



Researchers, such as Jean Piaget, helped to increase interest in child psychopathology in the early twentieth century.

disorders, children were neglected in the early versions of the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* and specific childhood diagnoses were not included until as recently as the *DSM-III* (American Psychiatric Association [APA], 1980). There was considerable modification to the childhood diagnoses in the *DSM-III-R* (APA, 1986) and fine-tuning in the *DSM-IV* and its text revision *DSM-IV-TR* (APA, 1994; 2000).

The latest edition, the *DSM-5*, has resulted in the fine-tuning of diagnostic criteria for childhood disorders and several new diagnostic categories (APA, 2013). However, the main change from the perspective of diagnosing conditions during childhood is a major restructure of condition categories. In previous editions of the *DSM*, childhood conditions were listed under the category of ‘Disorders Usually First Diagnosed in Infancy, Childhood or Adolescence’. However, in the *DSM-5* this category is no longer included. Thus, while many of the disorders from previous editions of the *DSM* have been retained in the *DSM-5*, childhood disorders now appear under different headings throughout the manual. This reorganisation, in which no clear distinction is made between disorders in children versus adults, may fail to sufficiently take into account childhood manifestations of psychological disturbance. However, this concern is somewhat

alleviated by the fact that the new structure does follow a developmental lifespan approach, which may assist in conceptualising the placement of childhood disorders. Specifically, this approach focuses on how development affects the diagnosis and symptoms of mental disorders, including factors such as the age at which disorders first occur, how symptoms and diagnoses change across the lifespan and how disorders might evolve into new disorders over the course of the lifespan.

Another diagnostic tool in the field of mental health problems in children is the *DC:0–3* system. The *Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (DC:0–3R)* (Zero to Three, 1994; 2005) was the first developmentally based system for diagnosing mental health and developmental disorders in infants and toddlers, thus comprising a downward extension of the *DSM* to this young age group. Its diagnostic categories reflect the consensus of a multidisciplinary group of experts in early childhood development and mental health. While it has many of the same problems as the *DSM*, and currently has limited empirical support, it provides a framework for examining very early difficulties, has an important focus on parent–infant relationships, and highlights the potential continuity of childhood psychological problems from the early to later years of childhood and beyond.

In contemporary diagnostic approaches, the most common forms of psychological disorders in children can be categorised as either externalising (under-controlled; behaviours directed at others) or internalising (over-controlled; feelings and states that are inner-directed) (Reynolds, 1992). Unlike the externalising disorders, the diagnostic criteria for many of the internalising disorders in children are the same as those for adults, with only minor modifications. Table 10.2 provides a list of the *DSM-5* diagnostic categories for disorders usually first diagnosed in infancy, childhood or adolescence. While many children who experience considerable problems may not meet diagnostic criteria for a disorder, such children and their families

TABLE 10.2 The diagnostic categories relevant to infancy, childhood or adolescence in the *DSM-5*

Neurodevelopmental disorders	Intellectual disability (intellectual developmental disorder)	Intellectual disability (intellectual developmental disorder) Mild Moderate Severe Profound Global developmental delay Unspecified intellectual disability (intellectual developmental disorder)
	Communication disorders	Language disorder Speech sound disorder Childhood-onset fluency disorder (stuttering) Social (pragmatic) communication disorder Unspecified communication disorder
	Attention-deficit/hyperactivity disorder	Attention-deficit/hyperactivity disorder Combined presentation Predominantly inattentive presentation Predominantly hyperactive/impulsive presentation Other specified attention-deficit/hyperactivity disorder Unspecified attention-deficit/hyperactivity disorder
	Specific learning disorder	With impairment in reading With impairment in written expression With impairment in mathematics
	Autism spectrum disorder	
	Tic disorders	Tourette's disorder Persistent (chronic) motor or vocal tic disorder Provisional tic disorder Other specified tic disorder Unspecified tic disorder
	Motor disorders	Developmental coordination disorder Stereotypic movement disorder
	Other neurodevelopmental disorders	Other specified neurodevelopmental disorder Unspecified neurodevelopmental disorder
Anxiety disorders	Separation anxiety disorder Selective mutism	
Depressive disorders	Disruptive mood Dysregulation disorder	
Trauma- and stressor-related disorders	Reactive attachment disorder Disinhibited social engagement disorder	
Feeding and eating disorders	Pica Rumination disorder Avoidant/restrictive food intake disorder	
Elimination disorders	Enuresis Encopresis Other specified elimination disorder Unspecified elimination disorder	
Gender dysphoria	Gender dysphoria in children	
Disruptive, impulse-control and conduct disorders	Oppositional defiant disorder Conduct disorder	

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nevertheless need assistance and support, and efforts should be made to prevent the chances of problems worsening over time. In fact, one of the main criticisms of the *DSM-5* is that it does not take into account the dimensional nature of many childhood conditions, therefore, potentially reducing access to services for those who are experiencing problems but not yet of sufficient severity to meet the diagnostic criteria (e.g., British Psychological Society, 2012).

The field of developmental psychopathology emerged in the mid-1980s, focusing on a lifespan approach and combining data and research from normal and clinical samples (Cicchetti, 1993; Sroufe, 1990). This approach emphasises the need to examine child behaviour and adjustment across development and to examine both normal and abnormal development to gain a clear picture of the precursors and course of psychological difficulties. It also focuses on understanding development in context, nestled within multiple environmental influences (Bronfenbrenner, 1979).

Intervention approaches for managing childhood disorders have also come to the forefront in recent decades, with a seminal **meta-analysis** by Weisz, Weiss, Alicke, and Klotz (1987) providing evidence for the effectiveness of psychological treatments with children. There is now considerable support for childhood interventions, particularly for behavioural family interventions (Weisz, Doss, & Hawley, 2005; Weisz & Gray, 2008).

meta-analysis
Statistical
technique for
summarising results
across several
studies.

LO 10.3

Neurodevelopmental disorders

The *DSM-5* includes a category of conditions referred to as the ‘neurodevelopmental disorders’. These conditions are characterised by their emergence in the early developmental period, often before the child commences school. These disorders cover a broad array of developmental deficits that affect the individual’s personal, social, academic and/or occupational functioning. In this section, the neurodevelopmental disorders of attention-deficit/hyperactivity disorder, specific learning disorder, autism spectrum disorder and intellectual disability will be dealt with in turn.

THE DIAGNOSIS AND EPIDEMIOLOGY OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

Attention-deficit/hyperactivity disorder (ADHD) is defined by symptoms of (a) inattention and/or (b) hyperactivity and impulsivity (APA, 2013). Inattention includes symptoms such as not paying attention to task details or making careless mistakes, having difficulty sustaining attention over time, being easily distracted and being forgetful. Hyperactivity symptoms include fidgeting, moving about excessively and not being able to stay seated. Impulsivity includes difficulties with waiting turn, blurting out answers or interrupting. While most children diagnosed with ADHD show symptoms of both inattention and hyperactivity/impulsivity, some show a pattern of predominantly one type of symptom (Ford, Goodman, & Meltzer, 2003). Thus, ADHD can be diagnosed as combined presentation, predominantly inattentive presentation or predominantly hyperactive/impulsive presentation.

When making a diagnosis of ADHD, it is necessary to conduct a comprehensive assessment to ensure that the symptoms occur across settings (e.g., both at home and at school). The child’s developmental stage also needs to be taken into account when making a diagnosis. For example, the abilities to stay focused for longer periods of time and to restrain oneself from acting on an impulse develop with age. A certain level of distractibility and impulsivity is evident in all children and it is important to be aware of developmental norms when making a diagnosis. Indeed, the fact that distractibility and impulsivity are normal for all children, particularly at certain ages, is one factor that fuels media reports challenging the validity of the ADHD construct. This challenge and the response of the scientific community are shown in Table 10.3.

TABLE 10.3 The conflicting positions of media reports and an international consensus statement on ADHD (signed by more than 80 scientists) regarding the validity of the ADHD construct

<p>Media reports</p> <p>ADHD is frequently explored in the media and there is a wide array of often inaccurate information presented, leading many to question whether ADHD really exists and whether children are being overmedicated. Some suggest that the symptoms of ADHD are simply normal child behaviours that are, however, annoying to parents and teachers, and are therefore categorised as a disorder.</p>
<p>International consensus statement on ADHD</p> <p>We, the undersigned consortium of international scientists, are deeply concerned about the periodic inaccurate portrayal of attention deficit hyperactivity disorder (ADHD) in media reports. This is a disorder with which we are all very familiar and toward which many of us have dedicated scientific studies if not entire careers. We fear that inaccurate stories rendering ADHD as a myth, fraud, or benign condition may cause thousands of sufferers not to seek treatment for their disorder. It also leaves the public with a general sense that this disorder is not valid or real or consists of a rather trivial affliction . . . We cannot overemphasise the point that, as a matter of science, the notion that ADHD does not exist is simply wrong. All of the major medical associations and government health agencies recognise ADHD as a genuine disorder because the scientific evidence indicating it is so overwhelming.</p>

Source: From Consortium of International Scientists (2002). International consensus statement on ADHD. *Clinical Child and Family Psychology Review*, 5, 89–111.

In addition, there are gender differences in ADHD symptomatology, with girls showing less hyperactivity, inattention, impulsivity and externalising problems (Gershon & Gershon, 2002; Hasson & Fine, 2012) but showing more intellectual impairments and internalising problems (Gershon & Gershon, 2002) compared to boys.

In population surveys, the rate of ADHD is approximately 2 per cent, with higher numbers of boys than girls meeting criteria (Ford, Goodman, & Meltzer, 2003). Surveys in preschoolers have suggested rates as high as 8.8 per cent (Lavigne et al., 2009). ADHD usually begins in early childhood, although it can also develop during adolescence. In general, ADHD appears to diminish with increasing age, but in some cases there is a continuation of symptoms into adulthood (Willoughby, 2003). While the pattern of symptoms in adults with ADHD is similar to that of children, there are some differences. For instance, symptoms of ADHD in adults may include having difficulty completing mundane tasks and procrastination. There is a high level of comorbidity between ADHD and oppositional defiant disorder (Petty et al., 2009).

THE AETIOLOGY OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER

Factors contributing to the development of attention-deficit/hyperactivity disorder include genetics, and family and parenting variables. Controversially, some parents and professionals point to diet as a contributing factor.

GENETIC CONTRIBUTION

There is a considerable genetic contribution to the development of ADHD (Levy, Hay, & Bennett, 2006). This inherited vulnerability may entail some form of neuropsychological impairment, which has been posited as the key factor underlying ADHD (Nigg, 2005).

In terms of neuropsychological deficits, a large body of research has found deficits in **executive functions** among children with ADHD relative to both healthy children and children with conduct disorder (suggesting that these deficits are specific to ADHD rather than to externalising disorders generally) (Nigg, 2005; Wählstedt, Thorell, & Bohlin, 2009). Executive functions include the skills of goal-setting, planning how to achieve goals, and monitoring one's behaviour while pursuing the goal (e.g., being able to maintain, switch and stop behaviours as required to achieve the goal). Examples of common cognitive tests used to assess executive functions in children with ADHD are shown in Table 10.4. Brown (2006) suggests that while executive function problems underpin ADHD, different aspects may be a problem in different individuals.

executive functions

Functions of the brain that involve the ability to sustain attention; use abstract reasoning; plan, initiate and monitor goal-directed behaviours; and shift from maladaptive patterns of behaviour to more adaptive ones.

TABLE 10.4 Common cognitive tests used to assess executive functions in children with ADHD

TASK	DESCRIPTION
Stop task	Two stimuli (e.g., an 'X' and an 'O') are presented with equal probability via a computer. The child is required to press an appropriate key as quickly as possible when the stimulus is detected. However, on approximately one-quarter of the trials, a signal (such as a tone) is given indicating that the child should not respond. The timing of the signal is varied to measure how much warning a child needs to inhibit the key-pressing response.
Trailmaking	There are two versions: Trails A and B. In Trails A the child draws a line to connect a series of letters (A-B-C-D etc.) scattered randomly on the page. Trails A provides a baseline measure of the child's speed of processing. In Trails B, the child must alternate between letters and number sequences (A-1-B-2-C-3 etc.). The difference in the time taken to complete Trails A and B is used to measure the child's ability to shift between different tasks (i.e., alternating between following a letter sequence and following a number sequence).
Mazes	The child is asked to draw a line demonstrating the way out of a maze on a sheet of paper while attempting to avoid entering any blind alleys. The task is designed to assess the child's planning ability (i.e., the use of foresight to choose appropriate options and reject inappropriate ones).

Source: Adapted from Nigg, J. T. (2005). Neuropsychologic theory and findings in attention-deficit/hyperactivity disorder: The state of the field and salient challenges for the coming decade. *Biological Psychiatry*, 57, 1424–1435.

Furthermore, he proposes that the problems lie with the switching on and off of these executive functions (such as beginning to focus attention) rather than with the function itself (such as not being able to focus attention at all). This is consistent with the fact that individuals with ADHD often report that they are able to attend to a task as long as it is something that interests them. In other words, the deficit is not in the function itself but whether it is appropriately activated or inhibited. In addition to impaired executive functions, autonomic under-arousal (similar to adolescents and adults with externalising disorders) has been seen in ADHD preschoolers (Crowell et al., 2006). Also, children with ADHD appear to have a lower response to reinforcement, meaning that they may need stronger motivators to alter their behaviour (Luman, Oosterlaan, & Sergeant, 2005).

FAMILY AND PARENTING VARIABLES

Many of the underlying family and parenting variables contributing to oppositional defiant disorder and conduct disorder are also present for children with ADHD. While there appears to be a stronger biological contribution to ADHD compared to these other conditions, children's behaviour is nevertheless influenced by their environment, and interventions for ADHD targeting both biological and parenting factors tend to be more effective than those targeting biological factors alone. In particular, parental inconsistency and lack of involvement have been associated with ADHD symptomatology (Ellis & Nigg, 2009).

DIET

There has been much controversy surrounding the possible impact of diet on behaviour problems in children, and ADHD in particular. Many parents and professionals believe that diet—particularly artificial additives—have a causal influence on ADHD. It has been argued that the consumption of artificial sweeteners, colours and preservatives contributes to children becoming more hyperactive. In response to this view, many parents have tried a variety of diets, called elimination diets, whereby certain foods or substances are first eliminated and then gradually reintroduced into the child's diet to determine their role in producing symptoms. For instance, the Feingold diet is a food elimination program developed by the paediatrician Benjamin Feingold to treat symptoms of hyperactivity. The diet consists of eliminating a number of artificial colours and flavours, aspartame (an artificial sweetener), some preservatives and certain salicylates (found in a wide range of foods and beverages).

While there is evidence that for some children certain dietary constituents may contribute to symptoms of ADHD (Pelsser et al., 2009; 2011), in general the evidence points to other causal factors. The results of a randomised controlled trial found no specific effect of food colourings and preservatives on ADHD symptoms on objective clinic assessments of symptoms (Bateman et al., 2004). However, despite this finding, some parents still reported differences in their child's behaviour with alterations in diet. A recent meta-analysis found some support for artificial food colour exclusion diets as well as for fatty acid supplementation but noted that the effects were small and that particularly for trials of exclusion diets, children were selected on the basis of pre-existing food sensitivities (Sonuga-Barke et al., 2013). This is a relatively new field of research and it is likely that as more data becomes available, better guidelines for individual children will enable tailoring of individual treatment plans.

PHARMACOLOGICAL APPROACHES

Drug therapy is a common approach to the management of children with externalising disorder and ADHD, however, research has primarily focused on children with a diagnosis of ADHD where psychostimulant medications (e.g., ritalin) have been extensively used and shown to be effective with at least some children. For decades, stimulant medications such as methylphenidate (ritalin) and dextroamphetamine sulfate (dexedrine) have been the most common drugs used in the treatment of ADHD. These stimulants increase the availability of dopamine and have been found to reduce the overactivity, impulsivity and inattention characteristic of individuals with ADHD as well as improving associated behaviours such as academic performance and social functioning. However, the use of pharmacological approaches calls for caution due to the long-term outcomes of medication trials, such as the Multimodal Treatment of ADHD (MTA) trial (Molina et al., 2009). The prevailing opinion for the use of medication for children with ADHD recommends a conservative approach whereby drugs are used only in combination with some form of psychosocial treatment. Drug therapy provided in the absence of any psychosocial intervention is rarely considered an adequate treatment.

SPECIFIC LEARNING DISORDER

A **specific learning disorder** is diagnosed when a child's academic achievement is below what is expected given his/her chronological age and is not accounted for by intellectual disability. Academic achievement is usually assessed through standardised testing in areas such as reading, mathematics or written language. Learning disorders include subtypes of reading, mathematics and written expression. The reading subtype is the most common learning disorder and will be described in this section.

THE DIAGNOSIS AND EPIDEMIOLOGY OF READING DISORDER

Reading disorder is characterised by difficulties in reading accuracy, fluency and comprehension that are unexpected in relation to the child's chronological age. To be diagnosed with the disorder, these reading problems must not be the result of general developmental disability, intellectual disability, sensory impairment (e.g., vision problems) or access to appropriate education or sociocultural opportunities (Breier et al., 2001).



DAL

It has been argued that the consumption of artificial sweeteners, colours and preservatives contributes to ADHD, although more research is needed to evaluate this hypothesis.

specific learning disorder a disorder of learning characterised by lower than expected performance in a particular area of learning relative to the child's chronological age and intellectual ability.

reading disorder Learning disorder involving deficits in reading ability.

Reading disorder is one of the most common childhood disorders, with a prevalence rate of between 4 and 7 per cent (Snowling, 1998). Once established, the condition has a considerable degree of stability, with a study by Smart, Sanson, and Prior (1996) finding little evidence of spontaneous recovery over a two-year period in 7–8 year-old children with the disorder. In addition, the evidence suggests that persistent reading disorder results in poor school grades, early school leaving and limited employment opportunities (McGee, Share, Moffitt, Williams, & Silva, 1998). Without intervention, there are costly and long-ranging negative outcomes for both individuals and society (Smart et al., 1996).

There is a high degree of overlap between reading disorder and behaviour problems, with the literature focusing on a possible aetiological connection between reading disorder and ADHD in particular. The comorbidity between reading disorder and ADHD is between 15 and 45 per cent, depending on the study (Purvis & Tannock, 2000). In general, the results of studies are consistent with the hypothesis that the behaviour problems of most children with reading disorder arise as a consequence of failure to learn rather than ADHD contributing to the development of reading problems.

THE AETIOLOGY OF READING DISORDER

There is some evidence for the **heritability** of reading disorder (Wadsworth, Olson, Pennington, & DeFries, 2000). For example, there is a 50 per cent probability of a boy being reading disabled if his father was reading disabled (Snowling, 1998).

There is little evidence for the idea that low general cognitive ability accounts for the development of reading disorder. Similarly, while low language ability may account for some children's reading difficulties, it may also be a consequence of poor reading ability (McGee, Williams, Moffitt, & Anderson, 1989). In contrast to general cognitive and language skills, research suggests that deficits in phonological awareness, working memory and the speed of processing written language may contribute to the development of reading disorder (Purvis & Tannock, 2000), each of which will be considered in turn.

Phonological awareness entails understanding the sound structure of one's oral language (Malicky & Norman, 1999). Phonological limitations may lead to inefficiencies in working memory, with working

memory defined as a processing resource of limited capacity involved in the preservation of information while simultaneously processing the same or other information (Swanson & Berninger, 1995). Specifically, difficulties in phonological decoding may simply take up too much of the available working memory, and hence lead to inefficient processing of other components of reading (such as comprehending the words) (Brady, 1991).

Deficits in working memory may themselves be a possible cause of reading disorder. For example, in order to read an unfamiliar word, the child needs to sound out the word and, holding all the individual sounds in working memory, put them together to read the entire word as one. If the child's working memory is deficient, the process of holding all the parts of the word and then putting it together becomes much more difficult. In support of the role of working memory deficits in reading disorder, impairments in verbal working memory have been found to be significantly higher in children with reading disorder (Willcutt et al., 2001).

In addition to phonological awareness and working memory, limitations in the speed of processing written

heritability
Percentage indicating the degree to which genes contribute to the development of a disorder.



DAL

The treatment of reading disorder is effective for most children of early primary school age.

language may be a third component in the aetiology of reading disorder. Written language processing speed refers to the time taken to read aloud words presented in the form of lists (Simon, Joshi, & Williams, 1999). A review by Compton and Carlisle (1994) identified word reading speed, particularly in non-word reading (e.g., 'bim' or 'sluck'), as an important factor in differentiating problem readers from normal readers. Slow word recognition creates a bottleneck in the information-processing system, where the reader's attention is largely devoted to the identification, rather than the understanding, of words.

A number of studies have indicated that the most effective interventions in reading and writing combine both phonological (i.e., sounding out words) and strategy-based (i.e., whole-word reading) approaches. It has been found that reading skills continue to improve well into adolescence if students with a reading disorder pursue opportunities that promote further development of basic literacy skills (Gillon & Dodd, 1997). In a review of intervention studies, Torgesen (2000) found that more than 50 per cent of children most at risk for reading failure can be helped to learn at approximately normal rates in early primary school, and that only 3–6 per cent do not respond at all.

AUTISM SPECTRUM DISORDER

A major change in the *DSM-5* is the consolidation of four previously separate disorders (autistic disorder, Asperger's syndrome, childhood disintegrative disorder and pervasive developmental disorder not otherwise specified) into a single disorder, labelled autism spectrum disorder. This change reflects a consensus in the literature that the previous categories were often difficult to distinguish. Autism spectrum disorder is characterised by marked impairments in social communication and social interaction as well as repetitive behaviours, interests and activities.

THE DIAGNOSIS AND EPIDEMIOLOGY OF AUTISM SPECTRUM DISORDER

Symptoms characteristic of autism spectrum disorder include qualitative impairments in social interaction and social communication such as deficits in social-emotional reciprocity (i.e., the ability to engage with others and share thoughts and feelings), abnormalities in eye contact or an absence of interest in peers. As well as impairments in social interaction and communication, the disorder is also characterised by repetitive and restricted patterns of behaviour. These may entail preoccupation with a specific activity such as collecting football statistics, an insistence on sameness in routines or motor mannerisms such as body-rocking. Severity levels are also defined (as shown in Table 10.5), which are designed to assist in making decisions about the level of support required for children.

Children with autism spectrum disorder are defined by two essential core deficits. First, these children have social communication problems in the form of deficits in social-emotional reciprocity and difficulty comprehending non-verbal communication (Tanguay, 2000). Second, children with this disorder demonstrate deficits in 'theory of mind', which is the understanding that others have a perspective that differs from their own (Baron-Cohen, 1995). These core deficits in communication and theory of mind lead to difficulties in social interaction. For example, infants and young children with autism spectrum disorder fail to engage in non-verbal social interactions such as joint attention, which entails the coordination of attention between the infant, another person and an object (McArthur & Adamson, 1996). They also often have great difficulty in entering play situations and engaging in cooperative play (Paul, 2003). These children are often withdrawn and do not engage in social interactions with others.

There was a wide range of reports regarding the prevalence of the *DSM-IV* autism and related disorders (between 1 in 2000 and 1 in 250), which appeared to stem from variation in the screening methodology, diagnostic criteria and the samples used across studies (Tanguay, 2000). These discrepancies in the prevalence rates was one of the reasons for consolidating the different disorders under the single autism spectrum disorder diagnosis. The prevalence of autism spectrum disorder appears to be about 1 per cent (Baron-Cohen et al., 2009). Boys outnumber girls by approximately 2:1 (Szatmari, Jones, Zwaigenbaum, & MacLean, 1998). An alarming rise in the prevalence of autism has been reported in the media, as discussed below.

TABLE 10.5 Autism spectrum disorder severity levels

SEVERITY LEVEL	SOCIAL COMMUNICATION	RESTRICTED, REPETITIVE BEHAVIOURS
Level 3 'Requiring very substantial support'	Severe deficits in verbal and non-verbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when they do, makes unusual approaches to meet their needs only and responds to only very direct social approaches.	Inflexibility of behaviour, extreme difficulty coping with change, or other restricted/ repetitive behaviours that markedly interfere with functioning in all spheres. Great distress/ difficulty changing focus or action.
Level 2 'Requiring substantial support'	Marked deficits in verbal and non-verbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests and who has markedly odd non-verbal communication.	Inflexibility of behaviour, difficulty coping with change or other restricted/repetitive behaviours appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.
Level 1 'Requiring support'	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions and clear examples of atypical or unsuccessful responses to the social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to-and-fro conversation with others fails and whose attempts to make friends are odd and typically unsuccessful.	Inflexibility of behaviour causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organisation and planning hamper independence.

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IS THERE AN AUTISM EPIDEMIC?

Recent media reports suggest that more and more children are being diagnosed with autism, and questions have been raised about what leads to this 'epidemic' of autism. Is there something about our society that makes more children develop autism? Everything from food additives to vaccines to various toxins in the environment has been suggested, but none has shown any links to the development of autism. International data suggest a rise in prevalence. For example, between 2002 and 2006 the US Centers for Disease Control and Prevention found a 57 per cent rise in prevalence of autistic spectrum disorders (Centers for Disease Control and Prevention, 2009). This rise in prevalence is most likely due to changes in diagnostic criteria and increased awareness rather than an actual increase in these disorders (Bishop, Whitehouse, Watt, & Line, 2008; Fombonne, 2003), as well as more consistency in how diagnoses are applied (Williams et al., 2005).

Approximately 75 per cent of children with autism spectrum disorder have a poor outcome (including a lack of independent living and unemployment), while the remainder have a good outcome (Tidmarsh & Volkmar, 2003). Predictors of good outcome include the acquisition of language skills before age 6, IQ levels above 50 and having an area of greater strength (e.g., some level of skill in mathematics or music).

THE AETIOLOGY OF AUTISM SPECTRUM DISORDER

There is evidence of a genetic vulnerability for autism and there is about a 60 per cent **concordance rate** for autism in monozygotic twins, meaning that in more than half of cases if one twin is affected the other is also likely to show symptoms of autism (Bailey, Le Couteur, Gottesman, & Bolton, 1995). No specific genes have been identified to date and it is thought that a number of genes act in combination to raise vulnerability for autism spectrum disorder.

A range of other biological factors have been proposed as contributing to autism spectrum disorder. **Prenatal** and **perinatal** insults (such as maternal ill-health during pregnancy) can increase the risk of the disorder. However, the involvement of dietary explanations (e.g., the recommended use of wheat- or milk-free diets to prevent autism

concordance rate Probability that both members of a twin pair will develop the same disorder.

prenatal The period occurring before birth.

perinatal The period occurring around the time of birth.

spectrum disorder) has not been supported (Volkmar, Cook, Pomeroy, Realmuto, & Tanguay, 1999). Nor is there support for the idea that the disorder is caused by vaccination (Immunization Safety Review Committee, 2004). A small study published in 1998 raised the question of a causal role for the measles-mumps-rubella combination vaccine in the development of autism (Wakefield et al., 1998). However, other studies have consistently found no support for the link between vaccination and autism, and the paper was retracted by *The Lancet*.

Another possible causal factor for autism spectrum disorder, including the social and emotional problems that characterise the disorder, is extremely severe social deprivation. For instance, a study of Romanian orphans who had been adopted in the United Kingdom, conducted by O'Connor, Bredenkamp, and Rutter (1999), found a higher than expected prevalence rate of autism spectrum disorder. These children had been exposed to severely deprived conditions, both physically and psychologically, including very limited contact with other children and adults, and minimal emotional support from carers. This deprivation is thought to have led to the occurrence of autism spectrum disorder in some of these children. Such extreme circumstances, however, cannot account for the majority of cases of the disorder.

THE TREATMENT OF AUTISM SPECTRUM DISORDER

Early intervention for children with autism spectrum disorder is very important to ensure the highest level of adaptation and functioning possible (Rogers, 1996). The aim of interventions is to help the child develop better social and emotional relationships, learn better communication skills, and to decrease stereotypic behaviours such as head banging.

Behaviour modification programs have been found to be effective in improving the functioning of children with autism spectrum disorder. These begin with an analysis of the child's environment to assess the environmental conditions and contingencies that can be used to help the child acquire skills. Based on this assessment, reinforcement procedures for increasing desirable behaviour and reducing undesirable behaviour are implemented (Volkmar et al., 1999). Behavioural interventions can significantly facilitate the acquisition of language and other skills (Koegel, Koegel, Hurley, & Frea, 1992) and assist parents in coping with the child's behaviour (Schreibman, Kaneko, & Koegel, 1991). Pharmacotherapy may also be combined with behavioural treatment, although the research on medication for the treatment of autism is limited. Pharmacotherapy may be used to target specific problems such as aggression towards the self or others, irritability, hyperactivity and repetitive behaviour (Masi, 2004).

INTELLECTUAL DISABILITY

Intellectual disability comprises a heterogeneous group of disorders with multiple causes, all of which involve deficits in intellectual functioning and adaptive functioning.

THE DIAGNOSIS AND EPIDEMIOLOGY OF INTELLECTUAL DISABILITY

The previous edition of the *DSM* referred to intellectual disability as mental retardation (APA, 2000). In the *DSM-5* (APA, 2013), intellectual disability comprises:

- deficits in intellectual functioning such as reasoning, problem solving, planning, abstract thinking, judgment, academic learning and learning from experience. These deficits are determined in part by the individual's performance on an intelligence test, with scores below 65–75 falling within the intellectually disabled range
- deficits in adaptive functioning that result in a failure to meet developmental and sociocultural standards for personal independence and social responsibility. Table 10.6 provides information on the different severity levels of intellectual disability based on impaired adaptive functioning
- the onset of these deficits in intellectual and adaptive functioning in childhood.

The adaptive functioning skills are assessed by structured tests, most commonly the Vineland Adaptive Behaviour Scale. This instrument assesses the age-appropriate personal and social skills necessary for everyday

intellectual disability A heterogeneous group of disorders with multiple causes, all of which involve deficits in intellectual functioning and adaptive functioning.

TABLE 10.6 The *DSM-5* categories of intellectual disability

SEVERITY LEVEL	CONCEPTUAL DOMAIN	SOCIAL DOMAIN	PRACTICAL DOMAIN
Mild	For preschool children, there may be no obvious conceptual differences. For school-age children and adults, there are difficulties in learning academic skills involving reading, writing, arithmetic, time or money, with support needed in one or more areas to meet age-related expectations. In adults, abstract thinking, executive function (i.e., planning, strategising, priority setting and cognitive flexibility) and short-term memory, as well as functional use of academic skills (e.g., reading, money management), are impaired. There is a somewhat concrete approach to problems and solutions compared with age-matched peers.	Compared with typically developing age-matched peers, the individual is immature in social interactions. For example, there may be difficulty in accurately perceiving peers' social cues. Communication, conversation and language are more concrete or immature than expected for age. There may be difficulties regulating emotion and behaviour in age-appropriate fashion; these difficulties are noticed by peers in social situations. There is limited understanding of risk in social situations; social judgment is immature for age and the person is at risk of being manipulated by others (gullibility).	The individual may function age-appropriately in personal care. Individuals need some support with complex daily living tasks in comparison to peers. In adulthood, supports typically involve grocery shopping, transportation, home and child-care organising, nutritious food preparation, and banking and money management. Recreational skills resemble those of age-matched peers, although judgment related to wellbeing and organisation around recreation requires support. In adulthood, competitive employment is often seen in jobs that do not emphasise conceptual skills. Individuals generally need support to make healthcare decisions and legal decisions, and to learn to perform a skilled vocation competently. Support is typically needed to raise a family.
Moderate	All through development, the individual's conceptual skills lag markedly behind those of peers. For preschoolers, language and pre-academic skills develop slowly. For school-age children, progress in reading, writing, mathematics and understanding of time and money occurs slowly across the school years and is markedly limited compared with that of peers. For adults, academic skill development is typically at an elementary level and support is required for all use of academic skills in work and personal life. Ongoing assistance on a daily basis is needed to complete conceptual tasks of day-to-day life and others may take over these responsibilities fully for the individual.	The individual shows marked differences from peers in social and communicative behaviour across development. Spoken language is typically a primary tool for social communication but is much less complex than that of peers. Capacity for relationships is evident in ties to family and friends and the individual may have successful friendships across life and sometimes romantic relations in adulthood. However, individuals may not perceive or interpret social cues accurately. Social judgment and decision-making abilities are limited and caretakers must assist the person with life decisions. Friendships with typically developing peers are often affected by communication or social limitations. Significant social and communicative support is needed in work settings for success.	The individual can care for personal needs involving eating, dressing, elimination and hygiene as an adult, although an extended period of teaching and time is needed for the individual to become independent in these areas and reminders may be needed. Similarly, participation in all household tasks can be achieved by adulthood, although an extended period of teaching is needed and ongoing supports will typically occur for adult-level performance. Independent employment in jobs that require limited conceptual and communication skills can be achieved but considerable support from co-workers, supervisors and others is needed to manage social expectations, job complexities and ancillary responsibilities such as scheduling, transportation, health benefits and money management. A variety of recreational skills can be developed. These typically require additional supports and learning opportunities over an extended period of time. Maladaptive behaviour is present in a significant minority and causes social problems.
Severe	Attainment of conceptual skills is limited. The individual generally has little understanding of written language or of concepts involving numbers, quantity, time and money. Caretakers provide extensive supports for problem solving throughout life.	Spoken language is quite limited in terms of vocabulary and grammar. Speech may be single words or phrases and may be supplemented through augmentative means. Speech and communication are focused on the here and now within everyday events. Language is used for social communication more than for explication. Individuals understand simple speech and gestural communication. Relationships with family members and familiar others are a source of pleasure and help.	The individual requires support for all activities of daily living, including meals, dressing, bathing and elimination. The individual requires supervision at all times. The individual cannot make responsible decisions regarding wellbeing of self or others. In adulthood, participation in tasks at home, recreation and work requires ongoing support and assistance. Skill acquisition in all domains involves long-term teaching and ongoing support. Maladaptive behaviour, including self-injury, is present in a significant minority.

SEVERITY LEVEL	CONCEPTUAL DOMAIN	SOCIAL DOMAIN	PRACTICAL DOMAIN
Profound	Conceptual skills generally involve the physical world rather than symbolic processes. The individual may use objects in goal-directed fashion for self-care, work and recreation. Certain visuospatial skills, such as matching and sorting based on physical characteristics, may be acquired. However, co-occurring motor and sensory impairments may prevent functional use of objects.	The individual has very limited understanding of symbolic communication in speech or gesture. He or she may understand some simple instructions or gestures. The individual expresses his/her own desires and emotions largely through non-verbal, non-symbolic communication. The individual enjoys relationships with well-known family members, caretakers and familiar others, and initiates and responds to social interactions through gestural and emotional cues. Co-occurring sensory and physical impairments may prevent many social activities.	The individual is dependent on others for all aspects of daily physical care, health and safety, although he/she may be able to participate in some of these activities as well. Individuals without severe physical impairments may assist with some daily work tasks at home, like carrying dishes to the table. Simple actions with objects may be the basis of participation in some vocational activities with high levels of ongoing support. Recreational activities may involve, for example, enjoyment in listening to music, watching movies, going out for walks or participating in water activities, all with the support of others. Co-occurring physical and sensory impairments are frequent barriers to participation (beyond watching) in home, recreational and vocational activities. Maladaptive behaviour is present in a significant minority.

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living. It includes the domains of communication (e.g., how well the child can express his/her needs), daily-living skills (e.g., hygiene), socialisation (e.g., coping skills) and motor skills.

The estimated prevalence of intellectual impairment is approximately 1 per cent (Szymanski & King, 1999). An estimated 85 per cent of those with the condition have an IQ within the mild range of intellectual impairment. More boys are diagnosed with intellectual impairment than girls (Murphy, Yeargin-Allsopp, Decoufle, & Drews, 1995). Intellectual impairment co-occurs with a wide range of disorders including epilepsy, cerebral palsy, sensory deficits and **pervasive developmental disorders** (Murphy, Boyle, Schendel, Decoufle, & Yeargin-Allsopp, 1998). Intellectually impaired children are also at significantly increased risk of various types of psychological disorders, including anxiety and depression, with up to 70 per cent of these children thus affected (Dykens, 2000).

According to the *DSM-5* diagnostic criteria for intellectual disability, the onset must occur in the developmental period, meaning that the intellectual and adaptive deficits are present during childhood or adolescence. The age of onset depends somewhat on the causes of intellectual impairment (e.g., some biological causes take time to develop and have an adverse impact on intellectual functioning). The course is heterogeneous and depends on the presence of biomedical factors (e.g., metabolic disorders) and psychosocial factors (e.g., access to therapy) (Szymanski & King, 1999). For example, if a metabolic disorder is present it may shorten the individual's lifespan, while access to therapy may improve quality of life and reduce mortality.

THE AETIOLOGY OF INTELLECTUAL DISABILITY

There is a wide range of causes for intellectual disability and, generally, the more severe the impairment the more likely it is that a cause can be determined. In approximately 43–70 per cent of cases of severe intellectual impairment there is a known cause, versus 20–24 per cent for children with mild intellectual disability (Flint & Wilike, 1996). A thorough assessment in an attempt to identify the cause of intellectual disability is essential, since the condition may be treatable or it may be associated with a heightened risk for medical conditions (e.g., the intellectual impairment in Down syndrome is associated with cardiovascular problems) (Szymanski & King, 1999).

pervasive developmental disorders Disorders characterised by severe and persisting impairment in several areas of development.



DAL

Down syndrome is a common cause of intellectual disability, which occurs when a third copy of chromosome 21 is present in the genome.

More than 500 genetic conditions (e.g., Down syndrome) are associated with intellectual disability and contribute the largest proportion of known causes (Flint & Wilike, 1996; Yeargin-Allsopp, Murphy, Cordero, & Decoufle, 1997). Exposure to toxic agents such as cigarette smoke and alcohol during pregnancy can also cause intellectual disability (Drews, Murphy, & Yeargin-Allsopp, 1996; Streissguth, Barr, & Sampson, 1990). Similarly, perinatal conditions such as maternal infection and low birth weight, as well as **postnatal** causes, including exposure to environmental contaminants such as lead, are known to contribute to intellectual disability (Murphy et al., 1998). Finally, traumatic injury to the head is a factor leading to impairment (Szymanski & King, 1999).

postnatal The period occurring after birth.

externalising disorders Broad categorisation of childhood disorders that includes disorders characterised by problems of under-control, where behaviours are directed at others (such as conduct disorder).

THE TREATMENT OF INTELLECTUAL DISABILITY

Interventions for those with an intellectual disability involve a number of components. Following assessment and diagnosis, it is important to treat any underlying condition. For example, phenylketonuria (which is a metabolic disorder where the body lacks the enzyme necessary to metabolise or break down certain amino acids) requires early intervention to reduce the impact on the infant. Secondly, early intervention including physical therapy (e.g., motor coordination skills), occupational therapy (e.g., toileting skills) and speech therapy, as well as family support, are important to assist in improving the individual's quality of life and reducing the stress for families. It is also important to identify any associated or co-occurring physical conditions, such as epilepsy, which require treatment in their own right. Finally, any mental health problems need to be identified and treated appropriately (Szymanski & King, 1999). This includes ongoing assessment and support for the child to monitor for any emerging symptoms or mental health problems that develop as the child matures.

LO 10.4

Externalising disorders

oppositional defiant disorder

Disorder of chronic misbehaviour in children marked by belligerence, irritability and defiance.

conduct disorder

Disorder marked by chronic disregard for the rights of others including specific behaviours such as stealing, lying and engaging in acts of violence.

Externalising disorders are described as problems of under-control, where behaviours are directed at others (Reynolds, 1992). These types of behaviours are seen by others as oppositional, non-compliant, attention seeking and disruptive. While impairing the child's functioning, these disorders also impact significantly on parents and siblings, on teachers and classrooms, as well as on the broader neighbourhood and community setting. For example, if a child refuses to do what s/he is asked and becomes angry and loud when not getting his/her own way in a classroom context, this is likely to have a negative effect not only on that child's learning capacity but also on the amount of time and attention the teacher can devote to other children and the extent to which other children are able to stay on task and continue learning while the disruptions are occurring. The disorders falling under the category of externalising disorders include **oppositional defiant disorder** and **conduct disorder** and are classified in the *DSM-5* under the heading 'Disruptive, Impulse-Control and Conduct Disorders'.

THE DIAGNOSIS AND EPIDEMIOLOGY OF OPPOSITIONAL DEFIANT DISORDER

Oppositional defiant disorder is characterised by a persistent pattern of angry/irritable mood (e.g., often losing their temper), argumentative/defiant behaviour (e.g., not following instructions, actively defying rules

to that of adults with similar conditions. For example, anxious children may respond to requests to attend an anxiety-provoking situation with non-compliance and oppositional behaviour, which is uncommon in adults.

In this section, the focus will be on **separation anxiety disorder**. After which, **selective mutism** will be described as an example of a disorder that is specific to childhood and, while rare, has a serious impact on functioning. A new depressive disorder diagnosis (disruptive mood dysregulation disorder) has been introduced for children in the *DSM-5*, however, this has been criticised as turning ‘temper tantrums into a mental disorder’ (France, 2012). There appears to be relatively little research on the validity of this disorder at this stage (Brotman et al., 2006; Leibenluft, 2011) and its comorbidity with other disorders, including oppositional defiant disorder is very high (APA, 2013). Furthermore, there are no identified treatments for this disorder (Leibenluft, 2011).

THE DIAGNOSIS AND EPIDEMIOLOGY OF SEPARATION ANXIETY DISORDER

Separation anxiety (i.e., protest when separating from a caregiver) is common and normative in young children, peaking at around 13–18 months (Kearney, Sims, Pursell, & Tillotson, 2003). In contrast, separation anxiety disorder is characteristic of older children. It is usually expressed through distress in anticipation of or on separation from an attachment figure (i.e., a caregiver), the need to know the whereabouts of the attachment figure, extreme homesickness and preoccupation with harm coming to the attachment figure (Suveg, Aschenbrand, & Kendall, 2005). The distinguishing feature of separation anxiety disorder is a fear specifically related to separation experiences, and this fear is greatly reduced in the presence of the attachment figure. In contrast, other anxiety disorders tend to be characterised by fears and worries around a range of concerns and are generally not significantly reduced in the presence of caregivers.

Separation anxiety disorder occurs in approximately 4 per cent of children although the range across studies is very large (Cartwright-Hatton, McNicol, & Doubleday, 2006). It is more common among girls and among preadolescent children, occurring most commonly during middle childhood (7–9 years) (Compton, Nelson, & March, 2000), with very low prevalence in preschoolers (Lavigne et al., 2009).

Most cases of separation anxiety disorder in young children tend to improve over time (Hale, Raaijmakers, Muris, van Hoof, & Meeus, 2008); however, they may worsen again in adolescence (Van Oort, Greaves-Lord, Verhulst, Ormel, & Huizink, 2009). For those children who continue to meet the criteria for the disorder, there is a high level of comorbid diagnoses and therefore a high level of impairment in functioning (Foley, Pickles, Maes, Silberg, & Eaves, 2004). Comorbid diagnoses can include other internalising disorders (depression and anxiety), as well as externalising disorders (e.g., the child may engage in the behaviours of oppositional defiant disorder to reduce the likelihood of separation). Furthermore, childhood separation anxiety disorder is strongly linked to the later development of anxiety disorders in adulthood (Klein, 1995). This finding points to the need for early identification and intervention for separation anxiety disorder in order to prevent the often debilitating course of anxiety throughout the lifespan.

THE AETIOLOGY OF SEPARATION ANXIETY DISORDER

A number of pathways are thought to contribute to the development and maintenance of separation anxiety disorder, including a genetic component, the modelling of parental anxiety, parenting behaviours and other environmental factors (such as family conflict).

GENETIC COMPONENT

There is evidence that children inherit a non-specific, genetic vulnerability to separation anxiety disorder, characterised as a predisposition to anxiety in general (Suveg et al., 2005). This genetic vulnerability is termed

separation anxiety disorder Disorder of childhood characterised by abnormal fear or worry over becoming separated from one’s caregivers as well as clinging behaviour in the presence of caregivers.

selective mutism Disorder characterised by a persistent failure to speak in certain settings even though the individual has the ability to speak.