Review

Bipolar disorder in children and adolescents: an update on diagnosis

Sabeen H Rizvi[1], Mian-Li Ong[1] & Eric A Youngstrom*,[1]
[1]The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
*Author for correspondence: eay@unc.edu

Practice points

- Despite converging evidence validating pediatric bipolar disorder (PBD), it is still challenging to diagnose PBD accurately.
- Consideration of the developmental course and common comorbidities will help improve the diagnostic accuracy of PBD.
- Clinical triggers such as family history, early-onset depression, antidepressant-coincident mania, episodic mood lability, episodic aggressive behavior, psychotic features and sleep disturbance should trigger a thorough evaluation of possible PBD.
- Semistructured interviews remain the gold standard for assessing for PBD.
- Understanding cultural dynamics such as training, class/race issues, stigma and lifestyle-related factors may help bridge the gap between research and practice.

Converging evidence from both community and clinical settings shows that pediatric bipolar disorder is a valid diagnosis and a debilitating condition. While the field has evolved considerably, there remain gaps in diagnosis, assessment, research and practice. This article critically appraises: advances in understanding of the phenomenology of pediatric bipolar disorder; changes in diagnostic criteria from the Diagnostic and Statistical Manual (DSM)-IV to DSM-5 and corresponding controversies; the epidemiology of pediatric bipolar disorder; current assessment and diagnostic practices; and cultural factors influencing treatment seeking and diagnosis. We recommend using an evidence-based framework for bridging the gap between research and clinical practice.

Keywords: assessment • comorbidity • cultural gaps • DSM-5 core symptoms • epidemiology • evidence-based practices • pediatric bipolar disorder

Pediatric bipolar disorder (PBD) is an affective disorder afflicting 1–4% of the population [1,2]. It is characterized by the presence of recurrent episodes of alternating moods, ranging from manic and hypomanic to a depressed mood in children [3]. PBD is associated with a host of negative outcomes, including difficulties in academic achievement and interpersonal relationships, increased use of health services and high rates of suicide attempts [1,4]. However, it can be hard to distinguish PBD from other disorders that have similar symptoms [5,6]. This article examines the diagnostic challenges in identifying PBD and our contemporary understanding of the clinical symptoms and course of this illness.

Phenomenology

There is growing consensus regarding the similarity of presentation between PBD and adult bipolar disorder [7,8]. The diagnostic recommendations made by the Diagnostic and Statistical Manual (DSM) [3], International Classification of Diseases (ICD) [9] and the International Society for Bipolar Disorders [8] recommend using the same definitions of mood states and core symptoms for diagnosing mood disorders in the

Future Medicine part of fsg

pediatric population as well as adults. Research groups have investigated the phenomenology of PBD using different approaches in terms of subject ascertainment, clinical interviewing, choice of informant, method of reconciling discrepant information from multiple informants and different age groups [8], but consistently find that most of the core symptoms of PBD are related to mood dysregulation and energy levels [10]. DSM-5 accentuates the importance of energy levels, bringing it in tandem with mood dysregulation as a core symptom [3]. It is worth outlining common PBD symptoms that continue to be of debate.

Manic & hypomanic symptoms

A meta-analysis of seven published studies on the phenomenology of PBD [5] found that increased energy (89%), irritable mood (81%) and grandiosity (78%) were the three most highly reported symptoms. Euphoria occurred on average in 70% of cases across samples. Hypersexuality was the least commonly reported of PBD symptoms. These numbers underscore the debate on whether elated mood should be required as a core feature of PBD [11,12]. Some argue that while elated mood may be helpful in ruling in the diagnosis, requiring it as a symptom could lead to underdiagnoses due it its imperfect diagnostic sensitivity [8]. Grandiosity, another symptom also considered by some to be a 'cardinal' PBD symptom [11], is complicated, as many children either show developmentally appropriate imagination and fantasizing or do not show those symptoms. Grandiosity might even be related to antisocial behavior and conduct disorder, substance use or having narcissistic traits [8].

Similarly, there has been debate regarding the roles of irritability and the degree of focus on mood and energy. Although irritability may be highly sensitive to PBD [5,13], it is not specific to PBD alone [8]. Other symptoms are more specific to PBD, and thus more helpful in establishing a diagnosis. For instance, while hypersexuality, psychotic symptoms and decreased need for sleep are not reported in all cases, they are also more specific to PBD [5,8]. Hypersexuality, for example, is not a common feature associated with attention deficit hyperactivity disorder (ADHD), and outside of manic presentations, would be most likely to occur in instances of sexual abuse. Elated mood and more episodic presentations of other symptoms, such as fluctuations in concentration or energy, are also more suggestive of bipolar disorder.

Focusing on activity and energy may make it easier for patients and caregivers to recognize the symptoms [14], as recall may be less driven by social desirability, mood-congruent recall effects or cultural factors [15]. However, the DSM-5 criteria controversially require both mood and energy/activity change. This change from DSM-IV, in which one or the other was considered to be sufficient, might decrease sensitivity in diagnosing PBD [16].

The phenomenology of hypomania differs from mania only in terms of intensity, required duration and impairment. Behavioral changes may be observable in a hypomanic state but be far less impairing than mania, and often of shorter duration. There are some developmental differences in the presentation and frequency of symptoms [11]. Manic symptoms may be more elevated in young children and males [17], possibly due to higher rates of comorbid ADHD. Youths with subsyndromal BP ('Bipolar not otherwise specified' [BP-NOS] in DSM-IV; now 'Other specified bipolar and related disorder' [OS-BRD]] in DSM-5) and a family history of BP are at risk of converting into BP-I and BP-II, with conversion rates of approximately 45% over 5 years of follow-up [18].

Depressive symptoms

The current definitions of major depressive episodes use identical criteria for both unipolar and bipolar depression [3]. Both youth and adults with BP spend much time in depressive states [4]. As opposed to manic symptoms, bipolar depressive states are usually characterized by a slowing or decrease in almost all aspects of emotion and behavior: rates of thought and speech, energy, sexuality and the ability to experience pleasure all diminish [19]. Depending on the BP diagnosis in question, the presence of depressive symptoms may be required, optional or an exclusion criterion [16]. BP-I does not require a major depressive episode for diagnosis, whereas BP-II requires the lifetime history of at least one major depressive episode along with a hypomanic episode. While it is crucial to address depression in treatment, we have focused more on manic states and hypomania, as these states are crucial from a diagnostic perspective – they are the hallmark of a bipolar illness instead of a unipolar depression. However, people often spend more time in depressed states and are more likely to seek help when depressed.

Mixed mood specifier

Children and adolescents with BP may manifest more rapid changes in their mood polarities and mixed presentations [20,21]. Mixed mood is highly impairing, associated with high rates of suicidal ideation [22] and may be more difficult to recognize and diagnose than the other symptoms. Children are more likely to have swift fluctuations, more behavior problems and separation anxiety in their presentation of mixed mood [23]. Conversely, adolescents have more distinct episodes, suicidality, substance abuse and panic disorders [24].

Youngstrom suggests two metaphors to describe clinical presentations of mixed mood: the 'chocolate milk' version and the 'fudge ripple' version of BP. In a 'chocolate milk' presentation of BP disorder, symptoms of mania and depression dissolve together to produce a new state that is qualitatively different from the original state. Similarly to chocolate milk, it is impossible to separate the two components. Chocolate milk mixed states involve high energy, but negative polarity – a 'dysphoric mania'. Alternatively, the presentation of manic and depressive symptoms might also manifest as the 'fudge ripple' version, where there are distinct 'chunks' of mania and depression much of the day and most of the week [8]. Fudge ripple mixed states are more characterized by mood lability and instability, sometimes described as 'ultra-radian cycling' [25]. Despite the large increase in published research validating PBD, it is still challenging to diagnose PBD accurately [26,27].

Definitions of bipolar disorders

The DSM-IV criteria have been the basis for most research on PBD. The DSM-5, published in 2013, made only a few modifications to the DSM-IV criteria with regards to BP. Both versions of the DSM, and also the ICD, define four major entities in the bipolar spectrum of diagnoses.

Bipolar I disorder

DSM-5 defines bipolar I by the occurrence of at least one lifetime manic episode; the manic episode may occur before or after hypomania, depression or a mixture of these states [3], or the disorder can remit and the person can function as normal. The ICD [9] requires multiple episodes of mania to confirm a diagnosis of bipolar I. In addition, complexity increases when adding the element of time. Some people have long episodes and some have frequent relapses, while others have long periods of high functioning. At present, it is unclear whether these longitudinal courses reflect different illness subtypes [28]. It appears likely that they have different prognoses, but it is unknown whether they show differential treatment responses.

Bipolar II disorder

Bipolar II requires that the symptoms have met full criteria for both a hypomanic episode and a major depressive episode at some time. In DSM-5, either or both of the hypomanic and depressive episodes can carry the 'mixed specifier'. If the individual ever displays a full manic episode, the diagnosis changes to bipolar I disorder. DSM-5 added the condition 'hypomania under antidepressant treatment' explicitly as a form of bipolar II disorder – provided that mood/energy problems continue at fully syndromal levels beyond the physiological effect of the treatment. Due to this new criterion, bipolar II disorder could be diagnosed approximately twice as often, yielding a prevalence close to that of bipolar I [29].

Cyclothymic disorder

To be diagnosed with cyclothymic disorder, an individual has to show pronounced hypomanic and depressive symptoms for an extended period of time (more than 2 years in adults and more than 1 year in youths), with symptoms present more than 50% of the time and not the individual not being symptom free for more than 2 months. Hypomanic symptoms do not need to meet the criteria for a hypomanic episode. However, cyclothymic disorder is difficult to diagnose. Firstly, the hypomanic symptoms cannot become too severe or pronounced; full mania results in the diagnosis of bipolar I. By the same token, the depressive symptoms cannot progress to a full-blown major depressive episode; if so, it either results in the diagnosis of bipolar II or a major depressive episode, perhaps with a mixed specifier [30]. The diagnosis of cyclothymic disorder has rarely been used in the USA, particularly with youths, although systematic investigations find that it occurs in outpatient clinics and is associated with a high degree of impairment [30].

Other specified bipolar & related disorders

DSM-5 renamed BP-NOS as OS-BRD. The definitions of OS-BRD and BP-NOS have changed somewhat, emphasizing a change in energy as a key feature and adding the mixed specifier [3]. In addition to the three other prototypes (short-duration hypomanic episodes of 2–3 days, hypomanic or manic episodes with an insufficient number of symptoms and recurrent hypomanic episodes without history of major depressive episode), OS-BRD also adds a fourth prototype of short duration cyclothymia for presentations lasting less than 24 months in adults and less than 12 months in youths [3].

Disruptive mood dysregulation disorder

Disruptive mood dysregulation disorder (DMDD) is a new diagnosis in DSM-5 that evolved from severe mood dysregulation (SMD) [31,32]. SMD did not have a large research base, and there were concerns that it might be premature to include DMDD as a formal clinical diagnosis [18] due to poor reliability [33] and the absence of long-term course or treatment studies. Longitudinal stability of SMD/DMDD also appears to be low, and its symptoms overlap with oppositional defiant disorder. The core feature of DMDD is chronic, severe persistent irritability. This severe irritability has two

prominent clinical manifestations, the first of which is frequent temper outbursts. These outbursts typically occur in response to frustration and can be verbal or behavioral (the latter in the form of aggression against property, self or others).

How do bipolar I or bipolar II disorders manifest differently in children as compared with DMDD? In DSM-5, the longitudinal course of the core symptoms is the central feature differentiating DMDD and PBD [3]. As BP is conceptualized as an episodic illness with discrete episodes of mood perturbation that can be differentiated from the child's typical presentation, the change in mood must be accompanied by the onset, or worsening, of associated cognitive, behavioral and physical symptoms (e.g., distractibility or increased goal-directed activity), which are also present to a degree that is distinctly different from the child's usual baseline. Thus, in the case of a manic episode, parents (and, depending on developmental level, youths) should be able to identify a distinct time period during which mood and behavior were markedly different from usual. By contrast, the irritability of DMDD persists over many months; while it may wax and wane to a certain degree, severe irritability is a trait-like characteristic of the child with DMDD. Bipolar disorders are episodic; DMDD is not. In DSM-5, the DMDD diagnosis cannot be assigned to someone who has ever experienced a full-duration hypomanic or manic episode (irritable or euphoric) or who has ever had manic or hypomanic symptoms lasting more than 1 day.

Epidemiology

Prevalence

Although researchers and clinicians are reaching a consensus regarding the existence of PBD, the exact prevalence rates continue to be debated. In the USA, concerns exist regarding missed bipolar diagnoses (hence BP being underdiagnosed), while researchers in other parts of the world continue to be skeptical about such claims [34]. The clinical diagnosis of PBD increased approximately 40-fold during 1994–2003 in terms of office visits to US mental health providers [35]. These data coincide with the transition from DSM-III-R to DSM-IV (which added bipolar II and BP-NOS as categories), suggesting that changing diagnostic criteria may contribute to the increase. The rate of PBD discharge diagnoses from psychiatric hospitals increased from 5 to 20% within the last 10–15 years in the USA, and researchers are reporting similar findings in other nations [36,37]. Another review reported the range to be from 0.6 to 15% in pediatric clinic populations, depending on the measures used for diagnosis, the clinic setting and the referral source [38]. However, the increasing rates may partly be due to increased awareness of BP and better access to healthcare, rather than increasing disease prevalence [2].

Until recently, few epidemiological studies systematically assessed PBD. In a WHO World Mental Health survey initiative of 61,392 community adults in 11 countries in the Americas, Europe and Asia, approximately half of those with BP reported onset before 25 years of age [39]. A 2011 meta-analysis found 12 studies (16,222 youths between 7 and 21 years of age) after reviewing approximately 2000 abstracts and using minimal exclusion criteria. The includable studies were from the USA (six studies), UK, The Netherlands, Spain, Mexico, Ireland and New Zealand. The mean prevalence rate for bipolar spectrum disorder was 1.8% and the mean prevalence of pediatric bipolar I was 1.2%. Contrary to popular perception, there were no significant differences in rates of PBD across countries and no evidence of the increasing prevalence of PBD over time [2].

A study of 8–19-year-old individuals found that the PBD prevalence ranged from 0.04 to 0.13% using DSM-IV criteria. Switching to a broad phenotype BP definition led to a tenfold increase in prevalence: 1.1% by parent report and 1.5% by youth report [40]. The National Comorbidity Survey for Adolescents reported a 6.2% lifetime prevalence of BP disorders, as they included subthreshold BP in a sample of 10,148 adolescents between 13 and 17 years of age (refer to Table 1 for base rates in different settings) [41]. Another study of a community sample of US adolescents reported that 2.5% of youth met the criteria for lifetime bipolar I or II disorder and 1.7% met the criteria for mania only. The 12-month rates of mania with and without depression were 2.2 and 1.3%, respectively, indicating that more than 80% of youth with a lifetime episode of BP disorder also met the criteria during the past year [42]. A Canadian study in 2010 reported a weighted lifetime prevalence of 2.1% in youths between the ages of 15 and 19 years [43]. Prior controversies surrounding the recognition of PBD are changing to discussions regarding overlap, accuracy of diagnoses, course and treatment of the disorder.

Comorbidity

Comorbidity, or meeting criteria for more than one disorder at the same time, is more the rule than the exception for PBD, as well as psychiatry in general. Comorbidity may partly be an artifact of methodological differences in assessment, evaluation, clinical expertise and training, overlap in diagnostic criteria and definitions of disorders, surveillance bias and other cultural issues [44,45]. Consideration of developmental course and magnitude of comorbidity help to fine tune diagnostic accuracy.

Table 1. Base rates of pediatric bipolar disorder in different settings.

Setting	Base rate	Population
Community epidemiological samples (meta-analysis)	1.2% for bipolar I, 1.8% for the bipolar spectrum	USA, The Netherlands, UK, Spain, Mexico, Ireland, New Zealand [2]
National Comorbidity Survey – Adolescent	6.2% including bipolar I and II and subthreshold cases	All of the USA [41]
Outpatient or community mental health	5–19%	Various outpatient clinics
Inpatient and psychiatric hospitalization	25–40%	All of the USA (record surveillance) [36]

A meta-analysis found that the ADHD weighted average comorbidity was 62%, oppositional defiance disorder (ODD) was 53%, psychosis was 42%, anxiety was 27%, and conduct disorder was 19% among cases with diagnoses of PBD [5]. There was significant heterogeneity in the seven published estimates, reflecting differences in referral patterns as well as perhaps in diagnostic methods. A study of 121 youths referred for probable ADHD between 6 and 16 years of age reported that 8.3% of youths with ADHD also met a BP diagnosis [46]. While some researchers consider bipolar spectrum disorder (BPSD) plus ADHD to be a distinct subtype [47], others suggest caution in using categorical labels, as statistical models tend to indicate that both ADHD and manic symptoms appear to be distributed along a continuum rather than in categories or distinct clusters: "The apparent 'comorbidity' appearing between PBD and ADHD could be an artifact of drawing categorical 'boxes' over what actually is a seamless spectrum of symptoms flowing from the same developmental pathological process" [6].

The presence of comorbidities makes accurate diagnosis harder because some of the symptoms, especially those of ADHD, overlap with the symptoms of mania or hypomania [48]. The clinical presentation is clarified by focusing on the episodicity versus chronicity of the symptoms, as well as DSM exclusionary criterion E for ADHD, which is that the symptoms are not better explained by any other disorder [3]. The chronic/episodic distinction sorts the symptoms and helps to establish whether a mood disorder is present before deciding whether mood hierarchically excludes the ADHD 'comorbidity' [6]. When both disorders are diagnosed, it may be clinically helpful to consider PBD as the initial and primary target of treatment, even if the ADHD came first chronologically for two reasons: the greater severity and more debilitating prognosis of PBD; and the concern that medications for ADHD may exacerbate bipolar symptoms if the patient is not first 'covered' by a mood stabilizer [49]. Furthermore, comorbid disorders influence the response to treatment and the prognosis for BP, indicating the need to accurately identify these youths in order to effectively treat them [20].

Diagnosis & assessment

There has been substantial progress developing an evidence-based assessment model for PBD that uses information about base rates, risk factors, well-validated checklists and semistructured interviews in order to improve the accuracy of diagnoses while eliminating tendencies to overdiagnose PBD [14]. Table 2 lists triggers or clinical 'red flags' that should lead to a thorough evaluation for PBD. This approach improves clinical decision-making and agreement about the next action when working with patients [27]. Brief rating scales combined with information about risk factors and prevalence are sufficient to rule PBD out in most settings, and they can identify cases where more intensive interviewing is warranted before starting treatment [14].

Semistructured interviews

There are a variety of versions of the Schedule for Affective Disorders and Schizophrenia for Children and Adolescent (KSADS; for a review, see [54]). The Washington University version (WASH-U-KSADS) [55] expanded the 1986 version of the KSADS [56] to include onset and offset of each symptom for both current and lifetime episodes, and added prepubertal mania and rapid cycling sections [19,55]. In order to optimize phenomenological research, skip-outs were minimized. The κ-values of comparisons between the research nurse and off-site blind best-estimate ratings of mania and rapid cycling sections were strong based on recordings (0.74–1.00), with high 6-month stability for mania diagnoses (85.7%) and convergent validity with parental and teacher reports [55].

For many years, the KSADS was considered the best available interview for mood disorders research [57], but the level of required training and the length of interviews make it less popular for clinical applications. More brief and structured approaches, such as the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-Kid) [58], may be more feasible

Table 2. Clinical triggers for the thorough evaluation of possible pediatric bipolar disorder.

Trigger	Description	Commentary
Family history of bipolar	PBD has a genetic contribution; family environment can amplify risk; family environment affects treatment adherence and relapse	5–10× increase for first-degree relative (biological mother, father or full sibling); 2.5–5× increase for second-degree relative (e.g., aunt/uncle, grandparent or half sibling); 2× increase for 'fuzzy' bipolar in relative: probe histories of depression, suicide, alcohol/drug misuse, psychosis and antisocial behavior for possible undiagnosed bipolar [50]
Early-onset depression	Onset <20 years of age	First clinical episode is often depression; treatment resistant, recurrent or atypical depression may be more likely to be bipolar; 20–35% of pediatric depressions ultimately show bipolar course [51]
Antidepressant-coincident mania	Manic symptoms while being treated with antidepressants	In DSM-5, counts towards bipolar diagnosis if the mood symptoms persist past the drug effects; the US FDA recommends assessing for hypomania and family history of bipolar before prescribing antidepressants; 'switch' is often previously undiagnosed PBD [52]
Episodic mood lability or aggression	Rapid switching between depressive and manic symptoms; depressive and manic symptoms at the same time; aggression that is episodic and associated with high energy levels; unlikely to be instrumental aggression; more likely to be reactive	Common presentation episodicity is more suggestive of mood diagnosis [8]
Psychotic features	True delusions/hallucinations in the context of mood	Psychosis occurs during a subset of mood episodes; bipolar more common as a source of psychosis than schizophrenia in children [5,53]
Decreased need for sleep	Maintains high energy with less sleep	More specific to bipolar; may also be phase delay or circadian reversal (awake all night, sleeping during the day)

DSM: Diagnostic and Statistical Manual; PBD: Pediatric bipolar disorder.
Adapted from [14].

for use in diagnostic confirmation in many settings. Several semistructured interviews omit cyclothymic disorder [59] or have other structural omissions and limitations that hamper thorough PBD assessment [54]. It is worth noting that the DSM-5 versions of these semistructured interviews are in the process of being written and validated. Fortunately, the definitions for the DSM-5 mood disorders have substantial continuity with DSM-IV.

Measuring process & progress

After the initial treatment plan is clear, the role of assessment shifts from diagnosis confirmation to measuring diagnostic progress/recidivism. At a minimum, process assessment checks at each session regarding what the client and therapist have agreed are the primary problems, using a consistent scale [60]. Mood charting methods and now applications on smartphones provide a powerful tool for tracking changes in energy and mood, as well as identifying stressors and triggers for discussion in therapy. Furthermore, each case should have a short list of key things to check that may change regularly, such as changes in drug use and suicidal ideation. Making a list increases the odds that clinicians will remember to ask about these things consistently. The Youth Top Problems is a brief, practical method for focusing attention and treatment planning on the problems that youth and caregivers consider to be most important [61]. Such measures also indicate trajectories of change in these problems during treatment.

Charting progress & outcome

Reviewing trends and outcomes indicates when the treatment plan may need modification. Jacobson and colleagues developed a psychometrically informed framework for evaluating clinically significant change that was intended to be sophisticated yet more practical than repeated structured interviewing [62]. There are two parts to their definition: reliable change and moving past a benchmark, defined by comparisons with norms for clinical and nonclinical reference groups [62]. Reliable change is driven by the precision of the measure; Jacobson *et al.* suggested divid-

ing the observed change by the standard error of the difference to create a reliable change index. If there is a setback in terms of reliable change, the clinicians and patient should discuss the congruence of the goals and also reformulate and reconsider additional factors that were not considered in the treatment approach. Framing treatment goals using the Jacobson approach provides the idea that perfection is not the end point. It is important to impress onto patients that people living with or without bipolar disorder continue to experience many setbacks in their daily lives [60], and the main goal should be to be able to cope effectively and live productive lives.

Monitor maintenance & early detection of relapse

When treatment is successful, the clinician and the patient can plan how to maintain those treatment gains and how to minimize relapse. Progress measures such as the Youth Top Problems scale can also be a method of monitoring for relapse. With PBD, it is important that the clinician and patient work together to identify warning signs, as the patient's own judgment can be easily clouded by worsening symptoms [63]. Having a clear plan for preventing and managing relapse increases the chance of maintaining treatment gains in PBD.

Cultural factors: understanding the gap

The pediatric literature in this area is relatively scanty. Although there is some consistency in epidemiological rates of PBD [2,42,43], there are also some significant differences, at least in adult samples. The Cross-National Collaborative Group found that the rates of all psychiatric disorders are lower in Asian sites [39]. There may also be differences in rates of BP-NOS cases between the USA and other countries [20]. Variance in rates could be due to differences in training, stigma associated with the disorder, cultural misinterpretations or biases, mental health illiteracy, service availability and lifestyle practices. Researchers and clinicians may have underestimated the potent role of culture in the realms of diagnosis and assessment, given marked differences in attitudes towards mental health, service accessibility and treatment seeking across cultures. However, ethnicity by itself may explain relatively little variance; rather, ethnicity coupled with cultural and behavioral norms might play stronger roles in making choices related to the recognition of the problem and treatment seeking.

Training

Many mental health professionals often do not adhere to specific diagnostic criteria, making diagnoses in a more impressionistic manner [64]. Agreement is poor between diagnoses made in day-to-day clinical practice versus diagnoses based on semistructured interviews [26]. A recent study explored the intercultural biases between English-speaking practitioners from three countries (UK, USA and India) using a semistructured mania rating scale to quantify severity of mania in two videotaped American patients. Indian raters sometimes saw the manic behavior of the patients as more ill and inappropriate than American raters. On the other hand, the British raters rated them significantly lower compared with American raters [65]. This disparity reflects differences in intercultural interpretation and subsequent bias across the countries. In the most recent DSM-5 field trials, the reliability ranged from $\kappa = 0.56$ for bipolar I and 0.25 for DMDD [33]. A recent meta-analysis of agreement between psychiatric diagnoses made from structured diagnostic interviews and clinical evaluation found that affective diagnosis ($\kappa = 0.14$) was much worse than the general trend in diagnostic reliability [26]. These differences may be attributed to habits of practice, using unstructured interviews, heavy reliance on clinical judgment and faulty heuristics [66], poor cross-informant agreement or following different practice models.

Class & race issues

A qualitative experiential study of bipolar and ADHD children reported that Euro–Americans (low- to high-income background) linked behavioral and emotional problems to biomedical causes. They also tended to view clinical intervention as necessary and actively sought out mental health services. However, African–American families (low- to middle-income background) viewed these problems as interpersonal or social difficulties, embedded in families, institutions and communities; they were often skeptical towards mental health interventions [67]. In the adult literature, the differences in treatment appear to be larger than the differences in epidemiological rates across cultural groups [68]. Compared with whites, African–Americans are more frequently diagnosed with schizophrenia and less frequently diagnosed with mood disorders in inpatient settings. Even when receiving the same diagnosis, the groups do not receive the same treatment [69].

Clinician heuristics also interact with cultural differences in the description of the presenting problems. When an upper-socioeconomic status family shares concerns about 'mood swings', the initial clinical hypothesis may be a mood disorder; and when a lower-socioeconomic status family reports concerns about behavior problems, then most often the hypothesis may be a conduct problem [10]. Misdiagnosis of BP disorder as depression or ADHD delays initiating effec-

tive stabilizing treatments [49]; the treatment options selected may potentially worsen the course of BP.

Lifestyle factors

Culture and lifestyle-related risk factors are hot topics in the area of PBD. Eating patterns emerge as potent lifestyle-related risks for overweight/obesity as early as preadolescence, which may be a result of dysfunctional reward mechanisms contributing to poor food choices and overeating [70]. Obesity is significantly more common among individuals with bipolar disorder than healthy controls [71]. Preliminary findings from a pediatric longitudinal sample found that 42% of participants with PBD were overweight/obese [72]. Obesity appears to be a nonspecific risk factor, as it is also associated with depression, psychosis, heart disease and cancer.

Low fish consumption is another area of interest. Higher rates of fish consumption during pregnancy are associated with lower rates of aggression in children at an epidemiological level, and fish consumption later in life correlates with lower rates of mood disorder and suicide [73]. A systematic review of five randomized controlled trials and two quasi experimental studies found that omega-3 fatty acid supplementation was effective in four out of seven studies in bipolar disorder [74].

Stigma

Stigma is an everyday reality for people diagnosed with PBD. These individuals experience it internally, within their social circles, at school and even in healthcare settings [75]. Although many western nations are becoming more open in recognizing and accepting psychiatric illnesses, it is not so in many other cultures. Many cultures discourage talking about psychiatric ailments, and as a result, people do not recognize or seek help for their conditions. In the USA, lay persons were better at recognizing symptoms of depression (90%), followed by bipolar disorder (43%) and then schizophrenia (34%), [76]. Studies have also investigated the degree of perceived public stigma towards people with BP or mania. Perceived stigma was higher among professionals in Singapore (70–91%) than in the USA (47–62%) [77,78]. Using an unlabeled vignette methodology, researchers compared BP with eight other disorders in three countries (UK, Hong Kong and Malaysia) and found that BP was second least recognized in all three countries. Participants were also least confident in recognizing BP disorder, and it was often mistaken for ADHD, addictions, 'overconfidence' or being a 'workaholic' [79]. In a German study, attributes related to dangerousness were ascribed more to a person with a manic episode than one with depression [80].

These findings call for recognizing the cultural meanings attached to bipolar disorder. Cultural factors may change the risk of illness and course, but they definitely increase the complexity of diagnosis and treatment selection. Using validated rating scales and consistent interviews would go a long way towards improving diagnosis [14], and using treatment algorithms and practice parameters could standardize interventions [49], but there remains a crucial role for cultural sensitivity. More work needs to focus on the perceived risks and benefits of diagnoses and treatments and developing culturally savvy ways of creating personalized programs of treatment. Clinicians may try making culturally sensitive recommendations that consider the developmental stage/age appropriateness of behavior, patterns of symptoms and cross-informant agreement.

Conclusion

The field has made tremendous progress in terms of documenting the prevalence of PBD and showing validity in terms of clinically associated features, family history, longitudinal course, treatment response and laboratory tasks. The research has also exposed a major disconnect between evidence-based assessment and treatment strategies versus common current clinical practices. Fixing leaks in the pipeline connecting research to practice – via better dissemination of evidence in ways that are more feasible for clinicians to adopt and families to complete – would rapidly improve the diagnosis and outcomes of youths affected by PBD. The difficulty in reaching the families who would benefit is compounded by cultural factors that should be a focus of the next wave of research. We speculate that the next 5–10 years could lead to major advances as evidence-based approaches to assessment gain more currency and culturally nuanced approaches to assessment and treatment increase the engagement of families with interventions that are most likely to help them.

Future perspective

Despite there being more than 7500 peer-reviewed publications indexed on the topic of child or adolescent bipolar disorder (based on a search of PubMed) and the resulting gains in knowledge about the condition, there are still significant gaps that need further investigation. In the area of phenomenology, key questions include where to set the boundary between ordinary fluctuations in mood versus clinical presentations. The DSM authors set a 4-day duration requirement for hypomanic episodes to delineate them from extremes of nonpathological mood, but both epidemiological and clinical data suggest that 2 days may be the modal length of hypomanic periods, and that even these brief periods may be associated with impairment. Similarly, cyclothymic disorder demands study – it appears to be one of the most common yet least investigated forms of

bipolar disorder, with almost no projects examining its course or response to controlled treatments in clinical trials.

The introduction of DSM-5 creates a set of topics for immediate, pragmatic research. Adding 'brief cyclothymia' as a form of OS-BRD further blurs the conceptual differences between cyclothymia being an episodic disorder versus a temperament or a prodrome. Furthermore, the addition of the 'mixed' specifier is a major change to the classification system, with the potential to identify mixed presentations in the course of a depressive episode. Does the mixed specifier predict poor response to antidepressants, or higher rates of substance use? Another practical question is whether clinicians frequently avail themselves of the mixed specifier, versus relying on 'other specified mood and related disorder' or other diagnoses that are imprecise but minimally sufficient for billing purposes.

Recent epidemiological studies have raised as many interesting questions as they have answered. Operational definitions of BP-NOS in epidemiology map loosely onto DSM nosology, leaving fundamental questions about how common the different prototypes of OS-BRDs might be in the general community or in different clinical settings. Epidemiological studies have also identified cases that appear to only have hypomanic or manic episodes. If a significant number of people experience extreme 'ups' without ever having depressive 'downs', then does it make sense to think of 'manic depression' as a unitary construct, or are mania and depression two independent conditions that happen to be frequently comorbid? It is a major effort to assemble epidemiological cohorts, and longitudinal projects are always a major undertaking. Combining the two verges on being prohibitively expensive, but the few examples suggest that there might be a group of people who experience mania as youths or young adults who then 'outgrow' it, not experiencing any serious mood episodes later in life. If true, this stands conventional wisdom on its head, suggesting that mania is more common among the young, and at least a subset of cases might profitably be reconceptualized as following a trajectory of 'developmental delay in emotion regulation'.

In the field of assessment and diagnosis, we have made great strides. Skeptics could attribute some of the gains to 'regression to the mean', as assessment of BP has been an abysmal outlier even compared with the typical underwhelming accuracy of psychiatric classification. Optimists would point to the efforts to apply evidence-based assessment principles, which have proliferated to the point that meta-analyses are feasible, establishing some general prescriptions for practice, such as giving caregiver report greater credence than youth or teacher report about manic symptoms. A good neurocognitive battery, or even a valid projective test, would be a huge asset when working with different groups of PBD clients, such as foster parents who are unavoidably unclear about chunks of developmental history or clients in forensic settings with unmotivated or frustrated relatives. A corollary service- or policy-oriented question would be to quantify the extent to which practitioners adopt evidence-based assessment methods, and how much this leads to measurable gains in diagnostic accuracy and improved patient outcomes.

It is also worth noting that the topic of pharmacotherapy and psychotherapy is crucial to treatment. Whereas our focus was the diagnosis and assessment of PBD, readers will also be interested in several recent reviews and meta-analyses that provide further insight on this topic [49,81–84].

Most research on PBD leans heavily on middle-class and affluent families from the USA and Canada. Viewed globally, this is an embarrassingly thin slice of the pie chart of human experience. The pioneering studies that venture beyond these narrow bounds have found evidence of 'moderating' variables. Within the USA, accuracy of clinical diagnoses changes depending on ethnicity when this should not be the case. Across countries, there are big differences in: (a) stigma; (b) how we think about emotional and behavioral problems; and (c) how we gauge potential solutions. These are factors that need careful consideration before 'evidence-based' solutions can achieve their global potential. As with other disorders, cultural factors are probably the most wide-open area for research.

Even if we treat all of the above research opportunities as if they were caveats, there are still vital recommendations that savvy practitioners can use to improve their practice based on the current state of the field. Clinicians should: be open to the possibility of making a bipolar diagnosis in youths; peg the rate of bipolar spectrum diagnoses to fall in between the rates of autism (rare) and ADHD (common) in most outpatient settings, or alternately expect approximately a third of the severe mood disorder issues to follow a bipolar course; emphasize episodicity and change from typical functioning as a hallmark of mood disorder, which is consistent with thinkers from Kraepelin to the International Society of Bipolar Disorders and DSM-5; use evidence-based checklists and consistent methods for measuring risk factors as ways of improving case formulations; consider evidence-based algorithms and debiasing strategies as ways of further refining diagnostic accuracy; have frank conversations with patients and families regarding how they are thinking about issues and how they are hearing our recommendations; and be prepared to reframe potential risks and benefits of diagnosis and treatment in a way that is appropriate to

people in their current situations. While all stakeholders in the treatment process share the same goal, they need varying amounts of communication in order to arrive at a shared path on the road to recovery.

Financial & competing interests disclosure

EA Youngstrom has consulted with Lundbeck and Otsuka about measurement of mood symptoms and cognitive functioning, and received grant support from the National Institute of Mental Health. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

No writing assistance was utilized in the production of this manuscript.

References

Papers of special note have been highlighted as:
• of interest; •• of considerable interest

1 Merikangas KR, Akiskal HS, Angst J *et al.* Lifetime and 12-month prevalence of bipolar spectrum disorder in the National Comorbidity Survey replication. *Arch. Gen. Psychiatry* 64(5), 543–552 (2007).

2 Van Meter AR, Moreira AL, Youngstrom EA. Meta-analysis of epidemiologic studies of pediatric bipolar disorder. *J. Clin. Psychiatry* 72(9), 1250–1256 (2011).

3 American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders [Electronic Resource]: DSM-5*. American Psychiatric Association, VA, USA. (2013).

4 Judd LL, Akiskal HS, Schettler PJ *et al.* The long-term natural history of the weekly symptomatic status of bipolar I disorder. *Arch. Gen. Psychiatry* 59(6), 530–537 (2002).

5 Kowatch RA, Youngstrom EA, Danielyan A, Findling RL. Review and meta-analysis of the phenomenology and clinical characteristics of mania in children and adolescents. *Bipolar Disord.* 7(6), 483–496 (2005).

•• **Describes the phenomenology and clinical correlates of mania in children and adolescents.**

6 Youngstrom EA, Arnold LE, Frazier TW. Bipolar and ADHD comorbidity: both artifact and outgrowth of shared mechanisms. *Clin. Psychol.* 17(4), 350–359 (2010).

7 Youngstrom EA, Freeman AJ, Jenkins MM. The assessment of children and adolescents with bipolar disorder. *Child Adol. Psychiatry Clin. N. Am.* 18(2), 353–390, viii–ix (2009).

8 Youngstrom EA, Birmaher B, Findling RL. Pediatric bipolar disorder: validity, phenomenology, and recommendations for diagnosis. *Bipolar Disord.* 10(1 Pt 2), 194–214 (2008).

•• **Reviews clinical and diagnostic issues in pediatric bipolar disorder assessment and makes recommendations for improving diagnosis.**

9 WHO. *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines*. WHO, UK. (1992).

10 Youngstrom EA, Perez Algorta G. Pediatric bipolar disorder. In: *Child Psychopathology*. Mash E, Barkley R (Eds). Guilford Press, NY, USA, 264–316 (2014).

11 Geller B, Tillman R. Prepubertal and early adolescent bipolar I disorder: review of diagnostic validation by Robins and Guze criteria. *J. Clin. Psychiatry* 66(Suppl. 7), 21–28 (2005).

12 Wozniak J, Biederman J, Kwon A *et al.* How cardinal are cardinal symptoms in pediatric bipolar disorder? An examination of clinical correlates. *Biol. Psychiatry* 58(7), 583–588 (2005).

13 Axelson D, Birmaher B, Strober M *et al.* Phenomenology of children and adolescents with bipolar spectrum disorders. *Arch. Gen. Psychiatry* 63(10), 1139–1148 (2006).

14 Youngstrom EA, Jenkins MM, Jensen-Doss A, Youngstrom JK. Evidence-based assessment strategies for pediatric bipolar disorder. *Israel J. Psychiatry Rel. Sci.* 49, 15–27 (2012).

15 Angst J, Meyer TD, Adolfsson R *et al.* Hypomania: a transcultural perspective. *World Psychiatry* 9(1), 41–49 (2010).

16 Youngstrom EA, Perez Algorta G. Features and course of bipolar disorder. In: *Handbook of Depression*. Hammen C, Gotlib I (Eds). Guilford Press, NY, USA, 142–161 (2014) (In Press).

17 Demeter CA, Youngstrom EA, Carlson GA *et al.* Age differences in the phenomenology of pediatric bipolar disorder. *J. Affect. Disord.* 147(1–3), 295–303 (2013).

18 Axelson DA, Birmaher B, Strober MA *et al.* Course of subthreshold bipolar disorder in youth: diagnostic progression from bipolar disorder not otherwise specified. *J. Am. Acad. Child Adolesc. Psychiatry* 50(10), 1001–1016.e3 (2011).

19 Goodwin FK, Jamison KR. *Manic–Depressive Illness (2nd Edition)*. Oxford University Press, NY, USA (2007).

20 Birmaher B. Bipolar disorder in children and adolescents. *Child Adolesc. Ment. Health* 18(3), 140–148 (2013).

21 Algorta GP, Youngstrom EA, Frazier TW, Freeman AJ, Youngstrom JK, Findling RL. Suicidality in pediatric bipolar disorder: predictor or outcome of family processes and mixed mood presentation? *Bipolar Disord.* 13(1), 76–86 (2011).

22 Goldstein TR, Birmaher B, Axelson D *et al.* History of suicide attempts in pediatric bipolar disorder: factors associated with increased risk. *Bipolar Disord.* 7(6), 525–535 (2005).

23 Birmaher B, Axelson D, Strober M *et al.* Clinical course of children and adolescents with bipolar spectrum disorders. *Arch. Gen. Psychiatry* 63(2), 175–183 (2006).

24 Lewinsohn PM, Klein DN, Seeley JR. Bipolar disorders in a community sample of older adolescents: prevalence, phenomenology, comorbidity, and course. *J. Am. Acad. Child Adolesc. Psychiatry* 34(4), 454–463 (1995).

25 Geller B, Luby J. Child and adolescent bipolar disorder: a review of the past 10 years. *J. Am. Acad. Child Adolesc. Psychiatry* 36(9), 1168–1176 (1997).

26 Rettew DC, Lynch AD, Achenbach TM, Dumenci L, Ivanova MY. Meta-analyses of agreement between diagnoses made from clinical evaluations and standardized diagnostic interviews. *Int. J. Methods Psychiatr. Res.* 18(3), 169–184 (2009).

27 Jenkins MM, Youngstrom EA, Washburn JJ, Youngstrom JK. Evidence-based strategies improve assessment of pediatric bipolar disorder by community practitioners. *Prof. Psychol. Res. Pr.* 42(2), 121–129 (2011).

• **Provides clinically helpful strategies to improve the assessment of pediatric bipolar disorder using the evidence-based framework.**

28 Cicero DC, Epler AJ, Sher KJ. Are there developmentally limited forms of bipolar disorder? *J. Abnorm. Psychol.* 118(3), 431–447 (2009).

29 Angst J. Bipolar disorders in DSM-5: strengths, problems and perspectives. *Int. J. Bipolar Disord.* 1(12), 1–3 (2013).

30 Van Meter AR, Youngstrom EA. Cyclothymic disorder in youth: why is it overlooked, what do we know and where is the field headed? *Neuropsychiatry (London)* 2(6), 509–519 (2012).

31 Copeland WE, Angold A, Costello EJ, Egger H. Prevalence, comorbidity, and correlates of DSM-5 proposed disruptive mood dysregulation disorder. *Am. J. Psychiatry* 170(2), 173–179 (2013).

32 Axelson D, Findling RL, Fristad MA *et al.* Examining the proposed disruptive mood dysregulation disorder diagnosis in children in the Longitudinal Assessment of Manic Symptoms study. *J. Clin. Psychiatry* 73(10), 1342–1350 (2012).

33 Regier DA, Narrow WE, Clarke DE *et al.* DSM-5 field trials in the United States and Canada, part II: test–retest reliability of selected categorical diagnoses. *Am. J. Psychiatry* 170(1), 59–70 (2013).

34 Harrington R, Myatt T. Is preadolescent mania the same condition as adult mania? A British perspective. *Biol. Psychiatry* 53(11), 961–969 (2003).

35 Moreno C, Laje G, Blanco C, Jiang H, Schmidt AB, Olfson M. National trends in the outpatient diagnosis and treatment of bipolar disorder in youth. *Arch. Gen. Psychiatry* 64(9), 1032–1039 (2007).

36 Blader JC, Carlson GA. Increased rates of bipolar disorder diagnoses among U.S. child, adolescent, and adult inpatients, 1996–2004. *Biol. Psychiatry* 62(2), 107–114 (2007).

37 Holtmann M, Duketis E, Poustka L, Zepf FD, Poustka F, Bolte S. Bipolar disorder in children and adolescents in Germany: national trends in the rates of inpatients, 2000–2007. *Bipolar Disord.* 12(2), 155–163 (2010).

38 Pavuluri MN, Birmaher B, Naylor MW. Pediatric bipolar disorder: a review of the past 10 years. *J. Am. Acad. Child Adolesc. Psychiatry* 44(9), 846–871 (2005).

39 Merikangas KR, Jin R, He JP *et al.* Prevalence and correlates of bipolar spectrum disorder in the world mental health survey initiative. *Arch. Gen. Psychiatry* 68(3), 241–251 (2011).

40 Stringaris A, Santosh P, Leibenluft E, Goodman R. Youth meeting symptom and impairment criteria for mania-like episodes lasting less than four days: an epidemiological enquiry. *J. Child Psychol. Psychiatry* 51(1), 31–38 (2010).

41 Kessler RC, Avenevoli S, McLaughlin KA *et al.* Lifetime co-morbidity of DSM-IV disorders in the US National Comorbidity Survey Replication Adolescent Supplement (NCS-A). *Psychol. Med.* 42(9), 1997–2010 (2012).

42 Merikangas KR, Lamers F. The 'true' prevalence of bipolar II disorder. *Curr. Opin. Psychiatry* 25(1), 19–23 (2012).

43 Kozloff N, Cheung AH, Schaffer A *et al.* Bipolar disorder among adolescents and young adults: results from an epidemiological sample. *J. Affect. Disord.* 125(1–3), 350–354 (2010).

44 Caron C, Rutter M. Comorbidity in child psychopathology: concepts, issues and research strategies. *J. Child Psychol. Psychiatry* 32(7), 1063–1080 (1991).

45 Angold A, Costello EJ, Erkanli A. Comorbidity. *J. Child Psychol. Psychiatry* 40(1), 57–87 (1999).

46 Lus G, Mukaddes NM. Co-morbidity of bipolar disorder in children and adolescents with attention deficit/hyperactivity disorder (ADHD) in an outpatient Turkish sample. *World J. Biol. Psychiatry* 10(4 Pt 2), 488–494 (2009).

47 Biederman J, Faraone SV, Petty C, Martelon M, Woodworth KY, Wozniak J. Further evidence that pediatric-onset bipolar disorder comorbid with ADHD represents a distinct subtype: results from a large controlled family study. *J. Psychiatr. Res.* 47(1), 15–22 (2013).

48 Klein RG, Pine DS, Klein DF. Resolved: Mania is mistaken for ADHD in prepubertal children – negative. *J. Am. Acad. Child Adolesc. Psychiatry* 37(10), 1093–1096 (1998).

49 Kowatch RA, Fristad M, Birmaher B, Wagner KD, Findling RL, Hellander M. Treatment guidelines for children and adolescents with bipolar disorder. *J. Am. Acad. Child Adolesc. Psychiatry* 44(3), 213–235 (2005).

•• **Makes recommendations for fine-tuning the treatment of pediatric bipolar disorder.**

50 Youngstrom EA, Findling RL, Youngstrom JK, Calabrese JR. Toward an evidence-based assessment of pediatric bipolar disorder. *J. Clin. Child Adolesc. Psychol.* 34(3), 433–448 (2005).

51 Kochman FJ, Hantouche EG, Ferrari P, Lancrenon S, Bayart D, Akiskal HS. Cyclothymic temperament as a prospective predictor of bipolarity and suicidality in children and adolescents with major depressive disorder. *J. Affect. Disord.* 85(1–2), 181–189 (2005).

52 Joseph MF, Youngstrom EA, Soares JC. Antidepressant-coincident mania in children and adolescents treated with selective serotonin reuptake inhibitors. *Future Neurol.* 4(1), 87–102 (2009).

53 Tillman R, Geller B, Klages T, Corrigan M, Bolhofner K, Zimerman B. Psychotic phenomena in 257 young children and adolescents with bipolar I disorder: delusions and hallucinations (benign and pathological). *Bipolar Disord.* 10(1), 45–55 (2008).

54 Galanter CA, Hundt SR, Goyal P, Le J, Fisher PW. Variability among rese*arch.* diagnostic interview instruments in the application of DSM-IV-TR criteria for pediatric bipolar disorder. *J. Am. Acad. Child Adolesc. Psychiatry* 51(6), 605–621 (2012).

55 Geller B, Zimerman B, Williams M *et al.* Reliability of the Washington University in St. Louis Kiddie Schedule for Affective Disorders and Schizophrenia (WASH-U-KSADS) mania and rapid cycling sections. *J. Am. Acad. Child Adolesc. Psychiatry* 40(4), 450–455 (2001).

56 Chambers WJ, Puig-Antich J, Hirsch M *et al.* The assessment of affective disorders in children and adolescents

by semistructured interview. Test–retest reliability of the schedule for affective disorders and schizophrenia for school-age children, present episode version. *Arch. Gen. Psychiatry* 42(7), 696–702 (1985).

57 Nottelmann E, Biederman J, Birmaher B *et al*. National Institute of Mental Health research roundtable on prepubertal bipolar disorder. *J. Am. Acad. Child Adolesc. Psychiatry* 40(8), 871–878 (2001).

58 Sheehan DV, Lecrubier Y, Sheehan KH *et al.* The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *J. Clin. Psychiatry* 59(Suppl. 20), 22–33, quiz 34–57 (1998).

59 Weller EB, Weller RA, Fristad MA, Rooney MT, Schecter J. Children's Interview for Psychiatric Syndromes (ChIPS). *J. Am. Acad. Child Adolesc. Psychiatry* 39(1), 76–84 (2000).

60 Youngstrom EA, Choukas-Bradley S, Calhoun CD, Jensen-Doss A. Clinical guide to the evidence-based assessment approach to diagnosis and treatment. *Cogn. Behav. Pract.* (2014) (In Press).

•• **Step-by-step guide to the implementation of evidence-based strategies in assessing the pediatric population.**

61 Weisz JR, Chorpita BF, Frye A *et al.* Youth Top Problems: using idiographic, consumer-guided assessment to identify treatment needs and to track change during psychotherapy. *J. Consult. Clin. Psychol.* 79(3), 369–380 (2011).

62 Jacobson NS, Roberts LJ, Berns SB, McGlinchey JB. Methods for defining and determining the clinical significance of treatment effects: description, application, and alternatives. *J. Consult. Clin. Psychol.* 67(3), 300–307 (1999).

63 Kahana SY, Youngstrom EA, Findling RL, Calabrese JR. Employing parent, teacher, and youth self-report checklists in identifying pediatric bipolar spectrum disorders: an examination of diagnostic accuracy and clinical utility. *J. Child Adolesc. Psychopharmacol.* 13(4), 471–488 (2003).

64 Davis RT, Blashfield RK, McElroy RA Jr. Weighting criteria in the diagnosis of a personality disorder: a demonstration. *J. Abnorm. Psychol.* 102(2), 319–322 (1993).

65 Mackin P, Targum SD, Kalali A, Rom D, Young AH. Culture and assessment of manic symptoms. *Br. J. Psychiatry* 189, 379–380 (2006).

• **Provides clinically helpful information regarding the differences in assessing mania resulting from differences in culture and training.**

66 Garb HN. Clinical judgment and decision making. *Ann. Rev. Clin. Psychol.* 1, 67–89 (2005).

67 Carpenter-Song E. Caught in the psychiatric net: meanings and experiences of ADHD, pediatric bipolar disorder and mental health treatment among a diverse group of families in the United States. *Cult. Med. Psychiatry* 33(1), 61–85 (2009).

68 Costello EJ, He JP, Sampson NA, Kessler RC, Merikangas KR. Services for adolescents with psychiatric disorders: 12-month data from the National Comorbidity Survey–Adolescent. *Psychiatr. Serv.* 65(3), 359–366 (2014).

69 Snowden LR, Cheung FK. Use of inpatient mental health services by members of ethnic minority groups. *Am. Psychol.* 45(3), 347–355 (1990).

70 Holt RI, Peveler RC. Obesity, serious mental illness and antipsychotic drugs. *Diabetes Obes. Metab.* 11(7), 665–679 (2009).

71 Goldstein BI, Liu SM, Zivkovic N, Schaffer A, Chien LC, Blanco C. The burden of obesity among adults with bipolar disorder in the United States. *Bipolar Disord.* 13(4), 387–395 (2011).

72 Goldstein BI, Birmaher B, Axelson DA *et al.* Preliminary findings regarding overweight and obesity in pediatric bipolar disorder. *J. Clin. Psychiatry* 69(12), 1953–1959 (2008).

73 Hibbeln JR, Davis JM, Steer C *et al.* Maternal seafood consumption in pregnancy and neurodevelopmental outcomes in childhood (ALSPAC study): an observational cohort study. *Lancet* 369(9561), 578–585 (2007).

74 Turnbull T, Cullen-Drill M, Smaldone A. Efficacy of omega-3 fatty acid supplementation on improvement of bipolar symptoms: a systematic review. *Arch. Psychiatr. Nurs.* 22(5), 305–311 (2008).

75 Michalak EE, Yatham. LN, Kolesar S, Lam RW. Bipolar disorder and quality of life: a patient-centered perspective. *Qual. Life Res.* 15(1), 25–37 (2006).

76 Furnham. A, Anthony E. Lay theories of bipolar disorder: the causes, manifestations and cures for perceived bipolar disorder. *Int. J. Soc. Psychiatry* 56(3), 255–269 (2010).

77 Parker G, Chen H, Kua J, Loh J, Jorm AF. A comparative mental health literacy survey of psychiatrists and other mental health professionals in Singapore. *Aust NZ J. Psychiatry* 34(4), 627–636 (2000).

78 Smith LB, Sapers B, Reus VI, Freimer NB. Attitudes towards bipolar disorder and predictive genetic testing among patients and providers. *J. Med. Genet.* 33(7), 544–549 (1996).

79 Loo P-W, Wong S, Furnham. A. Mental health literacy: a cross-cultural study from Britain, Hong Kong and Malaysia. *Asia Pacific Psychiatry* 4(2), 113–125 (2012).

80 Wolkenstein L, Meyer TD. Attitudes of young people towards depression and mania. *Psychol. Psychother.* 81(Pt 1), 15–31 (2008).

81 Correll CU, Kratochvil CJ, March JS. Developments in pediatric psychopharmacology: focus on stimulants, antidepressants, and antipsychotics. *J. Clin. Psychiatry* 72(5), 655–670 (2011).

82 Fristad MA, MacPherson HA. Evidence-based psychosocial treatments for child and adolescent bipolar spectrum disorders. *J. Clin. Child Adolesc. Psychol* 43(3), 339–355 (2014).

•• **Current update on evidence-based psychosocial treatment options for pediatric bipolar disorder.**

83 Goldstein BI, Sassi R, Diler RS. Pharmacologic treatment of bipolar disorder in children and adolescents. *Child Adolesc. Psychiatr. Clin. N. Am.* 21(4), 911–939 (2012).

•• **Recent review on the available pharmacologic treatment options for bipolar disorder in children and adolecents.**

84 Thomas T, Stansifer L, Findling RL. Psychopharmacology of pediatric bipolar disorders in children and adolescents. *Pediatr. Clin. North Am.* 58(1), 173–187 (2011).