Chapter 1: What are Autism Spectrum Disorders?

Autism spectrum disorders are lifelong developmental disabilities that can impact how people understand what they see, hear and otherwise sense. This can result in difficulties with social relationships, communication and behaviour.

The *Diagnostic and Statistical Manual of Mental Disorder*s, DSM-IV (American Psychiatric Association, 1994) defines autism spectrum disorders as pervasive developmental disorders characterized by:

- qualitative impairment in social interaction
- qualitative impairment in communication
- restricted, repetitive and stereotypic patterns of behaviour, interests and activities.

It is a complex neurological disorder that affects the functioning of the brain.

Autism spectrum disorders symptoms can be present in a variety of combinations and may accompany other disabilities.[1] Some people with autism spectrum disorders have normal levels of intelligence, while most have some level of intellectual disability, ranging from mild to severe. This range is often referred to as high-functioning autism spectrum disorders to low-functioning autism spectrum disorders.

There is also a range of difficulties in expressive and receptive language and communication. It is estimated that a high proportion of individuals with autism spectrum disorders, up to 50 percent, do not develop functional speech. For those who do, speech may have unusual qualities and limited communicative functions.

All people with autism spectrum disorders display difficulties with social interaction and behaviour, but the extent and type of difficulty varies. Some individuals may be withdrawn, while others may be overly active and approach people in socially-awkward ways. They may demonstrate selective attention, resistance to change, limited interests or obsessive behaviours. They often respond to sensory stimuli in an atypical manner and may exhibit unusual physical behaviours, such as hand flapping, spinning or rocking. They may also use objects in unconventional ways and demonstrate an unusual attachment toward specific objects.

Although people with autism spectrum disorders may share common features, no two individuals share an identical profile. In addition, the pattern and extent of difficulties may change as individuals grow older. There are common characteristics associated with autism spectrum disorders but it is important to combine this information with knowledge of the specific interests, abilities and personality of each individual.

Prevalence

The generally accepted prevalence rate for autism spectrum disorders has been 4–5 in every 10 000 births. However, recent estimates suggest a rate of about 1 in 500 when a broader spectrum of disorders is included.[2] There is a higher prevalence among males. The ratio varies depending on the definition, but studies reveal a male-to-female ratio between 4:1 to 5:1.

Causes

The cause or combination of causes of autism spectrum disorders is not fully known. There is growing evidence that autism spectrum disorders is a genetic condition and that there are likely several different genes involved.[3] The mode of genetic transmission appears complex, and scientists are focusing their work on discovering which genes may be involved and how these genes are affected. So far, it appears that for at least a significant subgroup of people with autism spectrum disorders, there is a genetic susceptibility that differs across families (that is, different genes may be responsible in different families).[4] Early life events, e.g., complications during the pregnancy, and environmental factors are believed to interact with genetic susceptibility.

Autism spectrum disorders are associated with a number of biological causes, however none is unique to the syndrome. For instance, autism spectrum disorders has been associated with prenatal exposure to rubella, chromosomal abnormalities, such as Fragile X, as well as brain abnormalities, such as hydrocephalus. Many consider autism spectrum disorders to be a “final common pathway” as there are many different possible causes.

Recently, various types of investigations, including imaging studies, electro-encephalographic studies, tissue studies on autopsy samples and neuro-chemical studies, have provided further evidence of a biological basis for autism spectrum disorders. The brains of individuals with autism spectrum disorders appear to have structural and functional differences from the brains of other people. Anomalies in the brain stem and cranial nerves have been

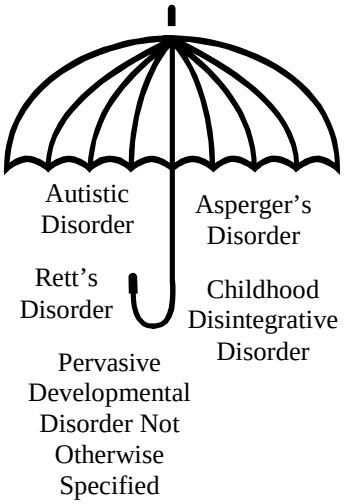
found. Ongoing research may one day pinpoint the exact genes and other conditions that combine to cause autism spectrum disorders.[5]

Diagnoses

At present, there is no definitive medical test to identify individuals with autism spectrum disorders. The diagnosis is typically made by a pediatrician, child psychiatrist or clinical psychologist with expertise in the area of autism spectrum disorders. Ideally, assessment and diagnosis involve a multidisciplinary team that includes a pediatrician or psychiatrist, a psychologist and a speech-language pathologist. The psychologist often administers assessments to gather information about development and behaviour, and the speech-language pathologist assesses speech, language and communicative behaviours. A medical assessment is conducted to rule out other possible causes for the symptoms, as many of the characteristics associated with autism spectrum disorders are also present in other disorders. A medical and developmental history is taken through discussion with parents. This information is combined with the other assessments to provide an overall picture and rule out other contributing factors.

Professionals diagnose autism spectrum disorders through the presence or absence of certain behaviours, characteristic symptoms and developmental delays. The criteria are outlined in the *DSM-IV* and the *International Classification of Diseases* (World Health Organization, 1993).

Pervasive Developmental Disorders



The *DSM-IV* classifies autism spectrum disorders as a disorder within a broader group of Pervasive Developmental Disorders (PDD). PDD is an umbrella term for disorders that involve impairments in reciprocal social interaction skills and communication skills, and the presence of stereotypical behaviours, interests and activities. The conditions classified as PDD in the *DSM-IV* are:

- Autistic Disorder
- Asperger's Disorder
- Rett's Disorder
- Childhood Disintegrative Disorder (CDD)
- Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS).

Some of these diagnostic terms appear to be used interchangeably within the literature and by practitioners. The term Autism Spectrum Disorders (ASD) is sometimes used to refer to autism

and other conditions included within the PDD classification. PDD is sometimes used to refer to all conditions within the category of PDD, and at other times is used to refer to PDD-NOS. When people from different disciplines are working together to support students it is important to clarify the use of terminology.

The *DSM-IV* criteria for autism spectrum disorders are included below.

Criteria for autistic disorder in the *DSM-IV* (299.00)[6]

A. A total of at least six items from (1), (2) and (3), with at least two from (1), and one from (2) and (3):

   (1) Qualitative impairment in social interaction, as manifested by at least two of the following:

      (a) Marked impairment in the use of multiple nonverbal behaviours such as eye-to-eye gaze, facial expression, body postures and gestures to regulate social interaction

      (b) Failure to develop peer relationships appropriate to developmental level

      (c) Markedly impaired expression of pleasure in other people's happiness

      (d) Lack of social or emotional reciprocity.

   (2) Qualitative impairments in communication as manifested by at least one of the following:

      (a) Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gestures or mime)

      (b) In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

      (c) Stereotyped and repetitive use of language or idiosyncratic language

      (d) Lack of varied spontaneous make-believe play or social imitative play appropriate to developmental level.

   (3) Restricted repetitive and stereotyped patterns of behaviour, interests and activities, as manifested by as least one of the following:

      (a) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus

(b) Apparently compulsive adherence to specific nonfunctional routines or rituals

(c) Stereotyped and repetitive motor mannerisms, e.g., hand or finger flapping or twisting, or complex whole-body movements

(d) Persistent preoccupation with parts of objects.

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age three years:

(1) social interaction

(2) language as used in social communication

(3) symbolic or imaginative play.

C. Not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.

Other Pervasive Developmental Disorders

The diagnostic category known as Pervasive Developmental Disorders includes: Autistic Disorder, Asperger's Disorder, Rett's Disorder, Childhood Disintegrative Disorder and Pervasive Developmental Disorder Not Otherwise Specified. All of these disorders share common features. However, there are differences in some areas, such as the number of symptoms, age of onset, developmental pattern and level of cognitive functioning.

The *DSM-IV* uses the term Asperger's Disorder. This resource guide uses the term Asperger's syndrome, which is consistent with current literature in the area.

Asperger's syndrome

Asperger's syndrome shares many of the features of autism spectrum disorders. People with Asperger's syndrome demonstrate significant difficulties with respect to social interaction. They also tend to display stereotypical behaviour patterns. Chapter 9 of this resource contains specific information about the characteristics of students with Asperger's syndrome and suggested classroom strategies.

For more information on Asperger's syndrome, see pages 133–138.

The main differences between people with autism spectrum disorders and those with Asperger's syndrome is that individuals with Asperger's syndrome do not have clinically significant delays in early language development or significant delays in cognitive development. They usually do not have the same degree of difficulty as those with autism spectrum disorders in the

development of age-appropriate self-help skills, adaptive behaviour and curiosity about the environment in childhood.

Rett's Disorder

Rett's Disorder occurs only in females and is characterized by the development of significant deficits following a period of at least five months of normal development. Children with Rett's Disorder tend to display repetitive hand wringing movements and often have difficulty using their hands in a purposeful manner. In addition, there tends to be deceleration of head growth and motor coordination issues. As with all Autism Spectrum Disorders, children with Rett's Disorder display severe communication and social interaction impairments. Rett's Disorder is much less common than Autistic Disorder.

Childhood Disintegrative Disorder

Childhood Disintegrative Disorder is characterized by regression in multiple areas, e.g., expressive/receptive language, social skills, adaptive behaviour, play skills, motor skills, and/or bowel/bladder control, following a period of at least two years of normal development. Individuals with Childhood Disintegrative Disorder also have significant communication deficits, social interaction impairments, and restricted, repetitive and stereotyped behaviours and interests. This disorder is also referred to as Heller's Syndrome and is much less common than Autistic Disorder.

Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS)

Individuals diagnosed with PDD-NOS have symptoms that are similar to, but not identical to, those displayed by people with autism spectrum disorders. Many individuals with PDD-NOS are not diagnosed with autism spectrum disorders because their symptoms developed later than the diagnostic criteria stipulate or because they display symptoms that are not outlined in the diagnostic criteria. People who display significant social or communication impairments, or stereotyped behaviours or interests, but who do not meet the criteria for any other Pervasive Developmental Disorder, are generally diagnosed with PDD-NOS.

Autism Spectrum Disorders: Myths

The following are common myths about autism spectrum disorders.

Myth #1: All individuals with autism spectrum disorders avoid eye contact and social contact.

People with autism spectrum disorders are a diverse group, so it is difficult to use words such as "all" or "every" when describing those with the syndrome. Although social difficulties are a hallmark of the disorder, many individuals with autism spectrum disorders display some level of social interest and make some attempt to initiate social interactions on a frequent basis. Many individuals with autism spectrum disorders display affection and demonstrate a preference for social activities over solitary pursuits.

Myth #2: People with autism spectrum disorders possess extraordinary skills or talents, e.g., are able to memorize facts, complete complex mental calculations or compose music.

The vast majority of people diagnosed with autism spectrum disorders do not possess genius abilities like the character depicted in the popular movie *Rainman*. However, most individuals with autism spectrum disorders display uneven or scattered skill development. As a result, some skills may stand out in relation to other skills.

Myth #3: Autism spectrum disorders are caused by cold, distant parenting.

Although questions remain about the causes of autism spectrum disorders, it has been empirically demonstrated that parents of children diagnosed with autism spectrum disorders do not differ from parents of typical children. It is now generally accepted that autism spectrum disorders is neurological in origin and that children are born with the syndrome.