AUTISM SPECTRUM DISORDERS: A RESEARCH REVIEW FOR SCHOOL COUNSELORS

The number of students with autism spectrum disorders (ASD) has risen significantly in recent years (CDC, 2012), and students with ASD present unique challenges to schools and school counselors. This article presents a synthesis of recent research literature related to ASD for the purpose of providing school counselors with assistance in understanding and addressing the needs of students with ASD. Specific areas of focus include the prevalence, developmental course, and defining characteristics of ASD, and research on the effectiveness of interventions for students with ASD. Students with ASD are at increased risk for a range of problems, including social deficits and limitations, anxiety, aggression, peer victimization, and underachievement (Ashburner, Ziviani, & Rodger, 2010). Interventions to address the social deficits of students with ASD have shown promise but also have been found to lack results that are generalizable and that persist over time (Schreiber, 2011). This article provides specific recommendations for school counselors.

*A*utism spectrum disorder is an umbrella label that describes a set of developmental disabilities marked by significant impairments in social interaction and verbal and nonverbal communication and some level of restricted interests and/or repetitive behaviors. While the autism spectrum disorder label is increasingly being used in schools and by researchers as the preferred term for autistic conditions, other labels are used in other contexts. *The Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision* (DSM-IV-TR) uses the label *pervasive developmental disorder*, which in itself is an umbrella label that encompasses *autism* and *Asperger's disorder* (American Psychiatric Association [APA], 2000). The relevant federally-defined label for autistic conditions in the Individuals with Disabilities Education Act (IDEA) is *autism*. Further adding to this labeling complexity is the change in the new DSM-5 (APA, 2013), which eliminates Asperger's disorder and autistic disorder as labels and moves to the global *autism spectrum disorder*. To be consistent with current usage patterns, this article will use the term *autism spectrum disorder* (ASD) except when describing a specific research study that used a different label and that requires use of that label to fully understand the results of the study.

As the word spectrum implies, autism spectrum disorder can vary in its impact from mildly impactful to an overwhelming degree of impairment. Some students with ASD are severely disabled, lacking virtually all language

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capabilities and seemingly captive to an internal world that does not allow emotional contact with even the closest of caregivers. In contrast, other students with ASD are able to function successfully in regular education classrooms, often displaying strong academic abilities and exceptional knowledge bases in narrow areas of interest, only departing from typically developing peers in subtle social skill deficits and quirky, discrete areas of interest. Most students with ASD, of course, fall somewhere in between these two ends of the spectrum. All students with ASD, regardless of the severity of their disability, present special challenges for schools and need varying levels of special support in order to succeed academically and socially in school.

Although ASD can manifest itself in a wide range of severity, it does include some core characteristics that are the essence of the disorder. Strong overlap can be seen in the federal definition of autism that is used to guide identification of students with autism spectrum disorders in the schools and the DSM-5 criteria for autism spectrum disorder. The federal definition of autism in IDEA is as follows:

> Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences (U.S. Department of Education, 2013, Regulations Section, 300.8 C1).

The DSM-5 characterizes an individual with autism spectrum disorder as having "persistent impairment in reciprocal social communication and social interaction…and restricted, repetitive patterns of behavior, inter-

ests, or activities" (APA, 2013, p. 53). The common core elements of both the federal definition and the DSM-5 definition are the presence of social skill deficits, language difficulties, and restricted interests and/or repetitive behaviors.

Current data from the Centers for Disease Control and Prevention (CDC, 2012) reveal an average prevalence rate for ASD of 11.3 in 1,000 among 8-year-old children in the United States—the equivalent of 1 out of every 88 children. A somewhat lower proportion of children in public schools in this country are receiving

special education services with an autism disability label; in the 2009-10 school year, 8.0 in 1,000 K-12 students were classified as having autism (CDC, 2012). There is a compelling argument that ASD is underidentified in schools, based on the discrepancy between higher community-based estimates of prevalence as compared to lower rates of actual students identified with ASD in public schools (Safran, 2008).

As of the 2009-10 school year, 378,000 students in the U.S. were receiving special education service for ASD (U. S. Department of Education, National Center for Education Statistics, 2012), and those thousands of students experience a wide array of negative consequences both in school and out of school. For example, students with ASD have been rated by teachers as being more anxious and withdrawn, more depressed, more aggressive, more perfectionistic, more emotionally labile,

and more apt to underachieve academically as compared to typically developing peers (Ashburner, Ziviani, & Rodger, 2010). Students with ASD can be easily overwhelmed by the abundant sensory stimuli (light, sound, color) that permeate the school environment, and loosely structured classrooms can flood them with anxiety (Humphrey & Lewis, 2008). Indeed, anxiety is a frequent companion for students with ASD; high levels of social anxiety can both hinder the development of their social relationships and interfere with their enjoyment of the relationships they do have (Bellini, 2006).

STUDENTS WITH ASD HAVE BEEN RATED BY TEACHERS AS BEING MORE ANXIOUS AND WITHDRAWN, MORE DEPRESSED, MORE AGGRESSIVE, MORE PERFECTIONISTIC, MORE EMOTIONALLY LABILE, AND MORE APT TO UNDERACHIEVE ACADEMICALLY AS COMPARED TO TYPICALLY DEVELOPING PEERS.

While students with ASD experience a number of issues that impact their school success, deficits in the social arena are perhaps most challenging. From an early age, children with ASD show much lower rates of prosocial behavior than typically developing peers (Boyd, Conroy, Asmus, & McKenney, 2011) and struggle with age-appropriate social skills (Mahan & Matson, 2011). They also tend not to be included in the social networks of classrooms (Rotheram-Fuller, Kasari, Chamberlain, & Locke, 2010), exhibit a social naiveté that can lead to peer victimization (Humphrey & Lewis, 2008), and display difficulty in being able to understand the perspective of another person (Demurie, De Corel, & Roeyers, 2011). Social problems are evident throughout the school career of students with ASD; indeed, the main concern of parents of children with ASD who are planning to attend college is social adjustment (Camarena

& Sarigiani, 2009). Nor are social challenges restricted to the school setting. In comparison to nondisabled adolescents, who tend to spend significant free time with peers, adolescents with ASD spend the majority of their free time alone or in the company of their mothers (Orsmand & Kuo, 2011). Most ASD adolescents never receive phone calls from peers (Shattuck, Orsmond, Wagner, & Cooper, 2011), and their social deficits serve as barriers to participation in after-school activities (Obrustnikova & Cavalier, 2011).

To assist students with ASD in facing significant challenges both in and out of school, researchers and schools have developed treatments and intervention strategies aimed at fostering the social adjustment, mental health, and quality of life of these students. Researchers have examined programs designed to improve social skills (e.g., Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012; White, Koenig, & Scahill, 2010), reduce anxiety (Wood et al., 2009), improve interpersonal perspective taking (Dodd, Ocampo, & Kennedy, 2011), and teach test-taking strategies (Songlee, Miller, Tincani, Sileo, & Perkins, 2008). Research in the past 10 years has also examined other important questions, such as the nature and impact of ASD on children and adolescents, how ASD presents itself in schools, the varied dimensions of the social problems experienced by students with ASD, what mental health problems tend to co-occur with ASD, and how the characteristics of ASD impact student-teacher relationships. This article reviews research related to these questions in more depth, followed by a discussion of the implications of these research findings for school counselors.

PREVALENCE, DEVELOPMENT, AND CHARACTERISTICS OF ASD

Once viewed as being quite rare, prevalence rates for ASD have been steadily increasing over the past several decades. This increase may be an artifact of several factors, such as better recognition and identification (Frombonne, 2005), but the reality is that data from the Centers for Disease Control (CDC, 2012) and head counts of students served under the autistic disability label in K-12 schools show substantial increases in recent years. Prevalence rates from the CDC from 2002 to 2008 increased by 78%. Likewise, the number of students receiving special education services in the autism category increased from 94,000 in the 2000-2001 school year to 378,000 in 2009-2010, an increase of more than 300%. The 2008 CDC data also provided a breakdown of prevalence rates by sex/gender and race/ethnicity. In keeping with prevalence patterns across the lifespan, boys are much more likely to have ASD than girls; the occurrence of ASD among 8-year-olds was 1 in every 54 boys as compared to 1 in every 252 girls. In terms of race/ethnicity, prevalence estimates for non-Hispanic, White children (12.0 per 1,000) were higher than non-Hispanic, Black children (10.2 per 1,000), with the lowest prevalence rates being found for Hispanic children (7.9 per 1,000).

Early Development
ASD appears to manifest through several developmental paths. For most cases of ASD, parents are aware from very early in their child's life that something is wrong, and often parents are more likely than professionals to know from an early age that things are not right with their child (Kleinman et al., 2008). Parents of young children proceeding on this developmental path may not always understand that what they are seeing from their child is early expression of ASD, but once the diagnosis is made, they are able to retrospectively identify behaviors that fit the ASD pattern (Werner & Dawson, 2005). For children who are identified as having ASD in early childhood, substantial deficits in social development are apparent; observational research suggests that, in the preschool age group, typically developing children display approximately eight times more prosocial behavior than children with ASD (Boyd et al., 2011).

ASD may follow a different developmental pathway for children who are at the upper end of the spectrum, where the symptoms of ASD are subtle and the child's early problems may not obviously look like ASD. Indeed, data from the CDC indicates that approximately half of 8-year-old children with a diagnosis of ASD were receiving special education services from schools with a primary disability label of something other than autism (CDC, 2012). A third developmental path—one that is particularly painful for parents—begins with relatively typical development through the first year of life, followed by a regression of social engagement (social gaze, verbalizations, orienting to his or her name), almost as if the child's personality has disappeared (Werner & Dawson, 2005).

The "Look" of ASD Throughout the K-12 Years
Once children with ASD reach elementary school, their social, language, and behavioral deficits are generally substantially discrepant from typically developing classmates, with these deficits being apparent to both teachers and parents. A recent study comparing teachers' ratings of elementary-

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aged students with and without ASD found that the students with ASD were worse off in virtually all areas of adjustment (Ashburner et al., 2010). Students with ASD were rated as being more anxious, withdrawn, depressed, inattentive, hyperactive, oppositional, and aggressive. Almost half had problems with perfectionism and 53% had clinically significant problems with emotional regulation. More than half (54%) of the students with ASD were rated as underachieving at school. Another recent study found similar broad differences between parents' ratings of children with ASD versus typically developing children, with children with ASD described as struggling with functional communication, social skills, adaptability, daily living skills, withdrawal, attention problems, hyperactivity, somatization, and depression (Mahan & Matson, 2011).

As students with ASD move into adolescence, their difficulties with anxiety, organization, social reciprocity, and emotional expressiveness present challenges for both their academic performance and the student-teacher relationship. Many students with ASD have executive functioning deficits, which, along with organizational challenges and high anxiety, can lead to struggles with test performance (Songlee et al., 2008). The student-teacher relationship can also suffer. The social comprehension limitations of students with ASD mean that few opportunities arise for shared laughter and jokes, which many teachers rely on in building positive relationships with students (Emam & Farrell, 2009). Furthermore, teachers may struggle to gauge the moment-by-moment attention and comprehension of students with ASD because the students do not display the level of emotional expressiveness that teachers typically use to assess students' engagement with the flow of the class. Teachers may also struggle with the need to avoid metaphors or other expressions that would elude students with ASD, due to the students' literal understanding of language. All of this may contribute

to a "discourse of frustration" (Emam & Farrell, 2009, p. 414) between teachers and students.

The characteristics and challenges associated with ASD also impact students' and parents' post-secondary planning. One recent study found that both students with ASD and their parents viewed college as an important aspiration (Camarena & Sarigiani, 2009). At the same time, both groups viewed the social demands of college life—for example, managing relationships with roommates—as being a more daunting challenge than academic demands. Students reported feeling substantial anxiety related to leaving home and were concerned about being around people who did not understand them. While the adolescents tended to view the purpose of college as being career preparation, many of the parents viewed college as a place to gain more social experience before moving into the work world (Camarena & Sarigiani, 2009).

Social Deficits: The Core Issue
By definition, individuals with ASD have significant, pervasive problems with understanding, initiating, and maintaining reciprocal social relationships (APA, 2013). Research in the past 5 years has provided additional information about the extent and nature of the social deficits experienced by youth with ASD (Lang et al., 2011; Orsmond & Kuo, 2011; Rotheram-Fuller et al., 2010). While students with ASD may display an array of issues, and while a diagnosis of ASD also requires the presence of restricted, repetitive, and stereotyped patterns of behavior, interests, and activities (APA, 2013), it is becoming increasingly clear

that impaired social interaction skills is the defining element of ASD (Shattuck et al., 2007).

A recent study illustrated the social difficulties experienced by students with ASD, finding that the social placement of these students tended to be peripheral or even isolated from peers; the researchers described the students with ASD as having "incredibly low rates of inclusion relative to their typical peers" (Rotheram-Fuller et al., 2010, p. 1231). Furthermore, the degree of social involvement of the students with ASD diminished in the

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upper elementary grades. Rotheram-Fuller et al. (2010) suggested two possible reasons for this trend. First, as typically developing peers approach adolescence, they may display decreased tolerance for differences and greater fear of stigma associated with being friends with a child who is otherwise rejected. Second, the type of unstructured games played by elementary-aged children tend to shift from cooperative games that can be played in parallel fashion in early elementary to competitive games in later elementary. This shift is challenging for students with ASD, who may have neither the motor skills nor the ability to manage the complex rules and fluid demands of competitive games such as basketball (Rotheram-Fuller et al., 2010).

Students with ASD also struggle with the social demands of unstructured settings such as recess. During recess, students with ASD tend to interact less with peers, stay closer to adults, and are less active (Lang et al., 2011). Interventions designed to increase the social interaction of students with ASD during recess time

have been effective (Lang et al., 2011), but without such adult support, recess becomes a forbidding and confusing place for students with ASD.

In addition to difficulty integrating into the social world of the classroom and playground, youth with ASD tend to have limited social interaction outside of school. A study by Orsmond and Kuo (2011) had mothers of 103 adolescents with ASD complete 24-hour time diaries to record how the adolescents spent their free time. The

feelings and the thoughts and feelings of others. A recent research study of ToM found that adolescents with ASD who viewed videotaped interactions between pairs of teenagers struggled to correctly infer the thoughts and feelings of the teenagers (Demurie et al., 2011). Furthermore, the adolescents with ASD and their parents both rated the adolescents' ability to perspective-take as being low. Both sets of ratings indicated that the adolescents with ASD tended to have diminished abil-

that the students consistently under-reported any difficulties, describing themselves as being as well adjusted as typically developing peers. As a whole, these findings indicate that students with ASD—even those who are intellectually gifted—are much more likely than typically developing students to lack awareness of their own social and behavioral deficits.

A final window into the social struggles of people with ASD comes from recent research on humor and ASD. A survey of adults with Asperger's disorder found that nearly half the participants (45%) had a fear of being laughed at, compared to only 6% of a comparison group of non-disabled adults (Samson, Huber, & Ruch, 2011). The researchers suggested that the difficulty people with Asperger's disorder tend to have discerning subtle humor, irony, and sarcasm make it hard for them to differentiate hurtful mocking from good-natured teasing. Interpersonal humor appears to be a language people with ASD do not fully understand (Samson et al., 2011).

> ## YOUTH WITH ASD DISPLAY SIGNIFICANT DIFFICULTIES WITH THE ABILITY TO TAKE OTHERS' PERSPECTIVE, LACK INSIGHT INTO THE THOUGHTS AND BEHAVIOR OF OTHERS, AND STRUGGLE TO UNDERSTAND AGE-APPROPRIATE HUMOR.

diaries indicated that the adolescents spent much of their discretionary time alone, either watching television or on the computer. These findings are corroborated by data from the National Longitudinal Transitional Study-2, which revealed that among a nationally representative cohort of adolescents with ASD, 43.3% never saw friends, 54.4% never received calls from friends, and 50.4% never got invited to social activities (Shattuck et al., 2011).

The social challenges experienced by youth with ASD go well beyond deficits in social skills. Indeed, recent research has revealed that youth with ASD display significant difficulties with the ability to take others' perspective, lack insight into the thoughts and behavior of others, and struggle to understand age-appropriate humor. A relevant construct that has received a good deal of research attention with ASD individuals is Theory of Mind (ToM) which is the ability to attribute mental states such as intentions, beliefs, and feelings, to oneself and others and then use these mental states to explain and predict behavior (Demurie et al., 2011). Put more simply, ToM refers to how well students can understand their own thoughts and

ity to experience feelings of warmth, compassion, and concern for others, and felt less personally distressed in response to situations where others are feeling distressed (Demurie et al., 2011). These latter findings make sense—if I am not able to understand the experience of another person, how can I truly feel compassion for them or feel distressed on their behalf? Another intriguing finding from this study is that, while the adolescents with ASD, on average, struggled with the perspective-taking tasks, some did quite well. Future research may provide more insight into this interesting subset of individuals with ASD. Finally, it is important to note that ToM is not fixed and unchangeable. A recent study found that children's ability to understand the perspectives of others can be improved through intervention (Dodd et al., 2011).

Part of ToM is an awareness (or lack thereof) of one's own behaviors and internal states, and several recent studies have shown that students with ASD lack that type of intrapersonal awareness. Nicpon, Doobay, and Assouline (2010) compared the self-rated psychosocial development of intellectually gifted students with ASD to ratings from parents and teachers, and found

Comorbidity and Other Concomitant Issues

In addition to the core ASD characteristics of social impairments, communication difficulties, and restricted and stereotypical interests, students with ASD are at increased risk for a variety of mental health problems and problematic life issues. One recent study ($N = 137$) found that parents reported an average of 23.3 psychiatric symptoms in their children (Hess, Matson, & Dixon, 2010). Frequently reported symptoms included being worried or depressed, undereating, overeating, displaying avoidant behavior, and displaying repetitive behavior.

Accurately identifying comorbid conditions among children with ASD is a difficult task. Diagnostic challenges include a lack of validated measures, the children's difficulty in self-reporting symptoms, and the overlap in core symptoms between ASD and other conditions (Gjevik, Eldevik, Fjæran-Granum, & Sponheim, 2011; Magnuson & Constantino, 2011). Nevertheless,

research has identified several mental health conditions that tend to co-occur with ASD. Overall rates of comorbidity are high; studies from multiple countries have found that more than two-thirds of individuals with ASD have a comorbid psychiatric condition, and approximately a third have two or more (Gjevik et al., 2011; Hess et al., 2010; Simonoff et al., 2008).

Anxiety and ASD

The comorbid condition consistently identified by research as being most likely to co-occur with ASD is an anxiety disorder. Among a group of students with ASD in Norway, 42% had a comorbid anxiety disorder (Gjevik et al., 2011), and a study of early adolescent students with ASD in England found that 29% had a social anxiety disorder (Simonoff et al., 2008). Recent research has also provided important information about ways in which ASD characteristics serve to provide unique triggers for episodes of anxiety and how anxiety permeates the lives of many youths with ASD. In a recent study conducted in the U.K., Ozsivadjian, Knott, and Magiati (2012) found that parents of children with ASD reported a number of triggers for their child's anxiety, such as loud noises and fear of being ridiculed. The most common trigger, however, was changes or disruptions in routines. Even events that are normally viewed as enjoyable, such as holidays, tended to be stressful and anxiety producing for the children with ASD, due to the way in which the holiday disrupted the normal daily routine.

The parents in the Ozsivadjian et al. (2012) study also reported the varied ways in which their children with ASD expressed anxiety. As a group, the children had much difficulty verbalizing when and how they were feeling anxious, and were prone to express anxiety behaviorally. Specific behavioral expressions included physically and/or verbally aggressive behavior ("meltdowns"), avoidance or withdrawal, arousal, sensory behavior such as biting nails or chewing clothing, and obsessive or repetitive behavior. The

parents indicated that their children with ASD seemed to be constantly on the edge of anxiety, had episodes of anxiety that were more intense and of longer duration as compared to siblings, and were difficult to soothe. The children tended to be highly dependent on their parents to manage their anxiety, and in general, the anxiety had a substantial negative impact on both the children and the families (Ozsivadjian et al., 2012).

Additional issues

Within the large footprint created by ASD is an increased risk for aggression, victimization from bullying, academic problems, and sleep disturbances. Recent research has addressed all of these areas. In one study, parents of children with ASD reported seeing moderate to severe levels of a variety of problem behaviors, including not respecting the personal space of others, shoving or pushing others, and breaking others' things (Farmer & Aman, 2011). Challenging behavior appears to be an issue throughout the span of childhood through early adolescence (Matson, Mahan, Hess, Fodstad, & Neal, 2010).

even accurately identify bullying when it happens (van Roekel, Scholte, & Didden, 2010). Research has found that poor social skills, lack of trust in others, and a preference for social isolation can exacerbate the impact of the bullying (Humphrey & Symes, 2010). These key ASD traits may interfere with the development of social support—just the kind of support that can protect students from bullying.

Another of the problem issues that are more likely to occur with youth with ASD is sleep disturbances, with previous research indicating that as many as three-fourths of young children with ASD experiencing sleep problems (Couturier et al., 2005). Furthermore, a strong relationship exists between sleep problems and problem behaviors. A study of more than 1,700 youths with ASD found that 67% of the poor sleepers were reported to also have hyperactivity versus 43% of good sleepers; 23% of poor sleepers had self-injurious behavior versus 10% of good sleepers (Goldman et al., 2011). While the correlational nature of this research does not allow for causal explanations, it does suggest that sleep should be a target of attention

> ## MORE THAN TWO-THIRDS OF INDIVIDUALS WITH ASD HAVE A COMORBID PSYCHIATRIC CONDITION, AND APPROXIMATELY A THIRD HAVE TWO OR MORE.

While aggressive behavior is a concern for many students with ASD, perhaps a larger concern for the ASD community is the increased risk of being victimized by bullying. This is particularly true for students with ASD who are at the upper end of the spectrum, and who are in general education settings. These students may have the ability to cope with the academic demands of general education classrooms, but at the same time may display idiosyncratic behavior that makes them a target for bullying. They may also lack the social skills to adequately respond to the bullying (Humphrey & Symes, 2010) or

for those youth with ASD who are displaying problem behaviors.

Finally, a recent study examined the overall quality of life of youth with ASD, as rated by the youth and by their parents (Sheldrick, Neger, Shipman, & Perrin, 2012). Although the adolescents' mean ratings of their quality of life was below average, the ratings were all within one standard deviation of the mean. In contrast, the parents' ratings were much lower. Ratings of social functioning were quite discrepant between the youth and the parents, with youth reporting just slightly below average social functioning and parents reporting very

impaired social functioning. It appears that due to their limited insight, youth with ASD may underestimate the social gap between themselves and their non-disabled peers.

RECENT DEVELOPMENTS IN INTERVENTION RESEARCH

In the past decade, a moderate amount of research has evaluated interventions designed to address the social and behavioral needs of students with ASD, but little of that research has involved school-based interventions and few studies are without significant flaws. Indeed, research on social interventions with youth with ASD has been described as being "still in its genesis" (Schreiber, 2011, p. 55). Nonetheless, this research has provided important information about the nature and effectiveness of interventions for youth with ASD.

Some recent research attention has been devoted to documenting the types of treatments currently used to address ASD in mental health and school settings. Approximately half of students with ASD obtain some sort of mental health service, and of those students, about half receive the service at school (Narendorf, Shattuck, & Sterzing, 2011). The number of dif-

autism (Green et al., 2006). Speech therapy was the most commonly reported therapy, with 70% of parents endorsing that approach. Sixty-one percent reported using a skill-based treatment such as Social Stories (Gray, 2013); more than half reported using skills training based on applied behavior analysis principles. More than half (52.5%) also reported using medications and 26.8% reported using special diets (Green et al., 2006).

Other surveys have reported similar patterns of medication use with youth with ASD. A 2005 survey from the state of Ohio found almost half (46.7%) of the youth using psychotropic medications, with 14% taking three or more (Witwer & Lecavalier, 2005). Moreover, use of psychotropic medication appears to be increasing among youth with ASD; one study found that the percentage of physician office visits involving psychotropic medication prescriptions doubled over the 10-year span from 1996 to 2005 (Gerhard, Chavez, Olfson, & Crystal, 2009). Medications are most typically used to treat concomitant symptoms of ASD such as inattention, aggressiveness, anxiety, and seizures, and they do not impact the ASD core issues of social rigidity and lack of social awareness (Floyd & McIntosh, 2009). Furthermore, youth with ASD may be more vulnerable to the adverse effects of medications and tend to exhibit a greater range of responses as compared to typically developing children (Robb, 2010).

for the intervention (Hess, Morrier, Heflin, & Ivey, 2008). Teachers reported using 30 different strategies, with the most popular strategies being Gentle Teaching (used by 16% of the respondents), sensory integration (14%), and cognitive behavioral modification (14%). Overall, only 29% of the teachers reported using an intervention that had been rated by experts as being either scientifically based or a promising practice (Hess et al., 2008). In sum, surveys of treatments used with youth with ASD reveal a startling array of treatments and interventions used in school and mental health settings, many of which do not have strong empirical support.

Research conducted in the past 10 years also has examined the effectiveness of both specific interventions for ASD and comprehensive treatment programs. The following section highlights some particularly relevant research on these interventions and programs.

Social Stories

Social Stories are brief, individually designed stories that are used to enhance social understanding by providing a specific and personally tailored social skill lesson to a student with ASD. The goal of a Social Story is to share accurate social information in a reassuring manner easily understood by the recipient (Gray, 2013). Surveys of teachers using Social Stories with students with ASD reveal that teachers almost universally find them easy to use, complementary to other interventions, applicable to a variety of social issues, and effective (Reynhout & Carter, 2009). Teachers report less satisfaction with the degree to which the social learning resulting from a Social Story is maintained and generalizable (Reynhout & Carter, 2009). Despite concerns about limited maintenance and ability to generalize, the extant research on Social Stories suggests they can both reduce problem behaviors and foster positive social skills, particularly if they are used with higher functioning students and are tailored to the individual student's

THESE KEY ASD TRAITS MAY INTERFERE WITH THE DEVELOPMENT OF SOCIAL SUPPORT—JUST THE KIND OF SUPPORT THAT CAN PROTECT STUDENTS FROM BULLYING.

ferent treatments used in school and mental health settings is surprisingly high. A 2006 national survey of more than 500 parents of mostly younger children with ASD found the average number of reported treatments to be seven, with more treatments tending to be used with children with more severe

The wide range of treatments for ASD found in mental health settings has also been found in school settings. A survey of teachers in the state of Georgia examined the intervention strategies they used with students with ASD, and categorized the responses based on the level of empirical support

interests and learning styles (Schreiber, 2011). An interesting note is that Social Stories may be more effective if they are sung rather than spoken (Brownell, 2002).

Targeted After-school or Community-based Programs

Several specialized programs designed to address social skills or other problem issues experienced by students with ASD have been the target of research attention in recent years. One team of researchers examined the efficacy of the SCORE Skills Strategy intervention with 10 high-functioning adolescents with ASD (Webb, Miller, Pierce, Strawser, & Jones, 2004). The intervention consisted of a twice-weekly, 10-week program that focused on five key social skills (sharing ideas, complimenting others, offering help or encouragement, recommending changes nicely, and exercising self-control), with instruction including modeling, teaching, and role-playing each skill. The researchers found that the intervention program resulted in improvement in all five skill areas at improvement rates of 10%-50%. However, parents did not report significant improvement in the skill areas at home, illustrating the difficulty of designing interventions that result in generalizable gains (Webb et al., 2004).

In a similar study, researchers examined the effectiveness of a 16-week outpatient social skills group intervention for high functioning youth with ASD (White et al., 2010). The program was conducted in a university-affiliated outpatient clinic specializing in ASD and used a manual-based curriculum involving high structure, explicit teaching, use of verbal and visual teaching aides, much repetition and practice, and parental involvement. The results were mixed; the parents were satisfied overall and reported significant improvements in social communication. However, parents did not see improvements in social awareness and also did not report significant improvements at a 3-month follow-up. Moreover, the participants' teachers

> ## SURVEYS OF TREATMENTS USED WITH YOUTH WITH ASD REVEAL A STARTLING ARRAY OF TREATMENTS AND INTERVENTIONS USED IN SCHOOL AND MENTAL HEALTH SETTINGS, MANY OF WHICH DO NOT HAVE STRONG EMPIRICAL SUPPORT.

reported no significant improvements due to program participation (White et al., 2010).

In a well-designed study of a comprehensive, community-based program targeting anxiety symptoms in young ASD children, researchers found significant improvements attributable to participating in the program (Wood et al., 2009). The program was intense, with treatment including 16 weekly family sessions of 90 minutes split between work with the child and the parents, a peer buddy system at school, mentoring, behavioral practice at school and before play dates, and implementation of a comprehensive reinforcement system. The program included instruction in coping skills, and used exposure, parental reinforcement and in vivo exposures, as well as interventions designed to address issues such as poor self-care and odd stereotypical behavior that could lead to peer rejection. The comprehensiveness of this program did pay off—78.5% of children in the treatment group displayed global improvement versus 8.7% of children in a wait-list control group, and more than half of treatment group showed remission of all anxiety disorders at post-treatment and at 3-month follow-up (Wood et al., 2009).

School-based Interventions Addressing Social Deficits

A recent study compared the effectiveness of two approaches to improving the social skills of high-functioning, elementary-age children with ASD: a child-focused intervention designed to improve the child's social skills, and a peer-focused intervention designed to train and reinforce peers to socially

engage children with ASD (Kasari et al., 2012). At the end of the 6-week intervention period, the outcomes were better for the peer-focused approach. Specifically, the children whose peers had been the focus of the intervention received higher social skills ratings from teachers, were more likely to be selected for friendship by typically-developing peers, and had shifted to a more socially central position on the playground. Interestingly, these improvements persisted into the next school year, even when there was a new group of peers, suggesting that the intervention led to changes within the child, not just within the peer group (Kasari et al., 2012).

One intervention for increasing positive social interaction for children with ASD that has received strong research support is video self-modeling (Victor, Little, & Akin-Little, 2011). Video self-modeling is a form of "feed forward" (as opposed to feedback) in which students are shown videos of themselves that have been edited to remove negative behavior and present the appearance that the student is behaving in a prosocial manner in a setting in which problem behaviors have occurred. A recent study used video self-modeling with two elementary age males with ASD who had been unable to sustain social interaction in the classroom and who had not responded to other interventions (Victor et al., 2011). The video was made by recording the boys role-playing positive social interactions with selected peers, then editing the video to emphasize the appropriate social behavior. After the video was completed, each boy was shown the video in his classroom at the beginning of the school day for

a period of 10 days. The results were quite positive, with the percentage of social engagement for each child at baseline and post-intervention improving from 17% to 74% and 7% to 71% respectively (Victor et al., 2011). Common iMovie technology was used in this study.

The intervention research over the past decade has failed to support at least one popular intervention, the use of weighted vests to reduce stereotypical behavior. Weighted vests are purported to reduce arousal, thereby reducing stereotypical behaviors (Hodgetts, Magill-Evans, & Misiaszek, 2011). Researchers tracked both stereotypical behavior and arousal level (via heart rate) with and without weighted vests in a small group of six children between ages 4 and 10 with autism (Hodgetts et al., 2011). Use of weighted vests neither reduced stereotypical behavior nor arousal with the children. Although the results of a single small study cannot be taken as conclusive evidence that the intervention has no value, it does cast doubt on the practice of using weighted vests and more broadly illustrates that empirical support is important for the interventions that are used.

In sum, the research base for interventions for students with ASD is growing but still lacks large, well-designed studies. In an excellent review of research on social interventions with high functioning youth with ASD, Schreiber (2011) drew several conclusions: (a) Social Stories appear to be effective in improving social skills, but research regarding maintenance and generalizability of these improvements is lacking; (b) cognitive behavioral therapy has demonstrated positive results regarding improved so-cial behavior, but may lack generalization to naturalistic settings; (c) small group interventions have had the side benefit of creating positive friendships among participants; and (d) interventions where intentional adult guidance is provided in semi-structured group settings have been successful in improving social skills..

IMPLICATIONS FOR SCHOOL COUNSELORS

Recent research findings generated in the area of childhood ASD have several implications for school counselors. Approximately half of students with ASD who receive mental health service receive that service at school, with that proportion being even higher if students are African American or from a lower income family (Narendorf et al., 2011). The clear message to schools and school counselors is that if students with ASD—particularly those students who have the dual vulnerability of both having ASD and being a member of a disadvantaged group due to economic status or race/ethnicity— are to have access to needed mental health services, those services need to be available at school. School counselors can partner with school-based autism specialists and community mental health professionals to develop and enhance access to school-based mental health services for students with ASD. Public schools are financially responsible for all assessments related to the identification of disabilities addressed by IDEA, including autism. Schools must not require parents to pay for a medical diagnosis of autism from a physician or community-based mental health professional in order to qualify for services under IDEA (U. S. Department of Education, 2011).

Another important implication for school counselors arises out of research documenting the tendency of teachers to misinterpret the social idiosyncrasies and ToM problems of students with ASD as reflecting disinterest or disrespect in the classroom (Eman & Farrell, 2009). School counselors can help teachers understand the impact of ASD on students and reframe the students' social behaviors as symptoms of the disability rather than intentional acts of bad behavior. Teachers, in turn, can support students with ASD by working to develop a positive relationship and to position themselves as a confidant in cases where a student with ASD may need to talk to a trusted adult about a situation such as being bullied (Humphrey & Symes, 2010). School counselors can also take the advice of Humphrey and Symes (2010) and intentionally match each student with an adult confidant in the building.

Students with ASD need support throughout the school day, not just in the classroom. Indeed, finding ways to support students with ASD during non-instructional time is critical for schools and school counselors (Lang et al., 2011). At the elementary level, this may mean teaching peers how to better include children with ASD in playground activities in light of research suggesting that intervening with peers is an effective and ecologically valid manner of improving the social interaction levels of students with ASD (Kasari et al., 2012). Throughout the school years, implementing interventions that are strong and comprehensive is important. An example is the work of Songlee and colleagues (2008) to improve the test-taking skills of students with ASD, in which an intense, 6-week afterschool program was required to bring about improvement in test-taking skills. The broad lesson for schools and school counselors is to create interventions that are more

> THE INTERVENTION RESEARCH OVER THE PAST DECADE HAS ALSO FAILED TO SUPPORT AT LEAST ONE POPULAR INTERVENTION, THE USE OF WEIGHTED VESTS TO REDUCE STEREOTYPICAL BEHAVIOR.

intense and lengthy than those used for typically developing students. For example, a school counselor running a friendship group that included one or more students with ASD would want to build in more repetition of skill instruction and proceed at a slower pace than might otherwise be necessary.

Social Stories (Gray, 2013) are a specific intervention that has received considerable research support and that seems particularly useful for a range of social and behavioral issues. Social Stories are adaptable to the specific social problems a student is having, and can be incorporated into the individual counseling school counselors provide for students with ASD. School counselors should be mindful of the limited research support for the generalizability and stability of changes brought about by the use of Social Stories. However, Social Stories do appear to have strong utility in working with students with ASD, and can be a helpful addition to the repertoire of strategies school counselors bring to their work with students with ASD. Additional information about Social Stories can be found at: http://www. thegraycenter.org

Another implication for school counselors growing out of the recent research on ASD is the importance of considering comorbid conditions. School counselors should not assume that a standard intervention package exists for students with ASD; rather, counselors need to consider the unique dimensions of the disorder and any co-occurring problems or mental health conditions when figuring out how best to support each student with ASD. Some co-occurring conditions are easy to see, such as aggression. But others may be less visible in the school setting, such as sleep disturbances and being the target of bullying by peers. Schools and school counselors should be vigilant about protecting students with ASD from peer victimization, and school counselors would be wise to probe for sleep problems when talking with students with ASD.

Recent research suggests that the most frequent comorbid condition

among students with ASD is anxiety (Gjevik et al., 2011). Social anxiety in particular seems very common in students with ASD (Bellini, 2006), meaning school counselors can play a role in helping students with ASD cope with the anxiety they may have regarding school and peer interaction. A two-pronged approach to intervention has been supported by the literature: (a) teaching social skills to improve students' ability to successfully participate in peer activities, and (b) teaching relaxation skills to help students manage the physiological arousal that

fuels anxiety (Bellini, 2006). School counselors can provide these interventions in small counseling groups or in individual counseling sessions with students with ASD.

The research also suggests that enhancing the two-way communication between parents of students with ASD and the school can be an important task for school counselors. Parents report a strong desire to receive timely information from the school and to offer helpful information to the school regarding the unique needs and characteristics of their child (Renty & Roeyers, 2006). School counselors can serve as liaisons between school and home in cases where the lines of communication have been fractured or not well established.

CONCLUSION

Students with autism spectrum disorders, by definition, have significant social deficits that impact a range of outcomes, including peer relationships, interactions with teachers, risk of being bullied, and likelihood of experiencing

social anxiety (e.g., Boyd et al., 2011; Emam & Farrell, 2009; Humphrey & Symes, 2010; Mahan & Matson, 2011; Rotheram-Fuller et al., 2010). Research over the past 10 years has provided additional insight into the nature of ASD, such as better illuminating the ToM limitations experienced by students with ASD and the way in which ASD impacts a range of outcomes from playground behavior (Lang et al., 2011) to postsecondary planning (Camarena & Sarigiani, 2009). Research has also provided additional information about the effectiveness of a variety of treat-

> SCHOOL COUNSELORS CAN HELP TEACHERS UNDERSTAND THE IMPACT OF ASD ON STUDENTS AND REFRAME THE STUDENTS' SOCIAL BEHAVIORS AS SYMPTOMS OF THE DISABILITY RATHER THAN INTENTIONAL ACTS OF BAD BEHAVIOR.

ments and interventions used with students with ASD. Research supports the ability of targeted programs to effect change, but also points to the difficulty in developing interventions that produce results that generalize to multiple settings and persist over time (Schreiber, 2011).

Professional school counselors can play an important role in supporting the school and social success of students with ASD. Indeed, school counselors have the necessary training and experience required to assist in the development and implement of interventions targeting the social deficits that comprise the primary challenge for students with ASD. School counselors can provide individual and group counseling services to students with ASD. Furthermore, through consultation they can help teachers and parents better understand the unique nature of youth with ASD, helping these key adults respond to youth with ASD with compassion and support rather than judgment borne out of misunderstanding.

Students with ASD, often misunderstood and underserved, deserve the

best that schools and school counselors can offer. As the research base regarding students with ASD continues to grow, school counselors can become better informed and better able to meet the needs of this important population of students. ■

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