CHAPTER 17

Assessment of Attention Deficit Hyperactivity and Disruptive Behavior Disorders

Chapter Questions

- What are some findings from research on Attention-Deficit Hyperactivity Disorder (ADHD) that have important implications for designing clinical assessments for children suspected of having ADHD?
- What are some practical guidelines for designing an assessment battery for children suspected of having ADHD and interpreting the assessment results?
- What are the implications of research on childhood conduct problems for designing clinical assessments for children with these problems?
- What basic questions should be addressed in clinical assessments of children with conduct problems?

Introduction

This chapter is the first of a series of chapters focusing on the assessment of several specific types of childhood emotional and behavioral problems. These chapters are designed to help an assessor apply information on the various assessment strategies discussed in previous chapters to the assessment of some of the more common types of psychopathology exhibited by children and adolescents. We start with the assessment of disorders, sometimes called externalizing behaviors (Achenbach & Edelbrock, 1978) or disorders of undercontrol (Quay, 1986). It is appropriate to start our syndrome-by-syndrome discussion with this class of disorders because they tend to be the most common reason for referral to child

P.J. Frick et al., *Clinical Assessment of Child and Adolescent Personality and Behavior*,
DOI 10.1007/978-1-4419-0641-0_17,

mental health clinics (Frick & Kimonis, 2008).

This predominance in clinic referrals is out of proportion to the prevalence of these disorders in the general population, where emotional difficulties are often as prevalent (Costello, Egger, & Angold, 2005). This high referral rate for disruptive behavior disorders is likely due to two factors. First, unlike adult mental health referrals, children and adolescents are rarely self-referred. Instead, they are often referred by significant others (e.g., parents, teachers, physicians) in their environment. Second, disruptive behavior disorders, as the name implies, are syndromes of behavior that cause significant disruptions in a child's environment, often directly affecting those responsible for referring a child for assessment and treatment. Thus, anyone working in a clinical setting with children and adolescents must have a firm understanding of these behavioral disorders.

To reiterate a common theme of this book, our recommendations for assessing children with ADHD and the disruptive behaviors disorders are based on research on the basic characteristics of these disorders. In each of the following sections we first provide a brief discussion of the most clinically relevant research findings and then discuss specific recommendations for assessment procedures based on these findings. We divide our discussion into two sections corresponding to the major subdivisions within the externalizing disorders. The first section involves a discussion of a syndrome of behaviors involving inattention-disorganization and impulsivity-motor hyperactivity labeled as Attention-Deficit Hyperactivity Disorder (ADHD) by the *DSM-IV-TR* (American Psychiatric Association, 2000). The second section focuses on conduct problems and aggression subsumed under the categories of Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) (American Psychiatric Association, 2000).

Attention-Deficit Hyperactivity Disorder

Classification and Subtypes

History

The syndrome of ADHD has long been recognized in the medical and psychological literature, with some descriptions dating back well over 100 years (Smith, Barkley, & Shapiro, 2007). However, over the years there has been considerable disagreement over what are the core features of the disorder. As a result of this confusion, there have been numerous changes in diagnostic definitions (see Frick & Lahey, 1991; Smith et al., 2007). This evolution in our conceptualization of ADHD is reflected in changes in the diagnostic criteria for ADHD over the most recent revisions of the *Diagnostic and Statistical Manual of Mental Disorders*.

The second edition of the *DSM* included a syndrome of the Hyperkinetic Reaction of Childhood to emphasize the belief that motor hyperactivity is the core feature of the disorder (*DSM-II*; American Psychiatric Association, 1968). In the third edition of the *DSM* the disorder was reconceptualized to emphasize deficits in sustained attention, acquiring the term Attention Deficit Disorder (*DSM-III*; American Psychiatric Association, 1980). Also in the *DSM-III*, it was explicitly recognized for the first time that children could have attention deficits in the absence of motor hyperactivity. The next revision, *DSM-III-R*, softened this emphasis on attention deficits, placing it on equal footing with motor hyperactivity in its definition of Attention Deficit Hyperactivity Disorder (American Psychiatric Association, 1987). The *DSM-III-R* criteria also did away with subtypes based on the presence or absence of motor activity.

Before discussing the most recent revision of the *DSM* (*DSM-IV-TR*; American

Psychiatric Association, 2000), it is important to highlight two main sources of variation in these conceptualizations of the disorder. First, a main source of debate has been over what are *the core features* of the disorder. For example, *DSM-III* proposed three core dimensions of behavior associated with attention deficit disorders: (1) inattention (e.g., very distractible, difficulty finishing things), (2) impulsivity (e.g., acts without thinking, interrupts others, loses things, makes careless mistakes), and (3) hyperactivity (e.g., fidgety and restless, running around and climbing excessively). In contrast, *DSM-III-R* eliminated any distinctions among these behaviors and considered all three dimensions to be indicative of a single domain of behavior.

Research has fairly consistently suggested that the best method for conceptualizing the symptoms is somewhere in between. Specifically, factor analyses have generally been able to document two partially independent dimensions of behavior: inattention/disorganization and impulsivity/overactivity (Lahey, Carlson, & Frick, 1997). The behaviors that are generally considered to be the core features of ADHD are listed in Table 17.1.

The second source of contention evident through the revisions of the DSM is the debate over whether there are valid subtypes of ADHD. *DSM-III* proposed the existence of two types of attention deficit disorder: Attention Deficit Disorder without Hyperactivity (ADD/WO) and Attention Deficit Disorder with Hyperactivity (ADD/H). These subtypes shared the core features of inattention and impulsivity but differed on the presence of motor hyperactivity. Lahey et al. (1997) summarize a significant body of research attesting to the validity of this distinction. Children with ADD/H tend to exhibit more conduct problems, to be more impulsive, and to be more socially rejected than children with ADD/WO. In contrast, children with ADD/WO tend to be more sluggish and drowsy (often described as unmotivated), to be more anxious and shy, and to be more likely to show an optimal response to low doses of stimulant medication than children with ADD/H. Based on their review of the research, these authors concluded

Table 17.1 Core Dimensions of Attention Deficit Hyperactivity Disorder

Inattention-Disorganization	**Impulsivity-Hyperactivity**
Difficulty organizing things[a,b]	Excessive running and climbing[a,b]
Difficulty finishing tasks[a,b]	Difficulty playing quietly[a,b]
Difficulty following through on instructions[a,b]	Excessive talking[a,b]
Often loses things[a,b]	Frequently interrupts and intrudes[a,b]
Easily distracted[a,b]	Always on the go[a,b]
Often does not listen[a,b]	Excessive fidgeting and squirming[a,b]
Difficulty concentrating and sustaining attention[a,b]	Difficulty staying in seat[a,b]
Misses details and makes careless mistakes[a]	Difficulty waiting turn[a,b]
Often avoids or dislikes tasks requiring sustained mental effort[a]	Frequently blurts out answers[a,b]
	Frequently calls out in class[b]
Often forgetful[a]	
Needs a lot of supervision[b]	

[a]Svmptoms included in the *DSM-IV-TR* (American Psychiatric Association, 2000) criteria for ADHD, although wording may not be exactly as that included in the manual.[b]Behaviors included in factor analyses reviewed by Lahey et al., 1997.

that the decision to eliminate the subtypes in the *DSM-III-R* was not consistent with this body of research.

DSM-IV-TR

The *DSM-IV-TR* definition of ADHD was designed to reflect research findings on both of these issues (American Psychiatric Association, 2000). First, there are two symptom lists, which closely correspond to the two dimensions of behavior described in Table 17.1. Second, the *DSM-IV-TR* recognizes the existence of subtypes based largely on the presence of hyperactivity. There is an ADHD Predominantly Inattentive Type to designate children with problems of inattention and disorganization but without problems of impulsivity and overactivity. In addition, there are the ADHD Predominantly Hyperactive Type and ADHD Combined Type to designate children with significant problems of impulsivity-hyperactivity, either in isolation from or in combination with problems of inattention and disorganization.

While these subtypes seem to match the research findings summarized previously, it is important to note that the stability of these ADHD subtypes over time is questionable. Specifically, in a sample of 118 children with ADHD who were ages 4 to 6 at the start of the study, Lahey, Pelham, Loney, Lee, and Wilcutt (2005) reported that it was not unusual for children to change in their subtype of ADHD over the 8-year study period. For example, 37% of children with Combined Type and 50% of the children with Predominantly Inattentive Type met criteria for a different subtype at least twice during the study period. Children with the Hyperactive Type were the most likely to shift subtypes, with most shifting to the Combined Type at some point during the study.

An inspection of the symptoms included in the *DSM-IV-TR* criteria for ADHD (see Table 17.1) indicate that the individual behaviors that form the diagnostic criteria for this disorder are behaviors that are quite common to some degree in normally developing children and adolescents. This is one of the issues that has led to serious concerns over the potential overdiagnosis of the disorder and concomitant overuse of stimulant medication to treat it (Angold, Erkanli, Egger, & Costello, 2000; Jensen et al., 1999). There are two critical issues related to these concerns. First, at present, there is little empirical evidence to support the concerns about overdiagnosis and overmedication, although clearly this is a very difficult issue on which to obtain good data (Jensen et al., 1999). Second, the symptoms of most childhood disorders, not just ADHD, are not qualitatively different from normal behaviors shown by children (e.g., sadness as a symptom of depression). This is not to imply that this is not an important issue in assessment but to illustrate that it is not specific to ADHD. It relates to the important issue raised in Chap. 3 that classification systems must clearly define what parameters are most important for differentiating disordered (i.e., clinically impairing) manifestations of the symptoms from more normal manifestations. The *DSM-IV-TR* includes several such parameters for the diagnosis of ADHD, and it is imperative that assessors systematically assess these parameters to avoid overdiagnosis.

The first parameter is the *frequency and severity of the symptoms.* The DSM-IV-TR sets six symptoms of either inattention-disorganization or impulsivity-hyperactivity as the diagnostic threshold for the disorder. This level of severity was chosen based on evidence that it seemed to designate a level of symptomology that predicted clinically significant levels of psychosocial impairment (e.g., poor academic performance, social rejection) for elementary school-aged children (Lahey, Applegate, McBurnett, et al., 1994). Using this diagnostic threshold, 3–7% of children would

typically meet the diagnostic criteria for ADHD (American Psychiatric Association, 2000). It is important to note that the appropriateness of this threshold has been questioned for young preschool children as being too liberal, because many very young children show high rates of these behaviors and eventually outgrow them (Campbell, 1990), and for adolescents and young adults as being too conservative, because the frequency and severity of many of the symptoms seem to decline in adolescence (Barkley, 1997a).

The second parameter that differentiates normal and abnormal patterns of inattention, impulsivity, and overactivity is *the onset and duration of the symptoms. DSM-IV-TR* specifies that "some hyperactive-impulsive or inattentive symptoms must have caused impairment before age 7 years" (American Psychiatric Association, 2000, p. 92). This criterion is consistent with the conceptualization that ADHD is a lifelong pattern of maladaptive behavior and not a transient reaction to a specific stressor or to the demands of a particular developmental stage (Barkley, 1997a). While the age of onset criterion is consistent with this conceptual framework, there are several practical problems in using this criterion in clinical assessments. First, it is often difficult to gain accurate accounts of when symptoms became problematic, especially when assessing adolescents and adults, which involves recall of events over a long period of time (Barkley, 1997a).

Second, it is not uncommon for many of the symptoms of ADHD, especially the inattention ones, to only become problematic once the demands for sustained attention and organization increase in later elementary school years (Lahey et al., 2005; Loeber, Green, Lahey, Christ, & Frick, 1992). This developmental change in inattention symptoms is likely the reason that the age of 7 onset criterion may be particularly problematic for the Predominantly Inattentive Type of ADHD. Specifically, in a sample of 380 clinic-referred children (mean age 8.7 years) who met *DSM-IV* criteria for ADHD, almost all of those who met the symptom cut-off for the Predominantly Hyperactive-Impulsive Type and the Combined Type met the age of 7 onset criterion (Applegate et al., 1997). In contrast, only 48% of those children with Predominantly Inattentive Type met this age of onset criterion and those who did not meet the criterion did not differ from those that did on several important validity indexes, including level of impairment and level and type of comorbidity with other disorders. Therefore, the validity of the onset criterion for this ADHD subtype was questionable.

Third, it is important to recognize that, while the core deficits underlying the symptoms of ADHD may be stable across development, how these deficits are manifested in symptoms and secondary characteristics may change across development (Barkley, 1997a). In Table 17.2, we provide a brief summary of some of these developmental changes in the symptom patterns and secondary characteristics across development. One criticism of the *DSM-IV-TR* definition of ADHD that includes the same number and types of symptoms for children, adolescents, and adults is that this static definition may not capture these developmental changes adequately (Barkley, 1997a).

A third parameter in the *DSM-IV-TR* definition of ADHD that is important for separating normative from disordered levels of attention and overactivity is the specification of *cross-situational consistency of symptoms.* That is, to be diagnosed with ADHD, a child must show impairment related to the symptoms in two or more settings. This criterion is consistent with the conception that ADHD should not be solely a function of a single set of environmental circumstances (e.g., a disorganized classroom, a chaotic home environment) and clearly suggests that an adequate assessment of ADHD must involve an assessment

TABLE 17.2 Developmental Changes in the Core Features and Secondary Characteristics Associated with ADHD Across the Lifespan

Age	Primary Characteristics	Secondary Features
Preschool	Restlessness, excessive activity, difficulty remaining seated, and acts without thinking	Noncompliance, accidental injuries, aggression, and problems in toilet training
Elementary-school age	Poor attention span, distractibility, impulsivity, difficulty remaining seated, and can't play quietly	Difficulty following rules, immaturity, social rejection, needing a lot of supervision, failure to do household chores, and poor school performance
Adolescence	Poor attention span, distractibility, inability to finish things, careless mistakes, and lack of forethought and planning	Poor school performance (dropping out), low self-esteem, depression, substance use, delinquency, family conflict, needless risk taking, automobile accidents, teenage pregnancy, and rebelliousness
Young adults	Restlessness, distractibility, difficulty completing work, carelessness, and lack of forethought and planning	Poor educational and occupational performance, depression, substance use, poor social/marital adjustment, and poor anger management

SOURCES: Summarized from Barkley, 1997a; Barkley, Guevremont, Anastopoulos, & Fletcher, 1993; DuPaul & Stoner, 1994; Nadeau, 1995; Smith et al., 2007; Wender, 1995.

of the child in several different settings. However, although this criterion appears quite basic, it is difficult to use in clinical assessments for several reasons. For example, it is clear that children with ADHD will show variations in the level and severity of their behavior problems depending on the demands of the situation (e.g., time of day, level of structure, and complexity of the task) (Barkley, 1997a). Therefore, an assessor should not interpret the cross-situational criterion to imply that a child with ADHD must show the same level and severity symptoms across different settings with different demands. Instead, one must consider whether the child shows similar behaviors in situations with equivalent demands, and such judgments are very difficult to make. For example, if a child is having trouble associated with ADHD at school but not at home, the clinical assessor must judge whether or not this is due to the fact that demands for sustained attention and sitting still are not placed on the child at home.

Taken together, the level and severity of symptoms, their presence over extended periods of time, and their cross-situational consistency all are critical components of defining ADHD and must be systematically assessed in making this diagnosis. Inherent in each of these criteria is that they designate children who show some significant level of impairment in their psychosocial functioning due to the symptoms associated with ADHD. On the simplest, but possibly the most important level, it is this *significant impairment in functioning* (e.g., causing problems in school work, causing social rejection) that is most important in differentiating normative and disordered levels of the symptoms that are part of the ADHD definition. Furthermore, the degree of impairment in family functioning, peer relationships, and academic functioning, are often the main reasons that a child with ADHD is referred for an evaluation and they are some of the best predictors of a child's long-term adjustment (Pelham, Fabiano, & Massetti, 2005).

Comorbidities

Children with ADHD are an excellent example of the fact that children with problems in one area of adjustment are at risk for problems in other areas as well. Problems that often co-occur with ADHD are quite important clinically. They often cause more disruptions for the child and predict poorer outcomes than the primary ADHD symptoms themselves (Frick & Lahey, 1991). As a result, the secondary features are often a major focus of intervention (Pelham et al., 2005).

Conduct Problems/Aggression

The most common co-occurring problems experienced by children with ADHD are conduct problems and aggression, with research suggesting that 60–75% of children referred to clinics with ADHD show significant levels of these problems (Hinshaw, 1987). It is often these conduct problems that lead to a great deal of disruption for children with ADHD, leading to multiple disciplinary confrontations with parents and teachers, school suspensions, and problems in peer relations. In addition, these conduct problems are often predictive of poor outcomes in adolescence and young adulthood, especially for predicting delinquency and substance abuse (Fischer, Barkley, Fletcher, & Smallish, 1993; Mannuzza, Gittelman-Klein, Konig, & Giampino, 1989).

Other Comorbidities

Another condition that often occurs with ADHD is academic underachievement or a learning disability, both of which are frequently defined as school achievement below a level predicted by a child's age

and intellectual level. Approximately 30% of children with ADHD show such learning problems (Frick, Lahey, Christ, Loeber, & Green, 1991; Massetti et al., 2008). In addition, children with ADHD tend to show a high rate of conflict with peers (Mikami & Hinshaw, 2003), with parents (Johnston & Mash, 2001), and with teachers (Cunningham & Boyle, 2002). And not surprisingly, given the amount of difficulty and conflict the ADHD child often experiences in his or her environment, children with ADHD often show high rates of anxiety (Tannock, 2000) and low self-esteem that persist throughout childhood and into adolescence (Fischer et al., 1993).

Conceptual Model

There have been numerous theories of ADHD that differ in terms of identifying the "core deficit" that underlies the symptoms of ADHD and the etiological factors that lead to this deficit. A growing number of researchers in this area have begun to focus on a failure in a child's inhibition system that influences his or her ability to regulate attention, actions, and emotions (e.g., Nigg, 2006; Whalen & Henker, 1998). One of the more influential and best articulated of such theories is one proposed by Barkley (1997b), which defines "behavioral inhibition" as the capacity to inhibit motivated behaviors, either prior to their initiation or once they are initiated, which creates a delay between an impulse and action. This delay allows the child to "think through" his or her actions and allows the behavior to be self-directed and guided by the demands of any given situation. A deficit in this inhibition system would make it difficult for a child to sustain his or her attention on a single task, it would make foresight and planning difficult, and it would make it difficult for the child to inhibit impulses for motor movement, thereby accounting for the core symptoms of the disorder. Barkley also outlines how such a deficit could account for many of the other characteristics typically found in people with ADHD, such as a poor sense of time, poor emotional self-control, deficits in problem solving, and an inability to modulate behavior based on changing situational demands.

While there is a growing consensus that a deficit in the inhibitory control of behavior may be a primary or at least an important deficit in children in ADHD, it is less clear what could cause this deficit to develop. Many theories focus on structural neurological abnormalities in parts of the nervous system involved in inhibitory control of behavior (Castellanos et al., 2002). Other theories focus on abnormalities in the functioning of these neurological regions with studies examining the cerebral blood flow of children and adults with ADHD consistently showing areas of decreased activity in the prefrontal regions of the brain (Hendren, DeBacker, & Pandina, 2000).

There is evidence that these neurological abnormalities can result from a number of different influences. Specifically, there is evidence that ADHD symptoms are highly heritable and, as a result, these neurological abnormalities may be inherited (Waldman & Gizer, 2006). In addition, the neurological abnormalities could result from trauma to the developing nervous system such a prenatal exposure to alcohol or other drugs, birth trauma, or exposure to environmental toxins (e.g., lead) (Smith et al., 2007). It is important to note that, although most theories of ADHD emphasize potential neurological underpinnings to the disorder, there is currently no neurological test that has proven to be useful in diagnosing ADHD. Instead, the diagnosis relies on a careful assessment of the behaviorally based diagnostic criteria using a process outlined in the next section of this chapter. Although social experiences can influence the development of

behavioral inhibition and can change brain functioning (Cicchetti & Walker, 2001), most theories have not emphasized environmental factors as primary causal agents in the development of the core symptoms of ADHD. Instead, most theories emphasize the role of environmental factors in determining how the core deficit is expressed. For example, a child with problems in behavioral inhibition will be very difficult to socialize but some parents will be better than others in working with such a child to develop compensatory strategies to minimize the effects that the inhibitory deficit may have on the child's academic and psychosocial functioning.

As a result, environmental factors can play a large role in the development of some of the problems (e.g., poor school performance, social rejection, conduct problems) that can develop secondarily to the ADHD symptoms (Frick, 1994; Johnston & Mash, 2001). Therefore, although psychosocial influences may not be integral to many causal theories of ADHD, it is still important to carefully assess a child's psychosocial context to (1) determine the degree to which the problems associated with ADHD have negatively impacted a child's functioning and (2) guide interventions designed to reduce or prevent many of the secondary characteristics and co-occurring problems in adjustment that often develop in children with ADHD (Pelham et al., 2005).

Implications for Assessment

In Table 17.3, we summarize the main implications of research on ADHD for designing an appropriate assessment battery for children or adolescents suspected of having ADHD. In addition, in Boxes 17.1 and 17.2, we provide two case examples of a typical ADHD assessment battery, with Box 17.1 describing the assessment of a child with ADHD-Combined Type and Box 17.2 describing the assessment of a child with ADHD-Predominantly Inattentive Type.

Table 17.3 The Nature of ADHD and Implications for Assessment

Focus of Research	Implications for Assessment
Classification and presence of subtypes	Assess for presence of two core dimensions of behavior inattention/disorganization and impulsivity/overactivity
	Assess for subtypes based on the presence of impulsivity/overactivity
	Assess duration to determine if behaviors are chronic and stable
	Assess situational variability of behaviors
	Assess level of impairment associated with symptoms
Presence of multiple comorbidities	Assess for the presence of conduct problems/aggression
	Assess for the presence of learning problems
	Assess anxiety
	Assess self-esteem
	Assess social relationships and peer social status
	Assess level of parent–child and teacher–child conflicts
Potential alternative causes	Obtain a developmental and medical history
	Assess for intellectual and learning deficits
	Assess for emotional difficulties

Box 17.1

Case Study: Evaluation of an 8-Year-Old Girl with Attention-Deficit Hyperactivity Disorder-Combined Type

Claire was 8 years, 9 months old when her mother referred her to an outpatient mental health clinic for a comprehensive psychological evaluation. Claire's mother was concerned about Claire's aggressive behavior, describing Claire as having an "uncontrollable temper" and being very defiant. Maternal report also indicated that Claire has had very inconsistent academic performance throughout her first 3 years of school, primarily because she failed to complete work and made a lot of careless mistakes. To illustrate the effect of Claire's carelessness on her school performance, her mother described an incident the previous school year in which Claire rushed through an arithmetic test and completed all the questions as addition, even though half of the problems were subtraction. Claire reportedly knew how to do subtraction problems.

Assessment of Core Symptoms

The core symptoms of ADHD were assessed through a structured diagnostic interview conducted with Claire's mother and her teacher (DISC-IV; Shaffer et al., 2000 and behavior rating scales completed by her mother (CBCL; Achenbach, 2001) and her teacher (CBRSC; Neeper, Lahey, & Frick, 1990). On the DISC-IV, Claire's mother and teacher both reported significant problems of inattention-disorganization, such as difficulty sustaining attention, having difficulty finishing tasks, often losing things, frequently making careless mistakes, and having very messy work habits. In addition, these problems in attention were accompanied by significant problems of impulsivity and motor hyperactivity. Both mother and teacher indicated that Claire frequently interrupted others; often talked out in class; was very fidgety and restless in class; and could not stay in her seat, either in class or at home to eat dinner.

Consistent with a diagnosis of ADHD-Combined Type, Claire's mother reported on the structured interview that these problems have been evident since very early in Claire's life, especially the motor overactivity. In fact, maternal report indicated that Claire had been asked to leave two preschools because she was too "rambunctious" and could not sit still. Claire's teacher indicated that these symptoms of ADHD were currently interfering with her school performance to a substantial degree. On the Academic Performance Rating Scale (APRS: DuPaul, Rapport, & Perriello, 1991). Claire's teacher indicated that she was turning in less than half of the work required by the class and it often was inaccurate, despite Claire knowing the material.

Finally, parent and teacher report on the omnibus rating scales suggested that the core ADHD behaviors were more severe than would be expected in children her age. Using the age- and gender-specific norms of CBCL, Claire had elevations on both the Attention Problems (T-score of 75) and Thought Problems (T-score of 76) scales. Similarly, Claire's teacher on the CBRSC rated her as elevated on the Motor Hyperactivity scale, with a T-score of 79 based on the entire normative sample (across ages and gender). Whereas the CBCL elevations may have been spuriously high due to comparisons restricted to girls, the elevation on the CBRSC based on a comparison to both boys and girls clearly indicated that her behavior was more severe than is typical for children her age.

Assessment of Comorbidities

Like many children with ADHD-Combined Type, Claire also exhibited significant conduct problems. On the DISC-IV, her parent and teacher described Claire as showing frequent temper tantrums, often arguing with adults, often refusing adults' requests, blaming others for her mistakes, and being grouchy and easily annoyed. These behaviors were rated as severe on both parent and teacher rating scales, with T-scores above 70 being obtained on the Delinquent and Aggressive Behavior scales of the parent-completed CBCL and the

(Continues)

Box 17.1 (Continued)

Oppositional-Conduct Disorders scale of the teacher-completed CBRSC.

On the CBCL Social Problems scale and the CBRSC Social Competence scale, mother and teacher also indicated that Claire's behavioral problems seemed to be affecting her peer relations. She was described by parent and teacher as being bossy and domineering in peer interactions, which had led to difficulties in making friends. However, a sociometric exercise did not indicate that Claire's social status was negatively affected by this behavior. In a class of 13, she was nominated as "Liked most" by 3 children and "Liked least" by only 2 children.

A psychoeducational evaluation did not reveal any significant learning problems. Claire's intelligence scores were in the average to high average range in both verbal and nonverbal abilities. She also obtained age-standard scores in the high average range on the individually administered achievement test. Thus, there were no indications of cognitive deficits, and her achievement scores indicated that she seemed to be learning at or above a level expected for her age.

Ruling Out Alternative Causes

Claire's birth, medical, and developmental history did not suggest the presence of any medical or neurological disorder. As mentioned previously, the psychoeducational evaluation did not reveal any cognitive or learning problems that could account for the behaviors. An unstructured clinical interview did reveal that Claire reported being sexually abused over a period of 1 month during the previous summer by a paternal uncle. This alleged abuse had been reported to the local child protection agency, and Claire had been seen at the community mental health center for 3 months following the incident. However, it did not appear that Claire's difficulties could be solely accounted for by an emotional reaction to sexual abuse, for several reasons. First, the ADHD behaviors were more severe than would be expected from such a reaction, and they clearly predated the alleged abuse incident. Second, she did not show any other signs of anxiety and depression that would suggest a significant degree of emotional distress.

Box 17.2

Case Study: Evaluation of an 8-Year-Old Boy with Attention-Deficit Hyperactivity Disorder-Predominantly Inattentive Type

Sean was 8 years, 1 month when his teacher referred him to a child mental health clinic for a comprehensive psychological evaluation. Sean was failing most subjects in the third grade and his teacher attributed this poor performance primarily to problems in concentration. At home, Sean's mother also reported that he had difficulty completing things, was often daydreaming, and seemed to have little motivation for anything.

Assessment of Core Symptoms

The core ADHD behaviors were assessed by structured interviews (DISC-IV) completed by Sean's parent and teacher and by parent (CBCL) and teacher (CBRSC, APRS) behavior rating scales. On structured interviews, both parent and teacher reported that Sean showed significant problems of inattention and disorganization, such as being very distractible, frequently daydreaming, having difficulty finishing tasks, often seeming unmotivated, and seeming very sluggish and drowsy. Although Sean was described by his mother as somewhat fidgety, neither his mother nor his teacher reported significant problems of impulsivity or overactivity.

Consistent with these reports on the structured interviews, Sean was rated as showing

(Continues)

Box 17.2 (Continued)

attentional problems on parent and teacher rating scales out of a normative range. On the CBCL completed by his mother, Sean had a T-score of 69 on the Attention Problems scale. On the teacher-completed CBRSC, he had T-scores of 76 and 71 on the Sluggish Tempo and Daydreams scales, respectively. He also had a T-score of 69 on the Inattention-Disorganization scale of the CBRSC. Consistent with a diagnosis of ADHD-Inattentive Type, his teacher's rating of Motor Hyperactivity on the CBRSC was within a normative range (T-score of 57).

Assessment of Comorbidities

On parent and teacher structured interviews, Sean was reported as having some signs of mild anxiety, including frequent stomachaches, self-conscious behaviors, and concerns about his appearance. These symptoms did not seem severe enough to warrant a diagnosis of an anxiety disorder and they did not appear out of age-normative ranges on the CBCL, on the CBRSC, or on the self-report Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1985).

A psychoeducational assessment did not reveal any evidence of a learning disability. Sean's scores on both in standardized intelligence test and achievement test were all within age-appropriate limits. An assessment of Sean's peer relations did not indicate any problems in this psychological domain, based on parent and teacher rating scales and a sociometric exercise conducted with Sean's classmates. Similarly, there were no indications from any assessment source that Sean exhibited significant conduct problems.

Ruling Out Alternative Causes

A birth, medical, and developmental history obtained from Sean's mother did not reveal any indications of significant medical or neurological problems. He reportedly had some difficulties breathing immediately following birth, but he was quickly stabilized with oxygen. Also, he had some mild allergies to dust and pollen, but these were not severe enough to warrant medication.

Although Sean exhibited some anxiety symptoms, they did not seem severe enough to be causing his problems in attention. Also, his anxiety seemed to be focused largely around school (e.g., stomachaches on school days, worry about tests). Therefore, it seemed more likely that Sean's anxiety was secondary to the academic problems caused by his attentional difficulties.

Assessing Core Behaviors

Guided by the research on classification of ADHD, the first goal of the assessment is to assess the core features of ADHD. Many of the behavior rating scales (Chaps. 6 and 7) and structured interviews (Chap. 11) discussed in previous chapters provide scales or sections that assess for these core behaviors. These behaviors can also be assessed through behavioral observations (Chap. 8; see also Pelham et al., 2005; Smith et al., 2007).

In selecting specific scales to assess the core features of ADHD, several key factors should be considered. First, one should pay close attention to item content. Many measures are based on outdated conceptualizations of ADHD or the scales were formed strictly on the basis of statistical covariation, without any guiding theory to help in scale definition. As a result, many scales that purport to measure behaviors associated with ADHD also include behaviors that are not currently viewed as being part of the primary symptom clusters. Unfortunately, these less relevant behaviors are intermixed with core behaviors, and, as a result, many measures have no pure indicator of ADHD symptoms. Examples of several commonly used omnibus rating scales with subscales that assess ADHD behaviors are presented in Box 17.3 to illustrate this point. Evident from this table is the fact that a child may have elevations on many scales that purport to measure ADHD without actually showing the core features of the disorder. Therefore,

when selecting a scale to use in an assessment of possible ADHD, an important consideration is whether it contains scales that are largely composed of ADHD symptoms. Further, when interpreting scale elevations on a given rating scale, one must be sure that the elevations were actually due to the behaviors associated with ADHD.

Second, many measures simply do not have sufficient coverage of the core ADHD behaviors to aid in the differentiation of the two subtypes of ADHD. Often behaviors indicative of inattention-disorganization are intermixed with impulsive and overactive behaviors, providing no method of determining subtypes. For example, from Box 17.3 one notices that the ASEBA (Achenbach, 2001) Attention Problems scale includes items associated with inattention-disorganization and impulsivity-motor hyperactivity. As a result, use of this overall clinical scale does not aid in distinguishing subtypes of ADHD. Typically, structured interviews that are tied to diagnostic classification systems and are updated as the classification system is updated have the best symptom coverage. Structured interviews also allow one to determine the duration and stability of ADHD behaviors, which, as discussed previously, is crucial in the assessment of ADHD.

Box 17.3

Commonly Used Behavior Rating Scales with Subscales Related to ADHD: An Illustration of Item Heterogeneity

Many of the more commonly used parent and teacher rating scales have very heterogeneous item content with respect to ADHD. Most of the scales that purport to measure constructs related to ADHD contain a large number of behaviors not considered to be part of the core symptoms of ADHD (see Table 17.1). To illustrate this, we list the item content of relevant subscales from a few commonly used behavior ratings scales and highlight in boldface type the items that are not directly tied to the two core dimensions of ADHD.

Achenbach System for Empirically Based Assessment (Achenbach, 2001)

Cross Informant Scales	
Attention Problems	**Attention Deficit Hyperactivity Problems**
(9 items)	(7 items)
Acts too young	Fails to finish things
Fails to finish things	Difficulty concentrating
Difficulty concentrating	Can't sit still
Can't sit still	Acts impulsively
Often confused	Innattentive
Daydreams	Talks too much
Acts impulsively	**Loud**
Poor school performance	----------
Innattentive	14% not part of core ADHD symptoms

44% not part of core ADHD symptoms	

Behavior Assessment System for Children – 2nd Edition (Reynolds & Kamphaus, 2004)

Parent Rating Scale		Teacher Rating Scale	
Attention Problems (6 items)	**Hyperactivity (8-items)**	**Attention Problems (7 items)**	**Hyperactivity (11 items)**
Pays attention	Cannot wait turn	Pays attention	Cannot wait turn
Has a short attention span	Acts without thinking	Has a short attention span	Acts without thinking
Listens to directions	**Has poor self-control**	Listens to directions	**Has poor self-control**
Pays attention when spoken to	Interrupts parents when they are on the phone	Does not pay attention to lectures	**Seeks attention while doing schoolwork**
Listens carefully			
Is easily distracted	**Acts out of control**	Listens carefully	**Acts out of control**
----------	Interrupts others when they are speaking	Is easily distracted	Interrupts others when they are speaking
0% not pare of core ADHD symptoms	**Fiddles with things while at meals**	Is easily distracted from class work	**Disrupts the schoolwork of other children**
	Disrupts other children's activities	----------	**Disrupts other children's activities**
	----------	0% not part of core ADHD symptoms	Has trouble staying seated
	50% not part of core ADHD symptoms		Is overly active
			Calls out in class

			45% not part of core ADHD symptoms

Conners Rating Scales – 3rd Edition (Conners, 2008)

Parent	Teacher
Inattention (10 items)	**Inattention (11 items)**
Has trouble staying focused on one thing at a time	Has a short attention span
Has a short attention span	Doesn't pay attention to details; makes careless mistakes
Avoids or dislikes things that take a lot of effort and are not fun	Gives up easily on difficult tasks
Has trouble concentrating	Is sidetracked easily
Doesn't pay attention to details; makes careless mistakes	Avoids or dislikes things that take a lot of effort and are not fun
Has trouble changing from one activity to another	

(Continues)

Conners Rating Scales – 3 (Continued)

Parent	Teacher
Inattention (10 items) cont.	**Inattention (11 items) cont.**
Inattentive, easily distracted	**Gets bored**
Gives up easily on difficult tasks	Has trouble concentrating
Has trouble keeping his/her mind on work or play for long	Inattentive, easily distracted
10% not part of core ADHD symptoms	**Has trouble changing from one task to another**
	Has trouble keeping his/her mind on work or play
	for long 18% not part of core ADHD symptoms
Hyperactivity/Impulsivity (14 items)	**Hyperactivity/Impulsivity (18 items)**
Fidgeting	Leaves seat when he/she should stay seated
Blurts out answers before the question has been completed	**Gets overly excited**
Is constantly moving	Fidgets or squirms in seat
Excitable, impulsive	Restless or overactive
Gets over-stimulated	Blurts out answers before the question has been completed
Blurts out the first thing that comes to mind	Excitable, impulsive
Has difficulty waiting for his/her turn	Acts as if driven by a motor
Runs or climbs when he/she is not supposed to	Runs or climbs when he/she is not supposed to
Is noisy and loud when playing our using free time	Talks out of turn
Leaves seat when he/she should stay seated	Interrupts others (e.g., butts into conversations or games)
Fidgets or squirms in seat	
Restless or overactive	Is noisy and loud when playing or using free time
Interrupts others (for example, butts into conversations or games)	
	Gets over-stimulated or "wound up"
	Talks too much
	Fidgeting
7% not part of core ADHD symptoms	Is constantly moving
	Gets up and moves around during lessons
	Has difficulty waiting for his/her turn
	Talks non-stop
	11% not part of core ADHD symptoms

(Continues)

Personality Inventory for Children -2 (Lachar & Gruber, 2001)	Student Behavior Survey (Lachar, Wingenfeld, Kline, & Gruber, 2000)
Impulsivity and Distractibility (27 items)	**Attention Deficit Hyperactivity** (16 items)
My child's manners sometimes embarrass me	Completes class assignments
Schoolteachers complain that my child cannot sit still	**Demonstrates logical approach to learning**
My child's behavior often makes others angry	
My child often does not finish things that he/she starts	Follows teacher's directions
My child jumps from one activity to another	Maintains alert and focused attention
My child often acts without thinking	Persists even when activity is difficult
My child is often restless	Remembers teacher's directions
I **cannot get my child to do his/her school lessons**	Stays seated
My child often forgets to do things	Waits for turn
My child often nags and bothers other people	**Works independently without disturbing others**
My child cannot wait for things like other children do	
My child cannot keep attention on anything	Listens to other students
My child does not learn from his/her mistakes	**Daydreams**
My child is almost always on time and remembers what he/she is supposed to do	Interrupts others
My child cannot sit still in school because of nervousness	Impulsive
The school says that my child needs help in getting along with other children	**Misbehaviors unless closely supervised**
My child usually runs rather than walks	Overactive
My child tends to swallow food without chewing it	Talks excessively
Recently the school has sent home notes about my child's bad behavior	----------
My child seems more clumsy than other children his/her age	25% not part of core ADHD symptoms
My child will do anything on a dare	
My child brags about being sent to the principal at school	
Nothing seems to scare my child	
My child likes to show off	
My child tends to brag	
Money seems to be my child's biggest interest	

63% not part of core ADHD symptoms	

There are several ratings scales that have been designed solely to assess behaviors associated with ADHD and provide much more extensive coverage of behaviors associated with this disorder. They include the ADHD Rating Scale IV (DuPaul, Power, Anastopoulos, & Reid, 1998) and the Disruptive Behavior Disorders Rating Scale (Pelham et al., 2005), both of which were designed to provide a complete coverage of the diagnostic criteria for ADHD. The Brown Attention Deficit Disorder Scales for Children (Brown, 2001) and the Attention Deficit Disorder Evaluation Scales (ADDES-3; McCarney, 2004) also provide extensive coverage of ADHD symptoms, although they were not explicitly tied to *DSM-IV-TR* criteria.

Third, when selecting measures to assess the core features of ADHD, one must obtain information from multiple sources (parents and teachers). This helps one determine the situational variability of behaviors. Also, if the core features of ADHD can be assessed through multiple modalities (e.g., rating scales and behavioral observations), this negates the need to rely on any single imperfect assessment instrument. Therefore, one must choose a set of assessment instruments that provides a multi-informant and multi-method assessment of the core ADHD behaviors.

Fourth, one should have information that allows comparison to age norms. Most definitions of ADHD either implicitly or explicitly state that the symptoms should be inconsistent with a child's developmental level (American Psychiatric Association, 2000). Therefore, an assessment must provide information that allows one to compare a child's behaviors to the behaviors of other children of a similar developmental level. Typically, behavior rating scales are best suited for this task because of their extensive normative base. However, one important caution is in order in using norm-referenced rating scales. Many scales (e.g., ASEBA) often only provide norm-referenced scores broken down by *age and gender*. Definitions of ADHD do not make the restriction that the behaviors be inconsistent for a child's gender. In fact, it is well accepted that boys are four to six times more likely to show ADHD than girls (American Psychiatric Association, 2000). Using gender-specific norms ignores this widely found and accepted gender ratio and artificially equates the number of girls and boys with significant levels of ADHD behaviors. This will lead to more girls and fewer boys being considered to have significant ADHD behaviors than if cross-gender norms are used.

Fifth, researchers studying children with ADHD and attempting to define the core deficit that may underlie this disorder (e.g., response inhibition, sustained attention) have frequently used *laboratory measures* of inattention and impulsivity in their assessments. These measures place children in standardized conditions and attempt to quantitatively measure their inattentiveness, impulsiveness, or related behaviors under these conditions. For example, one of the most frequently used laboratory measures for the assessment of ADHD is the Continuous Performance Test (CPT). There are many variations of the CPT but a prototypical CPT is the one developed by Gordon (1983). In the Gordon CPT, a child is told to view a screen on which numbers are presented. The child is instructed to press a button each time a predetermined number is presented. Two responses are measured. *Omissions* are the number of times the designated number is presented to the child and the child fails to press the button. Number of omissions is considered to be a measure of sustained attention, especially increases in omissions over time. *Commissions* occur when the child incorrectly presses the button when the designated number is not presented and are considered a measure of impulsivity.

There are many variations of the CPT (e.g., Conners, 1995), with some CPT tasks presenting auditory rather than visual stimuli and other tasks presenting

distracters (e.g., numbers flashing on either side of the target stimuli that need to be ignored). Also, in addition to the CPT, there are many other laboratory measures that have been used in research with children who have ADHD. Rapport, Chung, Shore, Denney, and Isaacs (2000) review 142 studies using over 40 different laboratory measures to assess characteristics associated with ADHD. They identify several characteristics of the tasks that most consistently differentiate children with ADHD from other children. First, the tasks that most consistently show group differences rely on recognition, recall, or both (e.g., the letter or word that a child is supposed to look for is not continuously displayed for the child), and they often involve some speed of processing component. Also, most of the tasks that reliably differentiate children with ADHD from other children place special demands on a child's working memory and each of the tasks is experimentally paced, not allowing the child to control the speed at which stimuli are presented. Rapport et al. (2000) provide an interesting discussion as to how these different task parameters may provide clues to the specific deficits displayed by children with ADHD.

It is evident from this rather extensive literature that these tasks have been quite useful in studying children with ADHD. These tasks also have a number of appealing qualities for clinical assessments as well. For example, they can help bridge the gap between assessment instruments being used in research that guide our current conceptualizations of ADHD and those commonly used in clinical practice to make the diagnosis (Frick, 2000). Even more appealing, however, is that these laboratory tasks provide a potential means of assessing the symptoms of ADHD that are not based on the perceptions of others that could be biased.

Unfortunately, despite this promise for their clinical utility, there are a number of limitations in their development that make their clinical usefulness in the diagnosis of ADHD somewhat limited at present (Pelham et al., 2005; Smith et al., 2007). For example, the primary validation of these tasks has been to differentiate ADHD children from non-ADHD children or to show the effects of stimulant medication on the task performance of children with ADHD (Rapport et al., 2000). Unfortunately, both types of studies rely on group-level data that are difficult to translate into findings that are meaningful for interpreting an individual child's score (e.g., How many children with ADHD do not score high on the laboratory measure? What percentage of treated children show the response to medication on the task?). Furthermore, it is not clear whether performance differences on these tasks are specific to children with ADHD or whether children with other types of behavioral or emotional disturbances also show similar problems in performance. Without such information, it is difficult to use these measures to make differential diagnoses between ADHD and other forms of psychopathology.

Finally, scores from the laboratory measures generally show low correlations with behavioral observations and parent and teacher reports (e.g., interviews and rating scales) of ADHD symptoms (Barkley, 1991; DuPaul, Anastopoulos, Shelton, Guevremont, & Metevia, 1992). Furthermore, there is very little information as to whether or not the laboratory measures add any clinically useful information to these more ecologically valid measures of behavior (Pelham et al., 2005; Rapport et al., 2000). For example, if a child is reported as showing significant problems with ADHD symptoms according to parent and teacher reports and based on behavioral observations in the classroom, interventions for his behavioral problems in his natural environment will likely be the same, irrespective of his performance on the laboratory task. Because treatment decisions are largely based on

the more ecologically valid measures, the role of laboratory measures in clinical assessments is uncertain at this point. In Box 17.4, we summarize Barkley's (1991) review of laboratory measures of ADHD symptoms, which provide a more in-depth discussion of these measures' ecological and incremental validity.

Box 17.4

Research Note: Ecological Validity of Laboratory Measures of Attention and Impulsivity

Barkley (1991) provides a critical discussion of laboratory measures (LM) used to assess attention and impulsivity, two aspects of the core symptoms of ADHD. The focus of much of Barkley's discussion is on reaction time tasks (RTT), continuous performance tasks (CPT), and the Matching Familiar Figures Test (MFFT). Although Barkley also discusses analogue observations of motor activity, these were discussed previously in Chap. 8.

Concept of Ecological Validity

The first issue addressed in this article is the concept of ecological validity. Barkley defined ecological validity as "the degree to which LMs represent the actual behaviors of interest (i.e., inattention and impulsivity) as they occur in naturalistic settings" (p. 150). This aspect of validity is crucial for clinical assessments. In contrast, most research projects have the goal of determining the "core deficit" in ADHD, which may not be manifested in the natural setting. Therefore, a LM "need not be ecologically valid to be useful in research on ADHD" (p. 151).

Evidence for Ecological Validity

One type of research on the ecological validity of LMs consists of studies testing group differences on LMs between ADHD and control children. In general, Barkley's review suggested that all of the LMs have consistently differentiated ADHD from normal control children. However, most studies indicate that these effects are weakened or altogether eliminated when differences in intellectual level are controlled. Also, LMs do not differentiate ADHD children from other clinic-referred children. As a result, scores on the LMs are not useful in making differential diagnoses within clinic referrals.

A second type of research investigates the effect of stimulant medication on a child's performance on the LMs. Barkley's conclusion was that the research evidence was mixed. Several studies found significant effects for stimulant medication on commonly used LMs, whereas many studies found no such reliable effect.

A third type of research investigates the correlations between scores on LMs and parent and teacher ratings of ADHD behavior. Studies have generally found significant but modest (.21–.51) correlations between LM measures of attention and impulsivity and parent and teacher ratings of behaviors considered to be indicative of these constructs.

Conclusions

Barkley concludes that the ecological validity of LMs should be considered limited based on the existing research. As a result, clinical research should avoid using LMs as the "gold standard" against which other measures of attention and impulsivity are judged. For clinical assessments, one should recognize the limited usefulness of LMs in a battery of assessment tests. Most clinical decisions are based on the more ecologically valid measures of parent and teacher report of a child's behavior in the naturalistic setting. Barkley concludes, "Where LM results conflict with those obtained from other sources, such as parent and teacher behavior ratings, history, and observations in natural settings, the LM results should probably be disregarded in favor of these more ecologically valid sources" (p. 173). As a result, the incremental benefit of adding LMs to an assessment battery seems to be minimal.

Source: Barkley, R. A. (1991). The ecological validity of laboratory and analogue assessment methods of ADHD. *Journal of Abnormal Child Psychology*, *19*, 149–178.

One final note is in order for assessing the core features of ADHD. Despite widespread cautions against the practice (e.g., Barkley, 1990; Kamphaus, 2001; Kaufman, 1994), clinical assessors continue to use the Freedom from Distractibility (FD) factor from the Wechsler Intelligence Scales for Children (Wechsler, 1991) as an indicator of the presence of ADHD symptoms. This inappropriate use of FD is largely maintained simply because of the name given to the factor, which is a significant source of distress to the person who first applied the FD label to the WISC subtests. Alan Kaufman states, "The label should have been trashed years ago. I cringe whenever I read it" (Kaufman, 1994, p. 212).

As Kaufman goes on to explain, the use of the FD as a measure of inattention or distractibility is inappropriate because these scales are affected by multiple emotional and behavioral factors, not just distractibility. To illustrate the point, Kaufman reviewed 19 studies in which the FD was lower in samples of children with learning disabilities, children with leukemia, children with emotional difficulties, heterogeneous psychiatric samples of inpatient or outpatient children, children with autism, children with schizophrenia, children with Conduct Disorder, and children with muscular dystrophy. The author then makes the cogent point that the FD factor is important because of its robust ability to differentiate the abnormal (medically, behaviorally, and educationally) from the normal population, but it is basically meaningless for identifying a specific type of exceptionality, such as ADHD.

Assessing Comorbid Problems

Many of the problems that often co-occur with ADHD can be assessed in conjunction with the assessment of the core ADHD behaviors. For example, many of the omnibus rating scales and structured interviews discussed in previous chapters include items that assess for conduct problems, anxiety, depression, self-esteem, and social competence. Like the ADHD behaviors themselves, potential co-occurring problems are best assessed through multiple informants and using multiple formats. Given the overlap with learning problems, psycho-educational testing should also be a part of most ADHD assessments. Learning difficulties are not reliably assessed through rating scales, interviews, behavioral observations, or projective testing. As a result, standardized intelligence and achievement tests are often required as part of a comprehensive evaluation for ADHD.

Some omnibus behavior rating scales include items that assess the degree of family conflict and other aspects of a child's family context. However, as discussed in Chap. 12, some assessments may require a more in-depth assessment of specific areas of family functioning that are better obtained through methods that specifically focus on the child's family context. Each aspect of family functioning that was highlighted in Chap. 12 (parenting styles and behaviors, parenting stress, marital conflict, and parental adjustment) is important in understanding the family context of a child with ADHD.

Assessing Potential Alternative Causes

One of the most difficult aspects of assessing for ADHD is ruling out alternative causes for the symptoms. Probably, the most important piece of information for this purpose has already been discussed. If one has adequately determined that the symptoms of ADHD are of sufficient number, severity, and duration and cause enough impairment to warrant a diagnosis, most of the alternative explanations for symptoms can be ruled out as a *sole* explanation for the behaviors. Many of the alternative explanations for ADHD symptoms result in behaviors similar to ADHD, but of lower intensity and of shorter duration than is typical for children with ADHD.

Given that some medical and neurological disorders can manifest in problems of

inattention-disorganization and impulsivity-hyperactivity, and given that such behaviors can be side effects of certain medications, it is important that a thorough developmental and medical history be obtained on a child when assessing for ADHD. When the history is suggestive of the possible presence of a medical or neurological disorder, the child can be referred to a physician for a more comprehensive medical and/or neurological exam. However, most experts on ADHD feel that a full medical exam need not be a standard part of a diagnostic assessment of ADHD, because the diagnosis is primarily based on behavioral data (Barkley, 1997a; Pelham et al., 2005).

The greatest difficulty in ruling out alternative explanations for ADHD symptoms is the problem of determining what is primary and what is secondary. Based on the research on comorbidities, we know that ADHD children are at risk for many other problems in adjustment, most of which can also mask as ADHD (e.g., learning disabilities, emotional disorders). The distinction between primary and secondary is largely a clinical one, based on a complex weighing of various pieces of assessment information. To summarize our suggestions from Chap. 15, several types of information may be helpful in making this difficult case formulation. Considering the level of impairment associated with different areas of dysfunction (i.e., which problem areas seem to be causing the most problems for the child) and the temporal sequencing of problem behaviors (i.e., which problems seem to predate others) can help in distinguishing primary or secondary areas of dysfunction. In addition, viewing family history data and determining if a child might be at risk for a certain type of problem given its occurrence in relatives may also aid in making differential diagnoses. Specifically, for ADHD, determining if a child's parents or other first-degree relatives had childhood histories of ADHD symptoms can provide valuable information in making an ADHD diagnosis. In contrast, a positive family history for bipolar illness might warrant further assessment to determine if a child's motor restlessness and problems of impulsive control are early indicators of an affective disturbance (Smith et al., 2007).

ADHD in the Schools: Special Education Placement

ADHD is a psychological syndrome that requires collaboration between professionals across multiple specialties (i.e., psychology, education, medicine) for assessment and treatment. Clinical assessors must be able to effectively utilize the expertise of other professionals and tailor their assessments to provide useful information to many different disciplines. Because ADHD often has its most dramatic and noticeable effect on a child in the school setting, collaboration with educators is particularly crucial. It is essential that assessments for ADHD be designed to provide information helpful to educators in developing appropriate interventions.

We feel strongly that not all children with ADHD require special education placement. There is ample evidence that some children with ADHD can successfully function in a regular education classroom with medication, with specific modifications of the classroom environment, and/or with structured behavioral interventions designed to reduce the disruptive behaviors (see Abramowitz & O'Leary, 1991). However, designing a successful intervention program for a child with ADHD requires a clear documentation of a child's strengths and weaknesses (behaviorally, emotionally, cognitively, and academically). Simply knowing that a child has ADHD gives educators only limited information on which to base interventions, given the great diversity within children with ADHD. As

a result, clinical assessments should clearly outline an individual child's competencies and deficits, with suggestions on how these abilities will influence a child's functioning in a classroom setting.

Unfortunately, some children with ADHD may require more intensive educational services, such as those offered in special education programs. To serve children in special education programs, school systems must operate under federal and state guidelines, the former of which may vary in implementation from state to state and the latter of which may vary both in content and implementation. It is imperative that clinical assessors understand the guidelines under which a school system is operating, in order to design assessments and make recommendations that enhance a school's ability to appropriately meet the educational needs of a child.

The primary piece of federal legislation that guides provision of special education services to children and adolescents is the Individuals with Disabilities Act (IDEA), which was originally passed in 1975 as Public Law 94–142 and amended and renamed in 1990 and 2004. IDEA, and the more recent IDEIA, mandates that children with disabilities be provided specially designed instruction and related services in the least restrictive environment (i.e., close contact with children without disabilities) necessary for a child to learn. Providing services to children with ADHD under IDEA has been a source of contention in many school systems, because ADHD is not listed as one of the disabilities explicitly covered under IDEA. However, many children with ADHD have secondary features that may allow them to be served under IDEA guidelines, such as speech or language impairments, emotional disturbance, or specific learning disabilities. In fact, most of the children with ADHD who require intensive special education services do so, not because of the ADHD itself, but because of the additional disruptions caused by these secondary features.

However, it is possible that some children with ADHD may need special education services but do not qualify under IDEA guidelines. These children can be served under a civil rights law, Section 504. Section 504 is part of the Rehabilitation Act Amendments of 1973 (PL93–112) and was designed to protect individuals with handicaps. Section 504 specifically mandates that,

> No otherwise qualified individual with handicaps in the United States, shall, solely by reason of her or his handicap, be excluded from participation in, denied the benefits of, or be subjected to, discrimination under any program or activity receiving Federal financial assistance (29 U.S.C. Sec. 794).

It is generally accepted that ADHD qualifies as a handicap under Section 504 (Madsen, 1990) and, therefore, schools must make accommodations for the individual needs of children with ADHD under this statute. Unfortunately, unlike IDEA, Section 504 does not allocate federal funding for educational interventions.

This discussion of special education laws may seem irrelevant or at least peripheral for clinical assessors who operate outside of the school system. In fact, many such assessors prefer to remain ignorant of such legal guidelines, so as not to be confined to the limits delineated in such laws. However, if one wants to aid a child with ADHD in receiving needed educational services, one should understand the legal guidelines so as to be able to work collaboratively with school personnel in developing an appropriate educational plan.

Conduct Problems

Classification and Diagnosis

Like ADHD, conduct problems in children represent a critical mental health concern. These problems are highly disruptive

to others in a child's environment can be predictive of problems later in life, including criminal behavior (Frick & Kimonis, 2008). Also like ADHD, there is considerable agreement that children with conduct problems are a heterogeneous group (Frick, 2006). Therefore, a substantial body of research has been directed at determining the most appropriate method of classifying conduct problems into meaningful subtypes.

The most commonly used method of classifying conduct problems in children is a two-dimensional approach originally described in *DSM-III* and continued with some modifications in the later revisions of this manual. This system divides conduct problems into two syndromes: Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). ODD refers to a pattern of negativistic, oppositional, and stubborn behaviors, whereas CD refers to more severe antisocial and aggressive behaviors that involve serious violations of others' rights (e.g., aggression, destruction of property) or deviations from major age-appropriate norms (e.g., running away from home, truancy). A summary of the behaviors indicative of these two dimensions is provided in Table 17.4.

A detailed discussion of the validity of the ODD/CD distinction is beyond the scope of this chapter (see McMahon & Frick, 2007). However, the relationship between ODD and CD behaviors is important for a number of reasons. First, there appears to be a hierarchical relationship between the two diagnoses. That is, most children with the more severe symptoms of CD also show the symptoms of ODD (Lahey & Loeber, 1994; Spitzer, Davies, & Barkley, 1990). However, the converse is not true. There are many children with ODD who do not show the more serious conduct problems associated with CD. Second, there seems to be a developmental relationship between ODD and CD. A 3-year longitudinal study of clinic-referred boys found that 82% of the new cases of CD (n = 22) that emerged during the study period had received a diagnosis of ODD in the preceding year (Lahey, Loeber, Quay, Frick, & Grimm, 1992). Therefore, ODD behaviors can be viewed as a risk factor for the development of the more severe CD.

Table 17.4 Two-Dimensional Classification of Conduct Problems

Oppositional Defiant Disorder	**Conduct Disorder**
Loses temper	Bullies or intimidates others
Argues with adults	Initiates physical fights
Actively defies adults	Has been physically cruel to others
Refuses adults' requests or rules	Steals things of nontrivial value
Deliberately annoys others	Forced someone into sexual activity
Blames others for mistakes	Stays out after dark without parental permission, before age 13
Is angry and resentful	Lies to obtain goods or favors
Is spiteful and vindictive	Has been physically cruel to animals
Is touchy and easily annoyed	Has deliberately destroyed others' property
	Has set fires with intention of causing serious damage
	Has run away from home overnight more than once
	Is often truant from school, beginning before age 13
	Has broken into someone's house, building, or car

Comorbidities

The most common problem co-occurring with conduct problems is ADHD. In a meta-analytic study of community studies, Waschbusch (2002) reported that 36% of boys and 57% of girls with conduct problems had comorbid ADHD. When studying pre-adolescent children and children referred to clinics, the rate is even higher and often ranges from 75 to 90% (Abikoff & Klein, 1992; Hinshaw, 1987). This degree of overlap has led to a debate as to whether or not ADHD and conduct problems should even be considered separate psychological domains (see Rutter, 1983). We feel that the research indicates that these domains are at least partially independent (Frick, 1994; Hinshaw, 1987).

Research does suggest that the development of ADHD usually precedes the development of conduct problems (Waschbusch, 2002) and it often signals the presence of a more severe and more chronic form of conduct problems in children (Frick & Loney, 1999). Also, there is growing evidence that conduct problems improve when children with ADHD have been treated with stimulant medication (Hinshaw, 1991). Therefore, clinical assessments of children with conduct problems should routinely assess for the presence of ADHD.

Children with conduct problems also frequently have a comorbid anxiety disorder, and this seems to be especially the case for girls (Loeber & Keenan, 1994). Children with conduct disorders also show a high rate of depression (Harrington, Fudge, Rutter, Pickles, & Hill, 1991). Importantly, there is evidence that children with both conduct problems and depression show a high rate of suicidal ideation (Capaldi, 1992). The combination of suicidal ideation, depression, and poor impulse control that often is present in children with conduct problems has been associated with increased risk for suicide (Shaffer, Garland, Gould, Fisher, & Trautman, 1988). Finally, children with CD are at higher risk for substance abuse, especially those children with both ADHD and CD (Lynskey & Fergusson, 1995; Thompson, Riggs, Mikulich, & Crowley, 1996).

Research also indicates that approximately 20–25% of children with CD are underachieving in school relative to a level predicted by their age and intellectual abilities (Frick et al., 1991). The reason for this association is not clear, possibly because the mechanisms involved may differ depending on the age of the sample studied (Hinshaw, 1992). For example, in elementary school-age samples, much of the overlap between CD and academic underachievement seems to be due to the presence of ADHD (Frick et al., 1991). However, learning difficulties seem to predict adolescent-onset conduct problems independent of other factors (Hinshaw, 1992). Despite the lack of a definitive explanation for the correlation between learning and conduct problems, the simple fact that they co-occur so consistently warrants the assessment of learning problems when assessing children and adolescents with conduct problems.

Correlates with Potential Causal Roles

Most researchers agree that conduct problems are the result of a complex interaction of multiple causal factors (Frick, 2006). Identifying the important causal agents and how they interact to cause conduct problems is still an area in need of more research. Past research has uncovered several factors that are *associated* with conduct disorders and that *likely* play a role in their development. These factors can be summarized in five categories: biological factors, cognitive correlates, family context, social ecology, and peers. The research on the biological correlates of conduct problems in children, while crucial for developing causal theories, is not reviewed here

because the current state of knowledge is not sufficiently developed to have clear implications for assessment (see Dodge & Pettit, 2003; Lahey, Hart, Pliszka, Applegate, & McBurnett, 1993; Raine, 2002).

In contrast, there are several aspects of the child's cognitive and learning styles that have been associated with conduct problems and aggression that may be important to the assessment process (see Frick & Loney, 2000). First, in general, children with conduct disorders tend to score low on intelligence tests, especially in the area of verbal intelligence (Loney, Frick, Ellis, & McCoy, 1998; Moffitt, 1993). Second, many children with serious conduct problems tend to show a learning style that is more sensitive to rewards than punishments. This has been labeled as a reward-dominant response style that could explain why many of these children persist in their maladaptive behaviors, despite the threat of serious potential consequences (Fisher & Blair, 1998; O'Brien & Frick, 1996). Third, many children with conduct problems show deficits in their social cognition, which is the way they interpret social cues and use them to respond in social situations. For example, children with conduct problems are more likely to attribute hostile intent to the actions of peers and are less able to develop nonaggressive response alternatives in situations involving peer conflict, both of which could make the child more likely to respond aggressively in social situations (Crick & Dodge, 1996; Dodge & Pettit, 2003).

While these cognitive correlates have played an important role in many theories of how conduct disorders develop, and they are important targets of intervention for many treatment programs (e.g., Lochman, Wells, & Lenhart, 2008), there is probably no set of correlates that has been as important to theory and treatment as family dysfunction. There seem to be at least three dimensions of family functioning that are consistently related to childhood conduct problems: parental psychiatric adjustment, marital instability/divorce, and parental socialization practices (see Frick, 1994). A meta-analysis of the research on the relationship between family functioning and conduct disorders in youth found that parental socialization practices were especially important (Loeber & Stouthamer-Loeber, 1986). To be specific, parental involvement in their child's activities, parental supervision of their child, and the use of harsh or inconsistent discipline tended to show the strongest relationships with conduct problems in children of all the variables included in the meta-analysis.

Another clinically important class of correlates is comprised of factors within the child's larger social ecology that may play a causal role in the development of conduct problems. One of the most consistently documented of these correlates has been low socio-economic status (Frick, Lahey, Hartdagen, & Hynd, 1989). However, several other ecological factors, many of which are related to low socio-economic status, such as poor housing, poor schools, and disadvantaged neighborhoods, have also been linked to the development of conduct problems in children (see Frick, 1998; Peeples & Loeber, 1994). In addition, the high rate of violence, witnessed by children who live in impoverished inner-city neighborhoods, has also been linked to the development of conduct problems (Osofsky, Wewers, Hann, & Fick, 1993).

Finally, research has documented a relationship between peer rejection in elementary school and the later development of conduct problems (Roff & Wirt, 1984). In addition, peer rejection in elementary school is predictive of an association with a deviant peer group (i.e., one that shows a high rate of antisocial behavior and substance abuse) in early adolescence (Fergusson, Swain, & Horwood, 2002). This relationship is important because association with a deviant peer group leads to an increase

in the frequency and severity of conduct problems (Patterson & Dishion, 1985) and it has proven to be a strong predictor of later delinquency and other negative outcomes, such as substance abuse (Dishion, Capaldi, Spracklen, & Li, 1995; Fergusson et al., 2002). Therefore, peer rejection may be directly related to the development of conduct problems but also may indirectly influence conduct problems by increasing the chance that the child or adolescent will associate with deviant peers.

Conceptual Model

From the preceding section, it is clear that there has been a great deal of research documenting many characteristics of children with severe conduct problems that are important to consider in conducting assessments with these children. Unfortunately, there has not been much agreement as to a good framework for organizing these many diverse characteristics into a clear conceptual framework for understanding how conduct problems develop. Many theorists have tended to focus on either one correlate (e.g., community violence) or one class of correlates (e.g., family dysfunction) without attempting to integrate the many diverse and potentially interacting influences that play a role in the development of conduct problems. Others have viewed these problems from a "cumulative risk" perspective, which acknowledges that any single factor will be limited for explaining the development of conduct problems and that their development in any child is likely the result of the additive influence of many different causal factors (Loeber, Burke, Lahey, Winters, & Zera, 2000).

An alternative framework that is gaining support in research is a "developmental pathway approach," which proposes that children may develop conduct problems through many different causal trajectories, each involving somewhat different interactions of causal processes (Frick, 2006). This approach recognizes that, for any child, the development of serious conduct problems is likely the result of multiple interacting causal factors. In addition, a developmental framework explicitly recognizes that there may be distinct subgroups of children with severe conduct problems with different causal processes underlying their behavior. This approach is consistent with a long history of trying to divide antisocial and delinquent youth into distinct subgroups that differ in terms of behavior, associated characteristics, outcomes, and response to treatment (see Frick & Marsee, 2006 for a review).

Consistent with this research, the *DSM-IV-TR* specifies two subtypes of Conduct Disorder (CD; American Psychiatric Association, 2000). Children in the childhood-onset subtype begin showing severe conduct problems prior to adolescence, often as early as preschool or early elementary school, and their behavioral problems increase in rate and severity over the childhood years (Lahey & Loeber, 1994). In contrast, youth in the adolescent-onset subtype do not show significant behavioral problems in childhood, but begin to exhibit significant conduct problems as they enter adolescence (Moffitt, 1993, 2003). One of the key differences between these two groups of antisocial youth is that the childhood-onset group is much more likely to continue to show antisocial and criminal behavior into adulthood compared to the adolescent-onset group (Frick & Loney, 1999; Moffitt, 2003). However, in addition to the differences in prognosis, research has uncovered several other characteristics that could suggest that the causal processes underlying the antisocial behavior of the two groups are also different.

Specifically, children in the childhood-onset group are characterized by more aggression, higher rates of cognitive (e.g., lower verbal intelligence) and neuropsychological (e.g., executive functioning

deficits) dysfunction, more disturbances in their autonomic nervous system functioning, and more severe problems of impulse control, often leading to higher rates of diagnosis of Attention-Deficit Hyperactivity Disorder than children with the adolescent-onset pattern of CD (Frick, 2006; Moffitt, 1993; 2003). The fewer pathogenic background factors, as well as the better adult outcome for the adolescent-onset subtype, suggests that their conduct problems may be an exaggeration of a normative pattern of rebellious and antisocial behavior related to the important tasks involved in identity development that take place in adolescence (Frick, 2006; Moffitt, 2003; Silverthorn & Frick, 1999). In contrast, the childhood-onset group appears to show a more severe type of dysfunction that extends beyond a single developmental stage.

Importantly, research has also indicated that there are some important distinctions that can be made within this childhood-onset group in terms of the types of dysfunctional processes that may be operating. The distinction is based on differentiating between children who show a callous and unemotional interpersonal style and those who do not. Callous-unemotional traits refer to a lack of guilt over misdeeds, a lack of empathy toward others, and other deficits in their emotional responses (Frick & Dickens, 2006; Frick & White, 2008).

Children with conduct problems, who also show callous-unemotional traits, tend to show a more severe, more aggressive, and more stable pattern of conduct problems (Frick & Dickens, 2006). Further, these children with callous-unemotional traits tend to be more thrill and adventure seeking, they are less sensitive to the effects of punishment compared to the effects of rewards, and they are less reactive to emotionally distressing stimuli than other children with childhood-onset CD (Frick & White, 2008). All of these characteristics are consistent with a temperamental style associated with low emotional reactivity that can (1) place a child at risk for missing some of the early precursors to empathetic concern that involve emotional arousal evoked by the misfortune and distress of others; (2) lead a child to be relatively insensitive to the prohibitions and sanctions of parents and other socializing agents; and (3) create an interpersonal style in which the child becomes so focused on the potential rewards and gains involved in using aggression to solve interpersonal conflicts that he or she ignores the potentially harmful effects of this behavior on him- or herself and others (Frick & Morris, 2004).

In contrast to those youth with callous and unemotional traits, children within the childhood-onset group who do not show these traits tend to show the opposite extreme of emotional reactivity. They tend to be highly reactive to emotional and threatening stimuli and to respond more strongly to provocations in social situations (Frick, 2006; Frick & Morris, 2004). Also, their aggressive and antisocial behavior is more strongly associated with dysfunctional parenting practices and with deficits in verbal intelligence than the group that is high on callous-unemotional traits (Frick & White, 2008). These findings suggest that children with childhood-onset antisocial behavior, but who do not show high rates of callous-unemotional traits, may have problems more specifically associated with poor behavioral and emotional regulation, characterized by very impulsive behavior and high levels of emotional reactivity. Such poor emotional regulation can result from a number of interacting causal factors, such as inadequate socialization from families, deficits in their verbal intelligence that make it difficult for them to delay gratification and anticipate consequences, or temperamental problems in response inhibition such as those discussed in the previous section on ADHD. The

problems in emotional regulation can lead to very impulsive and unplanned aggressive acts for which the child may be remorseful afterward but that he or she still has difficulty controlling. It can also lead to a child being susceptible to becoming angry (i.e., emotionally aroused) due to perceived provocations from peers, leading to violent and aggressive acts within the context of high emotional arousal.

This developmental framework has a number of implications for the assessment process for children with severe conduct problems (McMahon & Frick, 2005). It suggests that, not only do interventions for children with severe conduct problems need to be comprehensive in targeting a large number of diverse causal influences, but these interventions also need to be tailored to the unique needs of specific subgroups of children with conduct problems (see Frick, 2006 for a more a extended discussion of this issue). In order to implement such a comprehensive and individualized approach to treatment, there needs to be a comprehensive assessment of the child that identifies the most appropriate targets of treatment, given the individual child's specific developmental history.

Implications for Assessment

This body of psychological research forms the basis for designing an appropriate assessment for children with conduct problems. In Table 17.5, we summarize the critical areas of research and their relevance to the assessment process. In Box 17.5, we provide a case study of a comprehensive evaluation of a child with severe conduct problems. As is evident from Table 17.5, assessment of conduct problems shares several important characteristics with the assessment of ADHD. The complex and pervasive nature of conduct problems requires a comprehensive evaluation that assesses many aspects of the child's functioning and psychosocial environment. Further, conduct problems and other relevant aspects of a child's psychosocial functioning should be assessed using multiple informants and multiple assessment techniques.

Table 17.5 Key Research Findings and Their Implications for the Assessment of Children with Conduct Problems

Research Findings	Implications for Assessment
1. *Core symptoms and subtypes*: Conduct disorders represent a heterogeneous category with widely varying levels of impairment and many important subtypes	1a. Assess a wide range of conduct problems 1b. Assess the level of impairment associated with the disorder
2. *Common comorbidities*: Conduct disorders are often accompanied by several comorbid types of problems that influence the course and treatment of conduct disorders	2a. Assess for the presence of ADHD 2b. Assess for the presence of anxiety and depression (including suicidal ideation) 2c. Assess for substance use and abuse
3. *Correlates with potential causal roles*: Conduct disorders develop through a complex interaction of numerous factors within the child and his or her psychosocial environment	3a. Assess important aspects of a child's or adolescent's family environment 3b. Assess child's intellectual level, academic achievement, learning style, and social problem solving

(Continues)

Table 17.5 (Continued)

Research Findings	Implications for Assessment
	3c. Assess child's peer interactions, social status, and associations with a deviant peer group
	3d. Assess critical aspects of child's social ecology (e.g., economic disadvantage, witnessing of violence)
4. *Multiple developmental pathways*: Conduct disorders develop through multiple different pathways each involving distinct developmental mechanisms	4a. Assess the developmental sequence of onset of conduct problem behavior, especially whether severe conduct problems onset prior to adolescence
	4b. Assess for callous-unemotional traits

Box 17.5

Case Study: 14-Year-Old Adolescent Male with Severe Conduct Problems

Patrick was 14 years, 1 month old when his mother requested a comprehensive psychological evaluation from a university-based outpatient psychological clinic. His mother was concerned about Patrick's poor grades in school and his frequent lying. His mother also expressed concerns about his frequent fights both at school and in his neighborhood. Because of his fighting at school, Patrick had been placed in a full-time class for children with behavioral problems.

Assessment of Core Features and Subtypes

On the DISC-IV, both Patrick and his mother reported the presence of a number of severe conduct problems. They both reported repeat instances of lying, repeat instances of stealing items from stores (shoplifting), and several school suspensions for physical fights. His mother also reported several instances of truancy, and Patrick admitted to breaking into a neighbor's house to steal things and using a knife in a fight. Patrick further admitted to occasional use of marijuana. The severity of these conduct problems is supported by parental report on the CBCL, on which Patrick had T-scores of 79 on both the Delinquent Behavior and Aggressive Behavior scales. On the Personality Inventory for Youth (PIY; Lachar & Gruber, 1994), Patrick obtained a T-score of 69 on the Delinquency scale.

According to both Patrick and his mother, much of Patrick's aggressive and antisocial behavior occurred alone. In fact, Patrick reported problems in peer relations, as evident by T-scores of 68 and 75 on the PIY Social Withdrawal and Social Skills scales. Patrick's mother reported that his aggressive and antisocial behavior is of longstanding duration. He had averaged about two suspensions per year since the first grade, mostly because of fighting, indicating that his aggression started well before adolescence.

Assessment of Comorbidities

Both Patrick and his mother reported that Patrick goes through frequent periods of depression, often lasting for as long as a month. At the time of the assessment, Patrick had been experiencing significant periods of sadness for the past 3 weeks. He had also lost interest in activities, he had not been sleeping well at night, and he had lost his appetite resulting in significant weight loss. His mother had also

(Continues)

Box 17.5 (Continued)

noticed a decrease in energy and a decrease in his ability to concentrate. Patrick reported on the DISC-IV that he had, twice in the past 2 years, thought of killing himself by cutting his wrist and on one occasion had actually started to use a knife but was stopped by a classmate. Both Patrick and his mother reported that the episodes of depression seemed to coincide with disciplinary confrontations, such as being suspended from school.

Patrick and his mother reported some problems of attention and concentration, but these seemed to occur during periods of depression, and therefore, did not seem to be associated with ADHD. Also, a psychoeducational assessment revealed that Patrick was functioning in the low average range of intellectual abilities, with a particular weakness in his verbal abilities. He scored in a range commensurate with this intellectual level on an achievement screener.

Assessment of Correlates with Potential Causal Roles

Patrick lived alone with his mother, who worked full-time outside of the home as a secretary. Patrick's parents had divorced when he was 6 years old and he had had minimal contact with his father, who according to maternal report, was in and out of prison and had a substance abuse problem. Patrick's mother reportedly had limited social contacts. Her extended family mostly lived in a different region of the country and she had not developed a good network of friends. Patrick's mother also reported that she had great difficulty disciplining Patrick. Because he was so moody, she rarely tried to make him do things. Also, whenever he did something wrong (e.g., getting suspended from school), she did not punish him because it would simply make him angrier and more difficult to live with. There was no indication that Patrick was involved with a deviant peer group. In fact, his mother was concerned with his lack of connectedness with any peers.

Assessment of Multiple Developmental Pathways

Information from both the DISC-IV and an unstructured interview both suggested that Patrick's serious conduct problems have been evident, at least since the first grade. Thus, the problems clearly had a childhood-onset. Also, a measure of callous-unemotional traits (Frick & Hare, 2001) did not suggest that Patrick showed high rates of these traits. This would also be consistent with the high rate of depression, a weakness in his verbal intelligence, and the apparent association between his conduct problems and ineffective parenting practices in the home, all of which are typically more common in youth without callous-unemotional traits.

Assessment of Core Features

The first goal of the assessment is to carefully and thoroughly assess the number, types, and severity of the conduct problems and the level of impairment that the conduct problems are causing for the child or adolescent (e.g., school suspensions, police contacts, peer rejection). This assessment is important given that research has shown great variability in these dimensions among children with conduct problems, and it has shown that these dimensions may be some of the best predictors of outcome for children with conduct problems (Frick & Loney, 1999). The primary methods of assessing the core symptoms are structured interviews, behavior rating scales, and behavioral observations (see McMahon & Frick, 2005 for a summary of specific measures).

Many structured interviews and behavioral rating scales provide good coverage of the conduct problem behaviors and allow for multi-informant assessments. However, they each offer unique advantages in other respects. Behavior rating scales are more time-efficient and provide some of the best norm-referenced information for determining the severity of conduct problems. In contrast, diagnostic interviews often provide important information on the degree of impairment associated with the conduct problems and a structured means of assessing the age of onset of the problem behaviors. As discussed in Chap. 8, behavioral observations provide a third way of assessing conduct problem behaviors. Behavioral observations in a child's natural setting can make a unique contribution to the assessment process by providing an assessment of a child's behavior that is not filtered through the perceptions of an informant and by providing an assessment of the immediate environmental context of a child's behavior. Unfortunately, for older children and adolescents, many of the common conduct problems are by nature covert (e.g., lying and stealing) or only occur infrequently (e.g., fighting), which makes them difficult to capture through some observational technique.

One important advantage that many structured interviews have over behavioral rating scales and behavioral observations is that they provide a structured method for assessing when a child first began showing serious conduct problems, thereby providing an important source of information on the developmental trajectory of the child's problem behavior. For example, in the DISC-IV (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000), any question related to the presence of a conduct problem that is answered affirmatively is followed by questions asking the parent or child to estimate at what age the first occurrence of the behavior took place. Obviously, such questions can also be integrated into an unstructured interview format as well.

Assessment of Comorbidities

Co-occurring problems can be assessed conjointly with the assessment of the conduct problems themselves, through the use of omnibus rating scales, structured interviews, or multi-domain observational systems. Given the association between conduct problems and learning disabilities, a psychoeducational evaluation that includes a standardized intelligence test and academic achievement screener should also be a part of most evaluations of children and adolescents with conduct problems.

Assessment of Correlates with Potential Causal Roles

Uncovering which of the many potential causal factors may be operating on a child referred for an evaluation could be crucial for making recommendations for treatment. Of primary importance are correlates within the child's family environment (Frick, 1994). In Chap. 12, we discussed some basic issues and methods in assessing crucial elements in a child's family environment (see also McMahon & Frick, 2007).

Research also indicates that peer rejection is predictive of the development of conduct problems and is associated with an adolescent's association with a deviant peer group. Therefore, assessing a child or adolescent's peer relationships is a critical assessment goal. Several of the omnibus rating scales discussed in previous chapters provide an assessment of a child's peer functioning. Also, several rating scales focus specifically on a child's or adolescent's social functioning (see also Cavell, Meehan, & Fiala, 2003). Social status can also be assessed directly through a sociometric exercise, if a child is in elementary school

(see Chap. 9). Given that a child's association with a deviant peer group is associated with an increase in the severity of conduct problems, some method of assessing this aspect of a child's social functioning (e.g., Elliott, Huizinga, & Ageton, 1985) should also be included in a comprehensive assessment.

Another important class of potentially important correlates to severe conduct problems involves specific cognitive deficits and learning styles. Specifically, deficits in intelligence, especially verbal intelligence, have been associated with conduct problems, necessitating a standard intellectual evaluation as part of most assessment batteries for children with conduct problems. In addition, as discussed previously, many children with conduct problems, especially those who also show a callous and unemotional interpersonal style, show heightened sensitivity to rewards compared to punishments. There are computerized tasks developed to assess this learning style in young children; however, the clinical utility of such information and some major limitations in the development of these tasks make their usefulness in many clinical assessments somewhat limited at the present time (see Frick & Loney, 2000 for a review). There are also laboratory measures, typically involving a child being provided a hypothetical vignette of a social situation and asked to state how he or she would respond if the situation was real, that assess several deficits in social cognition that have been associated with conduct problems, such as a hostile attributional bias. Examples include the Intention-Cue Detection Task, the Problem-Solving Measure for Conflict, and the WALLY Game (Conduct Problems Prevention Research Group, 1999; Dodge & Coie, 1987; Webster-Stratton & Lindsay, 1999). The recently developed Social-Cognitive Assessment Profile (SCAP; Hughes, Meehan, & Cavell, 2004) shows promise as a brief (15–20 min), clinically useful interview with elementary school-age children, designed to assess social-cognitive deficits associated with conduct problems. While these measures are also not without some limitations in their clinical usefulness (Frick & Loney, 2000), interventions for the deficits that are assessed by these measures are part of many treatment programs for conduct problems (Lochman et al., 2008). Therefore, the information they provide can be useful in treatment planning.

Finally, a child's social ecology is often crucial for understanding the development of conduct problems in many cases. Therefore, it is important to assess such variables as the economic situation of the family, the level of social and community support provided to the child and his or her family, and other aspects of a child's social climate (e.g., neighborhood, quality of school and, degree of exposure to violence) (McMahon & Frick, 2007). For example, the Neighborhood Questionnaire (Greenberg, Lengua, Coie, Pinderhughes, & the Conduct Problems Prevention Research Group, 1999) is a brief parent-report measure used to assess the parent's perception of the family's neighborhood in terms of safety, violence, drug traffic, satisfaction, and stability.

Assessment of Important Developmental Pathways

A key area of research for guiding the assessment process is the research documenting various potential developmental pathways to conduct problems. As reviewed previously, children with conduct problems can fall into childhood-onset or adolescent-onset pathways, depending on when in development their level of severe antisocial and aggressive behavior started. Also, within the childhood-onset group, there seem to be important differences between those who do and do not show high levels of callous-unemotional traits. Knowledge

of the characteristics of children in these different pathways, and the different causal mechanisms involved, can serve as a guide for structuring and conducting the assessment (McMahon & Frick, 2005). Further, interventions can be tailored to the unique needs of youth in these different pathways (Frick, 2006).

Specifically, knowledge of the developmental pathways can provide a set of working hypotheses concerning the nature of the conduct problems, the most likely comorbid conditions, and the most likely risk factors (McMahon & Frick, 2005). For example, for a youth whose conduct problems appear with the onset of adolescence, one would hypothesize based on the available literature that he or she is less likely to be aggressive, to have intellectual deficits, to have temperamental vulnerabilities, and to have comorbid ADHD. However, the youth's association with a deviant peer group and factors that may contribute to this deviant peer group affiliation (e.g., lack of parental monitoring and supervision) would be especially important to assess for youth in this pathway.

In contrast, for a youth whose serious conduct problems began prior to adolescence, one would expect more cognitive and temperamental vulnerabilities, comorbid ADHD, and more serious problems in family functioning. For those youths in this childhood-onset group who do not show CU traits, the cognitive deficits would more likely be verbal deficits and the temperamental vulnerabilities would more likely be problems regulating emotions, leading to higher levels of anxiety, depression, and aggression involving anger. In contrast, for a youth with childhood-onset conduct problems who shows high levels of callous-unemotional traits, the cognitive deficits are more likely to involve a lack of sensitivity to punishment and the temperamental vulnerabilities are more likely to involve a preference for dangerous and novel activities and a failure to experience many types of prosocial emotions (e.g., guilt and empathy). Further, assessing the level and severity of aggressive behavior, especially the presence of instrumental aggression, would be critical for children and adolescents in this group (Marsee & Frick, 2007).

As most clinicians recognize, people do not often fall neatly into the prototypes that are suggested by research. Therefore, these descriptions are meant to serve as hypotheses around which to organize an assessment based on the available research. They also highlight several specific important pieces of information that are needed when assessing children and adolescents with conduct problems. One of the most critical pieces of information in guiding assessment, and perhaps ultimately intervention, is determining the age at which various conduct problems began. This information provides some indication as to whether or not the youth may be on the childhood-onset pathway. As noted previously, unstructured and structured interviews are often the most common methods for obtaining this information.

Unfortunately, there has been little consistency in the literature concerning the most appropriate operational definition of childhood- vs. adolescent-onset. For example, the *DSM-IV-TR* makes the distinction between children who begin showing severe conduct problems before age 10 (i.e., childhood-onset) and those who do not show severe conduct problems before age 10 (i.e., adolescent-onset) in its definition of Conduct Disorder. However, other research studies have used age 11 (Robins 1966) or age 14 (Patterson & Yoerger, 1993; Tibbetts & Piquero, 1999) to define the start of adolescent onset. Thus, onset of severe conduct problems before age 10 seems to be clearly considered childhood-onset and onset after age 13 clearly adolescent-onset. However, how to classify children whose conduct problems onset between the ages of 11 and 13 is less clear and probably dependent on

the level of physical, cognitive, and social maturity of the child.

In addition to the difficulty in determining the most appropriate way to divide children based on their age of onset, there is also concern about how accurate the parent or youth is in reporting the timing of specific behaviors. There are three findings from research that can help in interpreting such reports. First, the longer the time frame involved in the retrospective report (e.g., a parent of a 17-year-old reporting on preschool behavior vs. a parent of a 6-year-old reporting on preschool behavior), the less accurate the report is likely to be (Green, Loeber, & Lahey, 1991). Second, although a parental report of the exact age of onset may not be very reliable over time, typical variations in years are usually small (Green et al., 1991). As a result, these reports should be viewed as rough estimates of the timing of onset and not as exact dating procedures. Third, there is evidence that combining informants (e.g., such as a parent or youth) or combining sources of information (e.g., self-report and record of police contact), and taking the earliest reported age of onset from any source, provides an estimate that shows somewhat greater validity than any single source of information alone (Lahey et al., 1999).

If the youth's history of conduct problems is consistent with the childhood-onset pathway, then additional assessment to examine the extent to which callous-unemotional traits may also be present is important. There have been several reviews and critiques of the available methods for assessing these traits (Sharp & Kline, 2008; Vincent, 2006). The two most commonly used methods are the Psychopathy Checklist: Youth Version (PCL-YV; Forth, Kosson, & Hare, 2003) and the Antisocial Process Screening Device (APSD; Frick & Hare, 2001). The PCL-YV is a clinician completed checklist for adolescents ages 12 to 18 years. It is completed based on a 60 to 90 min semi-structured interview and review of all available collateral information (e.g., psychosocial histories, institutional records). The APSD includes parent and teacher ratings scales (Frick & Hare, 2001) and a self-report questionnaire (Munoz & Frick, 2007). Although there is research to support the usefulness of both the PCL-YV and APSD (see Frick & Dickens, 2006; Frick & White, 2008), both measures include only limited items specifically related to callous-unemotional traits (4 and 6 items, respectively). A scale that provides a more comprehensive assessment of these traits, the Inventory of Callous-Unemotional traits, has been developed and has shown some initial promise in a large (n = 1443) community sample of young adolescents in Germany (Essau, Sasagawa, & Frick, 2006) and moderate size (n = 248) sample of detained juvenile offenders in the United States (Kimonis et al., 2008). In Table 17.6, a summary of the items assessing CU traits from these three measures are provided.

Conclusions

In this chapter we discuss two specific applications of the assessment procedures and techniques reviewed in previous chapters. We discuss the assessment of two related types of childhood psychopathology: Attention-Deficit Hyperactivity Disorder and conduct problems. To continue our basic premise that clinical assessments should be guided by basic psychological research, we provide a brief overview of some of the more important research findings with particular relevance to the assessment process. For both domains, assessments should be structured around our current knowledge of the core features of each domain. In addition, the most frequent co-occurring problems associated with both types of psychopathology

Table 17.6 Items Assessing Callous-Unemotional Traits from Three Commonly Used Measures

Psychopathy Checklist-Youth Version (Forth et al., 2003)	Antisocial Process Screening Device (Frick & Hare, 2001)	Inventory of Callous-Unemotional Traits (Essau et al., 2006)
Lacks guilt and remorse	Feels bad or guilty (I)	Feels bad or guilty (I)
Shallow affect	Does not show emotion	Does not feel remorseful when doing something wrong
Callous use of others	Concerned about the feelings of others (I)	Easily admits to being wrong (I)
Fails to accept responsibility	Concerned about school work (I)	Tries not to hurt others' feelings (I)
	Keeps promises (I)	Feelings of others are unimportant
	Keeps the same friends (I)	Doesn't care who he/she hurts to get what he/she wants
		Concerned about feelings of others (I)
		Apologizes to persons he/she hurts (I)
		Does not care if he/she gets in trouble
		Seems very cold and uncaring to others
		Works hard on everything (I)
		Always tries best (I)
		Does not care about doing things well
		Cares about how well he/she does at school or work (I)
		Does things to make others feel good (I)
		Tries not to hurt others' feelings (I)
		Does not like to put the time into doing things well
		What he/she thinks is right and wrong is different from what others think
		Does not show emotions
		Expresses feelings openly (I)
		Hides feelings from others
		It is easy to tell how he/she is feeling (I)
		Very expressive and emotional (I)
		Does not care about being on time

Note: (I) designates items that are inversely scored.

should be routinely assessed, because these comorbidities often have important prognostic and treatment implications.

For ADHD, a difficult part of the assessment is ruling out other medical or psychological disorders that could solely account for the ADHD symptoms. Also, in assessing ADHD, one must be knowledgeable of educational laws related to legally mandated services for children with ADHD so that one can work with educators in designing a treatment plan for the child or adolescent with ADHD.

For conduct problems, the myriad of potential causal factors should be assessed to determine which ones may be operating

for a given child and which ones should, therefore, be a focus of intervention. Also, different causal factors may be involved in the various subgroups of children with conduct problems. Understanding the different pathways through which children and adolescents develop serious conduct problems can be critical for designing assessments and interpreting the information provided by the evaluation.

Chapter Summary

1. Externalizing behaviors are the most common reason for referral to child mental health clinics.
2. Based on research on ADHD suggests that:
   (a) Assessments should include a multi-informant and multi-source assessment of the core ADHD behaviors: inattention-disorganization and impulsivity-hyperactivity; assessment of these core features must be placed within a developmental perspective.
   (b) Assessments should screen for the presence of the most common co-occurring problems that may accompany ADHD: conduct problems/ aggression, emotional disturbance, low self-esteem, problematic social relationships, learning difficulties, and family conflict.
   (c) Assessments should rule out alternative causes for the core symptoms: medical/ neurological disorders, mental handicaps, learning disorders, and adjustment reactions to environmental stressors.
   (d) Because ADHD often has a major impact on a child's or adolescent's school functioning, the assessment should be conducted in collaboration with school personnel and with a knowledge of local educational statutes relevant to services for students with ADHD.
3. Based on research on severe conduct problems in children and adolescents:
   (a) Assessments should provide a multi-source and multi-method assessment of conduct problems including determining the types and severity of conduct problems and the age at which they began.
   (b) Assessments should screen for the most common co-occurring problems that often accompany conduct problems: ADHD, emotional disturbance, substance abuse, and learning disabilities.
   (c) Assessments should assess known correlates to conduct problems that could play a role in causing or maintaining the problem behavior, and therefore, should be a major focus of intervention: family functioning, cognitive deficits, social ecology, peer relations, and associations with a deviant peer group.
   (d) The age at which the serious conduct problems began and the presence of callous-unemotional traits should be assessed because of their importance in designating unique pathways to the development of conduct problems.