Original Articles

Children of Depressed Parents

Increased Psychopathology and Early Onset of Major Depression

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• Data on the psychiatric diagnosis, overall functioning, and treatment of 220 6- to 23-year-old subjects who were at high or low risk for major depression are presented. The subjects' diagnoses were made by a child psychiatrist based on best-estimate evaluation of diagnostic information derived from structured interviews (Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Epidemiologic Version) with the subjects and separately with their mothers about their children. The major findings were an increased overall prevalence of major depression and substance abuse, psychiatric treatment, poor social functioning, and school problems in the children of depressed proband parents compared with children of normal proband parents. Overall prepubertal depression was uncommon and the sex ratios were equal. After 12 years of age, there was an increasing preponderance of female subjects in the group with major depression. The mean age at onset of major depression was similar for male and female subjects. However, it was significantly earlier in the children of depressed probands (mean age at onset, 12 to 13 years) compared with the children of normal probands (mean age at onset, 16 to 17 years). Symptom profiles and additional types of diagnoses in the depressed children from either proband parent group did not differ. These children are being followed up longitudinally to determine the prognostic significance, persistence, recurrence, and recall of their symptoms. Several research and clinical strategies are suggested by these data.

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Although there has been considerable interest in the offspring of psychiatrically ill parents,[1,2] systematic studies of the offspring of depressed parents and of depression in children have only been of recent origin. There is emerging evidence that major depression can occur in prepubertal children[3-6] and that it is a significant clinical phenomenon among adolescents.[7-10] Recent large epidemiologic studies have shown that a large proportion of adults report having had an onset of major depression during adolescence and early adulthood.[11,12] There is evidence of an increase in adolescent suicide in the past decade.[13] This trend may be related to secular changes in rates of depression observed among adult populations, in which there appear to be a decreasing age at onset and increasing rates in the cohorts born since World War II.[14-16] While the continuity between childhood and adult major depression is unclear, recent community studies by Kandel and Davies[7] have suggested that there is a continuity between adolescent depressive symptoms and adult dysphoria and social morbidity.

The interest in families of depressed persons derives from the numerous studies showing strong aggregation of major depression in the first-degree relatives of depressed probands[17-19] and an increased risk of affective disorders among adult relatives of children with affective disorders.[5,20,21] Findings from the adult studies suggest that an early age at onset (ie, before 20 years of age) among probands is related to increased familial loading for major depression among the relatives.[16]

Finally, the interest in children of depressed probands derives from several studies showing a high risk of psychopathology in these children.[22-25] Although the few available high-risk studies of children of depressed parents have been criticized on methodological grounds (eg, small samples, lack of control groups, diagnostic approach, or lack of direct interview of children), their findings consistently demonstrate that the children of depressed parents have an increased risk for major depression as well as other psychopathologic conditions.

In a pilot family-history study of offspring 6 to 18 years of age, we showed that compared with the children of normal probands, the children of probands with major depression had a threefold increase in risk for any *DSM-III* disorder,[26] most commonly major depression. Moreover, the children of depressed probands were at increased risk for psychological symptoms, treatment for emotional problems, and school problems. However, in the pilot study the children's diagnoses were based on parents' reports of their children's symptoms rather than direct assessment of the children because structured diagnostic interviews of children were not available when the study was initiated.

With the availability of several structured interviews for children and adolescents there has been an increasing number of studies that systematically and directly assess children. Herein, we report the initial results of direct diagnostic interviews with 220 6- to 23-year-old offspring of depressed and normal parents. The results are based on a child psychiatrist's blind evaluation of diagnostic information obtained from interviews with the child and/or interviews with the mother about the child, and other corroborating information from school or medical records. Future reports will examine the concordance between the mothers' and children's reports of psychopathology.[27]

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Table 1.—Age and Sex of Children by Proband Parent Group

Sex	Age Range, y	Proband Parent Group, No. (%) of Subjects: Depressed	Normal	Total
M	6-11	16 (12.8)	4 (4.2)	20
	12-18	20 (16.0)	19 (20.0)	39
	19-23	27 (21.6)	19 (20.0)	46
F	6-11	8 (6.4)	7 (7.4)	15
	12-18	25 (20.0)	28 (29.5)	53
	19-23	29 (23.2)	18 (18.9)	47
Total No. of Children		**125 (100.0)**	**95 (100.0)**	**220**
Total No. of probands		56 (. . .)	35 (. . .)	91

SUBJECTS AND METHODS

Probands

The probands' parents were derived from the Yale Family Study of Major Depression. (See the study by Weissman et al[28] for complete methodology.) In the original study there were 215 probands (133 probands had major depression and 82 were normal controls). Major depression was defined according to modified Research Diagnostic Criteria (RDC) (requiring a four-week duration of symptoms and impairment in the major social role). The depressed probands had primarily received treatment at the Yale University Depression Research Unit, New Haven, Conn. The 82 normal controls were obtained from the 1975 community survey[29] and had no history of psychiatric illness based on at least four direct interviews over an eight-year period. During the most recent interviews, the Schedule for Affective Disorders and Schizophrenia, Lifetime Version, and the RDC were used. All of the probands were white and were grouped by age and sex.

Complete pedigrees for each proband were systematically obtained and diagnostic assessments based on the RDC were made for every living or dead adult first-degree relative and spouse from multiple informants by direct interview and/or family history or medical records. Diagnostic assessments of adult relatives were made blindly with respect to the status of the proband, using a best-estimate procedure.[30]

Assessment

The diagnostic assessment of the children was based on the Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Epidemiologic Version (K-SADS-E).[5,31,32] The schedule was slightly modified by us so that *DSM-III* criteria could be derived. Acceptable test-retest reliability for the K-SADS-E has been reported.[33] Interrater reliability was tested by us in a pilot study of adolescent inpatients.[34] The K-SADS-E was the core of a comprehensive interview that we assembled to be administered to a parent about the child and to the child about himself/herself. Included in the battery was assessment of overall psychopathology based on the Global Assessment Scale,[35] as well as assessment of school performance and treatment. An estimate of the child's IQ was derived from the Peabody Picture Vocabulary Test–Revised, Form M,[36] and the Wechsler Intelligence Scale–Revised Vocabulary and Block Design Subscales.[37]

To determine the current and past clinical status and social functioning of the parents, each parent was interviewed separately by independent interviewers. Interviewers who were blind to the parents' diagnoses interviewed a parent (preferably the mother) about the child and, at a later time, the child about himself/herself to obtain a comprehensive assessment of the child's psychiatric, behavioral, and social functioning. Parents were asked to complete self-administered reports about themselves and about each of their children. Subjects (8 years of age and over) were asked to complete self-administered reports about themselves. If the parent and child authorized it, the child's teacher, pediatrician, and, when indicated, other health care providers were asked to complete self-administered questionnaires about the child.

As in the adult sample, a best-estimate diagnostic procedure was employed in which a child psychiatrist (G.D.G.) and a psychologist (D.S.) who were not involved in the interviewing reviewed all sources of information and independently assigned a diagnosis. Discrepancies in diagnoses by the independent evaluators were resolved by a third source, who also independently and blindly reviewed all available information. The initial level of agreement between two raters on child diagnosis was 83%.

Interviewers

The interviewers, all of whom had a minimum of four years' clinical experience with children, included two PhD-level child psychologists, two child psychiatry fellows, and two masters-level school psychologists. All of the interviewers received approximately 30 hours of training by us in the administration of the research assessments. Interrater reliability was checked with the field supervisor by co-rating of interviews before the study began. Interrater reliability was monitored throughout the study using the field supervisor as the standard.

Participation Rate

At the time of the original study, 104 of the 215 probands (64 depressed subjects and 40 normal controls) had children who were between 6 and 17 years of age. Because six years had elapsed since the initial study, offspring who were under 18 years of age at the time of the initial study were as old as 23 years at the time of reinterview. All 104 families were located and invited to participate; 91 agreed (87.5% participation rate). The refusal rate was identical in both proband groups.

Direct interviews were obtained from 82% of the eligible children, and 97% of the children were reported on by at least one parent. Diagnostic information was available on all children from at least one informant (parent or child). Eighty-four (93%) of the mothers and 66 (72%) of the fathers also completed the diagnostic interviews about themselves.

RESULTS

Age and Sex of Children by Proband Group

There were 220 eligible children from the 91 families: 125 children of 56 depressed probands and 95 children of 35 normal control probands (Table 1). There were 105 male and 115 female offspring: 34 were 6 to 11 years old; 83 were 12 to 17 years old; and 103 were 18 to 23 years old. The mean age was 17 years. There were no differences in age and sex distribution of the children by proband group.

Demographic Characteristics of Families

The children of depressed and normal proband parents were comparable on demographic factors. All of the families were white, and the groups did not differ significantly by the proband parent's sex, age, number of marriages, education, religion, social class, or the number of children in the family. The marital status of fathers represented the only statistically significant difference between groups. Twenty-five percent of the fathers from the depressed proband group and 7% from the normal proband group were currently widowed, divorced, or separated ($P<.05$). More than 30% of the parents were professionals or from the upper middle class, and over 80% had at least a high school education and were married.

Psychiatric Disorders in the Children

Table 2 presents the children's psychiatric diagnoses by proband group. Compared with the children of normal subjects, the children of depressed proband parents had significantly higher lifetime prevalence rates of major depression, substance abuse, and number of *DSM-III* diagnoses (Table 2). (Lifetime prevalence is defined as ever reporting the specific illness.) These findings did not vary by the sex of the ill parent, ie, whether the depressed parent was the mother or father. Although it is not shown here, the absolute rates of illness differed by informant (mother or child) and by the range of diagnostic criteria applied (ie, for major depression, whether the *DSM-III* or stricter criteria requiring longer duration of symptoms and marked impairment were used). However, the direction of the results regarding major depression was identical.

Table 2.—Lifetime Prevalence of *DSM-III* Diagnosis in Children Based on Child Psychiatrist's Best Estimate by Proband Parent Group*

DSM-III Diagnosis in Children	Proband Parent Group: Depressed	Proband Parent Group: Normal	Relative Risk
Major depression	37.6	24.2	1.6†
Attention deficit disorder	4.8	7.4	. . .
Conduct disorder	21.6	16.8	. . .
Anxiety disorder	36.8	27.4	. . .
Substance abuse	16.8	7.4	2.3†
Any diagnosis‡	72.8	64.8	. . .
Mean No. of diagnoses	2.4	1.7	1.4†

*Rates are per 100 diagnoses.
†$P<.05$.
‡Included in addition to the above diagnoses: minor depression; dysthymia; hypomania; bipolar disorder; cyclothymia; infantile autism; anorexia; other psychiatric disorders; mental retardation; and bereavement.

Table 3.—Overall Psychopathology, IQ, School Functioning, Treatment in Children by Proband Parent Group

Assessment of Children	Proband Parent Group: Depressed	Proband Parent Group: Normal	*P*
Overall psychopathology: GAS score, mean ± SD*	64.5 ± 15.0	72.1 ± 14.5	<.001
IQ†			
PPVT	101.2 ± 13.8	98.7 ± 15.0	. . .
WISC Verbal	111.8 ± 27.9	106.1 ± 23.8	. . .
WISC Block Design	111.6 ± 25.5	117.0 ± 25.6	. . .
School functioning, %			
Special class for attention problem	5.8	1.1	<.10
Learning disabilities	10.4	3.2	<.05
Treatment for an emotional problem, %			
Outpatient with any professional	36.6	14.9	<.01
Hospitalization	4.4	0.0	. . .
Individual psychotherapy	26.9	1.2	<.001

*GAS indicates Global Assessment Scale (range, 0 to 100; higher score indicates superior functioning).
†PPVT indicates Peabody Picture Vocabulary Test–Revised; WISC, Wechsler Intelligence Scale.

Compared with children of normal proband parents, children of depressed parents were at increased risk for major depression, regardless of the strictness of the criteria or whether the informant was the mother or the child. Stricter diagnostic criteria, as expected, produced overall lower rates of disorder in children, but the differences in rates in children by proband group remained.

General Functioning and Treatment of Children of Depressed Parents

Compared with the children of normal parents, the children of depressed parents also had more psychopathology overall, as measured by the Global Assessment Scale (Table 3). There were no significant differences in IQ, as measured by the Peabody Picture Vocabulary Test–Revised,[36] or the Wechsler Intelligence Scale–Revised Vocabulary and Block Design Subscales,[37] among the children of depressed and normal parents. However, the children of depressed parents were more often in special classes for attention problems and were more often described by educational or health professionals as having learning disabilities. The children of depressed parents also received more treatment for emotional problems, including more outpatient treatment, more hospitalization, and more psychotherapy.

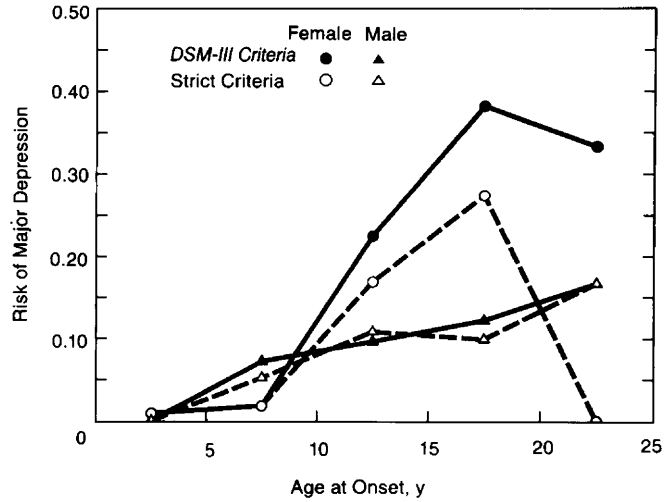

Fig 1.—Age-specific incidence of major depressive disorder in children by *DSM-III* and strict criteria by sex of child. Strict criteria diagnosis requires four weeks' symptom duration and impairment in major social role.

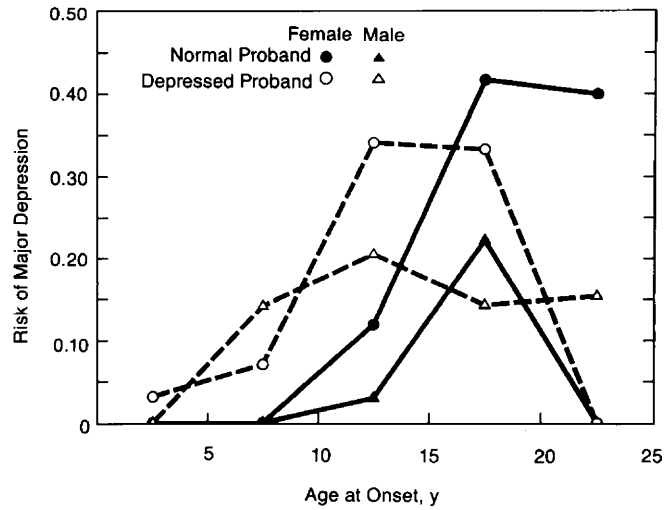

Fig 2.—Age-specific incidence of major depressive disorder by *DSM-III* criteria in children by sex of child and proband parent group.

Description of Hospitalizations

Four children of depressed probands were hospitalized following a serious suicide attempt or a deteriorating psychiatric condition. A 17-year-old man was hospitalized for three months following two suicide attempts. A 21-year-old man was hospitalized for five days following the death of his grandmother. Before the hospitalization he had been involved in several traumatic events, including shooting himself with his friend's gun and two serious automobile accidents. A 45-day hospitalization of a 17-year-old woman followed her ingestion of full bottles of phenobarbital and phenytoin after an argument with her parents. A 23-year-old woman had two separate hospitalizations of one and two months' duration and was finally released to a day hospital. Although no suicide attempt was made, the young woman demonstrated increasingly severe affective symptoms and was unable to function without the structure of the day hospital.

Age-Specific Incidence Rates of Major Depression

Figure 1 presents the age-specific incidence rates (ie, the number of subjects having a first onset in a particular age group) computed by the actuarial life-table method for onset of major depression in female and male subjects by *DSM-III* and by stricter

Table 4.—Mean Age at Onset of Major Depression in Children by Proband Parent Group

Sex of Child	Mean (±SD) Age at Onset, y: Depressed Parent	Normal Parents	P
F	12.6 (4.0)	16.8 (3.1)	<.001
M	12.8 (4.3)	16.6 (2.8)	<.10
Total	12.7 (4.1)	16.8 (2.9)	<.001

Table 5.—Frequency of Depressive Symptoms in Children by Child Report and Age at Onset of Major Depression

Depressive Symptoms in Children	Symptom Frequency, No. (%) of Subjects: Onset Age <15 y (n=24)	Onset Age >15 y (n=28)
Distinct quality of mood	17 (73.1)	19 (73.1)
Lack of reactivity	6 (25.0)	7 (25.0)
Worse in morning	6 (25.0)	10 (35.7)
Weight loss	8 (33.3)	20 (71.4)*
Weight gain	8 (33.3)	2 (7.2)†
Initial insomnia	6 (25.0)	18 (64.3)*
Middle insomnia	5 (20.8)	11 (39.3)
Terminal insomnia	3 (12.5)	10 (35.7)‡
Hypersomnia	8 (33.3)	12 (42.9)
Agitation	9 (37.5)	14 (50.0)
Retardation	11 (45.8)	9 (33.3)
Loss of pleasure	20 (83.3)	25 (89.3)
Loss of interest	20 (83.3)	25 (89.3)
Boredom	14 (58.3)	23 (82.1)‡
Fatigue	19 (79.2)	21 (75.0)
Guilt	15 (62.5)	12 (42.9)
Worthlessness	14 (58.3)	17 (60.7)
Concentration difficulty	19 (79.2)	20 (71.4)
Thoughts of death	14 (58.3)	12 (42.9)
Suicidal ideation	12 (50.0)	9 (32.1)
Suicide attempt	5 (20.8)	3 (11.1)

*P<.01.
†P<.05.
‡P<.10.

criteria. Stricter criteria for major depression were applied to determine if there were different patterns of onset by sex and severity of disorder. There were few cases of major depression that began before 10 years of age for either male or female offspring, and the sex ratios for onset of major depression before 10 years of age were comparable. However, after 10 years of age only the female subjects showed a marked increase in the onset of major depression, which peaked between the ages of 16 and 20 years (Fig 1). For male subjects there was a slight linear rise in the onset of major depression across time. When stricter criteria of major depression were applied, which required four weeks' duration and impairment in major social role, there was an overall decrease in rates of depression for female subjects. The rates of major depression in male subjects did not vary markedly by the strictness of the criteria. However, the pattern of differences in rates persisted, with the female subjects still showing higher rates of depression than male subjects after 12 years of age, suggesting that the male subjects' depression may have been more severe. The age-specific incidence rates, by both *DSM-III* and stricter criteria, for the 20- to 23-year-old age interval must be viewed with caution for the following reasons: the number of subjects remaining at risk beyond 20 years of age is small (ranging from 15 to 22); furthermore, when one adjusts for the fact that not all individuals are at risk for the

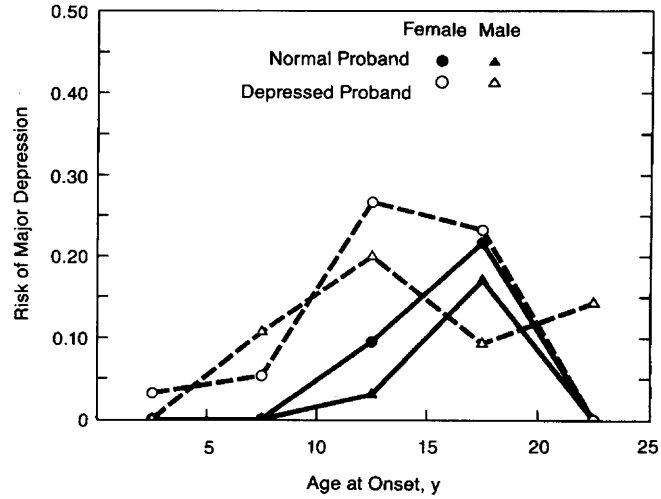

Fig 3.—Age-specific incidence of major depressive disorder by strict criteria in children by sex of child and proband parent group. Strict criteria diagnosis requires four weeks' symptom duration and impairment in major social role.

entire five-year interval, the number is even smaller (ranging from nine to 12). Because of these small numbers, estimates in our 20- to 23-year-old sample are unreliable.

Onset of Major Depression by Sex of Child and Proband Group

Figure 2 shows the age-specific incidence rates of major depression by the sex of the child and proband group. These rates can be interpreted as the conditional probability of onset of major depression in a specific age interval, given that an individual has been free of the disorder before entering this interval. The peak age at onset of major depression in the children of normal proband parents is after 15 years for both boys and girls. However, in the offspring of depressed proband parents the onset occurs earlier, at approximately 12 years of age in both boys and girls. Once again, the age-specific rates for the 20- to 23-year-old interval must be viewed with caution because of the small numbers of children remaining at risk beyond 20 years of age (numbers range from six to 13).

Table 4 shows that the age at onset of major depression is significantly lower in both male and female children of depressed parents (mean age at onset, 12.7 years) compared with those of normal proband parents (mean age at onset, 16.8 years).

When stricter criteria of major depression were used, requiring four weeks' duration and impairment in major role, the results were similar (Fig 3).

The Nature of Depression in Children

The symptom profiles for 21 symptoms of depression in the children were compared by proband group, by age at onset of depression, and by the sex of the child. For the comparison by proband group, only one significant difference was found. The children of depressed proband parents reported significantly more loss of pleasure when depressed. However, there were no differences in such symptoms as sleep and appetite disturbance or guilt. Five differences in symptom profile by age at onset (onset younger than 15 years of age vs onset at 15 years of age and older) were found. The children with later-onset depression significantly more often reported weight loss, initial and terminal insomnia, and boredom, and less often reported weight gain than did those with earlier onset of depression (Table 5). There was only one significant difference in symptoms reported by male and female subjects. The girls significantly more often reported feeling worse in the morning.

Comorbidity of other psychiatric disorders in the depressed children of depressed and normal proband parents was also examined. There were no significant differences in the type of additional disorders among the children of either proband group.

In both groups of depressed children the most frequent additional diagnoses were (in decreasing frequency) anxiety disorder (42%), dysthymia (34%), conduct disorder (27%), and substance abuse (20%).

COMMENT

The major findings of this study are as follows: There are increased prevalence rates of major depression as well as a variety of other problems in the children of depressed proband parents compared with those of normal proband parents; there is a low frequency and equal sex ratio of depression before 10 years of age; there is a marked increase in the incidence of major depression at approximately 16 years of age in girls; and the age at onset of major depression is significantly earlier in both male and female children of depressed proband parents (mean age, 12.7 years) compared with those of normal proband parents (mean age, 16.8 years).

Psychiatric Disorders and Problems in Children of Depressed Parents

These results, which derive from the direct interview of children, confirm the results from our previous family-history study of these children. Compared with children of normal parents, children of depressed parents are at significantly increased risk for major depression, substance abuse, and multiple diagnoses. They have poorer overall functioning and more school problems, and receive more psychiatric treatment, including hospitalization for serious suicide attempts. In a separate report, we have also described the health problems experienced by the children of depressed parents, including increased head injuries, seizures, and accidents.[38]

Our findings on the increased rates of depression, as well as other problems, in these children are consistent with the findings of a number of other studies of children of affectively ill parents.[39-51] Many of these studies have been criticized on methodological grounds.[22,24] While the absolute rates of disorder in children vary among studies, the findings are consistent regardless of the limitations of the design. It seems reasonably well established that parental depression (either in the mother or the father) is a risk factor for depression in the children. That multiple additional diagnoses accompany the depression in children (particularly anxiety disorders, dysthymia, conduct disorder, and substance abuse) is also consistent with findings of clinical studies of depressed children selected from treatment settings.[3,4]

Sex Differences in Major Depression

Our results suggest that the well-documented sex difference in rates of depression in adults begins in adolescence.[12,52] As suggested by other studies,[3,4] we found an equal sex ratio in major depression before adolescence. Thereafter, there was a marked increase in major depression in female children. In contrast, male children exhibited a gradual increase in depression across all ages, with considerably lower absolute rates than in female children. The overall increase in rates among girls was greatest if *DSM-III* criteria were applied but was also evident if stricter criteria for major depression were applied.

Although in our original family-history study, which included 6- to 18-year-old offspring,[26] we did not find statistically significant sex differences in overall rates of depression, after early adolescence there was a trend toward an increase in rates of major depression in the female subjects. The lack of statistical significance could probably be attributed to the small numbers in the age group at risk and to the underestimation of the rates of depression produced by parental family history reports rather than direct interviews. Interestingly, the age-specific incidence rates of depression did not change when stricter criteria were used but were reduced for girls, suggesting that boys experience or report only the more severe depression, whereas girls experience or report the range of severity.

Age of Onset of Major Depression

In agreement with several investigators,[4,5,31,53,54] we did find cases of depression with onset before adolescence, but they were less common. The most important finding of the present study was the differential age at onset of depression among the children of depressed parents compared with those of normal probands. The onset of major depression was earlier (around 12 to 13 years of age) in both male and female offspring of depressed probands. For the male and female offspring of normal probands, the peak age at onset was after 15 years of age. These findings on age at onset persisted even when stricter criteria for major depression were applied.

In a separate family study of adult depressed and normal probands, we found that early age at onset of major depression (onset less than 20 years) in adult probands was related to an increased risk as well as an earlier age at onset of major depression among the first-degree relatives.[16] Since we were studying adults, information on childhood symptoms was obtained retrospectively and we may not have been able to define precisely the onset of illness in childhood. While several family studies of adult probands have found an association between age at onset of depression and increased familial loading, they all suffer from a lack of direct assessment of the young offspring or use of retrospective information to assess age at onset in adults. Kovacs et al,[3,4] in a direct-interview longitudinal study of depressed children 8 to 13 years of age, also noted the clinical significance of age at onset and found that earlier age at onset of major depression was related to protracted illness at follow-up. However, the elegant study by Kovacs et al did not examine illness among the children's parents or other relatives.

The high incidence rates of depression among 16- to 20-year-old female children who have not had a previous onset is difficult to interpret and may be due to the small samples in any onset group. The numbers of onsets at 16 to 20 years of age in the children of depressed and normal probands were approximately equal. The clinical significance of these episodes is unclear.

The high rates of depression reported herein, even among the children of normal probands, are consistent with recent findings on secular changes in rates of depression and suicide in younger persons.[14] Several family, epidemiologic, and longitudinal studies have found that the cohort who have come to maturity since World War II are reporting higher rates of major depression and earlier ages at onset.[12,15]

Research Strategies

Our findings raise a number of questions and suggest future research strategies. The clinical significance, persistence, recurrence, morbidity, and recall into adulthood of the disorders reported in children and adolescents are unclear. Some studies have begun to address the issue of continuity. Kandel and Davies,[7] in a nine-year follow-up of 15- to 16-year-old girls who were first identified in a high school sample as having depressed mood, found a continuity between adolescent depressive symptoms for girls and adult depression. The adult sequelae of adolescent depres-

sive symptoms included increased interpersonal difficulties, dysphoria, accidents, and use of minor tranquilizers. However, the Kandel and Davies[7] study did not assess the diagnosis of major depression, and previous studies have shown only a modest overlap between depressive symptoms and diagnosis.[55]

Kovacs et al,[3,4] in a five-year longitudinal study of 65 children 8 to 13 years of age who met *DSM-III* criteria for various affective disorders and were being treated, found that these disorders were clinically significant in that major depression and dysthymia persisted into adolescence and were related to adjustment problems in school and other settings.

While we did not assess the presence of biologic puberty in these children, our findings suggest that an age at onset that is near puberty, and certainly under 16 years of age, may be related to familial loading of depression. Earlier age at onset of major depression was the main feature distinguishing depressed children from depressed proband parents. Symptom patterns of depression and other types of comorbid disorders were similar among the children of depressed and normal proband parents. We are conducting a two-year follow-up of these children. However, longer follow-up periods may also be important to resolve the issue of the continuity between childhood and adult depression.

The specificity of our findings to depression in parents is unclear; nor can we, from a family study design, determine if genetic factors are involved. The problems we found in the children may be a reflection of general stress in ill families or the poor parenting of distressed parents. Other control groups of parents, including parents with other psychiatric disorders as well as parents with medical, but not psychiatric, disorders, would be useful to determine the specificity of the findings in children to parental depression. There have been a number of earlier studies of children of schizophrenic and alcoholic parents, but their differing approaches to childhood diagnostic assessment make comparisons difficult. We are initiating studies of the offspring of parents with panic and other anxiety disorders, as well as those of alcoholic and opiate-addicted parents, using similar methods that will make such comparisons possible.

Our findings on the earlier age at onset of major depression in the children of depressives should be pursued. Initial steps would involve better documentation of the actual age at biologic puberty and precise documentation of the age at onset. If our findings on earlier age at onset of depression in children of depressed parents are replicated, collaboration with endocrinologists to understand the relationship between hormonal changes of puberty and mood changes may be useful. One possible interesting collaboration might be with endocrinologists studying precocious puberty; they have noted depressive mood changes in children who have biologically but not chronologically reached puberty (ie, precocious puberty).[56,57] It is unclear if these mood changes diminish with the treatment of the syndrome with the new luteinizing hormone–releasing hormone,[56,57] or if these mood changes are greater in children at high risk for depression by virtue of family history. The longitudinal as well as endocrinologic studies that we have suggested may be more powerful if conducted within a family and/or high-risk design. Since depression in adolescent girls is so common, the stratification of children into those with high and low familial loading by virtue of parental depression, as well as by rates of depression in first- and second-degree relatives, might help sort out phenocopies from those children with possible genetic vulnerabilities.

Finally, some mention should be made of the diagnostic procedures used. Our diagnostic method was based on a child psychiatrist's assessment of information derived from direct interviews with the child and with the parent about the child. This method produced high rates of disorders in children. If data from structured interviews are available from the child and mother, there are no criteria to determine who is the better informant.[58-60] In studies of adults, best-estimate diagnoses are usually based on family history derived from multiple informants.[30] With information available from two direct interviews (ie, parent and child), the best-estimate diagnosis was often, in this study, the sum of the mother's or child's report. The interview with the child most often produced more diagnoses and useful new information, eg, on substance abuse, which was grossly underreported by the parents about their children. There were many discrepancies between mothers' and children's reports and these will be described in a future report.[27] At this stage of diagnostic uncertainty, we recommend that children always be interviewed directly and that corroborating information be obtained from parents and perhaps siblings.

Clinical Implications and Prevention

Whatever the mechanism, it seems reasonably well established that the offspring of depressed parents are at increased risk for major depression as well as a host of other health problems.[38] These findings clearly have implications for secondary prevention in children. They suggest that detailed inquiry into the psychiatric and health status of the offspring of depressed parents should be made by professionals treating the depressed parents. While information on the efficacy of treatment of depressed young children is not extensive, attention by mental health professionals and family members to potential health problems in these children may lead to early case finding. Alternately, a child presenting with depression and/or multiple school or social problems, accidents, and the like may be the child of a depressed parent. Treatment of the parent's depression may have an impact on the health of the child. Our findings highlight the importance of parental depression as a risk factor for a variety of health problems in children. Major depression is a highly prevalent disorder in women and although it is somewhat less prevalent in men it may be increasing. There are many pharmacotherapeutic and psychotherapeutic treatments now available, the efficacy of which have been established through well-designed clinical trials. Direct inquiry into the past and current psychiatric status of parents, as well as that of the children, may be a first step toward preventive intervention.

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