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Understanding Asperger Syndrome and High-Functioning Autism

Most kids of a given age just seem to *get* social rules, and to various degrees, they instinctively know how to interact with others. Of course, adults, especially parents, family members, and teachers, do lots of instructing, coaxing, persuading, nagging, scolding, and so forth, and they deserve credit when children acquire desired and age-appropriate social skills. Yet, even without parent and teacher assistance, most kids learn innumerable *acceptable social behavior* without being directly taught. Either by observing others or otherwise acquiring basic skills instinctively and seemingly effortlessly, and certainly without much work on our part, the majority of kids learn acceptable social skills. In many cases, this is a natural part of the normal developmental process: at certain ages, most kids just seem to be able to understand and follow social guidelines and practices. As any parent or teacher can passionately attest, children and adolescents do not always follow those rules; however, the problem is not one of understanding! By a certain age most kids seem to intuitively and naturally understand how close to stand when talking to another child, what should and should not be said in the presence of a teacher, that acceptable behavior in a church

service and on a playground are not the same, and countless other conventions.

This is not the case with children and adolescents with autism. By clinical definition (and whatever other standard one applies), children with *autism spectrum disorder* (ASD, the technical term for the range of types and levels of autism) are lacking in social skills. In the clear majority of cases, their social excesses (behaviors that occur too frequently and that lead to trouble) and deficits (expected behaviors that fail to happen) do not stem from an unwillingness to follow conventional social rules. Rather, the issue often relates to understanding social rules and accepted practices. Children and adolescents with ASD either do not know how to perform and fit in, or in some cases, especially with more severely affected individuals, they do not care, and thus, they are unmotivated to connect with others and be part of a social group. The important conclusion is simple: social problems of these individuals are frequently the result of a failure to understand and consistently perform.

To at least some degree, virtually all children and youth with ASD want to have friends, they desire to be a legitimate part of their school and community, and they want to be able to understand and function within social settings. This in no way suggests that every individual with ASD wants to be just like every other person and thus lose their individuality and uniqueness. Furthermore, this does not imply that every child or youth wants to be the center of attention, a popularity king or queen, or constantly involved in social activities. Nonetheless, quality of life and general happiness clearly align with social understanding and an ability, when needed, to understand social rules and how to be part of a social group. For this to occur, individuals with ASD need to be taught social behaviors and social understanding and skills. This book is designed to facilitate this process, especially related to the needs of children and adolescents with Asperger Disorder and other forms of high-functioning autism. This chapter sets the foundation for the instruction that follows in other chapters. It outlines the needs and characteristics of learners with ASD, specifically those diagnosed with Asperger Disorder and other types of high-functioning autism, thus providing the underpinnings for effective social skill instruction and support.

Autism Spectrum Disorders

Children and adolescents with ASD are remarkably unique. Highly variable intellectual abilities, speech and language capacity, behavior,

adaptive behavior, and social abilities frequently make children and youth with ASD difficult to understand and contribute to their often perceived-to-be mysterious qualities. To be sure, individuals with ASD vary considerably in development and functioning. Individuals with ASD, especially those identified as having Autistic Disorder and other classic forms of autism, often have significant cognitive and intellectual impairments, significant language and communication delays and problems, severe behavioral problems such as self-stimulation (e.g., hand flapping, rocking) and related abnormalities. Social abnormalities and social skill deficits and excesses are also part of the ASD picture.

The autism spectrum also includes children and youth who fall at the so-called *high-end* of the continuum. These individuals share general features and characteristics with others who have been diagnosed with ASD, namely social skill and social interaction traits; certain speech, language, and communication characteristics; and behavioral irregularities and problems. Yet, despite these basic and generic shared ASD features, individuals at the higher end of the ASD continuum characteristically and for the most part appear unlike others with autism. These children and adolescents, commonly identified as having Asperger Disorder and other forms of higher-functioning autism, tend to have average to above-average intellectual and cognitive abilities, basic age-expected speech and language abilities, and academic skills and capacity that typically allow them relatively routine access to standard grade-expected curricula and typical educational opportunities. In spite of these assets and qualities these so-called *high-functioning* children and youth routinely experience many significant challenges connected to their ASD disability. These students are especially at risk for significant social skill and social interaction problems.

Children and Youth With Asperger Disorder and Other Types of High-Functioning Autism

Hans Asperger, a physician who was living in Vienna, published a seminal paper in 1944, which described four children with an unusual pattern of ability and social behavior. The children were described as having poor social skills and other atypical behavior; however, they appeared to have average or above-average cognitive and language abilities. The children had an affinity for social isolation and were

described by Asperger as socially odd, socially uninformed, and awkward. Asperger also noted that the children frequently displayed *typical autistic behaviors*, such as self-stimulation and insistence on environmental sameness. However, despite these features they were unlike other children with autism, primarily because of their average intellectual ability and normal language development. Asperger (1944) asserted that these children represented a unique and independent diagnostic classification, one he termed "*autistic psychopathy*" in childhood. He also contended this newly identified disorder had a neurodevelopmental cause. That is, Asperger contended the disability was neurodevelopmental in nature (an impairment of the brain) and unrelated to other causes, such as psychological problems or exposure to family difficulties. Today, higher functioning autism disorders are commonly included among the ASD continuum. And *Asperger Disorder* is commonly and increasingly subsumed under the generic umbrella of higher functioning autism disorders.

Interest and attention in Asperger Disorder was initially slow to develop. Even though first identified in 1944, significant attention was not given Asperger Disorder until the 1980s. Lorna Wing (1981), a British psychiatrist, is often credited with bringing Asperger Disorder to the attention of researchers and clinicians by translating Hans Asperger's original work into English and clarifying and identifying the disorder through extensive clinical descriptions and case examples. Uta Frith (1991) also significantly facilitated this translation and interpretation process. Once the disorder came to the attention of professionals, it quickly became of major interest to a variety of professionals as well as other stakeholders, such as parents and families. Today, Asperger Disorder is widely recognized around the world by professionals, parents, and the general public. High-functioning autism spectrum disorders have followed the trends of the more specific condition Asperger Disorder and, increasingly, the two conditions are commonly and increasingly viewed as generally encompassing a single classification (American Psychiatric Association, 2013).

The remarkable increase in the number of individuals diagnosed with Asperger Disorder and high-functioning autism, including school-age children and youth, has dramatically affected schools, social agencies, communities, and families around the world. The remarkable increase in interest in Asperger Disorder is directly linked to recognition of the syndrome as a subclassification of pervasive developmental disorder in the *Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition* (DSM-IV; American Psychiatric Association, 2000) and the corresponding international classification

system, *International Statistical Classification of Diseases and Related Health Problems* (World Health Organization, 2007). The most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition* (DSM–V; American Psychiatric Association, 2013) lists Asperger Disorder as one component of the ASD spectrum; in fact, it no longer identifies Asperger Disorder as a separate diagnosis. This amendment in no way eliminates the presence and existence of Asperger Disorder, rather only a modification in diagnostic classification. For this reason, we include and intersperse use of both the terms *high-functioning autism* and *Asperger Disorder* in subsequent chapters of this book.

Notwithstanding the extraordinary interest in ASD in general, and high-functioning autism and Asperger Disorder in particular, understanding these disabilities lags significantly behind their recognition. First, there is misunderstanding and lack of clarity related to the precise defining and unique characteristics of high-functioning autism and Asperger Syndrome relative to other forms of ASD. Lack of diagnostic reliability is another problem. That is, it is common for different professionals to arrive at a different diagnosis for the same child. There is also significant debate about whether Asperger Syndrome is an independent diagnostic category or simply another dimension of the so-called spectrum of autism. There are arguably subtle differences among individuals diagnosed with Asperger Disorder and the more generic condition of high-functioning autism spectrum disorders. Nevertheless, increasingly, as noted in our earlier discussion of current DSM-V diagnostic terminology (American Psychiatric Association, 2013), those terms are interchangeably used. More importantly, the methods and strategies for individuals with these conditions, including social skill and social interaction interventions and supports, are generally the same. As noted above, we use both the terms *high-functioning autism* and *Asperger Disorder*. For purposes of convenience and readability, we frequently use an abbreviated term: *HF/AD*.

Children and youth with HF/AD are typically classified and characterized based on their social skills and social interactions, speech and communication, cognitive abilities, academic traits, behavior and emotion, sensory characteristics, and physical and motor skills. These characteristic components are discussed below.

Social Skill and Social Interaction

By definition, children and youth with Asperger Disorder and other forms of high-functioning autism demonstrate social excesses and

deficits. Moreover, these atypical patterns and irregularities frequently continue into adulthood. Scores of children and adolescents with these disorders are socially motivated and are interested in interacting with others. These interactions, however, tend to be socially awkward; and all too often these individuals struggle to understand social rules and conventions and effortlessly and naturally engage in age-appropriate interactions, such as conversations and activities with individual peers or groups of peers. These social deficits are most likely due to the students' inability to understand desirable social customs or perform the needed social skills rather than fear or lack of a desire to interact with others. The lack of skill leads to the display of actions that are often perceived as noncompliance or lack of willingness or interest. It is not unusual for children and youth who are strongly motivated to interact with others to become less inclined to socially engage others in their adult years. Different interpretations of this pattern have been offered, including that it is attributable to these individuals experiencing a lifetime of social rejection and other negative responses to their attempts to connect to others.

In aggregate, individuals with HF/AD may be situated anywhere from socially gregarious and socially active to withdrawn on the social-interaction-motivation continuum. Apart from where they fit on this gauge, however, they are routinely perceived as socially awkward and stiff, emotionally blunted, self-centered, poor at comprehending nonverbal social cues, rigid, and lacking in empathy and understanding. As a result, even when children with high-functioning autism actively try to socially engage others, they often experience rejection and social isolation because of their weak social skills and lack of understanding of social behavior rules, such as suitable topics for discussion, awareness of shared and reciprocal conversation topics, typical patterns of eye contact, and physical proximity conventions, gestures, and posture.

Individuals with HF/AD are often able to participate in routine social interactions (e.g., join and participate in an assigned cooperative group in a classroom). These same students however often find it difficult to participate in extended social contact and less structured activities or to form a close friendship with one or more peers. Children identified as having HF/AD are commonly described as lacking social convention and protocol awareness and skill, having common sense deficits, being prone to misinterpreting social cues and nonverbal messages, and apt to routinely displaying socially unacceptable and nonreciprocal behaviors. In spite of their frequent lack of social awareness, many of these individuals are aware of their

social differences, and as a result, they may suffer from self-esteem problems and feelings of poor self-worth.

Individuals with HF/AD typically are weak in acquiring social skills and social understanding without the benefit of direct instruction. Unlike many children who appear to acquire social skills via an incidental or developmental learning mechanism, youth with Asperger Disorder and other forms of high-functioning ASD typically have difficulty grasping the full meaning and context of particular social skills independent of explicit instruction. Indeed, many children and youth with these disorders may attempt to rigidly and generally follow universal social rules. Of course, few social rules universally apply in our complex and ever-changing world, hence reliance on inflexible routines and non-nuanced social strategies fail to yield positive outcomes in every situation. For example, greeting a classmate on a ball field requires different social behaviors than greeting the same classmate during a class lecture. While a greeting response is appropriate for both settings, there are social rules that fit these situations and circumstances.

Emotional and Behavior Characteristics

Students with HF/AD also commonly experience emotional vulnerability, anxiety, and stress. For example, it is common for these children to experience significant stress when there are changes in routines and schedules and anxiety when they are unexpectedly thrust into unfamiliar social surroundings with unknown people.

It is also significant that children and youth with HF/AD are easy targets for bullying and teasing. Reports suggest that bullying and harassment of these individuals, including adult-age persons, are common. This vulnerability clearly speaks to the need to instruct students with ASD to be strong self-advocates as well as to the need for effective and consistently applied antibullying instruction. Informational educational and enlightening programs for general education children and adolescents are also key elements of this process.

While not universal, behavior problems among students with HF/AD are not uncommon. Often, these problems involve feelings of stress, anxiety, and pressure to perform within set time and performance standards as well as loss of control or an inability to predict or have power to control or mitigate outcomes. Hans Asperger (1944), in his original description of children with Asperger Syndrome, described the four prototype children he studied as having significant behavior and conduct problems. In retrospect, it is likely that Hans

Asperger was seeing the behavioral effects of misunderstood social expectations and circumstances, unskilled social skills, and stress resulting from a lack of structure. Today, there is little support for Asperger's (1944) original description of children with Asperger Syndrome as malicious and mean. Rather, when persons with high-functioning autism experience behavior problems, it most likely resulted from social ineptness or lack of skill, an obsessive interest, stress, anxiety, or a similar response.

It is not unusual for individuals with HF/AD to develop additional social and mental health problems such as depression as they get older. Furthermore, it is not at all unusual for adolescents and young adults with high-functioning autism to experience increased distress and anxiety in social situations. Not surprisingly, these reactions can reduce their motivation for social interaction and contact.

Language and Communication

Youth with HF/AD, unlike children with more classic forms of autism, tend to acquire and use words and phrases within generally expected developmental norms. While there may be some language problems and delays among children with ASD, they typically do not have clinically significant language delays. Frith (1991) observed that children with Asperger Disorder "tend to speak fluently by the time they are five" (p. 3). However, she also observed that their language is frequently "odd in its use for communication" (p. 3). Wing (1981) reported that many individuals with Asperger Disorder and high-functioning autism display a variety of communication deficits as infants. She also put forward the notion that many of their perceived *special abilities* could be explained as rote responses rather than normal or precocious language development.

Disagreement exists among professionals regarding the exact extent to which children diagnosed with HF/AD display language acquisition delays and deficits. However, there is no debate that these children commonly manifest a variety of abnormal and/or atypical communication characteristics. This is particularly the case with social, conversational, and socially connected language skills (e.g., abnormal voice quality, monotonic voice). These problems and traits are commonly referred to as *pragmatic deficits*. It is common for these children and adolescents to acquire speech and language skills on schedule, albeit to primarily engage in egocentric conversations, one-sided monologues, and to only talk about narrowly focused interests that are of little interest to others. For example, one 10-year-old

with whom we are familiar had a fascination with plumbing supplies and plumbing gadgets since infancy. Related to this interest, one of his favorite leisure activities at school was to read plumbing supply catalogs and have lengthy one-sided discussions about plumbing matters. His teacher found this interest to be a strong reinforcer and a means of strengthening his existing grade-level reading skills. However, his classmates, albeit tolerant of his unusual interest in plumbing matters, failed to find the topic to hold much interest and not a subject for lengthy discussions. The boy with the unique interest failed to grasp this fact, and he continued his attempts to discuss it despite strong feedback from his classmates and teachers. This pattern was an ongoing social interaction problem; and it interfered with the child participating with his peers in other activities and shared interests. Clearly, there are communication issues associated with these patterns since effective communication requires that individuals have shared topics and be willing to listen as well as talk.

In addition to verbal interaction deficits, persons with HF/AD often have problems understanding nonverbal conventions and exhibit nonverbal communication deficits. Examples of these common problems include failing to respect other's physical space (e.g., standing too close to another person when conversing), staring for prolonged periods at the person, failing to look at the person, or making unusual gestures (e.g., frowning or scowling when the conversation or interaction fails to call for such expressions). Other nonverbal communication concerns include weakness in interpreting gestures or facial expressions or exhibiting unusual body posture.

Finally, many children and adolescents with HF/AD have difficulty understanding abstract concepts. As curricula advances in accordance with grade-level movements, readings and discussions become more abstract. As a result, difficulty in understanding and functionally using these ubiquitous concepts, themes, and educational tools (e.g., metaphors, idioms, parables, and rhetorical and metaphorical questions), negatively impacts academic achievement (World Health Organization, 2007).

Cognitive Characteristics

A defining characteristic of Asperger Disorder and high-functioning autism is average or above-average intellectual capacity (American Psychiatric Association, 2013; World Health Organization, 2007). However, despite this presumption and the recognition of the

importance of cognitive profiles in understanding and planning for learners in general, relatively little is known about the cognitive and intellectual abilities of persons with HF/AD. Indeed, many assumptions regarding the intellectual and cognitive characteristics of these children and youth are based on limited studies.

According to several researchers, individuals with HF/AD have uneven cognitive profiles on intelligence measures, including as measured by the widely used Wechsler intelligence scales (Wechsler, 1989, 1991). Significantly higher scores on performance items (Performance IQ scores) and lower verbal performance (Verbal IQ scores) have been found (Ehlers et al., 1997; Lincoln, Courchesne, Kilman, Elmasian, & Allen, 1988). Furthermore, and more specifically, the highest scores were found on the Block Design subtest and the lowest score was earned on the Comprehension subtest. The Block Design portion of the Wechsler Intelligence Scale for Children (WISC) requires abstract conceptualization, spatial visualization, and perceptual organization, while understanding of social mores and interpersonal situations is assessed on the Comprehension subtest. The latter is believed to assess an individual's grasp of social conventions, social judgment, and common sense. Thus, it is not surprising that individuals with high-functioning autism (including those with Asperger Disorder) would be expected to score relatively poorly on a test designed to measure social comprehension. Without a doubt, much remains to be learned about the intellectual and cognitive abilities and functioning of persons diagnosed with HF/AD.

In one of the few studies of cognitive abilities of children and youth with Asperger Disorder, Barnhill, Hagiwara, Myles, and Simpson (2000) assessed the cognitive profiles of 37 children and youth with Asperger Syndrome, as measured by the Wechsler scales. The scores generally fell within the average range of abilities, although the range of IQs was from intellectually deficient to very superior. No significant difference existed between the Verbal IQ and Performance IQ scores. Consistent with the findings of others, the study also revealed relatively high Block Design subtest scores, suggesting relatively strong nonverbal reasoning ability and visual-motor spatial integration. Relatively low scores were found on the Coding subtest, suggesting that many of the subjects had visual-motor coordination difficulties, were distractible, were disinterested in school-related tasks, and had visual memory weakness. The subjects also obtained relatively low scores on the Comprehension subtest, suggesting poor social comprehension and in some instances judgment. It is important to note, however, that this and other studies have failed to identify a

specific cognitive profile among individuals diagnosed with Asperger Disorder. Indeed, patterns of intellectual and cognitive abilities and profiles of persons with Asperger Disorder and high-functioning autism spectrum disorders are increasingly being recognized as similar and in most cases indistinguishable when the two groups are compared.

How are uneven cognitive performance among individuals with HF/AD explained? While several theories have been proposed, one of the most popular views suggest a *theory of mind* deficit (Baron-Cohen, 1995; Baron-Cohen, Golan, Wheelwright & Hill, 2004; Baron-Cohen, Leslie, & Frith, 1985). Theory of Mind (TOM) reflects the ability to, in a sense, “read another person’s mind.” In other words, TOM is the ability to think about their own mental states and use verbal and nonverbal cues to think about others’ beliefs and intentions. According to this theory, the weakness in perspective taking and such related abilities is explained. This same notion has also been used as an explanation for these individuals’ irregular profile on certain types of IQ tests.

Academic and Learning Characteristics

In large numbers, learners with HF/AD experience academic performance problems. Of course, there are exceptions to this general finding. For sure, there are multiple examples of individuals with HF/AD who have superior intellectual abilities and who display exceptional capabilities and talents, especially in technical areas and the sciences. In sum, the clear majority of these learners have average or above intellectual abilities and other capabilities that make regular classrooms and general education the most appropriate educational setting. Notwithstanding these faculties, there are certain deficits that make it difficult for many of these students to comprehend and fully make the most of general education curricula and wholly thrive when taught using traditional instructional methods. These challenges include difficulty with organization skills, struggles with discriminating relevant from irrelevant information, narrow interests or obsessions, taking information literally, and difficulty in applying problem-solving skills.

Some children and youth with HF/AD are diagnosed and assumed to have learning disabilities (Attwood, 2007). This understanding extends as far back as Hans Asperger (1944) himself, who described the academic performance of children with Asperger Disorder as erratic and unpredictable. Just as teachers and parents all

too commonly experience today, Hans Asperger observed decades ago that these children have a tendency to disregard and turn their back on academic subjects that don't align with their special interests and narrowly defined concerns. Thus, some of these students may have diagnosable learning disabilities, although other crucial factors may also challenge their learning.

Students with HF/AD may demonstrate strong ability to comprehend and remember factual material and information. Yet, many of these students seem to struggle with understanding and applying school-related knowledge and skills. That is, they may be able to know facts and grasp other information, but they may not be able to use it to solve problems or apply to real-world situations. Such deficits clearly impact students' academic achievement. For example, academic achievement scores among groups of learners diagnosed with HF/AD often range from significantly below average to significantly above average (Griswold, Barnhill, Myles, Hagiwara, and Simpson, 2002). Griswold et al. (2002) also identified oral expression and reading recognition strengths among learners with HF/AD, as well as listening comprehension and written language deficits. Deficits in math, especially in applying math skills to solve application and *real-world* problems, and difficulties in critical thinking and language-based problem solving, were also common. Unquestionably, implications of this pattern can be significant: learners who struggle to use what they have mastered, such as math facts and principles, and are unable to use their prior learning to solve problems, will experience academic difficulties.

Sensory Characteristics

Children with autism, including those with HF/AD, are prone to unusual responses to sensory stimuli. Along with confirming sensory-related research findings (Dunn 2016), teachers and parents often observe this anguish as children struggle with loud noises, unpredictable sounds, such as fire drills, and unanticipated, physical touch. Some children and adolescents with HF/AD have an obsessive insistence on wearing a particular type of clothing or prefer certain foods or food textures. Still other children engage in self-stimulatory responses such as repeatedly spinning objects, especially when they experience stress, fatigue, or sensory overload. These peculiarities may further advance the unusual persona of these individuals and create even more social interaction and social relation barriers.

Physical and Motor Skill Challenges

Children and adolescents with ASD have been found to display balance issues and poor motor coordination (Wing, 1981), and these difficulties negatively impact their participation in physical activities and games that require physical coordination. Consider, for example, the social implications of an elementary-age boy who attempts to connect with peers via sports and games but who must contend with both poor social comprehension and social awkwardness along with physical coordination problems and clumsiness. Unquestionably, these problems have significant social and social language implications, and thus, they go well beyond matters of motor coordination. Additionally, various school activities, such as art and handwriting, are impacted by the fine motor difficulties exhibited by many students with HF/AD. All too many teachers have unfortunately failed to recognize that a student's poor handwriting is a common element of this disorder.

A case example of a child who was subsequently identified as having high-functioning autism follows.

Case Example: Stanley

Stanley is a fourth-grade student in a large suburban public school district. Stanley met all of his developmental mile markers within the average time. In spite of this average developmental pattern, his parents are concerned about an increased number of negative school reports and his stiff and *highbrow* way of talking to peers and adults. Stanley's parents are also concerned that his obsessive need for adhering to extremely rigid routines at home will become a problem for him socially as he becomes older. The parents describe Stanley as a *social child* who enjoys reading and computers. Stanley does not like going outdoors and will rarely voluntarily leave his house. A typical evening at home includes, in the following order, homework, computer time, dinner with his parents, reading, bathing, and then bed. If there is a change in the routine Stanley will become emotionally agitated until the regularly scheduled routine can be continued.

Stanley's parents are concerned that their son's eccentric behavior is being misunderstood and unappreciated by both peers and adults. They also are increasingly concerned that Stanley's teachers don't like him, and that this attitude is interfering with his school performance.

His parents feel this is the reason he brings home *incident reports* from school several times each week.

School personnel have a different impression of Stanley. They describe him as being able to read at a seventh-grade level with a comprehension at mid-second-grade level. His math skills are below his expected grade level. They also note that Stanley has significant difficulty when there is a change in routine. During such times (e.g., when a school-wide assembly requires a change in schedule), Stanley becomes emotionally agitated and often begins crying. During these episodes, his teachers indicate he will retreat and fails to respond to teacher directives until the next scheduled subject begins.

Stanley's teachers describe his social skills as *delayed and unusual for a fourth grader*. He rarely initiates conversations with others and will only engage classmates in conversations if the other individual is discussing computers or *Power Rangers*. If approached by a classmate wanting to discuss another topic, Stanley will simply ignore them and walk away. At school, Stanley has difficulty with organization. Because of his difficulty in locating school materials and keeping pace with class requirements, as a result failing to find specified books and materials, his teacher has assigned him a shelf in the classroom for his books and assignments. The shelf was offered because his desk was filled with various nonclass materials (clothing, toys, magazines, and so forth). The rule his teacher insisted he follow was that the shelf could be used to store only books and classroom assignments. His teacher reports that she is constantly needing to remind Stanley that he can only store materials in his *special area* if it is directly related to work he is doing in the classroom.

Other areas of concern for the teacher include Stanley's general emotionally agitated state and angst. His teacher describes him as anxious throughout most of the day, frequently asking the teacher how much time is left until the next subject, lunchtime, or when the school bus is scheduled to arrive at the end of the school day. Stanley also demonstrates difficulty with fine motor tasks, often requesting assistance to tie his shoes. He also has difficulty with handwriting; and his written products are sloppy and representative of what would be produced by a much younger child.

Other Considerations

Understanding and creating an effective social skill and social interaction support program planning for students with HF/AD requires an understanding of additional basic features of the disorder.

Included are facts, realities, and discussions of prevalence, etiology, comorbid conditions, and prospects for children and youth with Asperger Disorder and other forms of high-functioning autism.

Prevalence

Prevalence is a term that refers to estimates of the number of individuals with a particular characteristic or trait. Relative to epidemiology matters, prevalence pertains to the proportion of a population with a condition, such as a disease, risk factor, or a disability. For a variety of reasons, it is difficult to obtain a precisely accurate count of the number of individuals with autism spectrum disorders; and prevalence estimates are not always precise and far from long term. Yet, based on present estimates it is undeniable that more and more schools, families, and communities are experiencing the challenges associated with ASD, including HF/AD. The Centers for Disease Control and Prevention, in 2017, offered a prevalence estimate of 1 in 68 children and 1 in 54 males. This estimate has increased progressively over the past decades, and it is particularly noteworthy when the current numbers are compared to early estimates. Consider, for example, that in 1966, Lotter, a prominent early-era autism researcher, estimated that the frequency of autism was 4 to 5 per 10,000, or in the general range of 1 in 2,000–2,500.

Reliably estimating the prevalence of HF/AD is no easy matter. Throughout the world, specific diagnostic criteria vary, and as earlier noted, Asperger Disorder and high-functioning autism are increasingly being merged as a single diagnostic and classification entity. For sure, these conditions are similar and difficult to differentiate. Thus, variable prevalence estimates have been common. Yet, HF/AD is on the increase and is following a similar trajectory to general ASD (Centers for Disease Control and Prevention, 2017). Volkmar and Klin (2000) sagely noted that “the lack of a real consensus on the diagnosis means that present data are, at best, ‘guestimates’ of its prevalence” (p. 62). The DSM-IV-TR (2000), a revised edition of DMS-IV, lacks a prevalence estimate for Asperger Disorder, noting that “definitive data regarding the prevalence of Asperger Syndrome are lacking” (p. 82). Despite not knowing the exact prevalence of HF/AD, it is clear that it is common and widely diagnosed. It appears to be approximately five times more common in boys than in girls, and it has been identified throughout the world among all racial, ethnic, economic, and social groups.

Etiology

There is no known single cause for autism-related disabilities, including Asperger Disorder and high-functioning autism. Nevertheless, these disabilities are widely considered to be the result of a neurological disorder. The Autism Society of America (2017) strongly supports the position that there are no known psychological or related interpersonal environmental factors that cause the conditions (see for instance the debunked causal explanations of *refrigerator mother* and parental emotional aloofness). This position is embraced by virtually every professional and professional organization in the world. Although the precise etiology of HF/AD and ASD are currently unknown, it is increasingly clear that the disorders are related and that they share many of the same causal variables. Undeniably, there is a significant hereditary link for cases of Asperger Disorder and other forms of high-functioning autism and ASD (American Psychiatric Association, 2013).

Professional and popular press is replete with speculation that HF/AD and other autism-related disabilities are the result of environmental factors, such as exposure to environmental chemicals and toxins, metabolic imbalances, and infections. Most of the attention connected to environmental etiological factors has been linked to autism. Nevertheless, this literature also relates to and has implications for Asperger Disorder and high-functioning autism. The most notable and widely publicized of these purported factors are toxins such as mercury and vaccination additives. There is no credible scientific evidence that mercury and vaccine preservatives and additives are the cause of any autism-related disability, including HF/AD. Nevertheless, despite multiple scientific studies to the contrary, there continues to be enduring speculation that the remarkable increases in cases of ASD are the result of vaccination-related factors.

Accompanying and Comorbid Conditions

Relative to ASD, the terms *concomitant* and *comorbid* refer to accompanying risks or conditions. Several such conditions are common among individuals with HF/AD: obsessive-compulsive disorder, depression, bipolar disorder, anxiety, affective disorders, and attention-deficit/hyperactivity disorder. These conditions interact with other ASD traits and may create both challenges and opportunities for individuals planning interventions and support strategies. For example, an adolescent with a strong interest in a preferred action hero may offer a teacher or therapist a unique opportunity for

presenting a model of how to respond to particular social situations (e.g., when participating in a cooperative group activity at school, *Aqua Man* would demonstrate behaviors such as good listening and attention to what others are trying to communicate). Of course, other accompanying factors, such as anxiety about being around unfamiliar peers, may create challenges.

Outlook and Future Projections

Hans Asperger (1944) clearly expressed the opinion that most persons with Asperger Disorder are able to experience positive life outcomes because of their cognitive and language assets and reliance on unique special interests and distinctive perspectives. He became more circumspect in this prognosis later in his career, likely because he was witness to variable outcomes among individuals with the disorder.

Current researchers are in the preliminary stages of assessing the prognosis of persons with HF/AD. Despite lacking needed longitudinal data and other replicated research findings, there is strong reason to believe that many children and youth with HF/AD lead relatively normal and productive lives. A peculiar social style, unusual communication manners, and highly atypical interests can be expected, including during adult life, yet many of these individuals will lead generally normal lives. However, successful school and post-school outcomes will require work and planning. These children and youth require social skill training and a network of social interaction support.

High-functioning autism disorders and Asperger Syndrome are challenging, complex, and significant. At the same time, there is every indication that with appropriate education, treatment, and support, these individuals will lead relatively normal and independent lives. This is particularly the case with social matters. Highlighting this need for social training and support, and that progress will only occur with appropriate and concerted efforts, Safran (2001) cautioned professionals and parents that “without appropriate educational supports, students [with high-functioning autism spectrum disorders] may be left to fend for themselves in a world where social cues hold little meaning, where repeated failures in interpersonal relationships create anxiety and social rejection” (p. 154).

SUMMARY CONSIDERATIONS

There is no question that children and adolescents with HF/AD are challenging the resources and capacities of families, schools, and communities. This is particularly the case relative to shaping

age-appropriate social skills. Despite that, when provided appropriate programming and accommodations, these learners experience improved and positive school and post-school outcomes.

Successfully designing and implementing programs to meet the needs of children and youth with HF/AD is not an easy task, and of course, not all students will make first-rate progress. Despite these challenges there is occasion and much room for optimism. When provided suitable support and appropriate teaching methods, these individuals can be expected to gain skills and confidence, including in social domains. In this connection, this book presents proven instructional procedures and systematic and explicit teaching methods and materials for guiding the social skill instruction and support of school-age children with HF/AD.

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