

A Qualitative Versus Quantitative Approach to Evaluating the Draw-A-Person and Kinetic Family Drawing: A Study of Mood- and Anxiety-Disorder Children

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This study compared 2 methods of scoring the Draw-A-Person (DAP) and the Kinetic Family Drawing (KFD): A quantitative scoring method based on traditional individual indicators was contrasted with a qualitative scoring method based on an integrative approach designed to assess overall psychological functioning. The participants were 52 children with a mean age of 11¼ years. Using *DSM-III-R*, they were assigned to the following groups: mood disorder ($n = 12$), anxiety disorder ($n = 11$), mood/anxiety ($n = 16$), control ($n = 13$). Unlike scores from the quantitative approach, scores obtained from the qualitative approach on the DAP differentiated children with mood disorders and mood/anxiety disorders, but not children with only anxiety disorders, from control children. Similarly, and again unlike scores from the quantitative approach, scores from the qualitative approach on the KFD differentiated children with mood disorders (but not mood/anxiety disorders) from control children. In addition, scores from the qualitative DAP and KFD scoring methods were significantly correlated with self-reported self-concept and aspects of family functioning. It appears that an integrated, holistic approach to scoring projective drawings, reflective of overall psychological functioning of the individual and of the family, can be a useful adjunct in assessing children with internalizing disorders.

The assessment of internalizing disorders in children (i.e., depression and anxiety) presents problems that are not apparent for disorders with more obvious overt behavioral characteristics. The emotional discomfort and subjective feelings of distress that are central aspects of internalizing disorders are more difficult for parents, teachers, and often psychologists to identify accurately and reliably. Even when interviewed, children may experience considerable difficulty in naming, describing, or verbally communicating their emotional discomfort and subjective state. However, systematic input from children themselves is critical in the assessment of internalizing disorders (Cytryn & McKnew, 1980). This input must be obtained in a manner that minimizes demands for verbal expression and is sensitive to the child's level of development (Quay & La Greca, 1986).

In the past decade, diagnostic interviews, self-rating scales of depression and anxiety, and parent and teacher checklists have appeared that have facilitated the assessment of internalizing disorders in children. In addition, it has been common clinical practice to supplement such measures with projective techniques and thus gain a broader understanding of the youngster's self-perceptions and way of perceiving his or her world. However, although there exists a burgeoning body of research

into the assessment of mood and anxiety disorders in children, this research is noteworthy for its lack of empirical investigations into the utility of projective techniques with such populations (Kendall, Cantwell, & Kazdin, 1989).

Historically, projective techniques have accompanied most psychological assessments of children and adults. They have been used to measure unconsciously repressed or consciously suppressed material, and more recently they have been used to gain an understanding of cognitive processing (Meichenbaum, 1977). For several decades, projective drawings have been reported to be among the most frequently used tests by psychologists in clinical practice (Lubin, Larsen, & Matarrazzo, 1984; Lubin, Wallis, & Paine, 1971; Loutitt & Browne, 1947; Sundberg, 1961; Wade & Baker, 1977) and in school settings with children who have been referred for suspected social and emotional problems (Eklund, Huebner, Groman, & Michael, 1980; Fuller & Goh, 1983; Goh, Teslow, & Fuller, 1981; Prout, 1983; Vukovich, 1983). Projective drawings typically are used with children to gain an understanding of inner conflicts, fears, perceptions of others, and interactions with family members, as well as to generate hypotheses that serve as a springboard for further evaluation (Cummings, 1986).

The most common projective drawing technique used with children is the Draw-A-Person (DAP; Harris, 1963), also referred to as the Human Figure Drawing (HFD; Koppitz, 1968). Numerous scoring methods for evaluating emotional functioning in children have been proposed for the DAP, of which the Koppitz System is the best known. The Koppitz System consists of 30 individual emotional indicators, derived from the work of Machover (1949) and from Koppitz's clinical experi-

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ence. Koppitz has reported that three or more emotional indicators on her system appear to differentiate the DAPs of groups of children with and without emotional and behavioral problems (Koppitz, 1968).

Researchers have examined the relationship between certain emotional indicators in DAPs and depression and anxiety in both adults and children. According to Machover (1949), deeply regressed or neurotically depressed persons are likely to draw small or diminutive figures. To test this hypothesis, Lewinsohn (1964) compared the drawings of 50 depressed and non-depressed adult psychiatric patients and reported a statistically significant, but actually quite small, difference between the heights of the drawings produced by the depressed and normal groups. Roback and Webersinn (1966) and Holmes and Wiederhold (1982) failed to find a significant difference in the size of drawings produced by an adult normal and depressed psychiatric sample. In a study with depressed children, Gordon, Lefkowitz, and Tesiny (1980) investigated three structural characteristics of DAPs: size, vertical placement on the page, and line intensity. They found a significant relationship with size for girls and no significant relationships between vertical placement on the page or line intensity with depression as rated by the children, their peers, or their teachers. On the basis of their study and from interpretation of previous research, these authors questioned the validity of assessing depression in children using structural characteristics of human-figure drawings.

Manifestations of anxiety in figure drawings have been the subject of a great deal of speculation and a moderate number of empirical investigations (Sims, Dana, & Bolton, 1983). Studies have been of two types: experimental studies of stress induction (e.g., Doubros & Mascarenhas, 1967; Sturmer, Rothbaum, Visintainer, & Wolfer, 1980) and correlational studies of validity (e.g., Craddick, Leipold, & Cacaues, 1962; Viney, Aitkin, & Floyd, 1974). In studies of stress induction, the frequency of anxiety indices is compared for subjects receiving stressful treatments and for control subjects. In correlational studies, an anxiety score derived from the DAP is related to an independent measure of anxiety. Although different indices of anxiety on the drawings have been used in the various studies (typical indicators of anxiety include shading, erasures, and line reinforcement), results have generally failed to support an interpretation that anxiety is manifested in, and can be interpreted from, human-figure drawings.

Another projective drawing technique that commonly is used with children is the Kinetic Family Drawing (KFD; Burns & Kaufman, 1970, 1972), which purportedly assesses a child's perceptions of the interpersonal relations within his or her family. The KFD has achieved moderately widespread use among psychologists who work with children because of the recognition of the important role of family dynamics in the etiology and treatment of emotional disorders of children (Reynolds, 1978). On the KFD, the child is asked to draw a picture of everyone in his or her family doing something. Burns and Kaufman hypothesized that the stipulation that everyone in the drawing had to be doing something would permit self and family attitudes to become more apparent.

Burns and Kaufman (1970, 1972) have developed two manuals for scoring the KFD. Their system is based on the interpretation of *actions*, *styles*, and *symbols* in the drawings. Their

method, however, has been harshly criticized because their manuals include no information on reliability or validity and fail to define precisely the scoring variables (Harris, 1978). Other scoring systems for the KFD, based on the Burns and Kaufman features, have been proposed by McPhee and Wegner (1976), Meyers (1978), Nostkoff and Lazarus (1983), and O'Brien and Patton (1974). Although these four systems have obtained satisfactory interrater reliabilities, they have not been successful at consistently differentiating the drawings of children with and without emotional problems (see reviews by Cummings, 1986; Knoff & Prout, 1985). Reynolds (1978) has offered a quick reference guide for developing clinical hypotheses from children's KFDs. His guide includes 37 signs, secured from numerous scoring methods, that have been proposed as being clinical indicators of family dysfunction. Although information on reliability and validity of the guides as a scoring system are not provided, the guide may prove to be a useful tool. Studies specifically investigating the KFDs of depressed and anxious children, regardless of the scoring system used have not been reported.

Overall, research findings indicate that the results of scoring systems based on individual emotional indicators have not differentiated the human-figure drawings of children with specific internalizing disorders from those of normal children. In practice, it often is the gestalt of a human-figure drawing that is clinically evaluated to derive a sense of the overall degree of a child's disturbance or distortion in relation to the self and the family. It was hypothesized here that the clinical usefulness of human-figure drawings may lie in their overall presentation of the psychological functioning of the individual and of the family and not in their interpretation by a single or sum of specific emotional indicators. The aim of the present study was to investigate empirically this holistic practice to determine if it would prove to differentiate children with distinct internalizing disorders from normal children. This study compared two methods of scoring DAPs and KFDs in a sample of children diagnosed according to the revised third edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R)*; American Psychiatric Association, 1987) as having a mood disorder, anxiety disorder, or both, along with a normal control group. For each type of drawing, a scoring method based on existing individual emotional indicators was contrasted with a newly constructed scoring method based on a qualitative, integrative, and holistic approach. In addition, to evaluate the often-made claim that the DAP is a projective measure of self-concept, the children's scores on the two methods of scoring the DAPs were examined in relation to an objective measure of self-reported self-concept. Similarly, to explore the hypothesis that the KFD is a projective measure of perception of one's family, the children's scores on the two methods of scoring the KFDs were correlated with an objective measure of self-reported family functioning.

Method

Subjects

The participants were 52 children, 41 girls and 11 boys in Grades 4 through 7, from five suburban schools. They were drawn from a sample

Table 1
DSM-III-R Diagnoses by Clinical Group

| Mood disorders (<i>n</i> = 12) | Anxiety disorders (<i>n</i> = 11) | Mood and anxiety disorders (<i>n</i> = 16) |
|---|--|--|
| Major depression (3) Dysthymic disorder (4) Depressive disorder N.O.S. (5) | Generalized anxiety disorder (1) Anxiety disorder N.O.S. (10) | Major depression/overanxious disorder (3) Dysthymic disorder/generalized anxiety disorder (1) Depressive disorder N.O.S./separation anxiety (2) Depressive disorder N.O.S./anxiety disorder N.O.S. (1) Major depression/overanxious disorder/separation anxiety (2) Dysthymic disorder/overanxious disorder/separation anxiety (1) Dysthymic disorder/generalized anxiety disorder/ separation anxiety (1) Overanxious disorder/dysthymic disorder (1) Overanxious disorder/depressive disorder N.O.S. (1) Overanxious disorder/separation anxiety/depressive disorder N.O.S. (3) |

Note. Numbers in parentheses indicate the number of cases of the disorder in the clinical group. *DSM-III-R* = *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev.; American Psychiatric Association, 1987); N.O.S. = not otherwise specified.

of children who participated in a larger school-based study of childhood depression and anxiety. The majority (86%) were White, 6% were Black, 4% were Hispanic, and 3% were from other racial groups. All of the children were in regular education. They ranged in age from 9½ to 14¼ years old, with an overall mean age of 11¼ years. Through the procedures described below, children were included as part of the clinical sample if they received a *DSM-III-R* diagnosis based on the K-SADS interview of a mood disorder (*n* = 12; 9 girls and 3 boys), anxiety disorder (*n* = 11; 10 girls and 1 boy), or mood and anxiety disorder (*n* = 16; 13 girls and 3 boys), and completed all measures of interest (5 were not included due to their absence on the day the drawings were collected). Specific *DSM-III-R* diagnoses are indicated by group in Table 1. The process of assigning diagnoses and resulting reliability data are presented under Procedures. For the control group, 13 children (9 girls and 4 boys) were selected who had completed all measures of interest, did not receive a *DSM-III-R* diagnosis or elevated scores on the screening measures, and reported little symptomatology on the K-SADS. Mean scores by group on all measures used to screen the participants, that is, the Children's Depression Inventory (CDI), the Revised Children's Manifest Anxiety Scale (RCMAS), and the Schedule for Affective Disorders and Schizophrenia for School-Age Children (KSADS), described below) are reported in Table 2.

Instrumentation

Children's Depression Inventory (CDI). This inventory was developed by Kovacs (1983) on the basis of the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). It is the most commonly used self-report measure of depression for children 7–17 years of age. The CDI consists of 27 items designed to assess the presence and severity of the overt symptoms of depression over the 2 weeks prior to the assessment. A three-alternative choice format is used. The choices are scored from 0–2, with total scores of 19 or greater considered to be indicative of a significant level of depression (Kovacs, 1983). The CDI is reported to have high internal consistency with normal ($r_{\alpha} = .94$) and emotionally disturbed ($r_{\alpha} = .80$) fifth- and sixth-grade students (Saylor, Finch, Spirito, & Bennett, 1984). In addition, acceptable test-retest reliability ($r_{tt} = .77$) over a 3-week period has been reported (Smucker, Craighead, Craighead, & Green, 1986).

Revised Children's Manifest Anxiety Scale (RCMAS). This inventory

was devised by Reynolds and Richmond (1985) and is a 37-item self-report measure designed to assess the level and nature of anxiety in children and adolescents from 6 to 19 years of age. The choices are *Yes* and *No*, with *Yes* indicating that a statement is descriptive of the child's feelings or actions. The *Yes* responses are summed for a total anxiety score. High scores indicate a high level of anxiety. The RCMAS is reported to have high internal consistency ($r_{\alpha} = .77-.88$) across a variety of ages and populations and adequate test-retest reliability ($r_{tt} = .68$) over a 9-month period (Reynolds & Richmond, 1985).

Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS). This interview schedule, appropriate for clinical or research assessments, was developed by Puig-Antich & Ryan (1986). This is a semistructured interview that measures depression as well as a number of additional *DSM-III* (American Psychiatric Association, 1980) and *DSM-III-R* diagnostic categories. The K-SADS can be used with children ages 6 to 16 and yields a rating of the presence, absence, and severity of symptomatology. The mood and anxiety disorders sections of the Present Episode format of the fourth edition of the interview were used in the current investigation. The K-SADS has demonstrated high diagnostic reliability for mood (Ambrosini, Metz, Prabucki, & Lee, 1989; Kendall, Stark, & Adam, 1990; Last & Strauss, 1990; Mitchell, McCauley, Burke, Calderon, & Schloredt, 1989) and anxiety (Last & Strauss, 1990) disorders. In addition, sufficient internal consistency (Ambrosini et al., 1989) and test-retest reliability (Apter, Orvaschel, Laseg, Moses, & Tyano, 1989) have been reported. Ambrosini and colleagues conclude that the achievement of high diagnostic, scale, and symptom reliability support the K-SADS as a reliable diagnostic tool for use with children.

Coopersmith Self-Esteem Inventory (CSEI). This inventory was developed by Coopersmith and measures an individual's personal evaluation of self-worth. Form B (Coopersmith, 1975) includes 25 short statements of both a positive and negative valence that the child rates as *like me* or *unlike me*. The items are keyed so that a high score reflects positive self-esteem. The CSEI Form B has demonstrated adequate test-retest and internal consistency reliability ($r_{\alpha} = .81$; Reynolds, Anderson, & Bartell, 1985).

Self-Report Measure of Family Functioning (SRMFF). This inventory was developed by Bloom (1985). It consists of 75 items that were selected from the Family Environment Scale (Moos & Moos, 1981), Family-Concept Q-Sort (Van Der Veen, 1965), Family Adaptability

Table 2
Mean Scores by Group Membership

| Measure | Group | | | | | | | |
|---------------------------------|-----------------------------------|-----------|---|-----------|--|-----------|-----------------------------|-----------|
| | Mood disorder (<i>n</i> = 12) | | Anxiety disorder (<i>n</i> = 11) | | Mood/anxiety disorder (<i>n</i> = 16) | | Control (<i>n</i> = 13) | |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Age (years) | 11.5 | 1.2 | 11.6 | 1.5 | 11.9 | 1.5 | 12.0 | 1.3 |
| CDI | 25.17 | 9.71 | 20.18 | 6.49 | 24.13 | 5.50 | 2.83 | 2.48 |
| RCMAS | 66.75 | 6.43 | 65.00 | 7.77 | 71.00 | 6.12 | 40.33 | 9.28 |
| KSADS-Depression | 195.25 | 28.78 | 132.36 | 15.72 | 210.69 | 22.03 | 97.77 | 7.18 |
| KSADS-Anxiety | 162.42 | 20.52 | 154.72 | 15.07 | 217.75 | 44.43 | 124.38 | 2.47 |
| Σ Koppitz Emotional Indicators | 3.00 | 2.22 | 2.64 | 1.86 | 2.13 | 1.45 | 1.69 | 1.38 |
| Σ Reynolds Emotional Indicators | 5.00 | 2.05 | 5.91 | 2.30 | 5.94 | 2.67 | 5.15 | 1.82 |
| DAP Integrative System score | 4.08 | 1.08 | 2.64 | 1.57 | 3.06 | 1.18 | 2.00 | 1.00 |
| KFD Integrative System score | 4.00 | 1.13 | 2.64 | 1.69 | 3.06 | 1.34 | 2.46 | 1.33 |

Note. CDI = Children's Depression Inventory; RCMAS = Revised Children's Manifest Anxiety Scale; KSADS = Schedule for Affective Disorders and Schizophrenia for School-Age Children; DAP = Draw-A-Person; KFD = Kinetic Family Drawing.

and Cohesion Evaluation Scales (Olson, Bell, & Portner, 1978), and the Family Assessment Measure (Skinner, Steinhauer, & Santa-Barbara, 1983) as a result of a series of investigations of the psychometric properties of these measures. In its original form, the measure consists of three dimensions and 15 scales. Each scale consists of five items. The Relationship dimension, which captures the characteristics of the relationships among family members, consists of the following six scales: Cohesion, Expressiveness, Conflict, Family Sociability, Family Idealization, and Disengagement. The Value dimension, which represents family values, consists of the following three scales: Intellectual/Cultural Orientation, Active/Recreational Orientation, and Moral/Religious Emphasis. These scales were not of interest in this study and were not included in the present analyses. The third dimension, the System Maintenance dimension, which reflects the management style of the parents and the family's perceptions about who controls their lives, consists of the following six scales: Organization, External Locus of Control, Democratic Family Style, Laissez-Faire Family Style, Authoritarian Family Style, and Enmeshment.

The wording of the original SRMFF was modified for children (SRMFF-C) by simplifying the language in the directions and items, removing double negatives, and simplifying the descriptive anchors to *Never*, *Sometimes*, and *Always*. Because the original SRMFF was modified and originally standardized on college students, the reliability of the 15 scales was examined (Stark, Humphrey, Lewis, & Crook, 1990). Using internal consistency and item-to-total score correlations, the Disengagement, Laissez-Faire Family Style, and External Locus of Control scales did not meet minimal psychometric standards of reliability and were dropped. Items 14, 22, 25, and 51 also were dropped because of unacceptable item-to-total score correlations. Consequently, the aforementioned unacceptable scales and items were not included in the present analyses. The internal consistency reliability of the nine remaining scales of interest was Cohesion, $r_{\alpha} = .69$; Expressiveness, $r_{\alpha} = .78$; Conflict, $r_{\alpha} = .66$; Organization, $r_{\alpha} = .53$; Family Sociability, $r_{\alpha} = .54$; Family Idealization, $r_{\alpha} = .70$; Democratic Family Style, $r_{\alpha} = .73$; Authoritarian Family Style, $r_{\alpha} = .50$; Enmeshment, $r_{\alpha} = .51$. A more thorough discussion of the development and psychometric evaluation of the SRMFF-C can be found in Stark et al. (1990).

Draw-A-Person (DAP). For the administration of the DAP, the children were provided with two sheets of white typing paper and a pencil with an eraser, and the following instructions were given. "On your

piece of paper I would like you to draw a whole person. It can be any kind of person you want to draw, just make sure that it is a whole person and not a stick figure or a cartoon figure."

Kinetic Family Drawing (KFD). For the KFD, paper was provided and the instructions consisted of "On this piece of paper, draw a picture of everyone in your family doing something. Draw whole people, not cartoon or stick people. Remember, make everyone doing something; some kind of action."

Procedures

A multiple-gate assessment procedure (Kendall, Hollon, Beck, Hammen, & Ingram, 1987) was followed with parental permission secured at each step of the process consistent with the regulations of the Institutional Review Board of the University. Permission for participation in the initial screening portion of the study was secured from parents of 720 children, which represented 42% of the student population. The CDI and the RCMAS were used to assess the children in large groups for symptoms of depression and anxiety. A second permission letter was sent home to the parents of the children who (a) scored 19 or greater on the CDI ($n = 40$), (b) received a *T* score of 60 or greater on the RCMAS ($n = 62$), or (c) exceeded the cutoff scores on both measures ($n = 76$). Parental permission and child assent for participation in a second screening were received from 80% ($n = 32$) of the children who reported depressive symptoms, 90% ($n = 56$) of the children who reported anxious symptoms, and 95% ($n = 72$) of the children who reported both depressive and anxious symptoms.

Parents of the children who once again scored 19 or greater on the CDI ($n = 8$), 60 or greater on the RCMAS ($n = 35$), or above the cutoff scores on both ($n = 69$) received a third letter requesting permission to interview their child. Within 10 days, permission was received from 93% ($n = 104$) of the parents, and each child was individually interviewed with the K-SADS. Doctoral psychology students, unaware of subjects' CDI and RCMAS scores, conducted the K-SADS interviews. Prior to the actual interviews, they were trained until they reached a criterion of 90% agreement on the symptom ratings. Interviews of all of the subjects were audiotaped. One-fourth of the tapes were randomly selected and re-rated as a reliability check. The average percentage of agreement for the depression symptoms was 87.5%, and the average percentage of agreement for the anxiety symptoms was 93.6%. As a

result of these interviews, 14 children received a diagnosis of a mood disorder, 11, a diagnosis of an anxiety disorder, and 19, a diagnosis of both a mood and anxiety disorder. As mentioned earlier, 5 of these subjects were not included in this study because of missing human-figure drawing data.

Reliability of the diagnoses was evaluated through the following procedure. A summary form was constructed that listed the DSM-III-R symptoms for a diagnosis of (a) major depression, (b) dysthymic disorder, (c) depressive disorder not otherwise specified, (d) over-anxious disorder, (e) generalized anxiety disorder, (f) separation anxiety, and (g) anxiety disorder not otherwise specified. Two raters, a doctoral level psychologist and a doctoral student in psychology independently transferred the symptom ratings from the depressive and anxiety symptoms of the K-SADS interviews of each child to the summary forms. During the process of assigning diagnoses, the raters compared the symptom ratings on the summary forms to the DSM-III-R diagnostic criteria. The following decision rules were used when determining whether a symptom was present at a severe enough level to be considered symptomatic of a disorder. A symptom rating of 4 or greater on the K-SADS was considered clinically significant on the depression symptoms, and a rating of 3 or greater was considered to be clinically significant for the anxiety symptoms. On the overlapping symptoms, a rating of at least 4 was necessary for the symptom to be considered clinically significant. On the basis of these rules and the symptom ratings, DSM-III-R diagnoses were independently assigned to each youngster that met the diagnostic criteria. Interrater agreement was then computed. The percentage of agreement for the depression diagnoses was 91%, and it was 93% for the anxiety disorders diagnoses. Where there were disagreements, the raters came to a consensus and then assigned a diagnosis where appropriate.

Concurrent to completion of the aforementioned K-SADS interviews, additional parental permission and child assent were secured for children who scored in the nondepressed and nonanxious range on the screening administration of the CDI and RCMAS ($n = 30$). These youngsters completed a second administration of the measures in small groups. Permission was received for all but one child. All 29 of the children again scored in the nondepressed and nonanxious range on the second administration of the CDI and the RCMAS. They then were individually interviewed with the K-SADS. One of the children reported a diagnosable mood disorder during the interview. The thirteen children who were least symptomatic on the K-SADS and completed all other measures of interest were selected to be the control group.

Additional measures were then completed by the clinical and control samples in a small group format (4 to 8 children). During the first of these group assessments, the children were asked to produce a DAP and a KFD. Each drawing took approximately 10 min to complete. The children were seated at desks and tables, separated from each other. In subsequent group assessment sessions, numerous self-report measures were obtained from the children. Of interest to this study were the CSEI and nine selected scales of the SRMFF-C.

Scoring of projectives. The DAP drawings were scored using two methods. The Koppitz DAP System (Koppitz, 1968), which consists of 30 individual emotional indicators that are scored for presence or absence, was used (see Table 3 for a list of the indicators). Three exploratory items, presence of a *happy face*, a *sad face*, and a *worried face* also were included. Two psychology graduate students, who were unaware of all other information except the age of the child, used the Koppitz DAP System to score the DAPs. Scorers were required to reach 90% agreement on example drawings before scoring the actual drawings. To obtain a measure of interrater agreement, 50% of the drawings (26) were scored by both scorers. The G Index of Agreement was calculated to be 92% for the entire Koppitz DAP System of 30 emotional indicators. The G Index of Agreement for the 30 individual items as well as

the three exploratory items, depicted in Table 3, ranged from 77% to 100%. Disagreements were resolved through discussions by the two scorers. Total scores on the Koppitz DAP System were obtained by summing the number of emotional indicators present, excluding the three exploratory items.

Each DAP also was scored using a second approach that is a qualitative, integrative scoring system designed to measure Psychological Functioning of the Individual on a scale from 1 to 5. On this scale, 1 equals the *absence of psychopathology* (i.e., very healthy psychological functioning), and 5 equals the presence of *severe psychopathology* (i.e., very poor psychological functioning). To develop the system, called the DAP Integrative System, two psychology doctoral students with previous training and experience scoring and evaluating projective drawings (who had not participated in the scoring using the Koppitz DAP System), completed a forced sort of the 52 drawings into five piles of equal number on the 1 to 5 scale (the actual distribution was 10, 10, 11, 11, 10). The sorters were unaware of the group membership of each child and were only aware of each child's age. Subsequently, the two sorters were interviewed by Deborah J. Tharinger to determine what integrative features of the drawings influenced their ratings and differentiations.

Four characteristics of Psychological Functioning of the Individual were identified as representing the process experienced by the two raters and include (a) inhumanness of the drawing, (b) lack of agency (i.e., inability of the individual in the drawing to effectively interact with the world), (c) lack of well being of the individual in the drawing, typically reflected in facial expressions indicating negative emotions, and (d) the presence of a hollow, vacant, or stilted sense in the individual portrayed in the drawing. A clearer sense of these characteristics is gained through placing oneself in the position of the individual depicted. The pathological end of the scale will now be described. *Inhumanness of the drawing* refers to a quality whereby one would feel animalistic, grotesque, or monstrous, or if clearly human, as though one were missing essential body parts either because they were absent or disconnected. *Lack of agency* refers to a sense that the individual depicted would be unable to effect any change in his or her world; a sense of powerlessness that was often reflected in the pose of the individual. *Lack of well being*, as mentioned above, is reflected in negative facial expressions of the individual, such as an angry, scared, or sad face. A *hollow, vacant, or stilted* sense suggests that the individual is capable of interacting (i.e., has sufficient power or force but is somehow frozen and unable to move or use the power that may well be available to him or her). These four characteristics constitute a holistic and impressionistic sense of the drawings. That is, it is not a matter of rating a drawing a 5 on each of the four characteristics that results in a score of 5 on the drawing. Rather, it is an integrative combination of the four characteristics that results in the overall rating of the drawing.

Following the explication of these characteristics and methods, a new rater, also experienced with projective drawings, was trained in the resulting method, and she sorted the DAPs according to the set distribution on the five-point scale. In addition, one of the original raters again sorted the drawings, taking into account changes and clarifications in the system. Reliability was computed between the scores of these two raters. The Spearman rho, a correlation coefficient for ranked data, was computed to be .84. Disagreements were resolved through discussion between the two raters, and an agreed-on score was assigned.

The 52 KFD drawings also were scored using two methods. Because of the poor performance of scoring systems based on the Burns and Kaufman (1970, 1972) method (reviewed earlier), none of them were chosen. Instead, an approach similar to that used in the Koppitz System was sought. For the study, the Reynolds's guide was adapted into the Reynolds KFD System, consisting of the 37 individual indicators (see Table 4 for a list of the indicators). The signs were scored for presence

Table 3
Koppitz Emotional Indicators and Exploratory Items for Draw-A-Person

| | Disorder | | | | | | | | χ^2 significance level | G-index reliability (%) |
|---------------------------------------|------------------|----|---------------------|----|------------------------------|----|---------------------|----|-----------------------------------|-------------------------------|
| | Mood (n = 12) | | Anxiety (n = 11) | | Mood/ anxiety (n = 16) | | Control (n = 13) | | | |
| | n | % | n | % | n | % | n | % | | |
| Emotional indicators | | | | | | | | | | |
| Quality signs | | | | | | | | | | |
| Poor integration of parts | 0 | 0 | 2 | 18 | 1 | 6 | 0 | 0 | .20 | 77 |
| Shading of face | 1 | 8 | 3 | 27 | 3 | 19 | 0 | 0 | .21 | 77 |
| Shading of body and/or limbs | 8 | 67 | 5 | 45 | 9 | 56 | 4 | 31 | .31 | 77 |
| Shading of hands and/or neck | 3 | 25 | 0 | 0 | 1 | 6 | 1 | 8 | .19 | 85 |
| Gross asymmetry of limbs | 0 | 0 | 1 | 9 | 1 | 6 | 0 | 0 | .56 | 85 |
| Figure slanting 15° or more | 0 | 0 | 1 | 9 | 1 | 6 | 0 | 0 | .56 | 92 |
| Tiny figure | 1 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | .45 | 100 |
| Big figure | 1 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | .45 | 92 |
| Transparencies | 4 | 25 | 1 | 9 | 2 | 13 | 1 | 8 | .26 | 77 |
| Special features | | | | | | | | | | |
| Tiny head | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 92 |
| Crossed eyes | 0 | 0 | 2 | 18 | 0 | 0 | 1 | 8 | .18 | 100 |
| Teeth | 2 | 17 | 2 | 18 | 2 | 13 | 1 | 8 | .87 | 100 |
| Short arms | 1 | 8 | 2 | 18 | 2 | 13 | 1 | 8 | .85 | 92 |
| Long arms | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | .33 | 92 |
| Arms clinging to body | 3 | 25 | 4 | 36 | 4 | 25 | 4 | 31 | .91 | 85 |
| Big hands | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | .33 | 100 |
| Hands cut off | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | .28 | 100 |
| Legs pressed together | 1 | 8 | 2 | 18 | 4 | 25 | 5 | 38 | .34 | 85 |
| Genitals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 100 |
| Monster or grotesque figure | | 17 | 0 | 0 | 0 | 0 | 1 | 8 | .22 | 92 |
| 3 or more figures spontaneously drawn | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 100 |
| Clouds | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 100 |
| Omissions | | | | | | | | | | |
| No eyes | 1 | 8 | 0 | 0 | 0 | 0 | 1 | 8 | .52 | 92 |
| No nose | 1 | 8 | 0 | 0 | 1 | 6 | 0 | 0 | .60 | 100 |
| No mouth | 2 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | .07 | 92 |
| No body | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 100 |
| No arms | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 100 |
| No legs | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | .33 | 92 |
| No feet | 1 | 8 | 1 | 7 | 0 | 0 | 0 | 0 | .45 | 100 |
| No neck | 1 | 8 | 0 | 0 | 3 | 19 | 2 | 15 | .46 | 92 |
| M total | 3.00 | | 2.64 | | 2.13 | | 1.69 | | Overall | |
| SD | 2.22 | | 1.86 | | 1.45 | | 1.38 | | G-index | 92% |
| Exploratory items | | | | | | | | | | |
| Happy face | 2 | 17 | 8 | 73 | 7 | 44 | 10 | 77 | .009 | 92 |
| Sad face | 1 | 8 | 1 | 9 | 0 | 0 | 1 | 8 | .70 | 92 |
| Worried face | 2 | 17 | 1 | 9 | 5 | 31 | 0 | 0 | .12 | 85 |

or absence by two psychology graduate students who were unaware of all other information except the age of the child. Again, scorers were required to reach 90% agreement on example drawings before scoring the actual drawings. To obtain a measure of interrater agreement, 50% of the drawings (26) were scored by both scorers. The G Index of Agreement was calculated to be 80% for the overall Reynolds KFD System. The G Index of Agreement for the individual items ranged from 77% to 100% and are depicted in Table 4. Disagreements were resolved through discussions by the two scorers.

Each KFD also was scored using a qualitative, integrative scoring system that measures Psychological Functioning of the Family on a scale from 1 to 5. On the scale, 1 equals the *absence of psychopathology*,

and 5 equals the presence of *severe psychopathology*. To develop the new system, called the KFD Integrative System, the identical procedure and raters as described for the DAP Integrative System were used. The objective when analyzing the KFDs was not to focus on the child's depiction of the self within the family but rather to focus on the child's depiction of the whole family. Four characteristics of Psychological Functioning of the Family were identified as representing the process experienced by the two raters and include (a) inaccessibility of family members to each other; (b) degree of engagement of family members, including over- and underengaged; (c) inappropriate underlying family structure; and (d) inhumanness of the family figures. As with the DAP, the clearest sense of these characteristics can be gained through plac-

Table 4
Reynolds Emotional Indicators for Kinetic Family Drawing

| Emotional indicators | Disorder | | | | | | | | χ^2 significance level | G-index rel. % |
|--|------------------|----|---------------------|----|------------------------------|----|---------------------|----|-----------------------------------|-------------------|
| | Mood (n = 12) | | Anxiety (n = 11) | | Mood/ anxiety (n = 16) | | Control (n = 13) | | | |
| | n | % | n | % | n | % | n | % | | |
| Physical proximity (lack of) | 2 | 17 | 4 | 36 | 5 | 31 | 3 | 23 | .71 | 62 |
| Barriers between figures | 3 | 25 | 3 | 27 | 7 | 44 | 6 | 46 | .58 | 62 |
| Relative height of child (little) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 85 |
| Relative height of child (big) | 4 | 33 | 0 | 0 | 2 | 13 | 1 | 8 | .10 | 62 |
| Fields of force (balls) | 3 | 25 | 6 | 55 | 4 | 25 | 6 | 46 | .30 | 77 |
| Fields of force (fires) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | .38 | 100 |
| Fields of force (appliances) | 3 | 25 | 2 | 18 | 5 | 31 | 4 | 31 | .87 | 69 |
| Fields of force (X's) | 0 | 0 | 0 | 0 | 1 | 6 | 1 | 8 | .64 | 85 |
| Pencil erasures | 9 | 75 | 9 | 82 | 12 | 75 | 7 | 54 | .44 | 69 |
| Arm extensions of any figure | 5 | 42 | 7 | 64 | 9 | 56 | 3 | 23 | .18 | 62 |
| Descriptions of feelings not equal to drawing | 4 | 33 | 4 | 36 | 4 | 25 | 3 | 23 | .86 | 62 |
| Position of any figure with respect to safety | 0 | 0 | 1 | 9 | 4 | 25 | 0 | 0 | .07 | 69 |
| Child missing essential body parts | 2 | 17 | 3 | 27 | 3 | 19 | 4 | 31 | .80 | 62 |
| Rotation of figure (45 degrees) | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | .33 | 92 |
| Shading or crosshatching | 7 | 58 | 9 | 82 | 13 | 81 | 7 | 54 | .26 | 62 |
| Compartmentalism of figures | 2 | 17 | 1 | 9 | 3 | 19 | 1 | 8 | .79 | 92 |
| Folding compartmentalism | 1 | 8 | 1 | 9 | 0 | 0 | 0 | 0 | .45 | 100 |
| Underlining of individual figure | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | .28 | 92 |
| Lining at bottom of page | 1 | 8 | 2 | 18 | 3 | 19 | 2 | 15 | .88 | 69 |
| Lining at top of page | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | .28 | 92 |
| Encapsulation | 0 | 0 | 1 | 9 | 1 | 6 | 1 | 8 | .79 | 85 |
| Edged placement of figures | 1 | 8 | 0 | 0 | 1 | 6 | 0 | 0 | .60 | 69 |
| Evasions | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | .28 | 69 |
| Number of household members | 1 | 8 | 0 | 0 | 1 | 6 | 3 | 23 | .25 | 100 |
| Figure(s) on back of page | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | .28 | 100 |
| Line quality—light | 0 | 0 | 1 | 9 | 1 | 6 | 1 | 8 | .79 | 92 |
| Line quality—heavy | 0 | 0 | 1 | 9 | 2 | 13 | 0 | 0 | .38 | 85 |
| Line quality—unsteady | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 100 |
| Asymmetric drawing | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | .36 | 100 |
| Motionless or stick figures | 1 | 8 | 0 | 0 | 1 | 6 | 1 | 8 | .82 | 62 |
| Buttons | 1 | 8 | 1 | 9 | 1 | 6 | 1 | 8 | .99 | 92 |
| Jagged or sharp fingers, toes, teeth | 3 | 25 | 1 | 9 | 2 | 13 | 0 | 0 | .27 | 69 |
| Bizarre figures | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | .38 | 92 |
| Excessive attention to detail | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | .28 | 92 |
| Transparencies | 0 | 0 | 2 | 18 | 5 | 31 | 2 | 15 | .19 | 77 |
| Isolation of self | 2 | 17 | 0 | 0 | 2 | 13 | 3 | 23 | .41 | 69 |
| Anchoring | 4 | 33 | 1 | 9 | 3 | 19 | 4 | 31 | .47 | 77 |
| <i>M</i> Total | 5.00 | | 5.91 | | 5.94 | | 5.15 | | Overall | |
| <i>SD</i> | 2.04 | | 2.30 | | 2.67 | | 1.82 | | G-index | 80% |

ing oneself in the drawing, preferably in the place of the child. Again, the pathological end of the scale is described. *Inaccessibility* means that literally one could not get to other members of the family; in some way they are cut off from access. This can range from inaccessibility of anyone to the child or inaccessibility of a certain family member, perhaps the mother, to the child. *Degree of engagement* refers to the lack of appropriate involvement of the family with each other. Often the family members may be accessible to each other, but they do not seem engaged. Alternately, family members may seem to be intrusive. *Inappropriate underlying family structure* is reflected in the constellation of family relationships and boundaries depicted in the family drawing. Of importance is the analysis of the intergenerational boundaries and appropriateness of family roles. *Inhumanness* of the family figures is viewed similarly as on the DAP Integrative System.

As with the DAP system, these four characteristics are evaluated in an integrative manner to assign a ranking. Using the same method described earlier with the DAPs, two raters scored the KFDs. Reliability, using Spearman rho, was computed to be .85.

Results

The frequency of individual emotional indicators on the DAP Koppitz System by group membership (mood disorder, anxiety disorder, mood/anxiety disorder, and control) is illustrated in Table 3. To test for differences among the groups, chi-square tests were computed for each emotional indicator by group. No significant differences were found. A significant dif-

ference ($p < .009$) was found for the presence of a *happy face*: 77% of the DAPs of the control children had a happy face, as did 73% of the children with an anxiety disorder and 44% of the children with a mood/anxiety disorder. Only 17% of the DAPs of the children with a mood disorder had a happy face. No significant differences were found for the exploratory items, presence of a *sad face* or a *worried face*. The frequency of individual emotional indicators on the Reynolds System for the KFD by group membership is illustrated in Table 4. Chi-square tests again were computed for each emotional indicator by group, and no significant differences were found.

To examine possible differences among the groups on the mean total scores on the Koppitz DAP System, the Reynolds KFD System, the DAP Integrative System, and the KFD Integrative System, a MANOVA test was computed, yielding a significance level of .01. Subsequent univariate tests revealed no significant differences on the Koppitz DAP and Reynolds KFD Systems (see mean scores in Table 2). Significant differences were found for the DAP Integrative System, $F(48, 3) = 6.46$, $p < .001$, and the KFD Integrative System, $F(48, 3) = 3.04$, $p < .04$. Planned contrasts indicated that the children with mood disorders and mood/anxiety disorders had higher ratings (indicative of more psychopathology) on the DAP Integrative System than did the children in the control group and that the children with anxiety disorders did not differ from the control group. Similarly, on the KFD Integrative System, children with mood disorders had higher, more pathological ratings than did the control group. Children with mood/anxiety disorders and anxiety disorders did not differ from the control group.

To examine possible sex differences among the groups on the mean total scores of the four systems, a MANOVA test was computed, yielding a significance level of .01 (there were too few boys in the sample to conduct a Sex \times Group Membership analysis). Significant univariate tests were obtained only for the DAP Integrative System scores, $F(50, 1) = 7.60$, $p < .008$, and the KFD Integrative System scores, $F(50, 1) = 10.17$, $p < .002$. In both cases, boys received higher (more pathological) scores.

To evaluate the relationships between the total scores and ratings produced by the four drawing-scoring systems, correlations were computed among the Koppitz DAP, the DAP Integrative, the Reynolds KFD, and the KFD Integrative Systems. The Koppitz System did not correlate significantly with any of the other systems. The Reynolds System was significantly correlated only with the KFD Integrative System ($r = .30$, $p < .02$). The DAP and the KFD Integrative Systems were significantly related with each other ($r = .55$, $p < .0001$).

To examine the relationship between self-presentation on a drawing and self-concept on a self-report measure, the total scores on the Koppitz DAP System and the scores from the DAP Integrative System were correlated with children's scores on the CSEI (see Table 5). The total scores from the Koppitz DAP System were not significantly correlated with the CSEI. The Psychological Functioning of the Individual scores on the DAP Integrative System were significantly related to the CSEI ($r = .41$, $p < .001$). Children who reported higher self-concepts also produced DAPs that were evaluated to be healthier. To explore the relationship between the presentation of family in a drawing and the perception of family on a self-report measure, the total scores on the Reynolds KFD System and the scores

Table 5
Correlations Between Drawing Systems
and Self-Report Measures

| Measure | Koppitz DAP system | DAP integrative system | Reynolds KFD system | KFD integrative system |
|----------------------------|--------------------|------------------------|---------------------|------------------------|
| CSEI | .14 | ***.41 | | |
| SRMFF-C | | | | |
| Cohesion | | | ** .32 | ** .32 |
| Expression | | | .30 | .24 |
| Conflict | | | .17 | ** .33 |
| Family Sociability | | | .25 | ** .29 |
| Family Idealization | | | .14 | .24 |
| Organization | | | ** .38 | ** .33 |
| Democratic Family Style | | | .17 | ** .30 |
| Authoritarian Family Style | | | .08 | .21 |
| Enmeshment | | | .12 | .04 |

Note. CSEI = Coopersmith Self Esteem Inventory (Coopersmith, 1975); SRMFF-C = Self Report Measure of Family Functioning for Children (Stark, Humphrey, Lewis, & Crook, 1990).

* $p < .05$. ** $p < .01$. *** $p < .001$.

from the KFD Integrative Systems were correlated with nine selected scales of the SRMFF-C. Because of the large number of correlations computed, the level of significance was set at .01 (see Table 5). Scores on the Reynolds KFD System were significantly correlated with the scale of Cohesion from the Relationship dimension and the scale of Organization from the Systems Maintenance dimension. Scores on the KFD Integrative System were significantly correlated with Cohesion, Conflict (absence of), and Family Sociability from the Relationship dimension, and Organization and Democratic Family Style from the Systems Maintenance dimension.

Discussion

The results of the analyses of the quantitative methods for scoring human-figure drawings support previous research by demonstrating the inability of individual emotional indicators on both the DAP and the KFD to differentiate children who have received diagnoses of internalizing psychological disorders from normal controls. Of 30 emotional indicators on the Koppitz System and 37 on the Reynolds Systems, none differentiated the children with mood disorders, anxiety disorders, and mood/anxiety disorders from normal controls. In contrast to the results of Lewinsohn (1964) with depressed adults and Gordon et al. (1980) with depressed girls, depressed children in this study were not more likely to produce drawings with tiny figures on the DAP. Consistent with the findings of Gordon et al., depressed children were no more likely to use light lines in their drawings as scored here on the KFDs.

As noted in the introduction, a number of classic signs of anxiety in the drawings of children have been proposed, and they were explored in this study. Support was not found for the sign of shading, nor for the use of erasures or heavily reinforced lines. The children with anxiety disorders were no different than the other children in the use of erasures, nor did they use

heavy, reinforced lines significantly more often than the other children. Of note, the children with anxiety disorders in isolation were no different from the normal control group on any of the projective drawing scores, quantitative or qualitative, supporting earlier research findings that anxiety cannot be readily interpreted from human-figure drawings.

Three exploratory individual indicators on the DAP, all facial expressions, were investigated to examine the hypotheses that (a) depressed children would fail to draw individuals with happy faces but would rather depict sad faces, and (b) anxious children would present DAPs with worried faces. These hypotheses were only partially supported. It was found that the children with mood disorders did not produce more sad faces than did the other groups of children, but they did produce significantly fewer happy faces. The children with anxiety or mood/anxiety disorders did not produce more worried faces than the other groups, but interestingly, they produced almost as many happy faces as did the control group. These results suggest that the absence of a happy face is suggestive of depression, although its presence may be suggestive of healthy functioning or anxiety (i.e., an anxious smile).

When the emotional indicators on the Koppitz DAP System and the Reynolds KFD System were summed and examined, no significant mean differences were obtained among the four groups. As mentioned earlier, Koppitz's work suggests that children with emotional problems are likely to score 3 or above using her DAP System. Weak support was found for this contention: The mean score of children with mood disorder was exactly 3.00, with the mean score of all other groups being less, but not significantly less. Of the children with mood disorder, 50% had three or more emotional indicators, as did 38% of the children with mood/anxiety disorders, 36% of the children with anxiety disorders, and 23% of the normal control group. Overall, 41% of the children in the clinical group scored 3 or above, compared with 23% of control children. On the Reynolds KFD System, the children with mood disorders and control children had almost identical mean scores of a total of five individual emotional indicators, indicating no discrimination between disturbed and normal children.

Results of the correlations of the total scores and ratings produced by the four scoring systems indicate that the Integrative DAP and KFD Systems are measuring something different from the sum of the individual signs of the quantitative systems. These findings suggest that an essential essence of holistic health or pathology has been missed by the emphasis being placed on isolated signs. The DAP and KFD Integrative Systems, which consist of one score on a five-point scale, both significantly differentiated children with mood disorders from control children. The DAP Integrative System also significantly differentiated mood/anxiety disorder children from normal controls.

The goal of the integrative qualitative systems was to score a drawing on the severity of the overall psychological functioning of the individual and of the family. The results suggest that the DAPs of children with mood disorders and mood/anxiety disorders are indicative of more severe individual psychopathology than those of children with an anxiety disorder only or control children. In addition, the KFDs of mood disorder children are indicative of more severe family psychopathology than

those of the other two clinical groups and the control group. Although research on the relative severity of childhood depressive and anxiety disorders is sparse, the literature suggests that childhood anxiety disorders are less severe in terms of developmental course and prognosis than is childhood depression (Rutter & Garmez, 1983). The cognitive-behavioral literature describes the adult depressed individual as much more seriously impaired than the anxious adult in terms of self appraisal, prospects for the future, core personality, and degree of hopelessness (Beck & Emery, 1985).

The significant relationship found between degree of healthy psychological functioning on the DAPs as assessed by the Integrative DAP System and self-reported self-concept lends credibility to the contention that the DAP is a depiction of the child's sense of self. Children whose DAPs were scored as healthy reported higher self-concepts. The significant relationships found between degree of healthy family psychological functioning on the KFDs as assessed by the Integrative KFD System and self-reported family functioning in the dimensions of Relationships and Family Systems Maintenance lend some support to the validity of KFDs as a depiction of the child's perception of his or her family. Children whose KFDs are scored as healthy report families with more cohesion, less conflict, and more family sociability. They also report more emphasis on organization within the family and that the parents managed the family through a democratic style.

Overall, the results of this study indicate that systems that take into account the overall presentation of the individual's and the family's psychological functioning in projective drawings have clinical utility. Qualitative, integrative, and holistic evaluations of projective drawings can be useful adjuncts in assessing the severity of children's internalizing disorders and may prove useful in charting progress in treatment. Cautions apply in regard to generalization of the findings because the sample in this study consisted only of children from ages 9 to 14 years, primarily girls, attending regular education in a suburban area. The limited number of boys in the sample did not allow for an evaluation of sex differences by group membership. However, the scores of the boys on the Integrative Systems of the DAP and the KFD were higher overall than were the scores for the girls. It is possible that the subjective distress of the boys was higher in this sample or that the boys were more able to express their feelings through drawing techniques than were the girls. Research with a larger sample of boys is needed to address this question. In addition, research is needed to determine the applicability of the qualitative system with younger children. A further limitation exists in that the holistic, qualitative, and integrative systems developed in this study apply only to group research at this time, because the drawings were scored by being compared to each other through a group-sort method. Further research and development is needed on the systems to test their clinical usefulness as applied to individual cases.

It is important to mention that the results of the multiple-gate assessment procedure used in this study for sample selection were somewhat surprising and have implications for the assessment of depression and anxiety in children. A more thorough discussion of 3 years of research examining the multiple-gate assessment process can be found in Stark (1990). A review of

Stark's Figure 1 indicates that, at the broadest level, relatively few of the children (29%) who received parental permission at each step of the process and who initially reported clinically significant levels of depressive or anxious symptoms or both continued through the process to receive a diagnosis of a mood or anxiety disorder. A closer look at the results of this assessment procedure revealed that 40% of the children whose scores exceeded the cutoff on the initial administration of the CDI did not continue to report significant levels of depressive symptoms on the second administration. Similarly, 29% of the youngsters who initially scored in excess of the cutoff score on the RCMAS reported nonclinical levels of anxious symptoms on the second administration. It also became evident that there was the greatest relative change in the scores of the children who initially exceeded the cutoff on a single measure and less change among children who initially exceeded the cutoff scores on both the CDI and RCMAS. In general, results of this assessment process have implications for future research in the areas of childhood mood and anxiety disorders. Reliance on a self-report measure as the sole means of identifying depressed/anxious and control children, regardless of whether it is administered once or twice, is going to be misleading because many of the youngsters will not be experiencing a diagnoseable mood or anxiety disorder.

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