Anxiety Disorders Among Children and Adolescents

Angela Chiu, Ph.D., Avital Falk, Ph.D., John T. Walkup, M.D.

Anxiety disorders represent the most common psychiatric illnesses affecting children and adolescents. Youths who suffer from anxiety disorders typically experience impairment in social, family, and educational domains of functioning. Despite the prevalence of youth anxiety disorders, identifying anxiety as the underlying cause can be a challenge. This article summarizes recent changes in diagnostic criteria in *DSM-5*, reviews core features of anxiety, and discusses how to recognize anxiety among youths. It also provides recommendations on how to differentiate anxiety from other diagnoses, with a focus on attention-deficit hyperactivity disorder. Suggestions for evidence-based assessment methods and instruments will be made. This article will also review the current evidence base for treatments and provide recommendations for managing refractory cases from a behavioral perspective. The scope of the review focuses on the following constellation of anxiety disorders: separation anxiety disorder, social anxiety disorder, panic disorder, agoraphobia, specific phobia, and generalized anxiety disorder. Although obsessive-compulsive disorder is not categorized with the other anxiety disorders in *DSM-5*, it will also be covered within this review.

Focus 2016; 14:26–33; doi: 10.1176/appi.focus.20150029

Anxiety disorders are the most common class of psychiatric illness affecting children and adolescents. Anxiety disorders have an earlier age of onset relative to other internalizing disorders among youths (1) and are associated with impairment in academic, social, and family functioning. Left untreated, anxiety disorders among youths tend to have a chronic and unremitting course, persisting into adulthood. In addition, adolescents with anxiety disorders are at an increased risk for later anxiety disorders, depression, substance dependence, and truncated educational attainment as young adults (2). The negative consequences associated with anxiety disorders in children and adolescents highlight the need for effective identification and intervention.

Approximately 15%–20% of children and adolescents meet the criteria for an anxiety disorder (3), but estimates as high as 31.9% have been cited among youths aged 13–18 years (4). Despite the public health burden of anxiety, many youths with anxiety are untreated (5). Identifying anxiety as the underlying cause of dysfunction is often complicated because common behavioral manifestations of anxiety (e.g., inattention, outbursts) can often mimic features of other disorders present in childhood, such as mood and externalizing problems. Anxiety disorders may also be underrecognized because the evidence base for the treatment of anxiety disorders among youths is relatively new. The first randomized trial study assessing the relative efficacy of cognitive-behavioral therapy (CBT), medication management, their combination, and placebo was published in 2008 (6). In addition, tool kits for screening anxiety have been less widely disseminated compared with assessment materials for other disorders such as attention-deficit hyperactivity disorder (ADHD) and depression.

Anxiety may also be overlooked because fear in children and adolescents is an appropriate reaction to a perceived threat and can be adaptive in situations when it influences avoidance of danger. In fact, fear is developmentally typical throughout childhood. For example, it is common for young children to be fearful of separation from parents between the ages of 1 and 4 years and to be fearful of social evaluation in adolescence (7). Anxiety may also be neglected because there is an erroneous belief that anxiety among youths is transient and benign. Therefore, distinguishing between developmentally appropriate fears and worries and those that are not part of typical development can be a challenge. Although transient fears are part of normal development, pathological anxiety is persistent, extensive, disproportionate to the threat, impervious to reasoning, and causes significant and excessive distress or significant impairment with functioning at school, with family, with peers, or in activities of daily living.

DSM-5 UPDATES

As Table 1 illustrates, the source of threat is the core feature that distinguishes the different anxiety disorders, and identifying the feared stimuli is central to conceptualizing

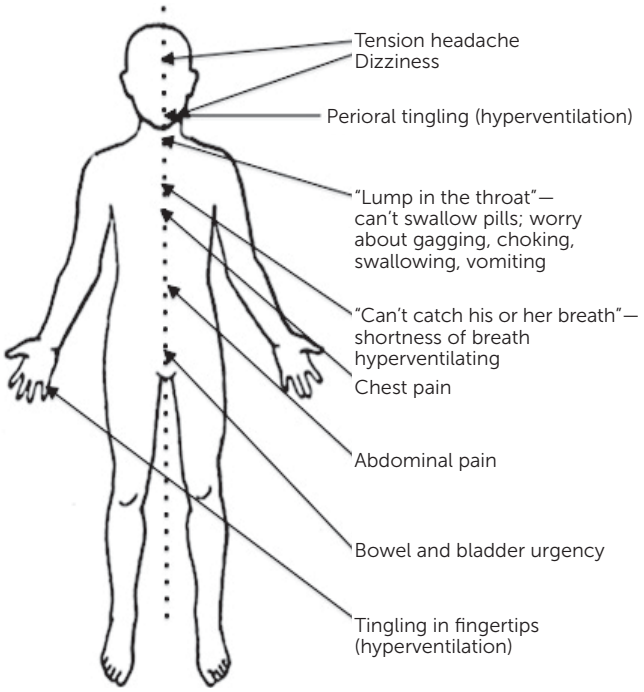
TABLE 1. Threat Bias by Anxiety Disorder

Disorder	Source of Threat	Common Presentations
Separation anxiety disorder	Excessive fear or anxiety about losing major attachment figures or persistent worry about an untoward event (e.g., getting kidnapped, getting lost) that will cause separation from major attachment figures	Cosleeps; follows caregiver around the home; avoids being in separate room from caregiver; repeatedly calls caregiver when separated; avoids school, camp, and other activities requiring separation
Social anxiety disorder	Fear of humiliation or embarrassment in situations involving performance or scrutiny by others	Avoids raising hand or speaking in class; avoids eye contact; avoids ordering food in restaurants; avoids talking on the phone, texting, or e-mailing peers; refuses to initiate conversations with peers
Panic disorder	Fear of recurrent panic attacks or their consequences (e.g., "going crazy," "dying," "losing control")	Avoids places where panic attacks have occurred before; avoids activities that create strong physical sensations (e.g., heavy exercise)
Agoraphobia	Fear of places where immediate escape may be embarrassing or difficult or help not available	Avoids leaving home or relies on adult to leave home; avoids crowded and enclosed spaces
Specific phobia	Marked fear or anxiety about a specific object or situation (e.g., animals, natural environment, needles, transportation)	Has intense fear and avoidance of insects, animals, storms, blood, needles, medical procedures, subways, planes, or buses
Generalized anxiety disorder	General feeling of dread or unease associated with the perception of uncontrollability and unpredictability about a number of events or activities such as school performance, health, financial matters or family problems	Constantly seeks reassurance; has disrupted sleep, fatigue, irritability, restlessness, and/or difficulty focusing due to worries
Obsessive-compulsive disorder	Fear of intrusive and unwanted thoughts, urges, or images	Constantly worries about dirt or germs; fears harm or danger to a loved one or to self; practices ritualized washing; arranges or orders objects; repeats, rereads, or rewrites; checks and rechecks; counts objects such as number of steps

and treating anxiety. *DSM* lists diagnostic criteria for the separate disorders, and the latest edition (*DSM-5*) includes some significant changes to the section on anxiety disorders. Under the category of anxiety disorders, *DSM-5* includes generalized anxiety disorder, social anxiety disorder, specific phobia, panic disorder, agoraphobia, separation anxiety disorder, and selective mutism. In addition, a new chapter ("Obsessive-Compulsive and Related Disorders") was added, which includes obsessive-compulsive disorder (OCD), a disorder previously in the "Anxiety Disorders" section of *DSM-IV-TR*.

The core diagnostic criteria have not changed for most of the anxiety disorders; however, there are some subtle modifications. No significant changes were made to generalized anxiety disorder. For social anxiety disorder, specific phobia, and panic disorder, individuals aged >18 years no longer need to recognize their anxiety as excessive or unreasonable; rather, the anxiety must be out of proportion to the actual danger or threat. In addition, the requirement of a 6-month symptom duration has been extended to all ages. The term *social anxiety disorder* has replaced the former *social phobia*. Although there was a specifier of "generalized" in *DSM-IV-TR* to encompass when the fears include most social situations, the assumption in *DSM-5* is that individuals fall under the generalized category; therefore, the specifier was removed. *DSM-5* does include a specifier for "performance only." The criteria for specific phobias have not changed, and the specific types of phobias are now included as specifiers in *DSM-5*. In *DSM-IV-TR*, panic disorder was linked to agoraphobia and was listed as "panic disorder with agoraphobia" and "panic disorder without agoraphobia." Given that it is possible to have agoraphobia without panic symptoms, agoraphobia stands as its own disorder in *DSM-5*. The criteria for panic attacks have been simplified as well: instead of specifying whether panic attacks are "situationally bound/cued, situationally predisposed, or unexpected/uncued," *DSM-5* categorizes panic attacks as either "unexpected or expected." Furthermore, panic attacks accompany many other *DSM-5* diagnoses and may not indicate full criteria of panic disorder; therefore, panic attacks are now considered to be markers and prognostic factors for severity, course, and comorbidity and can be added as a specifier to any *DSM-5* disorder. Separation anxiety disorder and selective mutism were previously in the category of "Disorders Usually First Diagnosed in Infancy, Childhood or Adolescence" and have been moved to the "Anxiety Disorders" category; a diagnosis of separation anxiety disorder can be made across the age span. Finally, both posttraumatic stress disorder and OCD were moved out of the *DSM-IV-TR* "Anxiety Disorders" category" into the *DSM-5* "Trauma- and Stressor-Related Disorders and Obsessive-Compulsive and Related Disorders" category, respectively. OCD now includes more nuanced specifiers, including a tic-related specifier, and indicators of "good/fair insight," "poor insight," and "absent insight/delusional."

FIGURE 1. Midline Symptoms



CORE FEATURES OF ANXIETY IN YOUTH

Although *DSM-5* provides valuable symptom criteria for the formal diagnosis of anxiety disorders, understanding the hallmark features of anxiety can help clinicians to recognize anxiety among youths. There are at least seven prominent features of anxiety in children and adolescents: hypervigilance, reactivity to novel or changes in stimuli, heightened sensitivity to threat, avoidant coping, somatic complaints, catastrophic reactions, and parental accommodation. This section summarizes these features and provides examples.

Children with anxiety are hypervigilant. They are typically tense and on guard. They scan their environments for signs of perceived danger and are reactive to even slight changes to their environment because of a heightened sensitivity to threat. Compared with nonanxious children, anxious children are more likely to selectively attend to threatening information and interpret more information in a situation as threatening (8). Understanding the source of the threat can provide essential clues about the type of anxiety. For example, youths with social anxiety disorder are hypervigilant in situations in which they can be scrutinized. They are primed to detect clues indicating disapproval in social contexts and are worried about humiliation and rejection. In contrast, youths with separation anxiety disorder are on edge and reactive when separation is anticipated because they perceive separation from their loved ones as inherently dangerous. Table 1 lists the source of fear by anxiety disorder and provides examples of common symptom presentations. When assessing for anxiety among youth, this table may be a helpful resource in distinguishing among various types of anxiety.

Avoidant coping is another hallmark of anxiety. Youths with anxiety avoid their fears as a primary coping strategy and may engage in tactics (i.e., negotiating, whining, dragging their feet to delay, crying) in attempts to avoid these situations. For example, youths with social anxiety disorder may avoid interpersonal situations including school, classes, camp, extracurricular activities, activities involving performance (i.e., oral presentations, tests, homework, sports, music, art), talking on the phone, conversing with peers, eating in the cafeteria, visiting with family members, and raising their hand in class. Youths with separation anxiety disorder, in contrast, avoid activities involving separation from their loved ones such as school, camp, sleeping in their own rooms, sleepovers at other houses, new babysitters, or even being in a different room from a loved one. It is important to keep in mind that avoidance may manifest in many ways. In the case of school refusal due to separation anxiety disorder, some youths may avoid attending school in the mornings, whereas others might leave school early, make frequent calls home during the school day, or routinely visit the nurse's or counselor's office as an escape. Youths with generalized anxiety disorder who worry about making mistakes may procrastinate starting their homework, spend copious amounts of time on homework because they are fussing over every detail, constantly seek reassurance during homework time, repeatedly erase their responses, and may not turn in their homework even if they complete it.

Somatic or physical symptoms are another core clinical feature of anxiety and are often used as effective excuses for avoidance. For example, it is common for children to report somatic symptoms before or during a feared situation (i.e., school) but to not complain of these same symptoms at other times (i.e., weekend or holidays). Physical complaints have been found to be more common among children with anxiety disorders relative to their nonanxious counterparts (9). Higher levels of somatic symptoms are also associated with greater anxiety severity and interference with family relationships (10). Common somatic complaints include tension headaches, stomachaches, dizziness, nausea, hyperventilation, palpitations, muscle tension, sweating, shaking, tingling in extremities, bladder or bowel urgency, chest pain or discomfort, problems swallowing, difficulty falling or staying asleep, and chills or hot flashes. It can be helpful to remember that the underlying biological cause for most of these symptoms are generally situated on the body's anatomical midline, as represented in Figure 1. Although physical symptoms are highly prevalent across all types of anxiety disorders, restlessness and stomachaches have been identified in at least one study as the most commonly reported somatic symptoms among youths with anxiety (10).

Catastrophic reactions to novel or specific stimuli are another clinical feature of anxiety among youths. When initial attempts to avoid fears are unsuccessful, youths may escalate and behave in extreme ways that appear

disproportionate to the situation. These behaviors may include explosive outbursts, clinging, negotiating, crying, whining, freezing, repeated questioning, excessive need for reassurance, yelling, and refusal to enter the situation, among others. On the surface, these behaviors may mimic disruptive behavior and appear to come out of nowhere. As opposed to overreacting indiscriminately across situations, however, youths with anxiety typically exhibit problems most prominently in anticipation of situations that scare them. As a result, catastrophic reactions tend to be triggered and context dependent when anxiety is the underlying cause and are "preemptive strikes" or desperate attempts by youths to avoid an impending feared situation. As an example, a child with separation anxiety disorder may initially beg parents to stay home and this may escalate to screaming and clinging to parents when the babysitter arrives. When catastrophic reactions are tied to the anticipation of a feared situation, this can be a helpful clue in differentiating anxiety from other causes such as depression or externalizing problems.

When children cling, freeze, cry, have tantrums, and negotiate in their desperate attempts to avoid, parents may naturally respond by shielding their children from these situations in attempts to alleviate their children's distress. For example, parents of youths with social anxiety disorder may order food on their child's behalf in a restaurant when they see their child frozen with fear. Parents of children with generalized anxiety disorder may ensure that they are never late to appointments to prevent anxiety. Parent behaviors that enable avoidance, termed parental accommodation, have been correlated with youth anxiety disorders and OCD (11–13) and may unintentionally exacerbate anxiety by robbing opportunities for youths to directly face their fears and develop a sense of healthy autonomy (14). Without opportunities to figure out how to navigate these situations, youths may develop perceptions that they cannot manage these situations successfully. In fact, studies have established a relationship between the lack of autonomy granting and anxiety symptoms and disorders (15).

When family members who were formerly assisting the child in avoidance reach a limit and start demanding that their children begin facing their fears, youths may react to this sudden change with coercive and disruptive behaviors that can be extreme. The result is often marked dysfunction and high conflict among family members. Without effective intervention, caregivers may eventually become rejecting and critical of their children. In light of initial evidence that higher rates of family accommodation are related to less therapeutic gains in treatment and that the reduction of parental accommodation has been related to successful treatment (16, 17), assessing for patterns of accommodation and caregiver distress in managing a child's anxiety can be useful.

In sum, hypervigilance, reactivity to novel or changes in stimuli, hypersensitivity to threat, avoidant coping, somatic complaints, catastrophic reactions, and excessive parent accommodation can collectively be helpful indicators that anxiety may be present among youth. While assessing for these features, one should be flexible about using a bevy of terms because youths and their caregivers may not initially recognize problems as anxiety. In addition, developmental differences must be carefully considered because children may lack the cognitive capacity, emotional understanding, or language skills to effectively communicate their thoughts, emotions, and patterns of avoidance. Rather than referring to anxiety, it is common for caregivers to describe their children as "sensitive," "self-conscious," "shy," "stubborn," "lacking self-confidence," "rigid," "picky," "apprehensive," "clingy, "frozen," "homesick," or "perfectionistic." Caregivers of youths with anxiety may also report a constellation of behavioral problems including concerns about their child avoiding tasks and situations, refusing to do what they ask, withdrawing, procrastinating, stalling, crying, difficulty focusing, complaining of physical complaints, whining, or repeatedly annoying them with the same question over and over. Rather than endorsing anxiety, worry, fear, or nervousness, youths may have little insight and report feeling "angry," "upset," "irritable," "agitated," "depressed," "uneasy," "uncomfortable," or "tense," or they may simply state that they have no interest in doing what their caregivers are concerned about. Using the terminology that resonates with the family and inquiring about the core features of anxiety noted above should be part of the assessment.

ASSESSMENT

Once anxiety is identified as a probable area of concern, a comprehensive assessment completed by a mental health professional is recommended. Evidence-based assessment incorporates a variety of methods (clinical interviews, rating scales, observations) and includes information from multiple sources who know the child well, such as caregivers and teachers as well as the youth himself or herself. To date, diagnostic clinical interviews are one of the best methods for assessing symptom criteria for anxiety and related diagnoses as well as the impairment in functioning associated with these symptoms. As an example, the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions (ADIS-IV-C/P) is a semistructured interview conducted with the child and parent separately assessing the major anxiety, mood, and externalizing disorders (18). The ADIS-IV-C/P has been described as the premier diagnostic instrument for assessing childhood anxiety disorders and possesses favorable psychometric properties (19, 20).

To supplement a diagnostic clinical interview, measures with normative data provide valuable information about whether the youth's anxiety symptoms reach clinical levels of severity. The Multidimensional Anxiety Scale for Children is a particularly useful tool for broad-based screening of anxiety in school systems (21). The Revised Children's Manifest Anxiety Scale is a helpful self-report instrument assessing dimensional anxiety (22, 23). The subscales in the

youth self-report and caregiver-report Revised Children's Anxiety and Depression Scale and Screen for Child Anxiety-Related Emotional Disorders are tied to diagnoses and can provide diagnostic clarification among the various anxiety disorders (24–26).

Youths with co-occurring anxiety and affective disorders are more severely impaired than youths with either disorder alone, their problems are more likely to persist over time, and they are more likely to be refractory cases (27). Given that anxiety disorders frequently co-occur with depression and disruptive behavior disorders (27–29), incorporating instruments that can accurately discriminate among the various comorbid conditions is critical. Measures such as the parent-report Child Behavior Checklist, which comes with a corresponding Teacher Report Form and a Youth Self-Report, can inform decisions about the presence of comorbidity (30). The Behavior Assessment System for Children and the Conners Rating Scales are other examples of instruments that simultaneously measure both internalizing and externalizing problems (31–33). Information from these measures can be integrated with anxiety-specific scales, clinical diagnostic interviews, and observations to aid diagnostic clarity and to streamline treatment targets. These measures can also be implemented during the course of treatment to monitor progress.

DIFFERENTIATING ANXIETY FROM OTHER DISORDERS

Anxiety symptoms are diverse and can present as a wide array of behaviors, including social difficulties, inattention, difficulty sleeping and eating, restlessness, and behavioral outbursts in an attempt to avoid anxiety-provoking situations. These symptoms can manifest as part of the clinical presentation of other disorders, including major depressive disorder, disruptive mood dysregulation disorder, bipolar disorder, oppositional defiant disorder, and ADHD, and distinguishing anxiety from other disorders can be challenging. An important aspect of anxiety is that avoidance and distress are triggered by perceived threat, whereas in other disorders, the problematic symptoms are more pervasive across situations. For example, children with major depressive disorder are anhedonic across situations, whereas children with anxiety only avoid situations in response to their anxiety-based triggers. Similarly, the catastrophic reactions among youths with anxiety disorders can appear to come out of nowhere and sometimes are confused with the a type of explosive outbursts seen in other disorders, but they are in fact efforts to avoid triggers. When catastrophic reactions are present to avoid triggers, the reactions can be confused with the severe mood dysregulation seen in disruptive mood dysregulation disorder or bipolar disorder. Similarly, disruptive behavior and argumentativeness used to facilitate avoidance can look like symptoms of oppositional defiant disorder. Therefore, determining the function and context of symptoms is central to distinguishing anxiety from other disorders.

ADHD is a particularly difficult disorder to differentiate from anxiety. ADHD is characterized by an early onset of developmentally aberrant and impairing levels of inattention and/or hyperactivity and, given the high overlap in symptoms of ADHD and anxiety, children often meet the symptom criteria for both ADHD and an anxiety disorder, as evidenced by high rates of comorbidity in epidemiological and clinic-referred samples (34–37). When evaluating for ADHD or anxiety, it is necessary to determine whether symptoms of one diagnosis overlap with or cause symptoms of the other.

With ADHD, children are inattentive, hyperactive, and impulsive across many settings, whereas with anxiety disorders, as discussed above, these symptoms are more situational and will be elevated in response to a trigger or anxiety-provoking situation. Children with ADHD often describe that they are inattentive and distractible and cannot maintain focus on any given task: they can be forgetful and their minds jump from topic to topic. In contrast, youths with anxiety disorders describe that they have difficulty paying attention because they have too much on their minds and have trouble letting go of worries, fears, and apprehensions. Whereas children with ADHD are distracted by external stimuli, children with anxiety disorders are often distracted by their own thoughts and internal stimuli.

TREATMENT

Without treatment, anxiety disorders are associated with poor outcomes, including lower odds of high school and college graduation (38). The current literature indicates that CBT and antidepressant medication are the treatments with the greatest evidence base for anxiety disorders and OCD. At least one randomized controlled trial has demonstrated that combination treatment of CBT and antidepressants can be more powerful than either intervention alone (6); however, both CBT and antidepressants alone can serve as effective interventions (39–41). In addition, children with anxiety who do not receive treatment tend not to improve compared with those receiving active, evidence-based treatment (6). Studies of psychotherapeutic intervention indicate that CBT is the first-line treatment for mild to moderate anxiety in children and adolescents (6, 40–42). CBT treatment consists of psychoeducation about anxiety for parents and youth, relaxation exercises, problem solving, cognitive coping skills, and—the most active element of treatment—gradual exposure to the anxiety and fear-producing stimuli and triggers (43–45). The exposure component of treatment is present in 91% of evidence-based treatments for anxious youths (46), indicating its centrality to the effective treatment of anxiety disorders.

Individual, group, and family CBT formats for a range of specific anxiety disorders and OCD appear to produce similar outcomes and have been demonstrated to be efficacious

relative to control conditions (41, 42, 47). In addition, given the high rates of comorbidity within the category of anxiety disorders, as well as with mood and externalizing disorders, CBT interventions for specific disorders may often leave comorbid conditions unaddressed; therefore, CBT as part of a transdiagnostic model of treatment has been studied. A meta-analysis of transdiagnostic CBT for youths with anxiety disorders indicates that, compared with a control group, children receiving transdiagnostic CBT are 9.15 times more likely to recover from an anxiety diagnosis (48).

In summary, the recommended treatment for clinically significant anxiety in children and adolescents includes a combination of antidepressant medication and CBT, with a strong focus on exposure to anxiety-provoking and uncomfortable stimuli. Medications serve to reduce symptoms of anxiety, such as the physical symptoms, and this alleviation of symptoms may allow an individual to participate more fully and effectively in CBT. In this way, medication can serve as a catalyst for CBT in that it helps youths benefit from the intervention more quickly. The components of CBT, including cognitive skills, problem solving, and relaxation, increase a child's ability to manage their anxiety within treatment settings, while completing exposure work, and as they function in their wider environment. The goal of treatment is to decrease symptoms of anxiety while increasing coping and adaption skills so that youths can function without avoidance and tolerate uncomfortable stimuli.

TREATING REFRACTORY CASES WITH BEHAVIORAL REINFORCEMENT PRINCIPLES

Despite the demonstrated efficacy of CBT and antidepressant medication, not all youths who receive treatment for anxiety are positive responders (6, 41). In refractory cases, understanding the interactional factors that reinforce both anxiety and avoidant coping can be pivotal in guiding effective treatment planning. Although other factors (e.g., temperament, attachment, parental beliefs) may predispose some children to developing anxiety problems (49, 50), Table 2 provides a rubric for understanding how anxiety and avoidance develop and are maintained over time through a purely behavioral reinforcement lens. This matrix illustrates how behaviors are likely to be repeated when they are rewarded (positive reinforcement) or when they remove something unpleasant (negative reinforcement). If we consider both internal and external reinforcing factors, there are at least four pathways that may be independently working or interacting to maintain anxiety and avoidance.

Let us consider the case of a 9-year-old boy, Jack, who is anxious about going to school because he is worried about harm befalling his mother while he is separated from her. He complains of stomachaches in the morning before school and begs his mother to stay home. Feeling badly for her ailing son, Jack's mother capitulates, calls the school to say he will be absent, and agrees to stay home from work to care for him. Throughout the day, Jack's mother showers Jack with sympathy, makes him soup, and allows him to play video games while he is home from school. Based on behavioral reinforcement principles, Jack's complaints of stomachaches serve at least four functions: he stays home and feels relief that he does not have to be apart from his mother (internal negative reinforcement), his mother supports his efforts to avoid by agreeing to stay home with him and excusing his absence (external negative reinforcement), he is rewarded with sympathy from his mother (external positive reinforcement), and he also receives the added benefit of getting to play video games in lieu of going to school (external positive reinforcement). Based on behavioral reinforcement principles, Jack will surely complain of stomachaches the next time he is feeling anxious about separating from his mother! This case example is one illustration of how parental response can play a pivotal role in maintaining or even exacerbating anxiety and behavioral problems such as oppositional behavior that may be secondary to anxiety.

In cases of mild anxiety, avoidance typically creates a sense of temporary relief (internal negative reinforcement). When children begin to exhibit functional impairment, it is common for avoidance to be maintained by both internal and external negative reinforcement patterns. When youths begin to exhibit more severe patterns of impairment in functioning, a third function of avoidance might materialize: external negative reinforcement. In such cases, youths are permitted by others (i.e., caregivers, teachers) to escape or avoid unpleasant situations. In Jack's case, his mother enabled his avoidance by calling the school to excuse his absence. Although anxious behavior motivated by pride or gratification (positive internal reinforcement) is rarer, perfectionistic tendencies are often maintained by this pattern of reinforcement and can be difficult to treat.

TABLE 2. Types of Reinforcement

	Reinforcement	
Reinforcement	Positive	Negative
Internal	Provides gratification	Relieves distress
External	Attention and support	Avoidance

TABLE 3. Types of Reinforcement and Related Treatment Suggestions

	Reinforcement	
Reinforcement	Positive	Negative
Internal	Provides gratification (raises the cost)	Relieves distress (exposure or exposure and response prevention)
External	Attention and support (redirect parents and others)	Avoidance (reengage, not escape)

When working with refractory cases, clinicians will likely need to work closely with the family and school system to design a behavioral treatment plan that disrupts daily routines and interactional patterns that reinforce anxiety and avoidance. The objective is to shift the scale such that facing fears is more desirable than avoiding them. Table 3 provides treatment suggestions based on the pattern of reinforcement. Many of these techniques are commonly used in behavioral parent management interventions, as well as family-based CBT approaches for childhood anxiety (51, 52). For more detailed instructions on how to implement the suggested techniques, please refer to these resources.

Exposure exercises embedded within typical CBT treatments for anxiety are designed to target the negatively reinforcing property of relief from avoidance. In cases in which parents are rewarding avoidance (external positive reinforcement), a behavioral plan should disentangle sympathetic responses and tangible rewards from unhelpful forms of coping. For example, caregivers can be redirected from rewarding youths for avoidance and coached to purposefully reward youths with attention, tangible rewards, or privileges for gradually facing their fears. In cases in which youths are permitted by others to escape situations that are aversive (negative external reinforcement), the goal should be to empower youths to face the fear. This intervention requires providing psychoeducation and skill building to the youth and to the parties that are unintentionally enabling avoidance. In cases where youths experience gratification for their anxious behaviors (e.g., perfectionism), raising the cost of engaging in perfectionistic tendencies can interrupt this reinforcement pattern. For example, limits on the how late a youth can stay up to study should be enforced for children who study excessively to the point of exhaustion. A plan in which the lights or the computer are turned off by a certain time at night may be necessary to raise the cost of perfectionism. It is important to note that these suggested interventions can be challenging to implement. It can be difficult to parent with compassion while simultaneously ensuring not to reinforce avoidance behaviors. Caregivers may need to practice these strategies before they are able to successfully validate their child's emotions while selectively reinforcing desired coping responses.

CONCLUSIONS

Over the past few decades, our understanding of how to assess and treat anxiety disorders among youths has advanced significantly. Nevertheless, identifying and distinguishing anxiety from other disorders in childhood can be challenging. This article reviews *DSM-5* updates and describes the core features of anxiety to help clinicians recognize common presentations of anxiety among youth. Hypervigilance, reactivity to novel or changes in stimuli, sensitivity to threat, avoidant coping, somatic complaints, catastrophic reactions, and parental overaccommodation can all be helpful clues in the identification of anxiety. This article also provides suggestions for assessment and summarizes the extant evidence base for the treatment of anxiety disorders. Although CBT and antidepressant medication have demonstrated efficacy in the treatment of childhood anxiety disorders and OCD, this review also offers recommendations for how to manage refractory cases from a behavioral perspective.

AUTHOR AND ARTICLE INFORMATION

Dr. Chiu is assistant professor of psychology in psychiatry, and assistant attending psychologist for Weill Cornell Medical College, New York Presbyterian Hospital, New York City. Dr. Falk is instructor of psychology in clinical psychiatry with the Department of Psychiatry, Weill Cornell Medical College, New York City. Dr. Walkup is professor of psychiatry, DeWitt Wallace senior scholar, vice-chair of psychiatry, and director of the Division of Child and Adolescent Psychiatry, Weill Cornell Medical College and New York Presbyterian Hospital.

Address correspondence to Dr. Chiu (awc9002@med.cornell.edu).

The authors report no financial relationships with commercial interests.

REFERENCES

1. Kessler RC, Berglund P, Demler O, et al: Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005; 62: 593–602
2. Woodward LJ, Fergusson DM: Life course outcomes of young people with anxiety disorders in adolescence. J Am Acad Child Adolesc Psychiatry 2001; 40:1086–1093
3. Beesdo K, Knappe S, Pine DS: Anxiety and anxiety disorders in children and adolescents: developmental issues and implications for *DSM-V*. Psychiatr Clin North Am 2009; 32:483–524
4. Merikangas KR, He JP, Burstein M, et al: Service utilization for lifetime mental disorders in U.S. adolescents: results of the National Comorbidity Survey–Adolescent Supplement (NCS-A). J Am Acad Child Adolesc Psychiatry 2011; 50:32–45
5. Essau CA: Frequency and patterns of mental health services utilization among adolescents with anxiety and depressive disorders. Depress Anxiety 2005; 22:130–137
6. Walkup JT, Albano AM, Piacentini J, et al: Cognitive behavioral therapy, sertraline, or a combination in childhood anxiety. N Engl J Med 2008; 359:2753–2766
7. Ollendick TH, Hirshfeld-Becker DR: The developmental psychopathology of social anxiety disorder. Biol Psychiatry 2002; 51: 44–58
8. Puliafico AC, Kendall PC: Threat-related attentional bias in anxious youth: a review. Clin Child Fam Psychol Rev 2006; 9:162–180
9. Beidel DC, Christ MG, Long PJ: Somatic complaints in anxious children. J Abnorm Child Psychol 1991; 19:659–670
10. Ginsburg GS, Riddle MA, Davies M: Somatic symptoms in children and adolescents with anxiety disorders. J Am Acad Child Adolesc Psychiatry 2006; 45:1179–1187
11. Thompson-Hollands J, Kerns CE, Pincus DB, et al: Parental accommodation of child anxiety and related symptoms: range, impact, and correlates. J Anxiety Disord 2014; 28:765–773
12. Lebowitz ER, Woolston J, Bar-Haim Y, et al: Family accommodation in pediatric anxiety disorders. Depress Anxiety 2013; 30: 47–54
13. Storch EA, Geffken GR, Merlo LJ, et al: Family accommodation in pediatric obsessive-compulsive disorder. J Clin Child Adolesc Psychol 2007; 36:207–216
14. Chorpita BF, Barlow DH: The development of anxiety: the role of control in the early environment. Psychol Bull 1998; 124:3–21
15. McLeod BD, Wood JJ, Weisz JR: Examining the association between parenting and childhood anxiety: a meta-analysis. Clin Psychol Rev 2007; 27:155–172

16. Merlo LJ, Lehmkuhl HD, Geffken GR, et al: Decreased family accommodation associated with improved therapy outcome in pediatric obsessive-compulsive disorder. J Consult Clin Psychol 2009; 77:355–360
17. Ferrão YA, Shavitt RG, Bedin NR, et al: Clinical features associated to refractory obsessive-compulsive disorder. J Affect Disord 2006; 94:199–209
18. Silverman WK, Albano AM: The Anxiety Disorders Interview Schedule for DSM-IV—Child and Parent Versions. San Antonio, TX, Psychological Corporation, 1996
19. Silverman WK, Saavedra LM, Pina AA: Test-retest reliability of anxiety symptoms and diagnoses with the Anxiety Disorders Interview Schedule for DSM-IV: child and parent versions. J Am Acad Child Adolesc Psychiatry 2001; 40:937–944
20. Wood JJ, Piacentini JC, Bergman RL, et al: Concurrent validity of the anxiety disorders section of the Anxiety Disorders Interview Schedule for DSM-IV: child and parent versions. J Clin Child Adolesc Psychol 2002; 31:335–342
21. March JS, Parker JD, Sullivan K, et al: The Multidimensional Anxiety Scale for Children (MASC): factor structure, reliability, and validity. J Am Acad Child Adolesc Psychiatry 1997; 36:554–565
22. Reynolds CR, Richmond BO: Revised Children's Manifest Anxiety Scale: Manual. Los Angeles, Western Psychological Services, 1985
23. Reynolds CR, Richmond BO: Revised Children's Manifest Anxiety Scale, 2nd ed (RCMAS-2): Manual. Los Angeles: Western Psychological Services. 2008
24. Chorpita BF, Yim L, Moffitt C, et al: Assessment of symptoms of DSM-IV anxiety and depression in children: a revised child anxiety and depression scale. Behav Res Ther 2000; 38:835–855
25. Birmaher B, Brent DA, Chiappetta L, et al: Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a replication study. J Am Acad Child Adolesc Psychiatry 1999; 38:1230–1236
26. Birmaher B, Khetarpal S, Brent D, et al: The Screen for Child Anxiety Related Emotional Disorders (SCARED): scale construction and psychometric characteristics. J Am Acad Child Adolesc Psychiatry 1997; 36:545–553
27. Seligman LD, Ollendick TH: Comorbidity of anxiety and depression in children and adolescents: an integrative review. Clin Child Fam Psychol Rev 1998; 1:125–144
28. Ford T, Goodman R, Meltzer H: The British child and adolescent mental health survey 1999: the prevalence of DSM-IV disorders. J Am Acad Child Adolesc Psychiatry 2003; 42:1203–1211
29. Garber J, Weersing VR: Comorbidity of anxiety and depression in youth: implications for treatment and prevention. Clin Psychol (New York) 2010; 17:293–306
30. Achenbach TM, Rescorla LA: Manual for the ASEBA School-Age Forms & Profiles. Burlington, University of Vermont, Research Center for Children, Youth, & Families, 2001
31. Reynolds CR, Kamphaus RW: Behaviour Assessment System for Children Manual. Circle Pines, MN, American Guidance Service, 1992
32. Reynolds CR, Kamphaus RW: Behaviour Assessment System for Children Manual, 2nd ed. Circle Pines, MN, American Guidance Service, 1998
33. Conners CK: Manual for Conners Rating Scales. Toronto, Multi-Health Systems, 1990
34. Barkley RA: Global issues related to the impact of untreated attention-deficit/hyperactivity disorder from childhood to young adulthood. Postgrad Med 2008; 120:48–59
35. Schatz DB, Rostain AL: ADHD with comorbid anxiety: a review of the current literature. J Atten Disord 2006; 10:141–149
36. Spencer T, Biederman J, Wilens T: Attention-deficit/hyperactivity disorder and comorbidity. Pediatr Clin North Am 1999; 46: 915–927, vii
37. Bowen R, Chavira DA, Bailey K, et al: Nature of anxiety comorbid with attention deficit hyperactivity disorder in children from a pediatric primary care setting. Psychiatry Res 2008; 157:201–209
38. Mojtabai R, Stuart EA, Hwang I, et al: Long-term effects of mental disorders on educational attainment in the National Comorbidity Survey ten-year follow-up. Soc Psychiatry Psychiatr Epidemiol 2015; 50:1577–1591
39. Ipser JC, Stein DJ, Hawkridge S, et al: A systematic review and meta-analysis of randomised controlled trials of medication in treating anxiety disorders in children and adolescents. Cochrane Database Syst Rev 2009; 8:CD005170
40. Connolly SD, Bernstein GA; Work Group on Quality Issues: Practice parameter for the assessment and treatment of children and adolescents with anxiety disorders. J Am Acad Child Adolesc Psychiatry 2007; 46:267–283
41. James AC, James G, Cowdrey FA, et al: Cognitive behavioural therapy for anxiety disorders in children and adolescents. Cochrane Database Syst Rev 2013; 6:CD004690
42. Piacentini J, Bergman RL, Chang S, et al: Controlled comparison of family cognitive behavioral therapy and psychoeducation/relaxation training for child obsessive-compulsive disorder. J Am Acad Child Adolesc Psychiatry 2011; 50:1149–1161
43. Ale CM, McCarthy DM, Rothschild LM, et al: Components of cognitive behavioral therapy related to outcome in childhood anxiety disorders. Clin Child Fam Psychol Rev 2015; 18:240–251
44. Kendall PC, Panichelli-Mindel SM: Cognitive-behavioral treatments. J Abnorm Child Psychol 1995; 23:107–124
45. Velting ON, Setzer NJ, Albano AM: Update on the advances in assessment and cognitive-behavioral treatment of anxiety disorders in children and adolescents. Prof Psychol Res Pr 2004; 35: 42–54
46. Evidence-Based Services Database. Satellite Beach, FL, PracticeWise, 2009
47. Barrett P, Healy-Farrell L, March JS: Cognitive-behavioral family treatment of childhood obsessive-compulsive disorder: a controlled trial. J Am Acad Child Adolesc Psychiatry 2004; 43:46–62
48. Ewing DL, Monsen JJ, Thompson EJ, et al: A meta-analysis of transdiagnostic cognitive behavioural therapy in the treatment of child and young person anxiety disorders. Behav Cogn Psychother 2015; 43:562–577
49. Pérez-Edgar K, Fox NA: Temperament and anxiety disorders. Child Adolesc Psychiatr Clin N Am 2005; 14:681–706, viii
50. Bögels SM, Brechman-Toussaint ML: Family issues in child anxiety: attachment, family functioning, parental rearing and beliefs. Clin Psychol Rev 2006; 26:834–856
51. Rapee RM, Wignall A, Spence SH, et al: Helping Your Anxious Child: A Step-by-Step Guide for Parents, 2nd ed. Oakland, CA, New Harbinger Publications, 2008
52. Wood JJ, McLeod BD: Child Anxiety Disorders: A Family-Based Treatment Manual for Practitioners. New York, Norton, 2008