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Original Article

Pediatric bipolar disorder: phenomenology and course of illness

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Background: Specific features and diagnostic boundaries of childhood bipolar disorder (BD) remain controversial, and its differentiation from other disorders challenging, owing to high comorbidity with other common childhood disorders, and frequent lack of an episodic course typical of adult BD.

Methods: We repeatedly examined children meeting DSM-IV criteria for BD (excluding episode-duration requirements) and analyzed their clinical records to evaluate age-at-onset, family history, symptoms, course, and comorbidity.

Results: Of 82 juveniles (aged 10.6 ± 3.6 years) diagnosed with BD, 90% had a family history of mood or substance-use disorders, but only 10% of patients had been diagnosed with BD. In 74%, psychopathology was recognized before age 3, usually as mood and sleep disturbances, hyperactivity, aggression, and anxiety. At onset, dysphoric-manic and mixed presentations were most common (48%), euphoric mania less (35%), and depression least (17%). Subtype diagnoses were: BP-I (52%) > BP-II (40%) > cyclothymia (7%). DSM episode-duration criteria were met in 52% of cases, and frequent shifts of mood and energy were common.

Limitations: Partly retrospective study of clinically diagnosed referred outpatients without a comparison group.

Conclusions: Pediatric BD is often mis- or undiagnosed, although it often manifests with mood lability and sleep disturbances early in life. DSM BD criteria inconsistent with clinical findings require revision for pediatric application.

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Key words: bipolar disorder – children – course – diagnosis – DSM-criteria – pediatric psychiatry

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Manic-depressive illness (MDI) as defined by Kraepelin (1) more than a century ago included modern 'bipolar' disorder (BD), as well as recurrent (unipolar) mania or depression. Juvenile MDI (including bipolar forms), incisively described in antiquity by Aretæus, remained little-studied until the early 1800s, when its occurrence in children was documented in case reports by Esquirol (2) and others (3, 4). In the early 1900s, Ziehen distinguished between *circular insanity* and *periodic* (recurrent) forms of *mania and melancholia* in children distinguishing unipolar and bipolar (or cyclical) forms (5).

In recent years, a growing number of studies and publications on pediatric BD by groups around the world indicate unprecedented academic and clinical interest in the disorder and its similarities and differences to adult BD. It is clear

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from community surveys and investigations of the early history of adults with BD that onset in childhood and adolescence is more common than previously appreciated (6–8). Nevertheless, pediatric BD often remains undiagnosed or misdiagnosed, in part owing to the use of adult diagnostic criteria to categorize disorders of children and prevalent comorbidity of other common psychiatric disorders with juvenile BD (6–8). Continued application of seemingly arbitrary episode-duration criteria developed for adult BD, and the basic assumption that BD always presents as discrete, sustained episodes with relatively euthymic intervals surely limit consideration of BD in young patients. In contrast to adult BD, in early onset BD, mixed-dysphoric and labile, rapidly changing presentations are common. Discrete episodes may not be recognized, or the condition may be considered a form of 'ultra-rapid-cycling' (URC) (3). Often, a continuously cycling course of BD is followed in children and symptoms and disability are present more or less chronically, albeit with fluctuations in the intensity of particular clinical manifestations (3, 9). Another likely limiting factor to diagnosing BD in children is simple reluctance to consider a disorder that is not widely recognized and accepted, particularly in prepubertal patients.

Clarifying the characteristic features of juvenile BD is a particularly pressing clinical and research challenge in view of: (a) its frequent confusion with other common psychiatric disorders of children (3, 9); (b) its probable status as the most prevalent idiopathic psychotic disorder (3, 4, 10); (c) its strong association with aggression and suicide (11); (d) reported trends to younger onset of major mood disorders and earlier suicide over the past century (12, 13); and (e) an often more severe and longer course of BD illness in children than adults (14, 15). Only recently, have reports begun to appear that attempt to define the clinical characteristics and course of pediatric-onset BD (3, 9, 16–25).

It is clinically plausible to expect that early intervention can decrease morbidity and mortality (11, 26–27). Accordingly, much greater effort is required to identify prodromal and early features of pediatric-onset BD (14, 16–18). Children with a parent diagnosed with BD, and so considered to be genetically at risk of developing this illness, have been studied in attempts to capture early features of BD. Such children usually are found to have increased risks of various forms of psychopathology (affective, anxiety and behavioral disorders, or substance abuse), but the diagnosis of BD itself has been uncommon (29, 30). For example, a prospective study followed 21 children of BD mothers for 24 years, and found a mood or substance abuse disorder in 15 (71%), but only three cases (14%) considered as adult BD (30, 31).

Symptomatic overlap or comorbidity with several other common and relatively well established psychiatric disorders of childhood, especially attention-deficit/hyperactivity (ADHD), major depressive disorder (MDD), dysthymia, anxiety and conduct disorders, certainly contribute to under-recognition of BD in children (3, 9, 19, 22). Pediatric BD requires specific differentiation from ADHD and conduct disorder, due to their shared features (9, 32–34). In one study, most children with current or past mania also met DSM-IIIR criteria for ADHD (91%), but only a minority (19%) of patients diagnosed with ADHD ever met criteria for mania, excluding symptoms (hyperactive, talkative, and distractible) found in both syndromes (9). Anxiety symptoms as well as obsessive–compulsive disorder (OCD) and panic disorder also have been associated with BD (35, 36).

In addition, pediatric patients with BD often present with depressive or dysphoric-irritable symptoms before manic symptoms become clinically apparent (3, 16, 17). More than half of pediatric cases eventually diagnosed with BD had presented earlier with depression or dysthymia (37, 38), and nearly half (48%) of 72 prepubertal children with MDD were eventually re-diagnosed with BD in the course of prolonged follow-up (21). Early and acute onset of severe depression, particularly with psychomotor retardation or psychotic features, a multi-generational or bi-lineal family history of affective illness, and psychomotor agitation or hypomania (spontaneous or antidepressant-induced) appear to be clinically useful correlates or predictors of BD in children (39, 40). In adults, type II BD is increasingly recognized as a common phenotype (41), but it has rarely been studied in pediatric onset BD.

Methods

Subjects

We analyzed the clinical records of consecutive pediatric patients evaluated at a private mood disorder clinic in New York, NY between April 1998 and April 2002, diagnosed with BD by modified DSM-IV (42) criteria. The DSM *duration* criteria for mania and depression were waived to avoid prejudice in our primary aim of gathering clinical evidence on the duration of manic and depressive symptoms in juveniles (3, 6). To establish its clinical relevance, regardless of its duration,

a symptom had to: (a) represent a change from baseline, (b) occur repeatedly or intermittently, and (c) be associated with clinically significant disability or functional impairment.

Assessment

At intake, at least one parent of all subjects completed a questionnaire covering all DSM IV Axis I diagnoses, including approximate age-at-onset, the earliest symptoms, and types of symptoms. Details about developmental features, prodromal symptoms, phenomenology, and chronology of symptoms development were obtained in a series of semi-structured clinical assessments of all subjects by senior clinicians with expertise in pediatric mood disorders. As most patients were treated by one or more of the authors (GLF, IPG, NBA), their clinical features and diagnoses were further clarified by longitudinal follow-up. We submit that multiple clinical interviews by an expert clinician can be superior to a cross-sectional (DSM-IV-based criteria) standardized interview for children (i.e. SCID or K-SADS). Indeed, a primary aim of the present preliminary clinical study was to gather descriptive information systematically over time without presuming the precise duration or constancy of symptoms and their course. This was intended as a contribution to assessing developmental variants, and advancing discussion of appropriate criteria for defining the syndrome of pediatric BD.

Parents were asked to estimate duration of symptoms and their recurrence rates from 'more than daily' to 'once a year or less'. The questionnaire was then reviewed for accuracy by one of the authors (GLF, IPG, NBA) with each parent. We also reviewed parental notes, school reports, and all available medical and mental health records in each case. A thorough treatment history, including age of first evaluation, age at first treatment, and details of treatments provided was reconstructed from these sources. Medical records were reviewed for medical, neurological, and psychiatric history, and each child's pubertal status was verified with their current pediatrician. Family psychiatric history was rated 'positive' if at least one first-degree relative had a DSM-IV mood or substance-use disorder, or suicide by history.

For the present analysis, all available sources of information were used to complete a summary form for each patient designed to extract the following information: age at onset of symptoms (age when sleep, mood, anxiety, or behavioral symptoms were first observed), and ages at first clinical evaluation, at treatment onset, at first diagnosis of BD, and at first assessment in our clinic. We also recorded symptoms at onset, psychiatric diagnoses given in the past (as reported by parents or obtained from medical records), and changes in symptoms over time. Phases of illness meeting DSM-IV episode-duration criteria and their polarity were noted. Best-estimate lifetime and current psychiatric diagnoses were assigned clinically, based on interviews of parents and examinations of children by at least two of the authors (GLF, IPG, NBA). BD subtype diagnoses were based on presence of a lifetime history of mania (BP-I) or hypomania (BP-II, or cyclothymia). Given the rapid fluctuation of symptoms in most cases, episodes and intervals usually could not be defined accurately. Nevertheless, major symptomatic fluctuations were considered 'recurrences' and used to estimate illness-course as: ultra-ultra-rapid cycling (UURC; >365 phases/year), URC (5–365 phases/year), rapid cycling (RC, ≥ 4 phases), or seasonal (exacerbations or recurrences with seasonal pattern for ≥ 2 consecutive years).

Data analyses

Clinical records were rated before analysis by one of the authors (GLF) for quality and completeness of information, as: (0) minimal, (1) satisfactory, (2) substantial, and (3) extensive. Data analyses employed SPSS 11.0® software for Windows. Categorical comparisons were based on contingency tables (χ^2) or Fisher's exact (p) tests when cell size was low ($n < 10$); continuous variables were compared by one-way ANOVA. Averages are reported as mean ± standard deviation (SD) unless otherwise stated. Statistical significance required two-tailed $p \leq 0.05$.

Results

Subject characteristics

A total of 82 children (54 boys, 28 girls) met modified DSM-IV criteria for BD. Patients included had been evaluated by at least two of the authors, and 69% of the patients were followed-up by at least one of the authors for an average of 1.5 ± 1.3 years up to the final data collection in June 2002. Most patients (66%) were enrolled in an insurance plan; 34% were private-pay. All but five patients had been evaluated or treated by a psychiatrist or psychologist before evaluation at our center, and 23 were evaluated by us for a second opinion regarding diagnosis or treatment. Mean age at initial evaluation was 10.6 ± 3.6 years (median 10; range 3–17 years; 10.0 ± 3.5 years for boys, 11.5 ± 3.7 for girls). Ratings of

completeness of medical records by the authors averaged 2.6 ± 0.3, indicating that extensive data (ratings of 2–3) were available in all but two cases with ratings of 1 (both cases lost to follow-up after an initial consultation).

A positive family history was found in 90% of patients (Table 1). Family history was unknown for five boys and two girls, all adopted, and in another girl the family history was uncertain. Adoption was somewhat more frequent among girls (21%) than boys (16%).

Medical illnesses (ear infections, asthma, or gastrointestinal complaints) were documented in 34% of cases; another 16% had a history of neuropsychiatric conditions (migraine, epilepsy, language dysfunction, head trauma, or non-specific cortical dysfunction), and 18% attended special education programs. No history of physical or sexual abuse was found in any case. Most patients (73%) had not yet reached puberty.

Onset and symptoms

Symptomatic onset occurred before age 3 in 74% of cases, and before age 13 in 95% (Table 1).

Table 1. Characteristics of pediatric bipolar disorder subjects

Measure	Male (n = 54)	Female (n = 28)	All (n = 82)
Age at first symptoms	3.2 (3.5)	2.2 (3.8)	2.8 (3.9)
Age at first treatment	6.6 (3.4)	7.3 (3.9)	6.8 (3.6)
Age first BPD diagnosis	9.2 (3.4)	10.4 (3.7)	9.6 (3.6)
Age at clinic entry	10.1 (3.5)	11.5 (3.7)	10.6 (3.6)
Pubertal at entry	20.4	35.7	26.8
Family history present	90.7	89.3	90.2
Adopted	16.7	21.4	18.3
Special education	20.4	14.3	18.3
Age at first symptoms			
≤3	70.4	82.1	74.4
4–6	13.0	3.6	9.8
7–12	13.0	7.1	11.0
13–18	3.7	7.1	4.9
Initial symptoms			
Irritable, moody	44.4	75.0	54.9
Sleep disturbance	42.6	50.0	45.1
Hyperactivity	38.9	35.7	37.8
Aggressive	33.3	17.9	28.0
Anxiety (all forms)	24.1	10.7	19.5
Separation anxiety	9.3	3.6	7.3
Inattention, racing thoughts	7.4	0.0	4.9
Impulsive	1.9	3.6	2.4
Hypersexual	0.0	3.6	1.2
Pressured speech	1.9	0.0	1.2
Self-harm	1.9	0.0	1.2

Data are % of total, or mean age in years (SD). Based on contingency tables, Fisher exact test, or one-way ANOVA, no sex difference was statistically significant, except that irritability or moodiness was more prevalent in girls [χ^2 (1 df) = 6.95, p = 0.008].

Table 2. Past and current psychiatric diagnoses

Disorders	Proportion of patients (%) Boys (n = 54)	Girls (n = 28)	All cases (n = 82)
Past diagnoses			
ADHD	61.1	57.1	59.8
Major depressive	31.5	46.4	36.6
Psychosis	24.0	32.1	26.8
Anxiety	4.8	35.7	22.0
ODD/CD	20.4	21.4	20.7
OCD	16.7	17.9	17.1
Bipolar	7.4	14.3	9.8
PDD	9.3	3.6	7.3
LD	22.2	7.1	7.1
Substance use	1.9	7.1	3.7
Tourette's	3.7	3.6	3.7
Asperger's	3.7	0.0	2.4
Eating	0.0	7.1	2.4
Current disorders			
Bipolar	100.0	100.0	100.0
Psychosis	31.4	32.1	31.7
OCD	29.6	21.3	26.8
Anxiety	20.4	28.6	23.2
LD	18.5	10.7	15.9
ADHD	13.0	7.1	11.0
ODD/CD	7.4	10.7	8.5
Eating	1.9	0.7	4.9
Substance use	1.9	7.1	3.7
Major depressive	0.0	0.0	0.0
PDD	0.0	0.0	0.0
Tourette's	3.7	3.6	3.7
Asperger's	0.0	0.0	0.0

ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; LD = learning disorder; OCD = obsessive–compulsive disorder; PDD = pervasive developmental disorder; ODD = oppositional-defiant disorder. Disorders are in rank-order of previous diagnoses and conditions found during assessment at our clinic. No sex difference was statistically significant (contingency table or Fisher exact test; statistics not shown).

Moodiness (including irritability or temper tantrums) was reported significantly more often among girls. Aggression and anxiety symptoms at onset were reported more often in boys. Parental reports of sleep disturbances (insomnia and parasomnias), hyperactivity, and aggressiveness did not differ significantly by gender (Table 1).

Past diagnoses (assigned prior to evaluation at our center) included the following, in rank-order of frequency (Table 2): ADHD (60%), anxiety disorders (39%, including OCD), major depression (MDD, 37%), oppositional-defiant or other conduct disorders (ODD/CD, 21%), and BD (10%). Current diagnoses included psychotic features in 32% of patients, OCD in 27% and other anxiety disorders in 23%. No gender difference in lifetime diagnoses was statistically significant, but most conditions were more common in girls, except that

Table 3. Symptom frequency (%) at evaluation

Symptom	Boys (n = 54)	Girls (n = 28)	All cases (n = 82)
Irritability	96.3	100.0	97.6
Mood lability	96.3	100.0	97.6
Sleep disturbance	94.4	96.4	95.1
Angry	94.4	89.3	92.7
Impulsive	94.4	89.3	92.7
Agitated	88.9	96.4	91.4
Aggressive	90.7	89.3	90.2
Anxiety	81.5	78.6	80.5
Racing thoughts	77.8	78.6	78.0
Pressured speech	63.0	78.6	68.3
Euphoric, grandiose	59.2	60.7	59.8
Hypersexual	31.5	39.3	34.1
Psychosis	31.5	32.1	31.7
Suicidal ideation	29.6	32.1	30.5
Self-harmful acts	18.9	29.6	22.0
Homicidal thoughts	12.9	3.6	9.7
Suicidal acts	1.9	7.1	3.7
Homicidal acts	0.0	0.0	0.0

None of these sex differences is statistically significant by contingency table (or Fisher exact test).

Table 4. Course characteristics

Variable	Boys (n = 54)	Girls (n = 28)	All cases (n = 82)
First episode type[a]			
Manic	55.6	46.4	52.4
Euphoric	35.2	35.7	35.4
Dysphoric	20.4	10.7	17.0
Mixed	25.9	39.3	30.5
Depressive	18.5	14.3	17.1
Bipolar subtype[a]			
Mania, BP-I	57.4	39.2	52.4
Hypomania, BP-II	37.0	46.4	40.2
Cyclothymia	3.7	14.3	7.3
Met DSM duration criteria	51.8	53.5	52.4
Cycling pattern[a]			
Ultra-ultra rapid	68.5	60.7	65.9
Seasonal	14.8	14.3	14.6
Ultra-rapid	9.3	17.9	12.2
Rapid	7.4	7.1	7.3

Data are percentage of boys, girls, or all cases. No sex difference is statistically significant
[a]Defined in Methods.

ADHD, ODD/CD, and LD, were more common among boys (Table 2).

Among specific symptoms (Table 3) irritability, mood lability, sleep disturbances, anger, impulsiveness, agitation, and aggression were or had been present in >90% of patients at the time of evaluation at our center. Anxiety (80%), racing thoughts (78%), pressured speech (68%), and euphoria (60%) also were common; hypersexual behavior, psychosis, suicidal ideation and self-harm were reported less often (34%, 32%, 30% and 22% of cases, respectively). We found no statistically significant sex-differences in any of these clinical features, although suicidal behaviors were somewhat more common in girls, and homicidal ideation was more common among boys.

In most cases (52%) the episode-polarity at onset was manic or hypomanic; dysphoric or depressive states (including dysphoric mania, mixed-state, or depression) were nearly twice as common (65%) as euphoric mania (35%): depressive-dysphoric states were equally common among girls (64%) and boys (65%; Table 4). In 29% of patients, the onset was temporally related to an evident precipitant, including a stressful life-event in 12% of cases, or treatment with an antidepressant or stimulant (23% of those exposed), as we report separately (43).

Course of illness

A slight majority of the patients met lifetime criteria for mania (BP-I disorder, 52%), and fewer were reported to have had hypomania (BP-II, 40%) or cyclothymia (7%; Table 4). DSM-IV episode-duration criteria were met (at least once) by 52% of the patients (33% for mania or hypomania, and 19% for depression). Patients who did *not* meet episode-duration criteria, compared with those who did, were non-significantly younger at onset of symptoms (2.1 versus 3.5 years), first treatment (5.6 versus 8.0), first diagnosis of BD (7.9 versus 11.1), and first evaluation at our center (8.9 versus 12.0 years), but did not differ in any other variables considered, including polarity at onset, BD subtype, or cycling rate (data not shown). Cycling was considered ultra-ultra-rapid (UURC) in 66% of cases, ultra-rapid (URC) in 12%, and rapid (RC) in 7%, while a seasonal course was reported in 15% (Table 4).

Discussion

Generalization of the present results may be limited by: (a) use of retrospective parental reports for past and family history; (b) use of semi-structured examinations and follow-up clinical assessments rather than standardized and highly structured research assessments; (c) a relatively small sample of referred outpatients; and (d) lack of a comparison group. A recent report comparing the diagnostic accuracy of structured and unstructured clinical interviews of pediatric psychiatric subjects by experienced clinicians concluded that both methods can yield similarly valid and reliable data (44). Furthermore, given the young age of our subjects, and the relatively long duration of their

illnesses, parents appeared to be quite reliable informants. Finally, the nature and severity of reported symptoms typically was documented by multiple sources, and repeated assessments in most cases, limiting recall bias by parents. Our findings pertaining to the age-at-onset and type of early symptoms in children with probable early onset BD provide clinically important information that requires discussion and emphasis.

First, in the present pediatric patient-sample, the average age at symptomatic onset was only 2.8 years. Most patients (73%) were prepubertal at entry into our clinic, and 82% were prepubertal at illness-onset. Another recent study found a similar average age-at-onset of 4 years among prepubertal children with BD (19). We found about 7 years of delay between onset of symptoms and initial evaluation or treatment. This latency may reflect lack of recognition of the pathological nature of symptoms by parents or clinicians, or prolonged attempts at behavioral modification or parenting interventions. Seeming unimportance of early symptoms or lack of significance of behavioral dysfunctions are less likely to account for the delays. Moreover, delay in diagnosing BD and establishing appropriate long-term treatment for BD is not unique to children, and often occurs in adults (7, 8, 45).

A twofold excess of boys-to-girls in our sample suggests preferential *referral* of boys, perhaps due to more severely disruptive behavior. Euphoric mania and depression were about equally prevalent in boys and girls, but boys had more dysphoric mania and girls had more mixed-states (Table 4). These findings may reflect true differences in the age of onset of specific subtypes of BP disorders, or ascertainment or referral biases if more severe or behaviorally disruptive cases are identified earlier and referred for psychiatric assessment and treatment (45).

Onset-polarity was considered manic in 52% of the sample, mixed in 30%, and depressive in 17% (Table 4). Similarly, in a study of 18 adolescents with BD from a community sample (23), a manic onset was found in 61%, mixed states in 33%, and initial depression in 5%. Psychosis was diagnosed in 32% of our cases (Table 2), similar to another report based on a community sample of juvenile BD cases (30), and both somewhat lower than rates of 38%–59% reported by others (3, 19, 45, 46). Sampling and ascertainment factors may account for variance in reported rates of psychotic illness among young BD patients. For example, psychotic features in BD are most likely to be observed during acute illness, particularly in mania, and among hospitalized patients (48).

From the onset of illness and thereafter, most of our patients showed prominent mood symptoms (lability, irritability, anger), sleep disturbances, and impulsive, agitated or aggressive behavior. Manic phases were marked by racing thoughts, pressured speech, and anxiety symptoms. Euphoria was found in only 35% of cases early in the illness-course, but was observed or reported in 60% of cases at some time in their illness-course (Tables 3 and 4). Onset-episodes were dysphoric or depressive in 65% of cases. Hypersexual behavior, suicidal ideation, and psychosis were reported in fewer than one-third of the patients at evaluation, and were rare at illness-onset (Tables 1 and 3). It is important to emphasize that, despite prominent initial and recurring affective symptoms, and a family history of major affective illness or substance abuse in 90% of cases, our patients were most often diagnosed initially with ADHD, anxiety or OCD, ODD/CD. Only a third of the subjects were considered to have a depressive disorder. Strikingly, *in fewer than 10%* was a diagnosis of BD considered initially (Table 2). The frequent failure to recognize BD at very early onset may reflect its common initial presentation with prominent *dysphoria, irritability, and mood lability*, that might suggest a depressive disorder, and severe *anxiety* symptoms might have encouraged a diagnosis of anxiety disorder. *Sleep disturbances* including insomnia or parasomnias were frequently observed in this cohort, in contrast to DSM-IV criteria for (adult) mania, requiring decreased need for sleep. Actigraphy-derived sleep measures in children with BD show increases of sleep-latency and nocturnal activity levels, decreased continuity and efficiency of sleep, and variable changes in total sleep (Faedda GL, unpublished data, 2004). These measures are consistent with our clinical finding of multiple disturbances of sleep.

Comorbidity with OCD or other anxiety disorders was found in 50% of patients, with much less frequent learning disability (LD, 16%) or ADHD (11%; Table 2). Frequent comorbidity and symptomatic overlap with other common psychiatric disorders of children almost certainly contribute to misdiagnosis of pediatric BD, and complicate treatment. High estimates of the prevalence of comorbid ADHD with early BD have been reported in several studies (9, 28, 32). It is possible that the high rates reported in some studies may reflect the relative ease in attributing symptoms of inattention and distractibility to the more widely accepted diagnosis of ADHD, rather than an untreated mood disorder. Recent findings of clinical resolution of attentional difficulties in juveniles with stabilized BD are consistent with

our hypothesis that BD is often misdiagnosed in children due to greater emphasis on attentional difficulties than on mood symptoms (32, 49). The relationship between ADHD symptoms and BD remains unclear: ADHD symptoms might represent true comorbidity, a phenotypic variant of early onset BD, or features that are within the range of symptoms of early BD.

A retrospective assessment of adult patients with BD found that the most common prodromes (typically in juvenile years) were depressed mood, anger-dyscontrol, hyperactivity, sleep disturbances, and irritability (16). However, these features were rarely considered as possible manifestations of early BD at their initial appearance (16). Moreover, many adults with BP-II disorder, in whom hypomania may be subtle, are initially diagnosed with MDD (50). Failure to diagnose BD in adults, and especially in children, greatly delays appropriate mood-stabilizing therapy and encourages overuse of antidepressant or stimulant drugs, with risk of adding iatrogenic destabilizing effects on mood and behavior (3, 43, 51). The high incidence of suicidal ideation (30%) and self-harm (22%) in the present cases (Table 3) further underscores the importance of suicidal ideation as a feature that can help to distinguish BD from other childhood disorders, encourage early diagnosis and proper treatment. New evidence that suicidal risk in adult BD may be higher than in any other psychiatric disorder (11) indicates that early recognition of BD, including in children, has important public health implications.

DSM-IV *episode-duration* criteria were met in about half of the cases studied. This finding indicates that such criteria are sometimes met by BD children, but the relatively low prevalence of episodes typical of adults probably contributes importantly to underdiagnosis of BD in children. It is important to emphasize that these criteria, although plausible for many typical adult cases of BD, are essentially arbitrary and not firmly based on empirical evidence concerning untreated episodes at any age. The paucity of adult-like and discrete episodes of mania and major depression in children with probable BD is consistent with striking recent findings in *adults* (41, 52) as well as in children diagnosed with BD (19, 23, 47, 53). That is, episode-duration criteria sometimes are not met in clinically diagnosed adult, and even more often in pediatric, cases with clinical, familial, course, and treatment-response features otherwise indicative of BD. Most of our young patients had many short-lived – often daily – symptomatic fluctuations of mood and behavior of varying intensity, with an unremitting, subchronic course. Lack of discrete episodes, highly labile and rapid symptomatic fluctuations, and high recurrence rates in 86% of our sample (66% were considered UURC), are in line with other findings of rapid-cycling in 83% of 60 cases, including UURC in 75% (20).

Conclusions

In 82 child outpatients diagnosed with BD, the following were prominent features: (i) very early onset of psychopathology, including mood-instability, hyperactivity and aggression; (ii) mood lability, irritability, and dysphoria rather than euphoria; (iii) onset with dysphoric or mixed states rather than euphoric mania; (iv) sleep disturbances rather than decreased need for sleep; (v) highly recurrent, labile or fluctuating affective and behavioral symptoms following a subchronic, rather than an episodic course. High rates of misdiagnosis, psychosis, and suicidality were found, and may well be typical of juvenile BD. These circumstances probably contribute to morbidity and risk of early mortality in this potentially fatal illness (11).

The present findings support the emerging impression that presentations of BD often differ in juveniles and adults. Moreover, DSM-IV-TR diagnostic criteria for BD emphasize episodic and euphoric presentations of mania or hypomania, with decreased need for sleep, based on findings in *some* adult patients with BD. We suggest that these features, and somewhat arbitrary DSM-IV duration requirements for episodes of mania, hypomania, and major depression in BD, require critical and systematic reassessment, guided by clinical research data. Revising diagnostic criteria according to available phenomenological data in children should greatly improve the diagnostic sensitivity and accuracy of the most common forms of BD, and encourage timely, appropriate, and potentially life-saving treatment (54–56).

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