasmuch as many art therapists have limited time to devote to evaluative work. The materials and technique needed to be compatible with the philosophy and practice of art therapists, and the resulting observations made from the pictures comprehensible to the wide variety of practitioners in the field of mental health. With these guidelines in mind, I constructed a three-picture series. Each picture reflects a different aspect of how an individual responds to structure and directives, allowing for a broad range of psychological and graphic response. The tool is named the Diagnostic Drawing Series (DDS) and was first used in the inpatient psychiatric facilities of the Fairfax Hospital Association in 1982. The DDS has proven to be a rich art therapy assessment tool as well as a format for the study of drawings as they relate to psychiatric diagnosis.

Media Choice

Choosing the materials to be used for making the drawings was important for me as an artist and as an art therapist. Consideration was given to wax crayons, oil pastels, felt-tip markers, and colored pencils. A standard 12-pack of unwrapped chalk pastels was chosen for greatest versatility in application. Pastels can create lines as well as shapes, faint as well as saturated color areas, distinct as well as blended colors. Pastels also facilitate a sense of sophistication for adults who may be disdainful of wax crayons or felt-tip markers. Medium-weight white drawing paper (60 lb.) was chosen over grey, manila and newsprint papers for its tooth, durability and bright surface. Aside from their fragility, newsprint and manila papers often remind adults of childhood art activities, and grey paper offers a dull ground. Full size drawing paper (18 × 24 inches) was chosen to maximize potential for expansive expression and to underscore constricted use of space. These media choices are a distinct change from the pencil and paper used by more traditional drawing techniques; they facilitate a broad range of expressivity.

The Diagnostic Drawing Series: A Clinical Tool

The initial picture of the Drawing Series is referred to as the "free" picture. The patient is asked to "make a picture using these materials" (paper and pastels). It is the unstructured task of the Series. This nonspecific directive can evoke a

variety of responses ranging from enthusiasm and spontaneity to resentment and hostility. The resulting drawing may be viewed as particularly significant inasmuch as it functions as a first picture or dream might in therapy. From it we may ascertain what information the individual is initially willing to share. The theme, structure, and style of the image combined may graphically represent the patient's defense system.

The free picture allows the therapist the broadest spectrum of interpretive approaches, owing to the multileveled quality of graphic imagery and the limitless options of the creator. (Complex issues of content and meaning are, however, beyond the scope of this introductory paper.)

"Draw a picture of a tree" is the next directive. It is the most structured task of the Series and constitutes a link with the traditional diagnostic drawing tests of the past three decades. The tree is an ancient symbol; it is one of the first concrete images drawn by young children. Trees and their symbolic components have been studied extensively in relation to projective drawings. Many authors share the opinion that the tree drawing represents the deepest tapping of the psyche in the realm of projective drawing subject matter. In working with adults who insist they "cannot draw" or "cannot think of anything to draw," the tree picture provides a welcome relief from the anxiety-provoking initial picture. Everyone has seen a tree, and most people believe they can draw one. The tree provides a rich symbolic portrait of the individual's vegetative/psychic state. It can be viewed through the traditional window of testing psychologists as compiled in Ogdon (1969) as well as from a Jungian vantage point. Bolander (1977) provides an encyclopedic resource of both graphic and bibliographic tree test information.

The third and final drawing task is to "make a picture of how you're feeling, using lines, shapes, and colors." This task, decidedly subjective in nature, allows for self-assertion and self-reflection by the patient, who might otherwise be performing expressly for the therapist. Performance of this feeling-level task may promote a sense of psychological completion for the patient in the session. The drawing also may reflect a change in mood from the initial picture in addition to providing valuable clues regarding the patient's capacity and willingness for expression on an affective level. The feeling picture also provides an opportunity to abstract.

This task is unique for its directness among projective assessment tools. Patients are rarely fooled by the artifice of the projective game. By asking a straight question one hopes to obtain a straight answer. If we want to know what the patient's inner experience is like, why not simply ask? It is my belief that the person best placed to understand the experience of the patient *is* the patient.

It is important to note that a crucial factor in the administration of the Series lies in postponing verbal interchange until all three pictures are finished. This allows for the channeling of psychic energy into the drawings. It also protects pictures from contamination by conversational content. Once the Drawing Series is completed, verbal associations are gathered. A drawing inquiry questionnaire has been devised to provide a format for clinicians who requested a structured interview tool.

Shifting from the self-directed first picture to the specificity of the tree picture and then to the provocative feeling picture requires great flexibility. Progression or regression in the way the patient responds graphically to the three directives furnishes grist for both the diagnostic and therapeutic mills. Certain patients will make a statement with a tightly organized, perhaps colorful or detailed free picture, only to fashion a disorganized tree and an impoverished feeling drawing. Others, lost in the freedom of the first picture, may create a splendid tree with the aid of that theme, enabling them to burst forth with the opportunity to directly describe their feelings. Of course, there are many potential patterns of response, many gestalts.

Administering the Series for Research

From its first days of use, the Diagnostic Drawing Series has been administered and collected in a standardized manner. For purposes of study, the Series is administered shortly after admission to the hospital to obtain a response that is minimally affected by psychotropic medications. Although a three-day deadline is preferred, collection of pictures must occur no later than five days following a psychiatric admission.

The DDS is obtained during the first individual art therapy contact. Prior to the session, patients are advised that they are scheduled for an art session. At the beginning of the session it is explained that the patient will be asked to draw three pictures and to talk about the pictures afterwards. They are told that up to 15 minutes are allotted for drawing each picture. The research agenda of this meeting is fully disclosed to the patient after drawing, thus maintaining the purity of the research design.

Paper and pastels are placed in front of the patient who is told that "the page may be turned in any direction." Instructions for the first drawing are to "Make a picture using these materials." When the patient indicates that the picture is finished, the therapist immediately proceeds to instructions for drawing 2, "Make a picture of a tree." This is done even in cases where a tree is drawn for the first picture. Likewise, after this is completed, instructions are given for drawing 3, "Make a picture of how you're feeling, using lines, shapes, and colors." Should the patient be unable to initiate or complete any of the three drawings, the blank or incomplete drawing is saved as an integral part of the Series.

Although not a required element of the research, the Drawing Inquiry questions may then be administered as a way of processing the pictures. It is recommended that drawings be discussed in the order of their completion and that responses be recorded verbatim.

At the end of the session, the patient consent form is introduced with the following explanation: "Art therapists all over the country are collecting these drawings to help psychiatrists and other mental health professionals to understand people better through their pictures. By signing this form, you will allow us to submit these pictures to the study. No names are attached to any of the drawings and your confidentiality will be preserved."

Research Method

The DDS distinguishes itself among projective drawing techniques in a variety of ways. Most important is its status as the first drawing evaluation tool to be directly linked through research with the DDS III (1980), which provides standardized diagnostic criteria that enhances the potential for attaining meaningful correlation between drawings and diagnoses from samples from across North America.

Each patient whose Series is entered into the research is diagnosed by two independent clinicians. Two psychiatrists are preferred as diagnosticians, although diagnoses by one psychiatrist and one psychologist are acceptable. Each psychiatrist records patient diagnoses following each interview; these lists are later given to the art therapist. In cases of differing diagnoses, the subject is excluded from the study. Each participating physician is given a Psychiatric Diagnosis Form to simplify the process. This form includes nine Axis I and II DSM III diagnostic categories, plus "other" for categories not specified.

An exploratory study was undertaken in 1982–1983 with patients at The Fairfax Hospital. Two hypotheses were tested. The first suggested that there would be a difference in the way nonhospitalized individuals would respond to the Series compared to hospitalized patients in crisis. The second postulate was that drawings of a given psychiatric diagnostic group would have similarities to others in their group, and would look different from those of other groups.

Each of the three pictures in the Series was rated for the presence of 36 elements in 23 categories, primarily structural. These items were designed to be highly objective descriptive criteria, leaving little to the subjective judgment of the rater. This represented a significant break with the tradition of drawing interpretation of the past several decades, but not with research technique. The focus of the DDS research leans away from the intuitive and toward a more empirical process.

Small sample groups were tested using simple percentages as a scoring format. Both hypotheses were supported, and the project won the 1983 Research Assistance Award from the American Art Therapy Association. This seed money allowed for the development of a national project. Art therapists across the country were encouraged to join in the collection of DDS samples for submission to the first large-scale art therapy research study of its kind. Research protocol handbooks were devised and disseminated, detailing a standardized procedure for administering, labelling, storing, and submitting pictures for the project. Art therapists from five

facilities submitted samples for inclusion in the 1984 study. Barry M. Cohen, ATR*, served as the rater.

Results

The study was designed to mimic the setting in which the art therapist would be called upon to help establish a diagnosis. The following analysis tries to answer the question: Given the characteristics of these drawings as identified by the Drawing Analysis Form (DAF), what is the probability that a given subject belongs to a particular diagnostic category? Are there certain patterns in the way the pictures are drawn that should alert the therapist to the possibility that the patient has a particular clinical problem? The statistical analysis is simply a formal way to identify the connections between the structural characteristics of the pictures and the independent diagnoses as given by psychologists and psychiatrists.

The diagnostic categories examined were: (a) schizophrenia, (b) depression, and (c) dysthymia. Future work may examine a finer classification of clinical problems but will require a larger sample than the 239 cases available for the current study. This analysis is relevant to the population of individuals admitted to the hospital for psychiatric treatment or evaluation, specifically within five days of their arrival. It is this group for which the statistical inferences of the study are used. However, a fourth group, consisting of people who are not patients, was examined in order to point out differences between patients and nonpatients (primarily hospital staff). The results for this latter group are not meant to be used as a classification aid, but for illustrative purposes only.

The technique used in this study was the multiple regression analysis of the linear probability model. This study looked at each diagnostic category, one at a time. Four equations were determined, each expressing the probability of belonging to a diagnostic category as a function of how the drawings were made.

The regression analysis estimates the terms in an equation such as the following:

$$D = a + b_1X_1 + b_2X_2 + \ldots\ldots b_nX_n$$

where D is a variable taking on the value 1 if the person is diagnosed as being schizophrenic (for example) and taking on the value 0 if not. Each of the other variables (X_1, X_2, etc.) represents one of the structural characteristics of a picture. They are generally of the same dichotomous form as the diagnosis variable; that is, taking the value 1 if the picture has that particular characteristic and 0 if it does not. The regression technique chooses the values of a as well as the bs in the above equation.

The equations used in this study were much more extensive than the example given above. In principle, the equations would have 108 variables on the right hand side of the equation, derived from 36 choices made per picture, assessed in each of the three drawings per subject (see Figure 1 for a list of variables). Because the number of respondents was only 239, even this study using 108 variables strains the sample. The study was done in two steps. The first used information from each picture individually to estimate the equations. There were three such equations estimated (one per picture), which could be interpreted as attempting to classify the respondent by looking at one picture at a time. The second stage took those variables that were found to be significant in the first set of equations and combined them into one equation covering all three pictures. For the sake of brevity only the results of the combined equations are presented here. More complete results are available from the authors.

Tables 1–4 present the basic results of the analysis. For convenience, the variables in the equation are arranged by picture, with those that are statistically significant presented first. For each equation, the value of the coefficient (the bs in the description above) is presented in the first column, the "t" statistic in the second, and the level of significance of the coefficient for the

*Special thanks to those art therapists who participated in this early phase of the project. They are: Michael Marshall, ATR, Tulane University Hospital, New Orleans, Louisiana; Mary Ellen Smolenski, ATR, St. Elizabeth's Hospital, Covington, Kentucky; Barbara Sprayregen, ATR and Karen Frostig, ATR, McLean Hospital, Belmont, Massachusetts; Shira Singer, ATR and Anna Reyner, ATR, Fairfax Hospital, Falls Church, Virginia; Gail Silverman, ATR, Palo Verde Hospital, Tucson, Arizona. Thanks are also extended to Thomas N. Wise, M.D., Chairman of Department of Psychiatry of Fairfax Hospital and the many psychiatrists who lent their time toward diagnostic interviews with the subjects.

Color Type			Monochrome	Two-Three	Four or More
Blending	No	Yes			
Idiosyncratic color	No	Yes			
Line/shape			Line	Shape	Mix
Integration			Disintegrated	Integrated	Impoverished
Abstraction			Geometric	Biomorphic	Mix
Representational			Angular	Curvilinear	Mix
Enclosure	No	Yes			
Groundline	No	Yes			
People	No	Yes			
Animals	No	Yes			
Inanimate objects	No	Yes			
Abstract symbols	No	Yes			
Word inclusion	No	Yes	Words only		
Landscape			Land only	Water only	Water scene
Line quality/pressure			Light	Medium	Heavy
Line length			Short/sketchy	Broken	Long
Movement			Implied	Virtual	Neither
Space usage			0–33%	34–66%	67–99% Full
Tree	Unrecognizable		Chaotic branch system	Minimal trunk	Falling apart
Tilt	No	Yes			
Unusual placement	No	Yes			

Figure 1. Diagnostic Drawing Series—Drawing Analysis Form

sample size in the third. The "t" statistic represents the ratio between each coefficient and its "standard error," a measure of the degree of confidence that can be placed on the estimate. Higher values (both positive and negative) indicate a smaller likelihood of occurrence by chance (i.e., being a statistical artifact). That likelihood is calculated and presented in the third column.

Summary statistics for the equation as a whole are also presented. The R^2 statistic measures the degree of association of all the explanatory variables with the diagnostic category. It can be interpreted as measuring the proportion of the variation of the diagnostic group that is "explained" by the picture characteristics. The "F" statistic is analogous to the "t" statistic discussed above but refers to all of the coefficients taken together rather than each individually. It can be used to test the hypothesis that all the coefficients are actually zero (i.e., the pictures give no information concerning the diagnostic category). The significance level gives the probability that this hypothesis is true. Smaller values indicate that the hypothesis of "no information" is false (i.e., that the picture characteristics *can* help identify diagnostic groups). It should be noted that the "no information" hypothesis is rejected in each of the equations since the significance levels are all very low. In other words, the possibility that the study yielded no information was tested and disproved; therefore, picture characteristics can help identify diagnostic groups.

Since very specific hypotheses do not exist for the structural drawing characteristics, the results should be interpreted as exploratory. Subsequent studies will refine, test, and extend the analysis. As it stands, however, a number of interesting findings emerge. Each diagnostic group has a few characteristic features that distinguish drawings done by its patients.

Dysthymia (Table 1)

The single most striking feature of this group was the light pressure used in the drawings. This pattern emerged both in the free picture and in the picture of the tree. (Light pressure was strongly indicated in the latter by the negative coefficients produced by both medium and heavy pressure.) Other significant variables include the depiction of animals in the free picture and the variety of styles used in executing the tree picture. These trees tended to have curvilinear and mixed representational characteristics, to be set in landscapes, but to be disintegrated.

It is important to note that these results should not be interpreted as identifying characteristics within the same picture. Again, the study did not

Table 1
Dependent Variable = Dysthymia (N = 239)

Picture	Variable	Coefficient	t-Statistic	Significance
A	Animals	.124	2.854	.005*
	Heavy pressure	−.099	−1.237	.217
	Medium pressure	−.012	−.171	.864
B	*Integrated*	−.088	−2.419	.016*
	Mixed representation	.135	2.123	.035*
	Medium pressure	−.132	−1.978	.049*
	Landscape	.089	1.889	.060
	Heavy pressure	−.143	−1.854	.065
	Curvilinear representation	.101	1.790	.075
	Virtual movement	.103	1.600	.111
	Enclosure	.112	1.589	.113
C	*66–99% Space use*	−.058	−1.481	.140
	4 or more colors	.049	1.374	.171
	33–66% space use	−.052	−1.180	.239
	Minimal trunk tree	−.012	−.644	.520

Constant .144
R^2 = .159
F = 2.816, $P < .001$
Negative correlations denoted in italics
*$P < .05$

explore such complex interactions of traits within the same picture, but treated each as an independent explanation variable. So it is possible that some dysthymics' tree pictures are fairly standard (though with a light touch) and others' are disintegrated.

Somewhat less strong is the evidence from the feeling picture. Here the indication is that there is a tendency to use either all of the space on the paper or very little (less than a third). The evidence is weak but raises a question as to whether there is more than one set of characteristic types of dysthymic responses. The interesting variables of "presence of enclosures" and "virtual movement" had to be deemed not significant but were near the arbitrary borderline of 10%.

Depression (Table 2)

In general, the equation for depressives was less informative than the others. The main characteristic to be identified was the use of unusual placement on the page in both the free and tree pictures, a variable that showed up in no other diagnostic groups. Since this characteristic was unique to depressed people (in this sample), it may be very useful in making diagnoses. The depressed sample lacked landscape in the tree picture, whereas dysthymics were predicted by the presence of landscape in the tree picture. Other characteristics of the pictures were the presence of a water scene in the feeling picture and, somewhat weaker, the absence of words in the free picture.

Schizophrenia (Table 3)

A few different regularities emerge in the pictures of the schizophrenia sample. Strongly represented are feeling pictures drawn in monochrome. This is indicated by significant and negative coefficients on both variables indicating multicolored pictures. Some (admittedly weak) corroboration for this is the negative coefficient on color usage in the tree picture. Other strong effects are the lack of integration in the free pic-

Table 2
Dependent Variable = Depression (N = 239)

Picture	Variable	Coefficient	t-Statistic	Significance
A	Unusual placement	.175	2.113	.033*
	Words only	−.261	−1.468	.143
	Representational	.072	.923	.357
	Word inclusion	−.010	−.119	.906
B	*Landscape (included)*	−.136	−1.988	.048*
	Unusual placement	.136	1.878	.062
	Mixed abstraction	−.181	−.804	.423
C	Water scene (landscape)	.371	2.419	.016*
	Curvilinear representation	−.096	−1.251	.212
	Idiosyncratic color	.025	.873	.384
	Mixed representation	−.041	−.589	.557

Constant .115
R^2 = .109
F = 2.53, P < .005
*P < .05

Table 3
Dependent Variable = Schizophrenia (N = 239)

Picture	Variable	Coefficient	t-Statistic	Significance
A	*Integrated*	−.212	−3.168	.002*
	Minimal trunk (tree)	.632	2.701	.008*
	Animals	−.099	−1.627	.105
	Blending	−.082	−1.446	.150
	Virtual movement	.077	1.3	.195
B	*Virtual movement*	−.296	−1.996	.047*
	2–3 colors	−.033	−.746	.456
	Heavy line pressure	.031	.619	.537
	Landscape (included)	−.024	−.372	.710
C	*4 or more colors*	−.163	−2.687	.008*
	2–3 colors	−.163	−2.619	.009*
	Word inclusion	.169	2.343	.020*
	66%–99% space use	.086	1.702	.090
	33–66% space use	.077	1.336	.183
	Biomorphic abstraction	.038	.866	.388

Constant .563
R^2 = .227
F = 4.07, P < .001
*P < .05

Table 4
Dependent Variable = Nonpatient (N = 239)

Picture	Variable	Coefficient	t-Statistic	Significance
A	Blending	.136	2.173	.031*
	Groundline	.097	1.943	.053
	Representational	−.090	−1.204	.230
	Four or more colors	.064	1.157	.249
	Word inclusion	.051	.679	.498
	Full space use	−.010	−.096	.924
	Mixed abstraction	.015	.061	.951
B	*Mixed representational*	−.200	−3.697	.000*
	People	.278	2.657	.009*
	33–66% space use	.120	2.454	.015*
	Water scene	.361	1.78	.077
	Mixed line/shape	.075	1.519	.130
	Heavy pressure	0	0	1.0
C	*No movement*	−.212	−3.50	.001*
	Full space use	.199	2.665	.008*
	Mixed line/shape	.145	2.499	.013*
	Shape	.178	2.38	.018*
	Virtual movement	−.223	−2.279	.024*
	Heavy pressure	.116	2.016	.045*
	Integrated	.094	1.542	.124
	Curvilinear representation	.054	.823	.411

Constant .107
R^2 = .443
F = 8.206, $P < .001$
*$P < .05$

ture, the use of a tree with a minimal trunk in the free picture, lack of movement in the tree picture and word inclusion in the feeling picture.

A significant proportion of the pictures used between 33% and 99% of the space rather than full use or little use. Full use refers to pictures in which the color extends to the edges of the page; it is distinguished from 99% use, which allows for a one-inch border left around the perimeter of the page.

Nonpatient (Table 4)

It is not possible to interpret the results as "predicting mental health" on the basis of the Drawing Series. The sample is not comparable to such a population. It is also not clear that the test situation means the same to the nonpatients as to the patients. The former may think of the series as recreation, the latter as part of their hospital treatment. However, there are a number of characteristics that appear to be important.

Many significant features appear in the feeling picture. Here, the use of implied movement, full space usage, shapes, and mixed use of shapes and lines, as well as heavy pressure predominate. Some evidence also appears for integration.

Discussion

In 1984, Kramer and Iager reviewed the literature on the assessment of psychotic disorders. In their discussion of research in art assessment they recommended that "close attention must be paid to factors such as the composition of the subject sample, and medication status, objectifying art elements for ratings and consistency of art

procedures" and that "the most promising direction is for interdisciplinary studies." The Diagnostic Drawing Series research begins to address several of those issues, namely objectification of rating elements, standardization of procedures, and interdisciplinary collaboration with psychiatrists.

Wadeson (1980) reviewed the literature and created a simplified chart, listing the characteristics of depressed, schizophrenic, and bipolar artwork in a way that is most relevant to clinical art therapists dealing with spontaneous art expression. The sources of her information were, no doubt, disparate in methodology and were perhaps not ever arrived at by any systematic or scientific approach. However, it is interesting to note that certain elements surface in the Diagnostic Drawing Series research that seem to relate to items previously reported in that literature.

Unusual placement refers to images drawn two inches or more to the right or left of the central vertical axis when the remainder of the page is blank. Appearance of the placement in relation to the depressed sample most likely corresponds to a cluster of characteristics listed in Wadeson's literature survey chart as "lack of effort or completeness, constriction and bareness."

In the schizophrenic sample, we again see elements surface that might be related to items in that literature. "Fragmentation, disturbed spatial organization, disintegration, labelling, and writing-in" are characteristics in the chart that reflect preliminary findings in the Diagnostic Drawing Series research.

Other than these above mentioned parallels, there is limited congruence between previously published assessment findings and the results of this phase of the Diagnostic Drawing Series research. Clinicians currently using the Diagnostic Drawing Series in psychiatric settings are encouraged to watch for these trends in their populations, but in no way should these or other characteristics manifested in this research be relied upon for diagnostic verification at this time. Nor is it the authors' intention to attribute psychodynamic meanings to the Diagnostic Drawing Series research results.

Despite great strides made in establishing a systematic and relatively objective approach to drawing analysis and research, there are many methodological problems yet to be overcome. For instance, there is no effective screening in the Diagnostic Drawing Series protocol to establish psychotic versus nonpsychotic states, endogenous versus exogenous depressions, or state versus trait elements in art. In choosing a medical model approach to diagnosis, we must accept the reported inconsistencies associated with psychiatric diagnoses (Grove, Andreason, McDonald-Scott, Keller, & Shapiro, 1981). By working with a database derived from volunteer art therapist participants, we must accept certain inequities in geographic distribution, possibly skewing the sample.

This preliminary study has clarified areas of difficulty in art therapy research design and analysis, and paved the way for continuing standardized research. It has engaged art therapists in collaborative work with psychiatrists, psychologists, and other professionals in the research and computer fields. It has also established some objective correlation between structural components of art expression and psychiatric diagnoses.

Conclusion

There is a great temptation in research to make pronouncements or draw hasty conclusions—in this case, to pinpoint and clarify the links between structural aspects of drawings by psychiatric patients and their diagnoses. Based on this preliminary study, it seems safe to say that there is some relationship between pictorial structure and psychiatric diagnosis. The statistical analysis described herein represents an exploratory look at this rich source of information. There are many studies yet to be done, using different ways to approach pictures and diagnosis.

This research is about beginnings. It sets out to look at some of the most basic assumptions held by many clinical art therapists working in institutions—the link between the patient's illness and how it is expressed in drawings. This use of the Diagnostic Drawing Series is one way of trying to study objectively certain accepted tenets of art therapy.

References

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author

Anastasi, A., & Foley, J. P. (1941). A survey on artistic behavior in the abnormal:IV experimental investigations. *The Journal of General Psychology, 25,* 137–237.

Bolander, K. (1977). *Assessing personality through tree drawings.* New York: Basic Books.

Gantt, L., & Howie, P. (no date). *Diagnostic categories and pictorial characteristics.* Unpublished chart.

Grove, W. M., Andreason, N. C., McDonald-Scott, P., Keller, M. B., & Shapiro, R. W. (1981). Reliability studies of psychiatric diagnosis. *Arch. General Psychiatry, 38,* 408–413.

Kramer, E. S., & Iager, A. C. (1984). The use of art in assessment of psychotic disorders: Changing perspectives. *The Arts in Psychotherapy, 11,* 155–164.

Kwiatkowska, H. Y. (1978). *Family therapy and evaluation through art.* Springfield, IL: Charles C Thomas.

Mohr, F. (1906). Uber Zeichnungen von Geisteskranken und ihr diagnostische Verwertbarkeit. *Journal fur Psychologie und Neurologie, 7,* 99–140.

Ogdon, D. P. (1969). *Psychodiagnostics and personality assessment: A handbook.* Los Angeles: Western Psychological Services.

Simon, M. (1888). Les ecrits et les dessins des alienes. *Archs de L'Anthrop. Crim., 3,* 318–355.

Ulman, E. (1976). A new use of art in psychiatric diagnosis. In E. Ulman & P. Dachinger (Eds.), *Art therapy in theory and practice* (pp. 361–386). New York: Schocken.

Wadeson, H. (1980). *Art psychotherapy* (p. 190). New York: Wiley.