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CHAPTER 12

STRUCTURED ASSESSMENT OF PSYCHIATRIC DIAGNOSIS AND OF PSYCHOSOCIAL FUNCTION AND SUPPORTS IN ADOLESCENCE: A Role in the Secondary Prevention of Suicide

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In this chapter, we consider the role that the structured assessment of psychiatric diagnosis and psychosocial functioning may play in the identification of the suicidal adolescent. Structured diagnostic and psychosocial assessment, until recently considered solely the domain of clinical research, may profitably be incorporated into the battery of psychological tests routinely administered to troubled children and adolescents who present to the mental health professional for psychiatric evaluation and treatment. In support of the feasibility and clinical utility of this approach to the identification of the suicidal youth, we present data from a pilot study of a small sample of hospitalized adolescents in which we pretested a structured assessment battery. In addition to finding the assessment battery useful, we found a remarkable lack of consistency between the patients' clinical diagnoses and diagnoses arrived at by other means.

The Magnitude of the Problem:

The Age Group at Risk

Because suicide in children under the age of 5 has not been reported and rates for 5 to 14 year olds are consistently low (less than 1.5/100,000 annually) and have not varied appreciably in recent years,^{1,2} we will restrict our attention to adolescents between the ages of 15 and 19 years (though structured assessment techniques may be useful adjuncts to traditional evaluation methods in the younger adolescent and latency age child,

as well). For the 15- to 19-year-old group, the risk of suicide has trebled in the past 20 years, and death by suicide now approaches an annual rate of eight per 100,000 among adolescents, ages 15 to 19.² While this rate is only about one-half that reported for the general population,³ suicide has become the third leading cause of death of adolescents in the United States,³ and thus a public health problem of considerable magnitude for which prevention strategies are sorely lacking.

Levels of Prevention: Where to Intervene

There are at least two levels of prevention: primary and secondary.⁴ Primary prevention implies understanding and modifying the causes of a condition so that it occurs with decreased frequency or not at all. Secondary prevention implies intervention in a disease process to modify its outcome—either through its cure, amelioration, or arrest.

Attempts to understand the causes of suicide have resulted in a variety of etiologic models that might explain the occurrence of suicidal behavior. Hollinger and Offer⁵ have suggested that these models encompass four general categories: 1) sociocultural or socioeconomic; 2) psychodynamic or intrapsychic; 3) diagnostic or psychopathologic; and 4) biologic. That no single etiologic model is sufficient to explain the cause of suicide is exemplified by the findings from a study by Paykel and associates.⁶ In their study suicidal ideation was found to be quite common in the general population, but only a small fraction of individuals with suicidal ideation had actually attempted suicide. Several variables were found to intervene between suicidal ideation and suicidal behavior in Paykel's sample, and were analogous to three of Hollinger and Offer's suggested models: 1) sociocultural factors, eg, social isolation; 2) psychological factors, eg, character structure; and 3) nosological factors, eg, affective illness. However, there were complex interactions among the three variables that proved elusive, and unifactorial models could not explain the occurrence of suicidal behavior in that general population sample—though they were useful in identifying "at risk" subgroups. The authors concluded that more complex multifactorial probabilistic models based on further research are required if we are to have a less rudimentary notion of cause.⁴

Moreover, many of the putative causes of suicide, and therefore potential targets of primary prevention, touch on the fundamental structure of modern life. For example, some years ago Durkheim⁷ identified the lack of social integration, the absence of a cohesive value system, and the variety of social transitions required of an individual, as factors in society that contribute to an increase in self-destructiveness. A life-style that includes geographic mobility, separation from the extended family, and a high frequency of divorce and single parent families has evolved since

World War II in the United States and in Europe, and as a consequence has contributed to social isolation and the weakening of available social and emotional ties. The family, church, and schools, which once served to integrate young persons into a social group and provided models of behavior and values, are less available as effective resources, and no ready remedy is apparent. In this context, modern industrial society constitutes a high-risk environment quite resistant to modification. Currently, secondary level intervention thus appears to be the only practical approach to the prevention of suicide among young people.

Of the etiologic models or explanatory frames, the diagnostic or nosological is most proximal to the suicidal act. Much suicidal behavior, whether completed or not, occurs within the context of a discrete psychiatric disorder,^{3,4,8-16} usually a major affective disorder or schizophrenia, often in conjunction with or complicated by alcohol/substance use/dependency disorders or specific personality disorders. The timely identification of such disorders offers promise as a means to identify adolescents at risk for suicidal behavior, and provides an opportunity for secondary prevention through psychosocial and/or somatic therapies. Moreover, social maladjustment or an inadequate support system may increase the risk of suicide,^{6,15} and preventive intervention directed toward the improvement of the adolescent's social adjustment and social supports might serve to modify the risk of suicide in the context of a major psychiatric disorder. Recently developed research instruments now permit the reliable and structured assessment of diagnostic and social variables in adolescence.

STRUCTURED ASSESSMENT IN ADOLESCENCE

Application of Formal Diagnostic Criteria to Adolescents

Although there has been a debate about the prevalence of affective disorders among adolescents, as well as about the usefulness of the formal diagnostic assessment with this age group, increasing evidence demonstrates the reliability, validity, and clinical utility of the nosological approach in this population. Because adolescence has been viewed traditionally as a period of great psychological and behavioral instability, clinicians have found it difficult to distinguish normal psychopathological development, and symptoms and dysfunctional behaviors often have been considered to be transient and mutable.¹⁷⁻¹⁹ From this perspective, descriptive, nosological diagnosis has been considered of limited validity.

On the other hand, epidemiologic studies of adolescent groups have provided little support for the concept of adolescent turmoil as a

phenomenon.²⁰⁻²³ Several specific findings emerged from these and other studies²⁴⁻²⁸ that support the utility of descriptive diagnosis for clinical work and psychiatric research. First, only a small portion of adolescents have been found to manifest significantly impaired psychosocial adaptation.²⁰⁻²³ Second, symptoms, behavioral disturbances, and impaired psychosocial adaptation do not appear to be benign and transitory phenomena, but rather appear predictive of the persistence of such disturbances in adulthood.²⁴⁻²⁸ When descriptive diagnoses are assigned to such patients, these diagnoses are likely to agree with those made with similar criteria later in adulthood.^{24-26, 28}

Other recent studies have demonstrated the reliability of formal descriptive diagnosis in adolescence, based on strictly specified diagnostic criteria,²⁹⁻³² as well as the validity of specific disorders, the occurrence of which in adolescence was widely doubted or regarded as extremely rare.³³⁻³⁵ Strober and Carlson,³³ for example, reported their experience with the use of 13 DSM-III categories to classify the psychiatric illness of 95 adolescents consecutively admitted to UCLA. There was complete agreement for more than 75% of the cases, and levels of agreement for Schizophrenia and Major Affective Disorders were comparable to those achieved in recently reported adult samples. Other studies by the same group^{34,35} have examined predictor variables such as treatment response, cross-sectional symptom patterns, and family-genetic factors. These studies support the validity of using adult diagnostic criteria for the diagnosis of unipolar depressive and bipolar syndromes in adolescence. Other recent studies have examined a variety of issues bearing on the validity and frequency of occurrence of major affective disorders in adolescence.^{36,37}

Structured Interviews and Specified Diagnostic Criteria

One of the major advances in recent years in psychiatric diagnosis has been the development of structured diagnostic interviews that have been designed for use in conjunction with highly specified sets of diagnostic criteria to generate formal descriptive diagnoses. These interviews and diagnostic systems, when employed by trained clinical interviewers, reduce the several sources of variance³⁸ that compromise the reliability and measurement validity of clinical diagnoses generated by more informal clinical interviews.

The success of such approaches in facilitating the acquisition of highly reliable diagnostic information was perhaps the major impetus for the development of the third edition of the *Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-III)*.³⁹ This manual, developed by a task force of experts under the leadership of Robert Spitzer, was designed to provide researchers and clinicians with

well-operationalized sets of criteria that define the major psychiatric disorders of children and adults. To the extent that it was possible, the task force based the criteria on clinical, epidemiological, and genetic-biochemical data that had supported the construct validity of such disorders.

The DSM-III³⁹ employs a multiaxial diagnostic system. All of the mental disorders are coded on Axes I or II, while on the remaining axes, physical conditions, psychosocial stressors and psychosocial functioning within the year prior are coded. The disorders listed on Axis II are the personality disorders and the specific developmental disorders. The other mental disorders and conditions are included in Axis I. The DSM-III permits the concurrent diagnosis of multiple disorders on Axes I and II. The DSM-III, Axis I diagnostic criteria were those used in the pilot study to be described below.

Several structured diagnostic interviews have been developed recently for use in conjunction with the DSM-III to obtain diagnostic information directly from children and adolescents and/or from parents about their children. Such information is used to make a wide variety of DSM-III diagnoses. The interviews include the Schedule for Affective Disorders for School Aged Children,⁴⁰⁻⁴² available in present (Kiddie-SADS-P) and epidemiological (K-SADS-E) versions, the Diagnostic Interview for Children and Adolescents (DICA)^{30-32,43} and the Child Assessment Schedule (CAS).⁴⁴⁻⁴⁶ In addition, the center for Epidemiological Studies (CES) is currently developing an interview for use by lay interviewers, the Diagnostic Interview Schedule for Children (DIS-C).^{47,48} Although the DIS-C is still being developed, it appears quite promising for use in epidemiologic studies and in clinical settings in which highly trained interviewers are not available.

For use in the pilot study, we chose the K-SADS-E for the following reasons: 1) the K-SADS-E assesses both current and lifetime diagnoses; 2) at the time of the study, the K-SADS-E was completely developed, while the DICA and the DIS-C were still under development, and psychometric data on the CAS had not yet been reported; 3) what psychometric data were available suggested the K-SADS-E was a strong instrument capable of collecting highly reliable and valid diagnostic data. Moreover, our experience with the K-SADS-E tended to confirm the promise of this interview. However, for various clinical and research applications the other interviews may be equally or more appropriate. The K-SADS-E is described in detail in the methods section below.

Social Adjustment and Its Measurement

The presence of relatively intact social adjustment (ie, adequate role functioning and social network) has appeared to "protect" individuals from depression,⁴⁹ and, in the context of a major affective disorder, to

modify the risk of suicide.⁶ Unfortunately, research exploring the influence of social adjustment on mental illness and suicidal behavior has been restricted to adults, probably because the development of quantitative, empirical research methods to assess social functioning in children and adolescents has lagged behind the development of methods in adult psychiatry.

Weissman and associates have identified 28 measures for the assessment of adult social adjustment in clinical and in psychiatric epidemiology studies, scales that reasonably meet criteria for reliability, validity and utility.^{30,31} We have recently examined measures of social competence—the construct of social functioning usually employed in the child and adolescent psychosocial literature as the analog of social adjustment—and have found no measures of social functioning in children and adolescents that meet similar criteria.

Moreover, within the child competence literature, we found that instruments typically were designed to measure the relative competence of children with severe handicaps, or a child's school performance. An exception to this is the social competence section of Achenbach's Child Behavior Checklist.³²⁻³⁴ We could find no articles in which social competence or social adjustment instruments were said to assess the influence of social competence on the risk for the acquisition of psychiatric disorders or for suicidal behavior in adolescents or children. While many anecdotal reports describe various aspects of social adjustment in the context of a psychiatric disturbance in this age group, few have considered its influence in a systematic way. To fill an apparent need for a social adjustment instrument for use with children and adolescents, we devised one that we included and tested in our pilot study of adolescent inpatients. This instrument, the Social Adjustment Inventory for Children and Adolescents (SAICA), is described in the methods section below.

Achenbach's Child Behavior Checklist³²⁻³⁴ and the SAICA each provide a means to identify areas of relative social dysfunction in young people who present for evaluation or treatment, areas that might then become the target of subsequent intervention. Achenbach's Child Behavior Checklist is considerably briefer to complete than the SAICA, and is given as a self-administered questionnaire to a parent (if the child is aged 4 to 18) and/or a child (if the child is aged 11 to 18), whereas the SAICA is a semistructured interview administered by a trained clinician. The Child Behavior Checklist may therefore be preferable for use in many clinical and research settings in which a more exhaustive evaluation of social functioning is not required. The SAICA, on the other hand, may be given to a child (aged 6 to 18), his parent, or both, and provides a more detailed assessment of social functioning and of social supports. Moreover, while the Child Behavior Checklist provides an assessment of

the child's social functioning only for the past year, the SAICA may be administered retrospectively to construct a chronological profile of social adjustment.

Both instruments have advantages over informal clinical evaluation of social functioning in that they permit a highly reliable and relatively complete assessment of social functioning over a broad range of areas, such as academic performance, peer relations, and leisure activities. Informal clinical evaluations may overlook important areas of social functioning or assess areas of adjustment less uniformly.

PILOT STUDY: THE ASSESSMENT OF ADOLESCENT INPATIENTS

Methods

Setting The study was conducted at a small university-affiliated psychiatric hospital that specializes in the residential care of adolescents and young adults.

Sample Twenty-one adolescents (aged 13 to 18) were inpatients on the hospital's ward at the time of study (March-June, 1981). The criteria for admission to the study were that patients be between the ages of 13 and 18 years, inclusively, that the patient and his/her mother agree conjointly to participate, and that there be no evidence of organic mental disorder. Seventeen of 21 patient-mother pairs (81%) who were eligible to participate at the time, entered the study. Three of 21 patients were judged by the staff as too disturbed to participate—though some actively psychotic patients were able to participate—and one patient refused. Therefore, 17 patients: 13 males and four females, fully participated in the study.

Assessments The battery included demographic, medical, developmental, familial, and psychosocial assessments. The K-SADS-E and SAICA were used to determine a patient's diagnoses and social adjustment, respectively, through interviews with patients and their mothers. Four highly trained raters blind to each other's findings interviewed mother, child, or reviewed the hospital chart. Patients, mothers, and selected hospital staff independently completed self-administered reports. Study design, self-administered reports, training, and evaluation procedures are described elsewhere (GD Gammon, K John: YPI Pilot Study Protocol: Pretest of Reliability and Validity of Child Assessment Batteries, 1981, unpublished).

The Schedule for Affective Disorders and Schizophrenia for School-Aged Children and Adolescents, Epidemiologic Version (the Kiddie SADS-E or K-SADS-E) is a semistructured, diagnostic interview that was developed by Puig-Antich and associates⁴¹ for administration to 6 to 18

year olds. Structured similarly to the Schedule for Affective Disorders and Schizophrenia, Lifetime Version (SADS-L), from which it was adapted, the K-SADS-E is intended for use by highly proficient clinical raters, who have received from 10 to 15 hours of training in its administration. The interview takes about 15 minutes with subjects who have no clinical disorders, and no longer than 60 minutes with subjects who have multiple disorders.

The K-SADS-E is designed to generate RDC and DSM-III diagnoses (both current and lifetime) for the nonaffective, nonorganic psychoses, major affective disorders, panic disorder, phobic disorders, obsessive-compulsive disorder, and alcohol/substance use disorders, and DSM-III diagnoses for infantile autism, anorexia nervosa, attention deficit disorder, conduct disorder and overanxious disorder of childhood. The presence of suicidal ideation, the number and severity of suicidal attempts, and the seriousness of the subject's suicidal intention are also assessed.

Puig-Antich et al⁴⁰ performed reliability and validity work on the K-SADS-P, which assesses current psychiatric status,⁴¹ and Orvaschel et al recently reported on the validity of the K-SADS-E in a group of prepubescent children (6 to 13 years old).⁴²

The Social Adjustment Inventory for Children and Adolescents is based conceptually on a modification of the model of social role adjustment used in adult scales and, as such, can produce data on social adjustment potentially comparable to those derived from adult scales. Within such a conceptual framework, social role adjustment constitutes the transactions of the person with the social environment. These role transactions are varied and complex, but since they are performed in relatively well-specified circumstances, the assessment of social role adjustment should provide a sensitive and valid index of social adjustment in children and adolescents.

The SAICA is a 78-item, semistructured interview with well-defined anchor points, which takes from 10 to 60 minutes to administer, depending on the age of the subject (ie, the number of grade spans covered). It is suitable for school-aged subjects (6 to 18 years of age) or it may be administered to parents about their children. Social role adjustment is assessed in the four areas in which a child or adolescent typically transacts: school, spare-time activities, relations with peers (including heterosexual for subjects 12 to 18 years old), and home life. Each role area is comprised of items that assess both competent behaviors demanded of and potential problem behaviors within that role. This division of items was adopted to yield assessments of role performance from very competent to incompetent and of problem behaviors from absent to severe (each on a four-point scale). Currently, scores for each of 11 subscales can be obtained as well as an overall score. With further work, useful factors or clusters also may be identified. These subscales are as follows:

- *School Academic*: a score derived from the subject's academic performance and "track" assignment.
- *School Social*: a score based on the subject's relations with classmates and teachers.
- *School Problems*: a score based on the presence and severity of 11 problem behaviors at school.
- *Spare-time Activities*: a score based on a subject's participation in eight kinds of spare-time activities.
- *Spare-time Problems*: a score based on the presence and severity of seven spare-time problems.
- *Peer Relationships*: a score based on five normative behaviors with peers.
- *Peer Problems*: a score based on 11 peer problem behaviors.
- *Peer Heterosexual Adjustment*: a score based on four normative and four problem heterosexual behaviors.
- *Sibling Relations*: a score based on three normative and six problem peer relations items.
- *Parent Relations*: a score based on three normative behaviors with each parent (six items).
- *Home Problems*: a score based on four home adjustment problem items.
- *Total Score*: the arithmetic mean of all subscale scores.

Because the SAICA has been developed only recently, its psychometric properties have not been fully established. In the pilot study, the SAICA questions were administered iteratively to patients and their mothers for grades 1-3, 4-6, 7-9, and 10-12 to produce retrospective and current assessments of social adjustment.

Diagnostic sources Five sets of diagnoses were used in the study:

1) *Patients by K-SADS-E interview*. A single interviewer conducted all patient interviews. Diagnostic information obtained from the patient was recorded on a precoded scoring sheet from which DSM-III and RDC diagnoses were made.

2) *Mother by K-SADS-E interview*. Two interviewers blind to chart and patient diagnosis interviewed the mothers. Diagnostic data were recorded on a second copy of the precoded scoring sheet.

3) *Chart diagnoses*. Another independent rater exhaustively reviewed all relevant clinical materials contained in the charts, and coded all symptoms and information about clinical course from which DSM-III and RDC diagnoses could be made onto a third precoded scoring sheet.

4) *Clinician diagnoses from chart review*. The chart reviewer also recorded diagnoses that hospital clinicians gave to a patient in the course of the hospitalization in a special section of the third precoded scoring sheet.

5) *Best estimate diagnoses.* After the completion of data collection and processing, three independent diagnosticians reviewed all sources of information (including family history and treatment response – variables not considered in the other diagnoses) and generated a separate set of RDC and DSM-III best estimate diagnoses.

Assessment of suicidality In the K-SADS-E, a subject is asked about the presence of, or a past history of suicidal ideation or behavior. Five levels of severity may be scored: 1) not present; 2) recurrent thoughts of death; 3) wishes to be dead; 4) specific suicidal ideation; 5) suicidal behavior. If suicidal behavior is present, the subject is asked about the number of such behaviors and age at each attempt; the severity of the act is rated from 1 to 6 (no danger to very extreme), and the subject's intent is estimated on a six-point scale (obviously no intent to every expectation of death). From these data, we constructed a six-point summary scale that was inserted on the precoded scoring sheet: 0 = suicidal ideation denied; 1 = mild suicidal ideation (life not worth living; recurrent thoughts of death); 2 = moderate ideation (wishes to be dead); 3 = serious ideation (specific thoughts of suicide, usually a plan); 4 = suicide gesture (serious but not life-threatening, definite intent but ambivalent); 5 = suicide attempt (life-threatening, serious intent). Because clinicians' descriptions of suicidal ideation or behavior were the basis for the chart review ratings, there were only four suicidality scores to be compared.

Results

Demographic variable Table 12-1 presents the basic demographic variables. All patients were between 15 and 18 years of age. The mean age of patients at the time of interview was 17.1 years. Males outnumbered females by approximately three to one, which is typical of the unit and reflects the increased risk of hospitalization in adolescent males. Social classes (Hollingshead) I and II were somewhat over represented, and the IQ (WISC-R) distribution was skewed rightward with a mean of 110. No relationship between any of the demographic variables and patients' diagnostic status was evident.

Feasibility of instrument administration All patients and their mothers were able to complete the interviews and self-administered reports. Even when multiple diagnoses were present, the K-SADS-E was completed within 90 minutes, and the SAICA took no longer than 60 minutes to administer. In several instances patients and mothers remarked on the usefulness of the interviews in helping them to review the patient's history.

Agreement between diagnostic sources for primary diagnoses Table 12-2 presents primary diagnoses from each diagnostic source. Inspection of the table suggests that concordance of primary DSM-III

Table 12-1
Patients by Sex, Age, Social Class, and IQ (N = 17)

	Percent
SEX	
Males	76
Females	24
Total	100
AGE	
15 Years	24
17 Years	30
18 Years	46
Total	100
IQ (WISC FULL SCALE)	
87-99	25
100-109	25
110-119	25
120-135	25
Total	100
SOCIOECONOMIC STATUS (Hollingshead)	
I and II	58
III	18
IV and V	24
Total	100

diagnoses derived from the structured interview of patient and mother, respectively, was high. Only in cases 1, 5 and 11 was there substantive discrepancy.

The agreement between primary DSM-III diagnoses derived from chart review and hospital clinicians' diagnoses was not as good. The principal source of discordance was found in the five cases (patients #3, 8, 15, 16 and 17) that were assigned primary DSM-III, Axis I diagnoses from the chart review and DSM-III, Axis II (personality disorder) diagnoses from clinicians. A limitation of the chart review – as well as of the K-SADS-E and other structured diagnostic instruments – is that it has not been designed to collect clinical data from which Axis II diagnoses can be made.

The agreement between primary DSM-III diagnoses derived either from patients or their mothers and chart diagnoses, whether from chart review or from clinicians, was disappointing. The major source of discordance was in the diagnosis of Bipolar (I) Disorder and Atypical Bipolar (II) Disorder. Although structured interviews yielded six cases of bipolar disorder, hospital sources failed to identify a single case. While

Table 12-2
DSM-III Diagnoses from All Sources

Patient #	Structured Interview		Hospital Chart		Summary
	Patients	Mother	Chart Review	Hospital Clinicians	Best Estimate
1	Schizoaffective Disorder	Schizophrenia	Schizophrenia	Schizophrenia	Schizoaffective Disorder
2	Major Depressive Disorder (Recurrent)	Major Depressive Disorder (Recurrent)	Major Depressive Disorder	Major Depressive Disorder	Major Depressive Disorder (Recurrent)
3	Major Depressive Disorder (Recurrent)	Major Depressive Disorder (Recurrent)	Major Depressive Disorder	Borderline Personality Disorder	Major Depressive Disorder (Recurrent)
4	Conduct Disorder	Conduct Disorder	Conduct Disorder	Conduct Disorder	Conduct Disorder
5	Atypical Bipolar (II) Disorder	Major Depressive Disorder		Atypical Depression	Atypical Bipolar (II) Disorder
6	Bipolar (I) Disorder	Bipolar (I) Disorder	Schizophrenia	Atypical Psychosis	Bipolar (I) Disorder
7	Conduct Disorder	Conduct Disorder	Conduct Disorder	Conduct Disorder	Conduct Disorder
8	Atypical Bipolar (II) Disorder	Atypical Bipolar (II) Disorder	Conduct Disorder	Borderline Personality Disorder	Atypical Bipolar (II) Disorder
9	Schizoaffective Disorder	Schizoaffective Disorder	Schizophrenia	Schizophrenia	Schizoaffective Disorder
10	Conduct Disorder	Conduct Disorder	Conduct Disorder	Conduct Disorder	Conduct Disorder
11	Major Depressive Disorder (Recurrent)	Conduct Disorder	Conduct Disorder	Conduct Disorder	Major Depressive Disorder (Recurrent)
12	Conduct Disorder	Conduct Disorder	Conduct Disorder	Conduct Disorder	Conduct Disorder
13	Atypical Bipolar (II) Disorder	Bipolar (I) Disorder	Major Depressive Disorder	Major Depressive Disorder	Atypical Bipolar (II) Disorder
14	Schizophrenia	Schizophrenia	Schizophrenia	Schizophrenia	Schizophrenia
15	Atypical Psychosis	Atypical Psychosis	Conduct Disorder	Narcissistic Personality Disorder	Atypical Psychosis
16	Bipolar (I) Disorder	Bipolar (I) Disorder	Atypical Psychosis	Narcissistic Personality Disorder	Bipolar (I) Disorder
17	Bipolar (I) Disorder	Bipolar (I) Disorder	Major Depressive Disorder	Borderline Personality Disorder	Bipolar (I) Disorder

the use of Axis II primary diagnoses also was a source of discordance between diagnoses derived from structured interviews and hospital clinicians' diagnoses, when the clinician data in the charts were reviewed, DSM-III, Axis I diagnoses were made for these cases that were generally in good agreement with those made by structured interview.

When primary DSM-III diagnoses made from structured interviews were compared with the summary or best estimate diagnoses, agreement was high. Diagnoses from patient interviews agreed completely with the best estimate diagnoses, and, consequently, sources of discordance between diagnoses from mother interviews and best estimate diagnoses were the same as those between diagnoses derived from interviews of patients and their mothers.

Discordance between diagnoses from hospital charts and best estimate diagnoses was high. The sources of discordance were the same as those that accounted for the discordance between diagnoses from structured interviews and those from hospital charts.

Multiple diagnosis Clinicians frequently assigned patients Axis II personality diagnoses, even though the chart review demonstrated that enough clinical data existed in the charts to assign Axis I diagnoses in all but one case (#5). Although the validity of personality diagnoses in adolescents is in question and is reflected by the criterion that excludes persons under 18 years of age from many DSM-III personality disorder diagnoses, it was conceivable that clinicians assigned these diagnoses because personality dysfunction represented a major focus of treatment at this residential, psychoanalytically oriented treatment facility. To examine this possibility, we assessed patients by secondary diagnoses from each diagnostic source.

For these analyses, the best estimate diagnoses were taken as a criterion against which other diagnostic sources were compared. This approach seemed reasonable, because the best estimates were constructed by independent diagnosticians using all available diagnostic information from charts and direct research interviews of patients and their mothers. Moreover, Leckman and associates²⁹ have demonstrated recently the validity of using best estimates—constructed similarly to those in this study—as a criterion of the validity of diagnostic sources. Their results suggest that diagnoses derived from structured interviews of subjects agree very well ($Kappa = .95$) with those constructed by best estimate diagnosticians.

Table 12-3 presents: 1) the number of best estimate DSM-III diagnoses patients received; 2) best estimate DSM-III primary diagnoses by rank order of frequency among patients; and 3) best estimate DSM-III secondary diagnoses by rank order of frequency among patients. Patients tended to have multiple diagnoses, many of which preceded by several years the onset of the primary disorder. The mean number of

Table 12-3
Patients by Number of Best Estimate DSM-III Diagnoses Received
and by Best Estimate Primary and Secondary DSM-III Diagnoses

<i>Number Best Estimate DSM-III Diagnoses:</i>	<i>N</i>	<i>Percent</i>
1	0	0
2	1	6
3	3	18
4 or more	13	76
Total	17	100

<i>DSM-III Primary Disorder (Best Estimate):</i>	<i>N</i>	<i>Percent</i>
Conduct Disorder	4	23
Major Depressive Disorder	3	18
Bipolar (I) Disorder	3	18
Atypical Bipolar (II) Disorder	3	18
Schizoaffective Disorder	2	11
Schizophrenia	1	6
Atypical Psychosis	1	6
Total	17	100

<i>DSM-III Secondary Disorders (Best Estimate):</i>	<i>Number of Patients Affected*</i>
Conduct Disorders	12
Substance Use/Dependency Disorders	11
Anxiety Disorders	7
Cyclothymic Disorder	7
Alcohol Use/Dependency Disorders	6
Dysthymic Disorder	5
Major Depressive Disorder	2
Attention Deficit Disorders	2
Atypical Psychosis	1
Other	0

*All but one patient received two or more secondary diagnoses.

disorders diagnosed by best estimate for each patient was 4.6, with a range of 2 to 8.

Data from structured interviews with patients agreed well with the best estimate, yielding a mean number of 4.5 diagnoses per patient, with a range of 3 to 8. Interviews with patients' mothers yielded a mean number of 3.6 diagnoses, with a range of 2 to 9. The chart review yielded a mean number of 2.0 diagnoses with a range of 1 to 3, and the mean number of clinician diagnoses was 1.8 with a range of 1 to 3. The number of secondary diagnoses, then, were nearly as great through patient interview as through best estimate sources, and there were slightly fewer through mother interview, but there were many fewer assigned through chart review.

Among primary diagnoses, affective disorders occurred with greatest frequency (9, 54%). Bipolar (I) and Atypical Bipolar (II)

Disorders were unexpectedly frequent in this sample (6, 36%), while the frequency of the nonorganic, nonaffective psychoses was low (2, 12%) for a long-term, residential sample. Two patients (12%) had a mix of prominent affective and psychotic features that were such that a clear diagnosis of affective disorder or nonaffective psychosis could not be made, and they were assigned the DSM-III residual category of Schizoaffective Disorder.

Conduct problems were very frequent in these studies, as well. Conduct Disorder was the primary diagnosis of four (23%) patients, and a secondary diagnosis in 12 (71%) patients. Substance and Alcohol Use/Dependency Disorders were commonly encountered as secondary diagnoses (11, 65%; and 7, 41%).

The three patients with a primary diagnosis of Major Depression satisfied DSM-III criteria for Dysthymic Disorder, as had one bipolar patient in the year before the onset of bipolar illness. Five bipolar patients also met criteria for Cyclothymic Disorder; in each case the disorder preceded the onset of frank bipolar disorder by at least one year. Two of four patients with a primary diagnosis of Conduct Disorder satisfied DSM-III criteria for Major Depressive Disorder, and another satisfied those for Dysthymic Disorder.

Agreement, sensitivity and specificity: Best estimate diagnoses vs. other diagnostic sources To assess the significance of the less frequent identification of secondary diagnoses by chart sources, we compared best estimate diagnoses with diagnoses from other diagnostic sources for the eight most frequently assigned primary or secondary diagnostic categories.

Table 12-4 presents agreement, specificity and sensitivity for the eight most common diagnostic categories and for all these categories combined, when the best estimate served as the criterion against which the four other sources were assessed. Percent agreement uncorrected for chance was calculated for each specific diagnostic category because cell sizes were often too small (< 5) to warrant use of Cohen's Kappa or intraclass correlation coefficients as measures of agreement, and Kappa⁶⁰ was calculated for the eight categories combined. Since the number of primary diagnoses was small compared to the number of secondary diagnoses, primary and secondary diagnoses were combined for purposes of calculation.

Diagnoses derived from patient interviews agreed acceptably with the best estimate diagnoses. The slightly lower level of agreement between best estimates and mothers arose in part because mothers identified milder affective disorders and anxiety disorders less frequently than their offspring. This finding is not surprising in view of the often nondramatic nature of these disturbances and the well-known reticence of adolescents to confide information about their internal lives to their

Table 12-4
Percent Agreement, Sensitivity and Specificity of Primary
and Secondary DSM-III Diagnoses for All Other
Diagnostic Sources vs. Best Estimate*

DSM-III Diagnosis	Best Estimate vs.			
	Patient	Mother	Chart	Clinician
Schizoaffective Disorder or Schizophrenia (N = 3)†	100% SN = 1.00 SP = 1.00	100% SN = 1.00 SP = 1.00	94% SN = 1.00 SP = .93	100% SN = 1.00 SP = 1.00
Bipolar Disorder (I and II) (N = 6)†	100% SN = 1.00 SP = 1.00	94% SN = .83 SP = 1.00	65% SN = .00 SP = 1.00	65% SN = .00 SP = 1.00
Major Depressive Disorder (N = 5)†	94% SN = 1.00 SP = .92	82% SN = .00 SP = .92	76% SN = .40 SP = .92	59% SN = .20 SP = .75
Dysthymic or Cyclothymic Disorder (N = 12)†	100% SN = 1.00 SP = 1.00	76% SN = .67 SP = 1.00	47% SN = .25 SP = 1.00	35% SN = .08 SP = 1.00
Conduct Disorder (N = 16)†	94% SN = .94 SP = 1.00	100% SN = 1.00 SP = 1.00	59% SN = .56 SP = 1.00	41% SN = .38 SP = 1.00
Anxiety Disorders (N = 7)†	100% SN = 1.00 SP = 1.00	59% SN = .29 SP = .90	59% SN = .00 SP = 1.00	59% SN = .00 SP = 1.00
Alcohol Use or Dependency Disorder (N = 6)†	100% SN = 1.00 SP = 1.00	82% SN = .50 SP = 1.00	71% SN = .17 SP = 1.00	71% SN = .17 SP = 1.00
Substance Use or Dependency Disorder (N = 11)†	100% SN = 1.00 SP = 1.00	82% SN = .73 SP = 1.00	82% SN = .73 SP = 1.00	71% SN = .45 SP = 1.00
Summary for all Diagnoses‡ (N = 66)†	K = .97 SN = .99 SP = .98	K = .70 SN = .73 SP = .97	K = .37 SN = .39 SP = .97	K = .22 SN = .26 SP = .96

*Readers should be aware that, with several small sample sizes (eg, 3, 5, 6), percent agreement, sensitivity, and specificity are less meaningful than with larger groups.

†N is the number of cases or disorder (primary and secondary) identified by best estimate.

‡Kappa is reported because cell sizes are large (> 5).

parents. Mothers usually seemed apprised of alcohol and substance abuse, but they often could not estimate the severity. For this reason, they identified alcohol and substance use/dependency disorders less frequently than did their offspring.

Inspection of the sensitivity and specificity for the eight most commonly assigned diagnostic categories and for those eight categories combined revealed a marked reduction in overall concordance between best estimate and clinical source. Two related factors were found to account for these findings: 1) most patients were assigned multiple diagnoses by

the best estimate diagnosticians and through the interviews with patients and mothers; however, multiple diagnoses rarely were assigned through chart review or by clinicians; and 2) several disorders were not identified by hospital clinicians, ie, bipolar (mentioned earlier), secondary affective, anxiety, and alcohol and substance use disorders; and descriptive information found in the charts was often insufficient to permit the diagnosis of these same disorders. We had hypothesized that clinicians frequently made an Axis II primary diagnosis rather than an Axis I primary diagnosis because the personality disorder was the focus of treatment, but that Axis I disorders would be identified concurrently and regarded as secondary. This was not the case. Although the charts sometimes contained information necessary for Axis I diagnosis, they were not noted by clinicians, and therefore explained much of the discordance between best estimate and clinician.

Suicidal ideation and behavior in the sample The six-point scale that we constructed to rate patients' suicidality was found to constitute a continuum. That is, whatever score a patient obtained, the preceding scale items were found to be invariably present. Therefore, each patient was given a scale score (0-5) that represented his/her highest level of suicidal ideation or behavior.

Table 12-5 compares the number of patients who were assigned each of the six suicidality scores by each information source. Best estimate and patient sources agreed that nine patients engaged in suicidal behavior and that two others had suicidal ideation. Scores derived from mother interviews also agreed reasonably with best estimate scores. However, in one case the mother was unaware of a drug overdose that her child had taken before hospitalization. Agreement was poorer between scores based on clinical source and the best estimate. The primary reason for the discrepancy seemed to be that hospital clinicians seldom noted past suicidal ideation or behavior in the charts. From our subsequent discussions with the staff, it became evident that clinicians often had not

Table 12-5
Patients' Suicidality Scores by Source of Information

Suicidality Score	Structured Interview		Clinical	Summary
	Patient Number	Mother Number	Chart Number	Best Estimate Number
0 = Suicidal Ideation Denied	6	7	8	6
1 = Mild Ideation	0	0	0	0
2 = Moderate Ideation	1	1	2	1
3 = Serious Ideation	1	1	0	1
4 = Gesture	5	4	6	5
5 = Attempt	4	4	2	4
Total	17	17	17	17

systematically inquired about such previous episodes and were unaware of them. Consequently, two moderately serious attempts that had occurred some time before hospitalization had gone unidentified by hospital staff. However, once patients were hospitalized, clinicians seemed well apprised of their suicidal activity. It was our impression then that just as hospital physicians frequently underdiagnosed affective disorders – perhaps because they did not inquire about symptoms systematically – they were unaware of suicidal ideation and past behavior unless a patient volunteered the information.

Table 12-6 presents the number of patients with and without each of six DSM-III diagnoses by suicidality score. Five of these diagnostic groups, 1) Schizophrenia or Schizoaffective Disorder; 2) Bipolar (I) and Atypical (II) Bipolar Disorders; 3) Major Depressive Disorder; 4) Alcohol Use/Dependency Disorder; and 5) Substance Use/Dependency Disorder, were selected because the adult psychiatric literature provides support for each as a risk factor for suicide,⁹⁻¹⁶ though support from the adolescent psychiatric literature is less substantial. An association between antisocial personality disorder and suicidal behavior also has been suggested.¹⁵ Since Conduct Disorder is the analog of Antisocial Personality Disorder for children and adolescents in the DSM-III, Conduct Disorder is also included in the table.

Because Major Depressive Disorder and Conduct Disorder were frequently secondary diagnoses in this sample, and Alcohol and Substance Use/Dependency diagnoses occurred only as secondary diagnoses, considerable diagnostic overlapping is present among these patients. Nonetheless, several trends emerge. In two of the three patients with Schizophrenia or Schizoaffective Disorder suicidal ideation was present, and one schizoaffective patient made a serious suicide attempt during a period of severe depression before his hospitalization. Suicidal ideation was present in five of the six patients with a primary diagnosis of Bipolar Disorder. One of these patients made repetitive suicidal gestures and three had made serious attempts. The two most seriously suicidal patients in this sample who had made numerous life-threatening attempts suffered Bipolar Disorder. Four of the five patients with Major Depressive Disorder had experienced suicidal ideation, and three had made gestures. Of six patients with a diagnosis of Alcohol Use/Dependency Disorder, five had made attempts or gestures. This group included four of the five bipolar patients, and one of the schizoaffective patients. Conduct Disorder is so frequent a diagnosis (16 out of 17) that it is difficult to discern a trend. The presence of any of the first five diagnostic categories in these patients, however, does appear to be associated with an increased risk of suicidal ideation and suicidal behavior. Because of the sample size, absence of a suitable control group, and the high degree of diagnostic overlapping, statistical analysis, of course, was not feasible, and so firm conclusions cannot be drawn.

Table 12-6
Patients by Best Estimate Suicidality Score and Best Estimate Diagnoses (Primary and Secondary)

Best Estimate Suicidality Score	Best Estimate DSM-III Diagnosis											
	<i>Schizoaffective or Schizophrenia</i>		<i>Bipolar (I and II)</i>		<i>Conduct Disorder</i>		<i>Alcohol Use/Dependency</i>		<i>Substance Use/Dependency</i>		<i>Major Depression</i>	
	Number Patients: With	Number Patients: Without	Number Patients: With	Number Patients: Without	Number Patients: With	Number Patients: Without	Number Patients: With	Number Patients: Without	Number Patients: With	Number Patients: Without	Number Patients: With	Number Patients: Without
0 No Ideation (N = 6)	1	5	1	5	6	0	1	5	3	3	1	5
1-3 Mild to Serious Ideation (N = 2)	1	1	1	1	2	0	0	2	2	0	1	1
4 Suicide Gesture (N = 5)	0	5	1	4	4	1	2	3	3	2	3	2
5 Suicide Attempt (N = 4)	1	3	3	1	4	0	3	1	3	1	0	4
Total (N = 17)	3	14	6	11	16	1	6	11	11	6	5	12

There appears to be a correlation between suicidality score and the number of diagnoses a patient received. The patients who had denied suicidal ideation had an average of 3.6 diagnoses; patients who only suffered suicidal ideation had an average of 4.5 diagnoses, and patients who had engaged in suicidal behavior had an average of 5.4 diagnoses. While, again, the sample is too small for statistical significance to emerge, a trend may be evident.

Social adjustment and the risk of suicide Levels of correlation between patients' and their mothers' reports on each of the subscales for the four time periods were generally acceptable. Total score correlations ranged from .53 to .76. Nonetheless, because of our limited experience with the SAICA and the small sample size, our results must be restricted to impression and anecdote. In the two most suicidal patients (#5 and 17) whose hospital courses were characterized by unrelenting suicidal ideation and frequent suicidal behavior, social adjustment on all subscales was very poor. The subjects did poorly in school, though both were bright, had poor relations with teachers, and hung around with an antisocial peer group. After school the subjects had few leisure-time activities except for the use of drugs, occasional antisocial peer group activities, and spent much time alone. Their relations with their families (parents and siblings) were strained and distant. These patients manifested manifold problem behaviors as well as the relative absence of competent behaviors. Neither the patients nor their families appeared to have much in the way of institutional or community ties.

While the pattern of social adjustment for these two patients was relatively extreme, even for this group of severely ill hospitalized patients, in the other suicide attempters the picture was relatively similar. The absence of stable peer ties and constructive leisure activities, and the presence of hostile or distant family relations were marked.

The patients who had experienced no suicidal ideation frequently presented a different picture of social adjustment. Patient 2, for example, suffered episodes of severe major depression with melancholia. Outside the episodes of illness, however, his social adjustment was much more intact. He had several close friends, many leisure-time activities—he was a good musician—was involved in various community activities, and had relatively few problems with his immediate family. Patient 16, though he eventually developed bipolar illness, had had good premorbid social functioning. He did well in school, was appreciated by teachers and peers and had several close friends. Although his relations with his parents were strained, several older male surrogates looked after him.

One additional impression is that after the onset of a major psychiatric disorder in adolescence, social adjustment appeared to decline. Perhaps this is because the disorder inhibits the successful completion of the developmental tasks of adolescence. The effects of this decline may conceivably increase the risk of suicide as well.

Discussion

Reliability of the K-SADS-E and validity of diagnostic sources The diagnoses derived from K-SADS-E interviews of patients and their mothers agreed well with the best estimate diagnoses and with each other; the sources of discordance were largely due to the differences in information available to patients and their mothers about the patient's psychiatric course. This source of diagnostic disagreement has been labeled information variance by Spitzer, Endicott and Robins,³⁹ and cannot be reduced by interviewing technique.

Although diagnoses made by clinicians from clinical interviews of subjects traditionally have been used as criterion measures of the validity of semistructured interviews, Kappa coefficients of agreement, when such a criterion measure has been used, have usually been in the range of 0.25 to 0.56.⁴¹ As our study suggests, these disappointing results may reflect upon the inaccuracies of clinical interviews. While clinicians in this study focused on personality diagnosis, they frequently appeared to miss Axis I disorders, even though sufficient diagnostic information often was available in the charts from which Axis I diagnoses could be made. These considerations justify the use of best estimate diagnoses as a criterion measure of the measurement validity of the four other diagnostic sources considered in our study. Agreement, sensitivity and specificity, when best estimates are taken as the criterion against which patient and mother K-SADS-E interviews are compared, are acceptable despite the small size of the sample.

While diagnoses from the K-SADS-E interviews agree well with best estimates, and sensitivity and specificity are generally reasonable, similar coefficients for diagnoses from hospital sources are much lower. The sources of disagreement are due to the marked underdiagnosis of bipolar disorder and of secondary disorders by clinicians. Secondary diagnoses such as the milder affective disorders, alcohol and substance use/dependency disorders, and conduct disorders that should constitute specific treatment focuses in their own right were frequently missed.

Another important source of disagreement was the frequent diagnosis of DSM-III Axis II personality disorders. Although there is still some question about the construct validity of personality disorders in this age group, personality dysfunction may certainly constitute an important focus of treatment in a setting of this sort. Unfortunately, no diagnostic instruments for which reliability and validity have been established are currently available for making all the DSM-III Axis II personality diagnoses, though some are under development and appear promising. For this reason, we could not examine the validity of clinicians' diagnoses of DSM-III, Axis II personality disorders.

Clinical use of structured interviews Our findings suggest that structured interviews may complement the usual clinical interviewing

techniques in the identification of disorders that account for significant risk of suicide in adolescence. While our sample may be peculiar for the large number of secondary disorders per patient, the results are consistent with those of other studies that suggest the frequent underdiagnosis of psychiatric disorders such as affective disorders in adolescence.^{24,25}

Our findings also suggest that structured interviews are useful in the identification and quantification of suicidal ideation and behavior. Although hospital clinicians were able to accurately identify suicidal behavior that occurred while the patient was hospitalized, they were often unaware of suicidal behavior that occurred prior to hospitalization and of suicidal ideation that occurred both prior to and during hospitalization.

Patients' social adjustment and suicidality could not be statistically associated in this small sample, but examination of cases revealed that patients with the greatest degree of social isolation were most suicidal. Consistent with the adult literature that suggests that social adjustment may modify the risk of suicide in the context of the predisposing psychiatric disorders, patients with schizophrenia, schizoaffective disorders, affective disorders and alcohol and substance use/dependency disorders, who had the highest suicidality scores, also were the most impaired in their peer and family relations and in their capacities for positive spare-time activities. While a good clinical interview might identify such deficits, formal structured assessment of social adjustment permits a systematic appraisal.

CONCLUSION

From this pilot study and current epidemiologic data, a provisional portrait of the adolescent at risk for suicide emerges. He or she is between the ages of 15 and 19, often has an affective disorder, schizophrenia or schizoaffective disorder, complicated by behavioral problems—often satisfying criteria for conduct disorder—and by substance or alcohol abuse. He or she is often socially isolated, with impaired peer and family relations and a dearth of spare-time activities. He or she has often had past episodes of psychiatric disorders and a long history of psychosocial difficulties. Suicidal ideation and behavior frequently have been present in the past, usually during episodes of psychiatric disorder.

Whether such a patient has had psychiatric contact in the past, or present for evaluation for the first time, the clinician who typically performs the evaluation appears prone to focus on intrapsychic difficulties and personality dysfunction and may miss severe Axis I disorders that may be quite treatable—with concomitant risk reduction—and may miss concurrent and past suicidal behavior and current suicidal ideation.

Thus, while a good clinical interview may be sufficient to identify the suicidal adolescent, it appears that the structured assessment of

psychiatric diagnosis, potential suicidality, and social adjustment and psychosocial supports may represent an invaluable adjunct to the traditional clinical evaluation.

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