Chapter 3
Essential Child and Adolescent Psychiatry and Substance Use Disorders for the Nonpsychiatrist

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Introduction

The time from first appearance of mild psychological stress to the development of a serious child and adolescent psychiatric condition varies, but sometimes it might be short. Usually, a family's search for help will involve a meeting with primary pediatric healthcare services before they are referred for specialized psychiatric healthcare.

Psychiatric and primary healthcare providers will need common approaches and baseline knowledge to optimally help children and families. This chapter aims to describe systems for the description and classification of disorders as tools to understand symptoms, to communicate about them, to relate them to our established base of knowledge, and to thereby form grounds for the evaluation and treatment of the symptoms and provides an overview of the most common disorders in the specialty of child and adolescent psychiatry.

1. The multiaxial classification in the ICD (International Classification of Diseases), introduced by the World Health Organization (WHO 1996), is currently in its 10th edition (ICD 10) and contains all conditions, psychiatric and medical, based on symptom descriptions. A revised version (ICD 11) is planned to be published by 2018.
2. The DSM system (Diagnostic and Statistical Manual of Mental Disorders), developed by the American Psychiatric Association, is currently in its 5th edition (DSM-5), published in 2013 (APA 2013).

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3. The ICPC (International Classification of Primary Care) system, owned by the World Organization of Family Doctors (WONCA 1972), is a third classification system, widely used by general practitioners.

Our diagnostic systems are categorical, i.e., based on the assumption that an individual can be defined as either healthy or ill, based on certain criteria. However, there is little evidence that one can establish a sharp delineation for when a psychiatric condition is normal or pathologic (Angold and Costello 2009; Kendell and Jablensky 2003). Therefore, psychiatric conditions such as anxiety or depression may be better described as dimensional phenomena, with several symptoms lacking a clear threshold between disorder and not disorder. This principle is illustrated in a study (Fergusson et al. 2005) exploring the continuity of depressive symptoms between youth and adulthood. The extent of depression – whether meeting the threshold for the diagnosis of a major depressive disorder or not – at ages 17–18 years was associated with future depression and suicidal behavior. While both patient and provider at one point have to think categorically to start or to decline treatment based on a diagnosis, they should also think dimensionally when evaluating the effect of a treatment intervention or prioritizing the role of more intensive monitoring and prevention. As Pickles and Angold (2003) put it, "the central question is not 'is psychopathology scalar or categorical,' but 'under what circumstances does it make sense to regard psychopathology as being scalar and under what circumstances does it make sense to treat psychopathology as being categorical.'"

The following vignettes review the most common and important psychiatric disorders in childhood and adolescence that are not reviewed more in depth in the subsequent chapters of this book. The examples in the specific vignettes were chosen based on prevalence and significance of the symptoms to illustrate somewhat "typical" cases. The vignettes do not attempt to cover the diagnosis and treatment of *all* psychiatric disorders, and for less common disorders that nevertheless occur in childhood and adolescence, the reader is referred to general textbooks of child and adolescent psychiatry.

Common Psychiatric Disorders

Attention-Deficit Hyperactivity Disorder (ADHD)

Vignette 3.1

Brian is a 6-year-old boy brought for evaluation by his mother, who lived alone with him. She was concerned about his symptoms of restlessness, high activity most of the day, and his angry outbursts, in spite of a charming personality. The mother seems to underreport his symptoms. Brian attends the last year of kindergarten. The staff describes a full crisis: His restlessness causes significant difficulties for

him, the other children, and the staff. Brian himself commented, "none of the adults can handle me." He did not seem to listen to messages directed to the whole class, and he did not seem to listen to direct messages to him unless an adult provided frequent reminders. He exhibited significant problems in transitional situations. He could play with other children only for a short time, and he would easily lose his patience and run into conflicts with other children and staff members. His rage outbursts resulted in both physical and verbal attacks. The mother admitted a sense of insufficiency because of the high levels of conflicts at home. A visit at the supermarket usually ended with him yelling at her to buy unhealthy food or expensive toys and leaving her in the untenable situation of having to either accept his demands or argue in front of waiting customers. Visits to friends' households always became a challenge because of his impulsivity and tendency to explore the surroundings in high speed, often breaking items in his way. Because of these challenges, the mother eventually avoided all shopping and other outings except for visits to very close family.

Worldwide, possible ADHD is one of the most frequent reasons for referral to child and adolescent psychiatric services. The prevalence rate of this disorder is approximately 5% depending on study methods (Polanczyk et al. 2014). The case above illustrates a variety of ambiguous symptoms leading to one pathway of referral. At this stage, the differential diagnosis is broad and includes both psychiatric and other medical disorders, family dysfunction, trauma, abuse, and neglect. A diagnosis of ADHD is based on characteristic behavior over time in different settings, e.g., home, school/preschool, or leisure activities. Primary healthcare providers should be able to recognize possible ADHD and refer the child for further assessment as clinically appropriate. The history should include specific symptoms and their onset, duration, and severity; degree of functional impairment; symptoms suggestive of other differential diagnoses and comorbidities (including depressive, anxiety, specific learning, and substance use disorders); family and developmental history; and information from school/preschool. Comprehensive assessment should also include ADHD-specific parent and teacher questionnaires (DuPaul et al. 2016). A physical examination, including evaluation of vision and hearing, should rule out other medical conditions (e.g., anemia, diabetes, thyroid disorders) that could explain the symptoms.

Specialized healthcare services will often add a structured interview and psychoeducational and IQ testing to establish a comprehensive diagnostic conclusion.

Initial therapeutic interventions include psychoeducation of the child, parents, and teachers and home and classroom accommodations (structure, predictability, minimization of distractions) to compensate for lacking executive functions. If these interventions are not satisfactory, additional treatment should be offered, and the treatments best supported by the evidence base are behavioral modification therapies at school and home, stimulant medication, or a combination of the two. Some families will be in need of additional social support.

Conduct Disorder

Vignette 3.2

Andrew was 15 years old when he was brought for a pediatric examination. He had been caught in the act of committing car theft and ruthless vandalism, and he sustained some minor injuries while he tried to escape. Despite his young age, he was frequently out from home at night. If mother asked where he was she just got an angry answer: "with my friends of course!" When he was referred to you for a medical assessment, it turned out that both he and some of his friends were old acquaintances of the police. Andrews's father did not live together with the family, and Andrew had almost no contact with him. During the assessment, the mother complained about never having gotten help from public healthcare services despite her difficult situation. She reported that Andrews's misbehavior started in kindergarten, where the other children avoided or openly rejected him. He was an unruly boy, and he could destroy both toys and the games children played. The mother remembered one episode when a new nursery school worker became interested in Andrew. They played together most of the day. Later, she discovered that he had lifted her wallet from her pocket. The next day, when she tried to talk about the incident, he seemed completely untouched, and he denied all wrongdoing and asked her when they could play again.

Irritability, temper tantrums, rage outbursts, oppositional behavior, and aggression are common symptoms occurring in many psychiatric and other medical conditions. In addition, the presence of one or more other disorders may aggravate behavioral and conduct problems. Therefore, when conduct disorder is suspected, assessment of potential comorbid or differential diagnostic conditions is mandatory. The diagnosis is based on characteristic patterns of behavior observed over time and in different settings. The history should include specific symptoms, including duration, extent, and onset; psychomotor development; family medical and psychiatric history; family function and interaction; parenting style; and child's areas of interest and strength. Both screening forms such as the *Strength and Difficulty Questionnaire (SDQ)* and specific parent questionnaires such as the *Eyberg Child Behavior Inventory* (Eyberg and Ross 1978) might be helpful for primary healthcare services in assessing the degree of severity and potential need to refer for specialized healthcare services.

Specialized healthcare services may add a systematic child psychiatric interview, e.g., *Schedule for Affective Disorders and Schizophrenia* (*Kiddie-SADS*), which also contains a diagnostic supplement for further assessment of behavioral disorders. In the presence of personality traits with limited prosocial emotions and lack of remorse or guilt, callous lack of empathy and disregard about the feelings of others, no concern about poor/problematic performance at school or in other important activities, and shallow or deficient affects, the *Inventory of Callous-Unemotional Traits (ICU)* (Kimonis et al. 2008) could be helpful. To rule out comorbid intellectual developmental and specific learning disorders, psychoeducational and IQ testing may be necessary.

Guidelines, such as those issued by the National Institute for Health and Clinical Excellence in the UK (NICE 2013), for the assessment and treatment of behavioral disorders, underline the need for identification and treatment of comorbid conditions and for multimodal treatment interventions to reduce antisocial behavior.

As illustrated by the vignette above, frequently a variety of factors contribute to the development of behavioral disorders. Treatment of these disorders is challenging, and the patients find themselves easily involved in vicious, inescapable cycles. Because of the less-than-optimal prognosis, interventions will often need to be intensive, comprehensive, and multidisciplinary, involving medical and social services.

Many developmentally tailored, cognitive-behavioral therapy-based intervention programs have been shown to limit or reduce severe aggression. *Parent Management Training – Oregon Model (PMTO) (Patterson and Stouthamer-Loeber* 1984*)* and *The Incredible Years* (IY) program *(Webster-Stratton et al.* 2008*)* are examples for treatment interventions for families with younger children (3–12 years of age) with serious behavioral problems, while multisystemic therapy (MST) programs are developed to address adolescent criminal behavior (Henggeler 2011).

Mood Disorders, Depression, and Bipolar Disorders

Vignette 3.3

Mary was 15 years of age when she was brought to you for a medical evaluation. She has always been mild-mannered and reserved. During the last few months, the parents observed her to be increasingly withdrawn and isolative. Previously she liked to play guitar, but now she felt it was just boring, and she told her mom that she couldn't bear it any more. Going to school (only a few blocks away) had become such a demanding task for her that her parents had to drive her several days a week. She told her parents that it made no sense for her to go to school, as she had no energy and was not able to concentrate on lessons anyway. She was full of regret and remorse, and she had decreased self-confidence. During a long conversation with mother, Mary admitted to feeling sad nearly every day. She implied that life was too difficult for her to manage, but when asked directly, she denied any thoughts about taking her life. She mentioned that she had quarrels with some of the other girls in her grade but denied that there have been any serious incidents for her to feel bad about. After having been passive and lacking energy for more than 2 months, a physical examination and blood test to screen for other medical disorders were obtained but showed no abnormality. Mother was particularly concerned about Mary's condition because she remembered Mary experiencing a similar episode 2 years ago. Fortunately, the symptoms resolved completely after a few months. In addition, family history revealed that Mary's grandfather also had recurrent episodes, where he lay in bed for several days.

Sad feelings are a part of all people's daily life, and children need to be comforted in sad situations.

However, when the sadness is associated with depressed mood; tiredness; lack of energy, initiative, and interest in previously enjoyed activities; and persistence of symptoms even with comforting, a diagnosis of major depression should be ruled out. Additional symptoms include guilty feelings, low self-confidence, self-accusation, suicidal ideation, concentration problems, sleep pattern changes, and appetite changes. Also in depression, comorbid conditions are frequent (Angold et al. 1999), and the former and the latter often influence each other.

Assessment involves gathering information from all available sources, as children with depression might find it difficult to describe their symptoms. The main symptoms that are required to make the diagnosis are those listed above: four to five symptoms may indicate a mild depressive episode, six to seven symptoms a moderate one, and eight to ten a severe one. There are many questionnaires for children, parents, and professionals, such as the Mood and Feelings Questionnaire (Angold et al. 1995) or the Beck Depression Inventory (Bennett et al. 1997). The diagnosis cannot be based solely on the use of such questionnaires, but they can be used as a starting point to introduce the subject or as an interviewing tool to systemize information. Suicidal risk and other medical conditions causing low energy must be ruled out during the assessment.

The clinician should assess for potential psychosocial stressors and concomitant problems such as lack of social network, bullying, parent conflicts, and substance use. These concerns are unfortunately common triggers of depression (Goodyer et al. 2000). The UK-based National Institute for Health and Clinical Excellence (NICE) guidelines outline best practices for assessment and treatment (NICE 2005).

The clinician should assess for periods of unusual elated mood, especially if the child has experienced recurrent depressive episodes. In DSM-5, a manic episode is characterized by three (or more) of the following symptoms: inflated self-esteem or grandiosity; decreased need for sleep; tendency to keep talking; flight of ideas; easy distractibility and drawing of attention to unimportant or irrelevant items; psychomotor agitation or increased activity either socially, at work or school, or sexually; or excessive involvement in pleasurable activities that have a high potential for painful consequences. Irritability is common in all phases of mania. According to the DSM-5, bipolar I is characterized by changes between manic and depressive episodes and the presence of at least one manic episode, while bipolar II means the presence of depressive episodes but only hypomanic episodes. Hypomanic episodes have the same symptoms as manic episodes, but mood elation is less severe and occurs over a shorter time span (4 days are enough), and psychotic features are never present.

Evidence-based efficient treatments for depression include cognitive behavior therapy (CBT), interpersonal therapy, and pharmacotherapy, predominantly with selective serotonin reuptake inhibitors (SSRIs). CBT has the strongest evidence base (Webb et al. 2012; Weersing and Brent 2006), but interpersonal therapy (IPT)

also has documented effectiveness (Brunstein-Klomek et al. 2007). Psychoeducation with family involvement and supportive psychotherapy can be sufficient in milder cases (Birmaher et al. 2007). Untreated, a depressive episode usually lasts between 3 and 8 months. However, relapse is frequent, and within a time frame of 5 years, 70% experience a new depressive episode (Birmaher et al. 2007). Among children with early-onset depression, about 20–40% may develop bipolar disorder. Therefore, particularly if this disorder occurs in the family, or if psychomotor retardation is a salient symptom, this possibility must carefully be ruled out. There is some evidence that lithium and lamotrigine may be effective for bipolar depression in children. It is not clear whether SSRIs are effective for bipolar depression, and they may increase the risk for development of manic symptoms. The main principle is not to use antidepressive medication without concomitant use of mood stabilizers in bipolar disorders. Despite a lifelong vulnerability for new manic and depressive episodes, many individuals with this diagnosis – treated appropriately – have a good life with long symptom-free periods. Good premorbid function and high IQ seem to improve prognosis.

Close to a fifth of patients with bipolar disorder end their life in suicide, which occurs most frequently in males, during adolescence, and during a depressive phase (McClellan et al. 2007). Suicide prevention tasks, including psychoeducation and close follow-up, are therefore extremely important.

Anxiety Disorders and Obsessive-Compulsive Disorder

Vignette 3.4

Jane has always been a cautious child. From the age of 12 years on, she became gradually more anxious and worried about new things and situations that seemed unfamiliar to her. Parents had tried to soothe and reassure her that her worries were without foundation. This reassurance made her feel better for a little while, but soon her anxious thoughts and feelings came back. She could be worried about everything, from being unable to answer a teacher's question to being kidnapped on her way to the neighborhood store. In addition, she became more and more irritable and inattentive in class. Jane's preoccupations persisted despite reassurances from her parents, who sometimes lost their patience, demanding that she just leave these unreasonable and unfounded concerns and not waste so much time worrying. Sometimes her anxious thoughts about dangers on her way to school prevented her from going to school, and father had to bring her by car. When her grades went down, her teacher and the parents agreed on the need for medical assessment. During the consultation, Jane was reluctant to talk about her problems even when her parents waited outside. When the doctor told her about other patients feeling this way, she revealed piece by piece her exaggerated concerns and worries, which were worsened by her perception that nobody took her seriously.

Anxiety disorders are one of the most common childhood problems, with prevalence rates ranging (depending on study methods) from 5 to 20%. Nearly 60% of adolescents with anxiety disorders have further episodes in adulthood. In addition, childhood anxiety disorders often precede adolescent and adult depression (Essau 2008; Patton et al. 2014). Therefore, therapeutic interventions that shorten the duration of anxiety episodes are important as they could prevent much morbidity later in life (Patton et al. 2014).

Typical sources of anxiety differ, depending on developmental stage: Babies and toddlers experience anxiety when exposed to sensory stimuli such as high noise, physical restriction, or fast-moving objects. One-year-olds commonly experience separation and stranger anxiety. Preschool children are often afraid of animals, darkness, and fantasy figures. School-aged children commonly fear injuries and other physical threats and experience achievement anxiety, while adolescents commonly experience anxiety around body image, medical symptoms, sexuality, social acceptance, and major threats such as death and catastrophes. The feeling of anxiety is commonly regarded as protection against danger and as a regulator of social relations, improving survival and reproduction. In pathologic anxiety, the same themes may be present, but the feelings are either without foundation, grossly exaggerated, or age and developmental stage-inappropriate. For example, while stranger anxiety is normal in toddlers, separation anxiety persisting beyond 3 years of age is regarded as pathologic. Anxiety reactions should be considered as a disorder if they are either developmentally inappropriate or cause troublesome avoiding behavior and impairment of daily functioning. Panic attacks, characterized by an abrupt and intense fear of losing control or dying, and usually accompanied by other medical symptoms, such as shortness of breath, palpitations, sweating, shaking, and light-headedness, are more frequent in adolescents and adults than in children of younger age.

As always, assessment starts with a careful history from both child and parents: symptoms, including onset, development (including provoking factors), severity, and impact on the family; family's effort to solve the problems; and family history of other psychiatric problems. Questionnaires might be helpful to map anxiety disorders in general, e.g., *Screen for Child Anxiety Related Emotional Disorders (SCARED*) (Muris et al. 2004), or specific anxiety symptoms (e.g., the *Spider Phobia Questionnaire*). Once the diagnosis is established, psychoeducation is important. While many families may believe that they ought to protect their child from anxiety-provoking situations, cognitive-behavioral therapy (CBT) with exposure to the anxiety-provoking situation has the best documented effect. CBT is a highly structured treatment with testing of hypotheses; correcting of automatic thoughts, misconceptions, and underlying false beliefs related to symptoms; and exposure exercises with application of anxiety management strategies. In children,

it is always important to include parents or the whole family in therapy to change their patterns of cooperation. Psychoeducation for parents is necessary, especially if they are themselves anxious and overprotecting. For isolated phobias, brief treatment formats are available, for example, a single exposure session with booster sessions if needed (Ost 1989). Medication is not recommended as first-line treatment but could be helpful for nonresponders following an adequate trial of CBT or in combination with CBT.

School refusal is a symptom, rather than a specific disorder. Defined as a determined refusal to leave home for school or increasing anxiety as school is approached, school refusal may present acutely or insidiously, often triggered by a specific event and accompanied by physical symptoms (poor appetite, headaches, nausea, vomiting, abdominal pain, diarrhea). Phobic anxiety of school is one of a variety of reasons that may account for the refusal, and these reasons may include separation anxiety, family dysfunction, bullying, poor peer relationships, academic underachievement, vulnerable identity, weak self-confidence, and other psychiatric conditions, mainly depression (Egger et al. 2003). To ascertain and resolve these underlying problems, parental counseling, school liaison, and CBT are tools to help the child to expeditiously return to school.

Obsessive-compulsive disorder (OCD) affects about 1% of the childhood population and, untreated, leads to a chronic course in about 40–60% of those affected (Stewart et al. 2004). In DSM-5, OCD was moved to a category that is discrete from the anxiety disorders and inclusive of hair pulling and hoarding disorder, which share common features such as obsessive thoughts and repetitive behaviors. In common with the anxiety disorders, OCD involves physiological arousal, wherein certain thoughts or obsessions, for example, about contamination, cause anxiety and trigger behaviors or compulsions determined to reduce the anxiety, for example, extensive handwashing rituals. Individuals with a non-OCD anxiety disorder do not engage in ritual behaviors (other than avoiding the feared situation) that they believe will relieve their symptoms. Also, the contents of anxiety-provoking thoughts and concerns are slightly different: in anxiety disorders, the concerns involve real-life situations, even though these concerns are exaggerated and out of context, while in OCD, the fears are more unrealistic, such as contamination via impossible or highly unlikely transmission routes. In OCD, both assessment and treatment closely follow anxiety management principles.

Interestingly the history of OCD illustrates the evolution of psychiatric treatments. Not more than 30–40 years ago, OCD was considered to be a serious psychiatric condition with a very poor prognosis. In the 1970s, medication first became available, followed by a treatment method now known as exposure and response prevention (ERP) (Rachman et al. 1971). Today, prognosis is considered as good, with a treatment response rate of about 70% (Torp et al. 2014).

Tic Disorders

Vignette 3.5
Parents consulted you, as their primary care physician, to discuss concerns about their son Scott, who was 6 years old and had normal development during the first 5 years of his life. Last year, Scott developed an "annoying habit" with repeated eye blinks and "weird" deviations of his mouth. During the last few months, he had started to shake his head from side to side, to shrug his right shoulder, and to jerk his arms. Parents have noticed frequent short hard coughs and throat cleaning. These movements and sounds wax and wane and may nearly disappear for a few days. Scott experienced these symptoms as very unpleasant and developed a tendency to avoid social gatherings except for school and contact with his old friends. His father remembered, from his own childhood, that he had frequent eye blinking and facial grimacing. Both parents were very worried about these symptoms, especially because they seemed to impair Scott's social life.

About 20% of all children might experience transient tics during normal development. Tourette's disorder, which involves a combination of motor tics and at least one vocal or phonic tic, occurs in about 1% of a childhood population (M.M. Robertson 2008). Tics are seldom the child's single or biggest problem (Khalifa and von Knorring 2006). Since the associated comorbidities often are more impairing than the tics, emphasis should be directed toward assessing the former. The conditions most frequently associated with Tourette's disorder are ADHD and OCD (Robertson 2000). Approximately 20–40% of children referred for Tourette's disorder report behavioral problems such as unpredictable rage outbursts, irritability, and aggression (Wright et al. 2012). Also, internalizing disorders such as depression, anxiety, and self-harm and certain personality disorders are common (Robertson 2000). Other medical conditions such as epilepsy, tardive dyskinesia, Sydenham's chorea, or other sequelae of streptococcal infections, dystonia, blepharospasm, Wilson's disease, neuroacanthocytosis, and medication side effects may cause tics and should be ruled out.

Reliable information, from both the child and parents' perspective, about symptom development is crucial. Structured interviews and comprehensive questionnaires, such as the Yale Global Tics Severity Scale (Leckman et al. 1989), may be helpful. In uncomplicated cases, accurate diagnosis and psychoeducation about nature and expected course are the most important measures and may constitute the only intervention needed. Usually, tics reach their peak intensity at 10–14 years of age and gradually diminish between 15 and 18 years. In adulthood, 25% of those with childhood tics will be without tics, 50% will be clearly improved, while 25% will have unchanged or worsening tics.

While tics are unintentional, they can be triggered by various environmental factors. Both positive and negative feedback regarding the tics may increase them, while a neutral environment typically will not. If tics cause functional impairment, pain, or social stigma, behavioral interventions (Frank and Cavanna 2013) such as habit reversal training are recommended as the first choice of treatment (Verdellen et al. 2011). If these treatments are not sufficient or not available, medication should be considered. As mentioned initially, comorbid conditions, especially ADHD, should be ruled out because they might cause more impairment than tics and because their treatment may improve the tics as well.

Autism Spectrum Disorders

Vignette 3.6

The parents brought Kevin, age 12 years, for a pediatric assessment. They had always cherished his high intelligence, but during the last 3 years in school, they have become increasingly worried about his behavior. A week ago, he had a serious temper tantrum, provoked by the mother cleaning his room and moving one of his collector's items to a slightly different location. This was "the final straw that broke the camel's back" and the reason to make an urgent appointment. Previously, they whisked away their concerns with the thought that nothing could possibly be wrong in a boy with such superior skills.

He talked endlessly about reptiles. By the fourth grade, he had surpassed his teacher in knowledge about these animals. For many of these creatures, he knew the scientific names, even when they were complicated and difficult for others to remember. Often, conversation with him would become conversation about reptiles. Despite his memory skills, he had surprising problems in many academic subjects. His teacher believed that his poor performance in language and social studies was because of lack of interest. While he partly mastered the math curriculum and could perform basic arithmetic operations without problems, it was difficult for him to solve math word problems. After school, during leisure time, he preferred to use his computer to read more about his favorite subjects or to play games. Kevin's movements were somewhat stiff, and he rarely joined his classmates for soccer. When his mother would try to motivate him to play outside with others, he would become very angry. No one in the family could disturb his activities or change his plans. Parents remembered that he was quite "a loner" as far back as in kindergarten. When picking him up, quite often they found him on his own in bushes or trees or in the fringe of the playground. He had only a few friends, and all of them were much younger than he. Mostly, they would come to play computer games, and he is popular in this group because of his computer skills.

The term autism spectrum disorder (ASD) covers a wide range of symptoms and clinical presentations (varying by intellectual ability and degree of functional impairment) with a common denominator of basic deficits in social communication and restricted interests and repetitive behaviors.

Primary care providers should be able to recognize ASD symptoms and refer, where appropriate, for comprehensive assessment and specialized services. A careful history from the child, the parents, and others who know the child well is essential. Assessment of hearing and language development is also essential, as lack of skills in these domains may look like ASD. Usually, kindergarten teachers and staff will become concerned when a child avoids contact or uses unusual ways to make contact with other children or adults, plays in a stereotyped manner, or presents a deviant language development. The *M-CHAT (Modified CHecklist for Autism in Toddlers*) (Kleinman et al. 2008) is a screening instrument that is easy to administer (available on http://www.firstsigns.org/downloads/m-chat.PDF) and helpful in ruling out a suspicion of autism. For older children (4–11 years), screening questionnaires like *the Childhood Autism Spectrum Test* (CAST) (Williams et al. 2006) or *the high-functioning Autism Spectrum Screening Questionnaire (ASSQ)* (Ehlers et al. 1999) for children and adolescents 6–17 years of age can be helpful in determining the need for further referral.

Comprehensive evaluations in specialized healthcare services will include assessments of cognitive and language development; observations of play, behavior, and social abilities; assessments of adaptive functioning; and possibly specific questionnaires and structured observations of communication and social situations via the *Autism Diagnostic Interview-Revised, (ADI-R)* (Lord et al. 1994) and the *Autism Diagnostic Observation Schedule* (*ADOS*), regarded as a gold standard (Lord et al. 1989). Medical conditions associated with autism are frequent. Therefore, the following investigations are recommended: chromosomal analysis, EEG, and brain MRI (to evaluate conditions like XYY, deletions, fragile X, epilepsy, migration disorders, tuberous sclerosis, neurofibromatosis, corpus callosum agenesis) as well as ophthalmology evaluation and hearing assessment.

Children with ASD and their families need comprehensive, sustained support and psychoeducation about the condition. Treatment goals include fostering social development and learning without overtaxing the child. Education needs to involve structured and predictable routines and schedules, motivation via special interests, help with interpretation of common social rules, feedback and support in case of inappropriate emotional responses, and eventual career counseling with the goals of as much autonomy and quality of life as possible.

There exist a variety of behavioral modification programs. *Early intensive behavioral intervention* (*EIBI)* is based on intensive home coaching of the child and the parents and is currently one of the most studied treatment programs (Dawson and Burner 2011). The program is highly resource-demanding, involving 20 or more weekly hours of intervention over 2 or more years (Vismara and Rogers 2010).

Children with higher functioning may benefit from cognitive-behavioral therapy (Wood et al. 2014) which is indicated in the presence of comorbid OCD or anxiety disorders (Russell et al. 2013; Sukhodolsky et al. 2013). While there is no specific medication for autism, pharmacologic treatment can be helpful for symptoms such as frequent severe rage attacks or extreme rigidity (McPheeters et al. 2011; Sharma and Shaw 2012) and for treatment of comorbid conditions. ADHD is comorbid in approximately 60–85% of children with ASD and may improve with stimulants or atomoxetine (Harfterkamp et al. 2013) albeit with a lower overall response rate (50%) and more frequent side effects, in comparison with children with only ADHD (Mahajan et al. 2012).

Schizophrenia and Other Psychotic Disorders

Vignette 3.7

David was referred for a pediatric evaluation at the age of 15 years because his parents became more and more concerned about a change in his usual behavior. The teacher had informed the parents that he was often absent during the last months of school. At home, the mother noticed that he often went to his room for reading, and he withdrew from family chores. David had always been a bright boy. His teacher described him as being a bit introverted, but he achieved good grades and played keyboard in a band founded by him and some friends. At the time of evaluation, he took seldom the initiative to go out with his friends. Even the playing sessions with the band became less frequent, as he produced excuses as to why he was not able to join. When mother asked for his view about these behavior changes, he mentioned that it was more important for him to read about philosophy and religion and that he could follow up his school lessons even when he was absent. Sometimes he would talk extensively about the deeper meaning behind a picture or something he had read in a book in a way parents did not understand at all. Parents reported one incident where he had attacked his father with a fork during a minor dispute, without being able to explain or apologize for his behavior. On assessment, when asked about unusual auditory or visual experiences, he explained that sometimes he heard annoying voices criticizing him or telling him to perform a certain action.

Heading

The general symptoms of a psychotic condition are confusion, characterized by an inability to distinguish between what is real and what is not and difficulties with the regulation of thoughts, feelings, and behavior. DSM-5 lists the five key symptoms of psychotic disorders: (1) delusions, (2) hallucinations, (3) disorganized speech, (4) disorganized or catatonic behavior, and (5) negative symptoms. To make a diagnosis of schizophrenia, two of these five symptoms, with at least one among the first

three in the list, are required. Disorganized behavior implies confused, disordered, and/or illogical thinking and sometimes bizarre behavior. Catatonia includes muscular rigidity, fixed posturing, persistent speechlessness, repetitive behaviors, and insensitivity to pain. Negative symptoms include affective flattening (e.g., decrease in the ability to express emotions), poverty of speech (e.g., brief or empty replies), and inability to initiate and persist in goal-directed activities (e.g., little interest in daily activities, such as personal hygiene, school, or pleasurable activities). The onset of psychosis leads usually to functional impairment, which can sometimes be subtle or gradual.

It can be difficult to discern delusions in children, as their perception of reality depends on developmental stage. Before the age of 4 or 5 years, children may not be able to differentiate between imagination and reality. Even older children might have such confusion in stressful situations or during play, without being psychotic. Psychotic symptoms occur in many conditions such as borderline personality disorder, severe depression, bipolar disorder, or following severe trauma. The most common types of psychoses in children are schizophrenia and bipolar disorder with psychotic features. The latter is classified as a mood disorder , but in young people, bipolar disorder often has its onset with psychotic symptoms. The prevalence of schizophrenia in the general population is about 1%, but the disorder is rarely diagnosed in children or adolescents, as symptoms usually first appear in early adulthood. However, the frequency increases with age, and a premorbid condition characterized by nonspecific psychiatric symptoms, for example, problems in relationships, school performance, social functioning, and motivation, may be present long before onset of the disorder. Early diagnosis is crucial, as early treatment may improve the prognosis.

In rare cases, for example, following extremely difficult life experiences, a child may develop a psychotic condition over a short period of time. “Brief psychotic disorder” is defined in the DSM-5 (APA 2013) as the presence of one or more psychotic symptoms with a sudden onset, absence of a mood or substance-induced disorder, and remission within 1 month. The prognosis for this type of psychosis is better than for the schizophrenia spectrum disorders (Remberk et al. 2014).

First-line healthcare services should be able to recognize symptoms suspicious of psychosis and to refer for specialized healthcare services without delay. A careful history, including family history, is the most important assessment tool, along with questionnaires like the *Positive and Negative Syndrome Scale (PANSS)* (Kay et al. 1987) or the *Brief Psychiatric Rating Scale (BPRS*) (Overall and Pfefferbaum 1982) which may be helpful in unclear cases. Other serious medical conditions such as metabolic disorders, intoxications, tumors, infections, or other central nervous system injuries should be ruled out prior to a diagnosis of primary psychosis.

Treatment involves a combination of psychosocial and pharmacological interventions. Psychoeducation is obligatory, and CBT might be helpful to reduce psychotic symptoms (Browning et al. 2013). Treatment with antipsychotic medication should start early in order to reduce the development of motor, speech, social, and cognitive problems (Kranzler and Cohen 2013). Side effects often include obesity and metabolic syndrome. Therefore, the advantages of medications should be care-

fully and individually weighed against the potential side effects. While the long-term prognosis of the disorder is variable, a recent meta-analysis of schizophrenia outcome in all ages showed recovery in one in seven (Jaaskelainen et al. 2013).

Substance Use Disorders

Vignette 3.8

Three years later, you see David (from Vignette 3.7) in follow-up. He is doing better on antipsychotic medications and has entered a liberal arts program at a junior college. In response to your usual screening questions, he endorses that he uses marijuana "around two or three times per month," though denies any other substance use, including cigarettes and alcohol. He reports that the few friends that he has made "sometimes use it to calm their nerves," and he wonders if it is okay for him.

CNS-active drug use to alter consciousness is probably as old as mankind itself. In most human cultures (and even in some animal cultures), individuals have developed an amazing ingenuity to discover and to alter natural substances for this purpose. Mainly, this search seems to be motivated by religious or spiritual needs, but other incentives may include a desire to escape reality, to show one's belonging to a subculture, or to experience pleasure. In religious practices, the relation between reality and hallucinations might even be reversed: Indigenous Jivaro people from the Ecuadorian Amazon traditionally believed that the normal waking life is simply an illusion, while the true reality and the forces that determine daily events are supernatural and can only be seen and manipulated with the aid of hallucinogenic drugs (Harner 1973). Differentiation between use and misuse is not always easy and must be done in the context of religious and cultural values, traditions, and beliefs. Misuse involves excessive use leading to substantial harm and an inability to refrain from the drug because of craving, even when the user understands that the use causes damages. A common denominator for substance-related disorders is a compromised reward system: overactivated brain stress systems and compromised orbitofrontal/prefrontal cortex function, leading to intense activation of the brain reward system by drugs that are taken so excessively that normal activities are neglected (Koob 2006).

DSM-5 (APA 2013) distinguishes between substance-induced intoxication, withdrawal, and other disorders induced by substances. In addition, it identifies ten drug classes: alcohol; caffeine; cannabis; hallucinogens; inhalants; opioids; sedatives, hypnotics, and anxiolytics; stimulants (e.g., amphetamine-type substances, cocaine); tobacco; and other or unknown substances. However, substance use disorder does not yet specifically apply to caffeine, as it is not clear whether excessive caffeine use is a clinically significant disorder, and it is included only to encourage further research. The diagnosis of a substance use disorder – which would be important to assess for in the case above – is based upon four criteria related to the use of one or more of the listed substances: (1) impaired control, e.g., spending excessive

time on substance use or using larger amounts than intended and being unable to reduce the use because of intense cravings that make it difficult to think about anything else; (2) social impairment including work or school absences, poor school performance, and interpersonal problems leading to loss of contact with family members or important friends; (3) risky use, including use in dangerous situations such as while operating machinery or driving a car; and (4) pharmacological symptoms such as tolerance (need to increase the amount to achieve the same effect) and withdrawal symptoms after abrupt cessation. To make a diagnosis of substance use disorder, at least two of these criteria must be present. The DSM-5 chapter of substance use-related disorders also includes gambling disorder, reflecting the similarities between these disorders in terms of clinical symptoms, involvement of the brain's reward system, comorbidity, and treatment.

Most of the psychiatric disorders discussed in this chapter (with the exception of autism) occur frequently together with substance use disorders, leading to so-called dual diagnosis, which implies a mutual influencing relationship: the psychiatric condition can often lead to substance use problems and conversely, using substances can trigger or worsen a psychiatric condition. Most studies on dual diagnoses are predominantly on adults. One exception is a study from Norway showing that frequent alcohol intoxications in 13–19-year-old youth were associated with anxiety and depressive symptoms among girls and with attention and conduct problems in both genders (Strandheim et al. 2009).

Clinicians should always consider and screen for the possibility of substance use disorder. Screening tools like the easy-to-administer six-item questionnaire *CRAFFT (Knight et al.* 2002*)* might help to nonjudgmentally introduce the topic. Treatment usually needs to broadly address all factors involved and include the family (Stanton and Shadish 1997). During the last decades, empirically supported treatments for adolescent substance use disorders have been developed. Family therapy is the treatment with the strongest evidence for effectiveness, although most types of treatment appear to be beneficial in helping adolescents to reduce their substance use (Tanner-Smith et al. 2013). However, long-term outcome is hampered by the high frequency of relapse, which may be, in part, driven by high rates of comorbidity with other psychiatric disorders (Hulvershorn et al. 2015).

Conclusion

Using illustrative case vignettes, this chapter provides an overview of common child and adolescent psychiatric disorders from the perspective of general pediatric practice. The chapter underlines the role of pediatric psychosomatic medicine as a mediator between psychiatric, medical, and psychosocial disorders and comorbidities that have an impact on healthcare outcomes, not only during childhood and adolescence but also throughout the lifespan.

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