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## AUTISM

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Janet is a three-year-old girl who lives with her parents in a suburban neighborhood. Janet's mother is a full-time homemaker who spends much of her time caring for her daughter. Janet spends hours daily staring into the air, oftentimes seeming to poke or grab at dust particles in the air, rocking back and forth in a sitting position on the floor, and repeatedly saying phrases from television commentary. Janet does not make eye contact, communicate with spoken language, or seek cuddling with her mother, though she does take her mother's hand to lead her when she wants juice from the refrigerator. Janet rarely plays with toys her parents offer, other than lining the blocks or toys up in an arrangement and resisting with extreme anger and tantrums when the items are rearranged.

At birth Janet appeared physically healthy, and there were no identified problems during pregnancy or at birth. However, Janet did not respond to parental interactions, often looked away from her parents, and did not babble as developmentally appropriate by age six months. Janet made click noises, but made no apparent attempts to communicate with or respond to parental stimulation. As a result, Janet's parents consulted with their pediatrician, who recognized some of these symptoms as being similar to autism. Janet and her family were then referred to a pediatric psychologist who specializes in childhood development and behavioral problems. Through collaborative efforts of Janet's pediatrician, the developmental clinical psychologist, and consultations with a speech/language specialist, Janet was diagnosed with autism at 2 years and 10 months of age.

The family is currently making arrangements for Janet to attend a developmental preschool that specializes in behavioral interventions for pervasive developmental disorders. Janet's psychologist has informed the family that Janet's prognosis is greatly improved due to their early recognition of problems and proactive responses to enroll her in specialized behavioral services at a young age. However, the psychologist also indicated that each situation is specific to the client's needs, and treatment and prognosis are dependent upon Janet's needs and responses to the interventions.

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### DEFINITION

Autism, or autistic disorder, is a condition, typically diagnosed in children prior to age three, in which an individual demonstrates significant impairment in communication abilities, social interactions, and a restricted repertoire of behavior, interest, and activities (American Psychiatric Association, 2000). Historically, autism has also been called *early infantile autism*, *childhood autism*, or *Kanner's autism*.

Currently autism is defined at three distinct but interdependent levels: as a neurological disorder related to brain development; as a psychological disorder of cognitive, emotional, and behavioral development; or as a relationship disorder in which there is a failure of normal socialization (Kusch & Petermann, 1995). Autism falls within a cluster of disorders in which children demonstrate different variations of autistic-like characteristics or developmental complications.

This cluster of disorders is identified as the pervasive developmental disorders (PDD). The PDD include autistic disorder, Rett's disorder, childhood disintegrative disorder (CDD), Asperger's disorder, and PDD not otherwise specified (PDDNOS; American Psychiatric Association, 2000).

For the purposes of this chapter, the focus will be on autism. However, in accordance with the trends in working with autism, it is important to note that there is a continuum of the PDD that are similar to autism, called the Autism Spectrum Disorders (ASD). The ASD include Autism, Asperger's Disorder, and PSSNOS. The ASD are characterized by varied representations of autistic-like behavior, aberrant communication skills, impaired social functioning, and restricted activities and areas of interest (Kronenberger & Meyer, 1996).

## HISTORY

In 1867 a psychiatrist named Henry Maudsley described a group of very young children with severe mental disorders who displayed significant developmental delays. Such profound mental disorders and disruptions in development fell within the classification of psychosis during this era. Leo Kanner was the next individual to identify the cluster of symptoms now referred to as autism. Kanner's comprehensive description of this early childhood syndrome was presented in 1943 when he coined the term *infantile autism*. He described such children with "extreme autistic aloneness; failure to assume an anticipatory posture; delayed or deviant language development with echolalia and pronominal reversal (using *you* for *I*); monotonous repetitions of noises or verbal utterances; excellent rote memory; limited range of spontaneous activities, stereotypies, and mannerisms" (D. H. Sadock & V. A. Sadock, 2003, p. 1208). Hans Asperger, a German scientist, was studying a milder form of these characteristics around the same time as Kanner, which resulted in the disorder we now identify as Asperger's Disorder (National Institute of Mental Health [NIMH], 2007).

Throughout the late 1900s and into the 21st century, great confusion, disagreement, and conflicts surrounded the etiology, assessment, diagnosis, and treatment of autism, though there is general agreement that it falls within the ASD. Additionally, most professionals and researchers today support the notion that children with ASD share core deficiencies in forming relationships and communicating, though all children manifest different combinations of symptoms (Kusch & Petermann, 1995; Pratt, Vicker, & Davis, 2001).

## ETIOLOGY

### Historical Perspectives

Historically, it was believed that autistic disorder occurred as a result of poor parenting practices or a child having an emotionally unresponsive, "refrigerator" mother

(Bettelheim, 1967; Ferster, 1961; D. H. Sadock & V. A. Sadock, 2003; E. A. Tinbergen & N. Tinbergen, 1972). Kanner (1949) described the parents of children with autism as cold, aloof, and perfectionistic. Other theories suggested parental rage, parental reinforcement of autistic behaviors, and parental rejection were causes of autistic disorder in children (D. H. Sadock & V. A. Sadock, 2003).

The serious emotional, psychological, and social ramifications of such theories led to significant research exploring the characteristics of parents of autistic children, resulting in findings that personality and other characteristics of parents with autistic children do not differ significantly from those of parents of children without such disabilities (Koegel, Schreibman, O'Neill, & Burke, 1983; McAdoo & DeMyer, 1978). In the mid-1990s some speculation was made about whether autistic children lack self-awareness (Goldfarb, 1963; Mahler, 1952). Research in the 1980s dispelled this concern, supporting the idea that autistic children do have self-awareness, which follows a developmental progression similar to that in children without a disorder (Dawson & McKissick, 1984; Spiker & Ricks, 1984).

### Current Perspectives

Much to the relief of parents with autistic children, parenting, psychological, and social influences are no longer believed to be the driving force in the development of autism, though, as will be discussed later in this chapter, environmental (nurture) factors are implicated regarding the progression of autism (Barlow & Durand, 2005). Current research indicates that the most empirically supported factors related to the origins of autistic disorder are biological (D. H. Sadock & V. A. Sadock, 2003).

#### *Biological Factors*

Currently the consensus among researchers of autism and PDD is that a complex interaction of biological dimensions, ranging from genetics to brain structure to brain function, is most likely implicated in the origin of the developmental disorders. Additionally, there is agreement that other unknown influences within the prenatal and postnatal environment may promote the onset of symptoms (Kabot, Masi, & Segal, 2003).

#### *Genetic Influences*

Family and twin studies indicate genetic factors play a significant role in the cause of autistic disorder. Though different studies have shown varied rates of incidents of autism within families in which one member has autism, there are consistent findings that having a family member with autism significantly increases the risk of others also having the disorder (Cook, 2001; D. H. Sadock & V. A. Sadock, 2003). Specifically, parents who have one child with autism have a 3 percent to 5 percent risk of having another child with autism, which is significantly greater

than in the general population (Cook, 2001). Additionally, D. H. Sadock and V. A. Sadock (2003) report, “[T]he concordance rate of autistic disorder in the two largest twin studies was 36 percent in monozygotic pairs versus 0 percent in dizygotic pairs in one study, and about 96 percent in monozygotic pairs versus about 27 percent in dizygotic pairs in the second study” (p. 1209). The identified studies also found that nonautistic family members tend to have higher rates of language or other cognitive problems.

Multiple studies have explored specific genetic markers for autistic disorder as well. Though many likely links have been identified as related to autism, findings are not consistent or conclusive; however, researchers have strong evidence indicating genetic material is related to ASD and, specifically, autism (Kobot, Masi, & Segal, 2003). Some researchers support the notion that autism includes as many as 10 genes (Halsey & Hyman, 2001).

#### *Brain Function Influences*

Using positron-emission tomography scanning (PET scan) techniques, researchers found an abnormal capacity for serotonin synthesis in autistic children’s brains. These findings are corroborated in the literature; however, specific pharmacological interventions have not been consistent in managing this problem.

#### *Brain Structure Influences*

Brain structure investigations comparing autistic children to nonautistic children have identified some significant differences including abnormalities in the limbic system (Neuwirth, 1997) and differences in cerebellum and gray to white brain matter ratios (Courchesne, Carper, & Akshoomoff, 2003; Courchesne et al., 2001).

#### *Other Biological Influences*

Immunological factors that result in maternal antibodies being directed at the fetus have been shown to have a possible role in autism. Additionally, perinatal (in utero) factors such as maternal bleeding after the first trimester or meconium (a feces-like substance from the fetus) in the amniotic fluid have been reported to occur more frequently by mothers of autistic children compared to reports by mothers of children without the disorder. Though these findings suggest some role of these factors in autistic disorder, it is uncertain as to their true relation to the disorder.

## EPIDEMIOLOGY

### Prevalence

Current estimates of the prevalence of autistic disorder still encompass a wide range of figures. The NIMH (2007) currently reports ASD at prevalence rates of 3.4 in

every 1,000 children between the ages of 3 and 10 years. Fombonne (2005) indicates there are about 13 cases per 10,000 children, with other ASD having a prevalence of about 0.6 percent in his review of several autism studies. Estimates in the last two decades of the 20th century indicated about 5 cases per 10,000 children; however, Fombonne’s meta-analyses suggest these were underestimates and that the prevalence of autism appears to be greater than previously believed. Fombonne’s research also indicates that “this increase most likely represents changes in the concepts, definitions, service availability and awareness of autistic-spectrum disorders in both the lay and professional public” (p. 292).

### Gender Distribution

Autistic disorder is believed to occur four to five times more frequently in boys than in girls. Mental retardation also appears to be more severe when autism is diagnosed in girls (D. H. Sadock & V. A. Sadock, 2003).

### Onset

The onset of autistic disorder is typically prior to age 3, though it is sometimes not detected until the child is older. As with most disorders, the earlier the identification and treatment of autistic disorder, the better the prognosis. Though some argue that early signs of the disorder are easily missed, others argue that the signs can reasonably be identified between 18 and 36 months of age. Early indicators of the ASD include absence of babbling, pointing, or meaningful gestures by 1 year; no words spoken by 16 months; no combined two words by 2 years; not responsive to name; or loss of language or social skills. Other indicators might include poor eye contact; apparent lack of awareness of how to play with toys; excessive lining up of toys or other objects; lack of smiling; or excessive attachment to one particular toy or object (NIMH, 2007).

### Other Statistics

Though in its early conception autism was believed to occur more frequently in upper socioeconomic classes (SES; Kanner, 1943), autism is now believed to affect all socioeconomic classes equally (D. H. Sadock & V. A. Sadock, 2003). Autistic disorder has also been identified in every part of the world including the United States, Sweden, Japan, Russia, and China (Barlow & Durand, 2005).

### Related or Comorbid Disorders

The prognosis and treatment of an individual with autistic disorder is somewhat dependent upon what other physical, psychological, emotional, or behavioral conditions are present. Some conditions or disorders have high concordance rates with autism. Mental retardation, seizure disorders, Fragile X syndrome, sensory problems, behavior

disorders, and some affective disorders are identified as being associated with autism (Kabot, Masi, & Segal, 2003; NIMH, 2007).

The most commonly recognized condition associated with autism is mental retardation. Approximately 75 to 80 percent of individuals with autism also are diagnosed with mental retardation. Individuals with autism vary vastly along the continuum of intellectual abilities; however, it is estimated that about one quarter of individuals with autism score in the borderline to average range of intellect, whereas another quarter range in the mild to moderate range, and about half score in the severe to profound range of mental retardation (Kronenber & Meyer, 1996; Waterhouse, Wing, & Fein, 1989).

Seizure disorders are also quite prevalent in children who have autistic disorder. The NIMH (2007) reports that one in four children with ASD also develops a seizure disorder, which typically begins in childhood or adolescence. In children with autism, medications are typically used to manage the seizure activity.

Fragile X syndrome is a genetically inherited disorder that has been found in about 10 percent of individuals with autism and occurs most frequently in males (Kabot, Masi, & Segal, 2003). The NIMH (2007) estimates Fragile X's presence in 2 to 5 percent of ASD in general. This disorder results in an alteration of one of the X chromosomes. Whether the alteration of the X chromosome is from the father or mother determines the potential risk of this disorder occurring.

Some children with autistic disorder demonstrate significant sensitivity to sensory experiences. There appears to be an inability to balance the senses appropriately, resulting in the child's experiencing extreme agitation and discomfort (NIMH, 2007). Such sensitivities present themselves as an inability to tolerate heat, cold, various clothing textures, and changes in any sensory experiences. Sensitivity training and exposure-response prevention strategies might be used to address some of the sensation difficulties with autistic children.

Behavioral and disruptive disorders are often associated with autistic disorders, also. Behavioral disorders such as oppositional defiance and attention deficit hyperactivity disorder (ADHD) have been associated with autistic disorder, often resulting in a need for treatment of those symptoms along with autism. The use of antipsychotic medications to calm belligerent/aggressive behaviors or psychostimulants to decrease hyperactive-impulsive behaviors, along with behavioral training, tend to be used to address the behavioral concerns (NIMH, 2007).

Affective disorders such as depression and bipolar disorder, which is characterized by mood swings ranging from deep depression to a euphoric state of mania, have been identified as occurring quite often in families of individuals with autism. Some characteristics of obsessive-compulsive disorder (OCD) appear to occur more frequently in individuals with autism and their families, as well (Kabot, Masi, & Segal, 2003; NIMH, 2007).

The NIMH indicates clinical trials are being done that suggest the use of antidepressants or lithium may benefit children with autism and affective disorders.

## Diagnosis and Clinical Description

The diagnosis of autistic disorder is established using the *Diagnostic and Statistical Manual IV-Text Revision (DSM IV-TR)*, which lists particular criteria and descriptions that must be met for an individual to be diagnosed with a disorder. The criteria for diagnosing autistic disorder requires significant impairment in social, occupational, or other important areas of functioning as a result of problems in areas of social interactions; communication abilities; and repetitive and stereotyped patterns of behavior, interests, and activities that are evident prior to age three years (American Psychiatric Association, 2000).

## Social Impairments

Typically from birth, children with autism demonstrate inadequate social interactions. These youngsters tend to avoid eye contact, lack a social smile, and fail to recognize social cues of everyday give-and-take in interpersonal exchanges. Additionally, as they reach school age, children with autism tend to show some withdrawal, demonstrate an inability to infer feelings or understanding of others around them, and show significant deficits in abilities to make or maintain friendships (Kronenberger & Meyer, 1996; NIMH, 2007; D. H. Sadock & V. A. Sadock, 2003). By adolescence, many social impairments continue (if individual is untreated) with limited interests in others, deficits in understanding others' emotional and behavioral cues, and difficulties in social reciprocation (D. H. Sadock & V. A. Sadock, 2003).

## Communication and Language Impairments

Deficits in language acquisition and use of meaningful communication are a significant component in the clinical picture for children with autistic disorder. As many as 50 percent of those diagnosed with autism may never acquire useful speech (Rutter, 1978; Volkmar et al., 1994), whereas virtually all individuals with autism will suffer from moderate to severe communication deficits (Mundy, Sigman, & Kasari, 1990). Even those individuals who develop some language skills often use language in unusual ways, with an inability to combine words into meaningful sentences. *Echolalia*, a condition in which people repeat everything they hear, is sometimes evident beyond normal developmental limits (age three years) with people with autism as well (NIMH, 2007; V. A. Sadock & D. H. Sadock, 2003).

## Restricted and/or Stereotyped Behavior

The play and manipulation of objects by autistic children is very ritualistic, rigid, repetitive, and monotonous,

with little to no spontaneous explorative features, imitative play, or use of symbolism. Likewise, children with autism may establish compulsive routines and become easily agitated when there is a change from the routine or the status quo has been altered. Repetitive movements, spinning, banging, and lining up objects are also evident with autistic children. Other stereotypies such as grimacing and self-stimulating behaviors remain evident with adolescents and adults with autism (D. H. Sadock & V. A. Sadock, 2003).

### Differential Diagnoses

In order to establish a diagnosis of autistic disorder, a clinician must rule out other possible conditions. Most obvious is the need to differentiate between autistic disorder and the other PDD. This is typically done by using the specific criteria in the *DSM-IV TR*. Though they share many similar features, autistic disorder is distinguished from ASD as typically including severe deficits in social functioning, communication limitations, restricted activities and behaviors, and often intellectual deficits, whereas Asperger's disorder and PDD NOS typically involve less severe levels of symptoms and involve primarily social deficits or specific deficits in one or two realms of functioning (American Psychiatric Association, 2000).

Other main differential diagnoses include "schizophrenia with childhood onset, mental retardation with behavioral symptoms, mixed receptive-expressive language disorder, congenital deafness or severe hearing disorder, psychosocial deprivation, and disintegrative (regressive) psychoses" (D. H. Sadock & V. A. Sadock, 2003, pp. 1212–1213). Due to the complexities of differentiating these diagnoses, a stepwise approach is usually taken, but it is beyond the purposes of this chapter. However, this differentiation process typically involves exploring the symptoms; symptom severity, onset, and response to interventions; and environmental and family factors surrounding the individual involved.

### Course and Prognosis

*Course* refers to the "pattern of development and change of a disorder over time" (Barlow & Durand, 2005, p. G-4). *Prognosis* refers to "the predicted future development of a disorder over time" (p. G-11). At this time, autistic disorder is still considered a lifelong disorder with a guarded prognosis (D. H. Sadock & V. A. Sadock, 2003). The majority of individuals with autism (about two thirds) remain severely handicapped and live in complete dependence or semidependence; only about 1 to 2 percent acquire a normal, independent lifestyle with successful employment. About 5 to 20 percent of autistic individuals are believed to achieve a minimum level of normal functioning (D. H. Sadock & V. A. Sadock, 2003).

Factors that seem to involve the best prognosis include children with IQs above 70 and children who use communicative language by ages five to seven years. In general,

the earlier the intervention and the more supportive the living arrangement, the better the prognosis is for individuals with autistic disorder (Kabot, Masi, & Segal, 2003; NIMH, 2007). Factors that appear to be related to a less favorable outcome are individuals with lower IQ levels, individuals with severe aggression, and children with seizure disorders (D. H. Sadock & V. A. Sadock, 2003).

### Assessment

The assessment of PDD, including ASD and autism, is a complex and ongoing process that is best completed by using a multidisciplinary team approach; however, a practitioner in psychology may make the diagnosis after sensory and medical concerns have been assessed (Kabot, Masi, & Segal, 2003). A "multidisciplinary evaluation of social behavior, language and nonverbal communication, adaptive behavior, motor skills, atypical behaviors, and cognitive status by a team of professionals experienced with ASD" is useful when assessing for and diagnosing PDD (National Research Council, 2001, p. 214).

The complexities of PDD have resulted in the development of an algorithm for the diagnosis of autism by The American Academy of Neurology/Child Neurology Society's Practice Parameter (Filipek et al., 2000). This standard of practice includes the following: First, routine developmental screenings should occur during healthy-baby checkups. If a child fails at this level, audiological assessments should be completed, as well as autism screening using a standardized measure. A formal diagnostic evaluation that can take several hours to perform should be completed if a child's autism screening suggests evidence for PDD or ASD.

### Treatment

As alluded to frequently in this chapter, the various etiologies and clinical presentations of individuals with autistic disorder prevent a predetermined treatment approach for all people with the disorder. The reality is, as with most clinical psychological disorders, an individual with autism requires an individualized treatment approach that takes into account the person's clinical needs, etiological factors, environmental factors, and recognition of available resources. Keeping this in mind, Kabot, Masi, and Segal (2003) identified a number of areas in which researchers agree on which intervention practices are most likely to lead to successful outcomes for individuals with autism. The following are areas of agreement in the literature: "(a) intervention should be provided at the earliest possible age; (b) intervention must be intensive; (c) parent training and support should be a component of the program; (d) the curriculum should focus on the social and communication domains; (e) instruction should be systematic with individualized goals and objectives; and (f) particular emphasis should be put on teaching for generalization" (p. 30). Hence, when treating someone

with autistic disorder, practitioners are best equipped by including as many of the above strategies as possible in order to attain the best possible outcome.

Typically, the goals for treating autism include increasing socially acceptable and prosocial behaviors, decreasing bizarre or inappropriate behavioral symptoms, and improving verbal and nonverbal communication (NIMH, 2007; D. H. Sadock & V. A. Sadock, 2003). Notice that when treating autism, the focus is on remediation of problematic symptoms, not altering causal factors. At this time, there are no known biological or genetic treatments to directly “cure” autism. In other words, there are not currently medications or medical procedures to alter the effects of autism. The treatment of autism involves altering the social, communication, and behavioral symptoms of the disorder. This being said, some medications are used to manage behavioral symptoms such as aggression, inattention, stereotype behaviors, self-harm, and obsessive-compulsive rituals that often present themselves in people with autism. Newer antipsychotic medications (referred to as serotonin-dopamine antagonists [SDAs]) are often used to assist in the behavioral manifestations of autism or comorbid diagnoses (D. H. Sadock & V. A. Sadock, 2003).

Pharmacological treatment, primarily antidepressants and some antipsychotics, is sometimes used in the treatment of autistic disorder in order to decrease irritability, stabilize mood, and decrease self-harm behaviors in children as well (D. H. Sadock & V. A. Sadock, 2003). Oftentimes it is unknown if behavioral symptoms and affective symptoms are a direct component of autistic disorder or related to comorbid diagnoses. Nonetheless, medical interventions are sometimes helpful in assisting autistic individuals to make improvements.

Perhaps the most widely accepted treatment for individuals with autism at this time is applied behavior analysis (ABA), which is documented to have a high level of efficacy for individuals (primarily children) with autistic disorder (NIMH, 2007). Research by Lovaas (1987) and his colleagues (McEachin, Smith, & Lovaas, 1993; Smith, Eikeseth, Klevstrand, & Lovaas, 1997) pioneered the way for structured behavioral programs to become a primary force in the treatment of autism. *Mental Health: A Report of the Surgeon General* states, “Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and in increasing communication, learning, and appropriate social behavior” (Department of Health and Human Services, 1999). Additional research supports the use of intensive behavioral treatment for children with autistic disorder (Sallows & Graupner, 2005).

The primary goal in behavioral programs is to reduce unwanted behaviors and increase desirable behaviors through reinforcement of the positive ones (NIMH, 2007). Empirical studies support the idea that intensive intervention programs with at least 40 hours of one-to-one intervention have shown the greatest efficacy (Lovaas, 1987); however, more recent research suggests the necessity of at least 20

25 hours per week of structured interventions with autistic children in order to make significant gains (National Research Council, 2001; Smith & Lovaas, 1997). Eldevik, Eikeseth, Jahr, and Smith (2006) explored the effects of low-intensity behavioral treatment with autistic children, finding that behavioral interventions resulted in positive gains when compared to an eclectic control group; however, the findings were deemed questionable regarding their clinical significance. These findings support the idea that intensive program approaches provide a greater chance for improvements in the treatment of autistic disorder.

The aforementioned behavioral programs are often accompanied by educational interventions for the individuals with autism and their families, as well as supportive counseling for the families. The specific behaviors and skills that are targeted for particular autistic children depend on their needs and age, with early intervention programs allowing for transitions to be made as individuals meet goals and move into new life areas.

### Treatment Interventions for Specific Ages

The information in this section includes a synthesis of anecdotal information from knowledge as a practitioner working with children and families with autistic disorders, findings from literature (Maurice, Green, & Foxx, 2001; Maurice, Green, & Luce, 1996), and specific guidelines identified by the NIMH (2007).

As treatment interventions for each age range are discussed, it is essential to remember that each individual’s treatment must be geared toward his or her particular needs. To this end, intellectual factors, medical needs, family resources, parental and family availability and motivation for services, and service availability factors will all impact what services are available or provided for an autistic individual.

Upon early detection (ideally by three years or younger), interventions should begin immediately to teach early communication and social interaction skills. A child’s specific deficits in language, learning, imitation, attention, motivation, compliance, and initiative of interaction are addressed using “learn by doing” strategies and positive reinforcement. Interventions at this age typically occur at home or in a child care center.

After three years of age, most autism programs provide a school-based setting with individualized, special education opportunities. A highly structured program that offers opportunities to learn social skills and functional communication, involving teachers and parents, is typical. Some programs at this age involve segregated classrooms, whereas others integrate students into classes with students without disabilities for part of the day.

Elementary-aged children must continue to have a highly structured and specialized curriculum that targets areas that need improvement while encouraging continued growth in established skills. In some situations, students may be in a segregated classroom, but many schools have opted

for inclusion so that students are in the regular classroom most of the day, with some assistance in the classroom or specialized services out of the classroom during part of the day. Regardless of the approach, these children need structured services that enhance intellectual/language skills and target social skills such as how to make friends, how to act in interpersonal situations, and how to manage academic endeavors.

Adolescents in middle school and high school continue to require structure and specialized services; however, an emphasis on daily life skills and adaptive abilities may be targeted in order to enhance the autistic child's potential to live independently or semi-independently as an adult. Such skills as attaining and maintaining employment, using public transportation, establishing recreational outlets, and learning skills necessary for community living are typically emphasized.

In adulthood, many individuals with autism continue to require a great deal of care and supervision. Many adults with high-functioning autism or Asperger's disorder are able to maintain employment, though social deficits and communication problems may cause some problems in their lives. Many adults with autism do not function independently and require various levels of assistance. Employment assistance includes sheltered workshops where individuals are supervised by managers with experience working with individuals with disabilities. Other autistic individuals require 24-hour care due to their impairments.

Living arrangements for adults with autistic disorder cover a variety of levels of care. According to the NIMH (2007), the current levels of care include the following: independent living, living at home, foster homes and skill-development homes, supervised group living, and institutions. The placement of autistic individuals into one of these levels of care is typically determined by their level of functioning and ability to live safely at the least restrictive level of care. Again, supportive counseling, mentor programs, or clinical services may assist in preventing decompensation for adults with autism, but the availability of services and resources also directs the treatment for adults with autism.

### Dispelling Myths About Autistic Disorder and Novel Treatments

A great deal of misinformation regarding ASD and autism is common, as are a number of myths. Such myths can lead to a great deal of disruption to the lives and resources of individuals and families dealing with such developmental disorders. Likewise, many treatment strategies have been reported to be effective, many of them through single case or anecdotal experiences, without empirical research or rigorous designs to assess the validity of such procedures. This section will first identify and clarify several myths about ASD as written by Barbara Doyle and Emily Lland (Autism Spectrum Disorders From A to Z, 2004), and then

will identify some novel treatments that have limited to no empirical support (Levy & Hyman, 2005).

### Myths and Facts About ASD

**Myth:** *Children and adults with autism spectrum disorders do not care about others.*

**Fact:** Children and adults with an ASD often care deeply but lack the ability to spontaneously develop empathic and socially connected typical behavior.

**Myth:** *Children and adults with autism spectrum disorders prefer to self-isolate.*

**Fact:** Children and adults with an ASD often want to socially interact but lack the ability to spontaneously develop effective social interaction skills.

**Myth:** *Children and adults with an ASD cannot learn social skills.*

**Fact:** Children and adults with autism spectrum disorders can learn social skills if they receive individualized, specialized instruction and training. Social skills may not develop simply as the result of daily life experiences.

**Myth:** *Autism spectrum disorders are caused by poor parenting or parental behavior.*

**Fact:** Parents do not and cannot cause autism spectrum disorders. Although the multiple causes of all autism spectrum disorders are not known, it is known that parental behavior before, during, and after pregnancy does not cause autism spectrum disorders to develop.

**Myth:** *ASD is a behavioral/emotional/mental health disorder.*

**Fact:** Autism-related disorders are developmental disabilities and neurobiological disorders. These disorders manifest in early childhood (usually before the age of three or four) and are likely to last the lifetime of the person.

**Myth:** *People with autism spectrum disorders cannot have successful lives as contributing members of society.*

**Fact:** Many people with autism spectrum disorders are being successful living and working and are contributing to the well-being of others in their communities. This is most likely to happen when appropriate services are delivered during the child's free, appropriate, public education years and when families receive the supports they need for every family member.

**Myth:** *Autism spectrum disorders get worse as children get older.*

**Fact:** Autism spectrum disorders are not degenerative. Children and adults with autism should continuously

improve. They are most likely to improve with specialized, individualized services and opportunities for supported inclusion. If they are not improving, make changes in service delivery and check for underlying medical causes.

**Myth:** *Autism spectrum disorders do not run in families.*

**Fact:** More families are experiencing multiple members with an ASD than ever before. In some families, parents with an ASD were misdiagnosed or never diagnosed. In some families, many or all siblings are in the autism spectrum. Most often, one child with autism is born into families who do not have other family members with an autism spectrum disorder.

**Myth:** *All people with an autism spectrum disorder have “savant skills,” like Dustin Hoffman’s character in Rain Man.*

**Fact:** Most people with autism spectrum disorders do not have any special savant skills. Some have “splinter skills,” areas of high performance that are not consistent with other skill levels.

**Myth:** *It is better to “wait and see” if a child does better rather than refer the child for a diagnostic assessment.*

**Fact:** The earlier autism spectrum disorders are diagnosed and treated, the better. Outcomes for children’s lives are significantly improved with early diagnosis and treatment. When in doubt, refer, do not wait.

**Myth:** *Certain programs or approaches “cure” autism spectrum disorders if they are delivered at the right age and intensity.*

**Fact:** Some interventions have positive effects on some children with autism and less noteworthy effects on others. There is no one program that is right for everyone. All services and programming need to be based on the child or adult’s individual needs, learning styles, family needs, and lifetime goals. The most successful programs for children and adults with ASD are based on detailed assessment, are highly individualized, and focus on teaching the skills needed for life and relationships.

**Myth:** *Children and adults with autism spectrum disorders are very similar to one another.*

**Fact:** Although all children and adults with autism spectrum disorders have three diagnostic features in common, each child with an ASD is a unique individual. People with autism spectrum disorders differ as much from one another as do all people.

**Myth:** *Children and adults with autism spectrum disorders do not interact very much. They do not have good eye contact. They do not speak well. They are not very bright.*

**Fact:** Children and adults with autism spectrum disorders may speak and/or interact with others. They may have good eye contact. They may be verbal or nonverbal. They may be very bright, of average intelligence or have cognitive deficits.

**Myth:** *The best place to educate a child or adult with an autism spectrum disorder is in a separate program designed for children or adults with autism.*

**Fact:** Educational and adult services delivered to people with ASD must be specifically designed for each person. Many people with ASD do the best when their services are individualized to them, not designed to be the same for a whole group. Remember that the “I” in the plan stands for “individualized.” The outcome for education for all children is to be able to belong to the community, participate, and contribute. These goals are often best met when the child with an ASD is educated in a community school with access to the typical children who will become their own community of the future.

**Myth:** *If you have an autism disorder, you will not have any other disorder.*

**Fact:** Autism spectrum disorders can co-occur with any other disorders. It is common to find a person with ASD who also has any of the following: Down Syndrome, cerebral palsy, cognitive impairments, deafness, blindness, and other conditions. Many people with ASD have medical issues and/or seizure disorders.

**Myth:** *It is very hard to know if a person with other disabilities has an autism spectrum disorder.*

**Fact:** Autism is diagnosed by looking at the behavior of the individual. If the individual displays the features of autism, then he or she may have autism. An assessment should be completed for any person who displays features or characteristics that could be related to an autism spectrum disorder. Do not be satisfied with terms such as “autistic-like.” It is better to work to find a true diagnosis that explains all of the features the person demonstrates.

This is not an all-inclusive list of the myths often associated with autism or ASD; however, it serves as a guide to recognize some of the misinformation and realities about ASD.

## Novel Treatments

Many novel and unconventional treatments of ASD or autism are in the popular literature and various Web sites about the developmental disorders. Often such treatments are referred to as CAM (complementary and alternative medical) therapies. These approaches are primarily biologically based treatments that are perceived as a means of treating the cause, possibly curing the disorder,



versus treating the symptoms (Levy & Hyman, 2005). Traditional and research-based literature and procedures recognize that the only empirically supported treatments for ASD or autism are behaviorally based interventions that are educational and address developmental issues to promote skills acquisition associated with the primary deficits related to ASD (National Research Council, 2001). Hence, it is vital that individuals who are working with individuals with ASD or concerned about ASD treatment be aware of legitimate sources for information regarding the developmental disorders.

## SUMMARY

Autism is a pervasive developmental disorder that is believed to be the most impairing of the ASD. Though autistic disorder has historically been viewed as being the result of poor parenting factors, it is now considered to be a neurobiological disorder that likely has origins related to many possible factors including genetics, brain structure abnormalities, brain functioning impairments, or other biological causes. The three primary deficit areas involved in autistic disorder include social impairments, communication deficits, and patterns of restricted or abnormal repetitive behaviors and interests. Additionally, 75 to 80 percent of those diagnosed with autism also have cognitive deficits. Though there is not a known "cure" for autism or ASD, early intensive education and behavior-focused treatment interventions that target the specific skills deficits of an individual can significantly alter the lives of autistic individuals and their families.

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