

Challenges in Treating Children With Autism Spectrum Disorder

Implications for Psychiatric–Mental Health Nurse Practitioners

ABSTRACT

Children who present to behavioral health care with autism spectrum disorder (ASD) often have overlapping symptoms and co-occurring disorders, such as attention-deficit/hyperactivity disorder (ADHD), anxiety disorders, sleep-wake disorders, and/or emotional/behavioral dysregulation. The challenge for psychiatric–mental health nurse practitioners is to identify the modifiable symptoms and diagnosable disorders and develop a comprehensive treatment plan that reduces risk factors and promotes improved functioning. The current article presents an overview of evidence-based treatment strategies for co-occurring conditions. A child- and family-based collaborative approach with clear treatment goals in the context of an inter-professional care team, which includes the primary care provider, therapists, other relevant specialists, and teachers, has been shown to support children with ASD in becoming more successful in managing everyday stressors and regulating emotions and behaviors. Evidence-based assessment, monitoring, and educational resources for clinicians and parents are provided. [*Journal of Psychosocial Nursing and Mental Health Services*, 58(12), 7-12.]



The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5;* American Psychiatric Association [APA], 2013) defines *autism spectrum disorder (ASD)* as a neurodevelopmental disorder characterized by clinically significant impairment in social, occupational, or other important areas of functioning that present in the early developmental period. The severity of impairment ranges from Level I (minimal support needed) to Level III (significant support needed) for each of two required diagnostic criteria: (1) persistent deficits in reciprocal communication/social interaction; and (2) restricted, repetitive patterns of behavior.

Clouding the clinical picture of ASD is a relatively high prevalence of overlapping symptoms and co-occurring disorders that may present as the child develops. Evaluation of new signs and symptoms in children with ASD should include multiple sources of information derived from multiple contexts and the use of validated screening instruments to detect changes from baseline functioning and precipitating and/or contributing factors (Muratori et al., 2020). According to the *DSM-5* (APA, 2013), approximately 70% of persons with ASD have one or more co-occurring mental disorders and approximately 40% have two or more. It is only when the criteria for both ASD and

Lisa Beauvois, MSN, FNP-BC, PMHNP-BC; and Karan Kverno, PhD, PMHNP-BC, PMHCNS-BC

an additional diagnosis are met that both diagnoses should be given. In a systematic review and meta-analysis of 100 studies examining confirmed ASD and co-occurring mental disorders across the lifespan, Lai et al. (2019) concluded that approximately 28% of the ASD population have ADHD; 20% have an anxiety disorder; 13% have sleep-wake disorders; 12% have disruptive, impulse-control, and conduct disorders; and 11% have depressive disorders. Undiagnosed and untreated co-occurring disorders can contribute to poorer functioning in children with ASD.

The purpose of the current article is to review the practice guidelines for treating children with ASD and the recommended approaches for treating the most common co-occurring disorders. What follows is a brief de-identified composite case based on the children the first author (L.B.) sees in hospital-based outpatient pediatric psychiatry.

CASE COMPOSITE

A 10-year-old Caucasian boy who lives with his parents and two siblings is seen in our community-based mental health clinic with a historical diagnosis of ASD treated with risperidone 0.5 mg for the past 2 years to manage symptoms of irritability and aggression. Although his parents describe improvement in aggression toward others and less self-harming behaviors since the initiation of risperidone, they are troubled by the increase in other symptoms over the past 6 months. They have observed increasing difficulties with avoidance behaviors, including school refusal, social isolation, and fears of being separated from his family. He also shows difficulty sustaining attention at home and school, low-frustration tolerance, and difficulty keeping track of his personal belongings. His parents are particularly concerned about new challenges with sleep onset and maintenance, which they see as negatively impacting his mood and ability to handle

daily frustrations. His parents wonder whether the increase in social demands of 5th grade, in addition to academic challenges, may be fueling some of his symptoms.

TREATMENT GUIDELINES

The focus of treatment for children with ASD, as depicted in the case composite, is to improve social relationships and function, with safety taken into consideration. Best practices involve a collaborative child- and family-centered approach. To consent to treatment, the child and family need to understand the diagnoses, the purpose, risks and benefits of the proposed treatments, the risks and benefits of alternative treatments, and the risks and benefits of declining treatment (Riddle, 2019; Walter et al., 2020). Therapeutic interventions for the social deficits of ASD include social skills training and behavioral therapy. Sensory-related challenges can improve with occupational and physical therapy. Speech therapy is frequently recommended for speech and communication deficiencies. Repetitive actions, avoidance, social anxiety, and perseveration associated with ASD can often be helped with concurrent cognitive-behavioral therapy (CBT). Pharmacological interventions may be considered when a child with ASD is showing emotional or behavioral dysregulation, including aggression, irritability, and impulsive behaviors that could cause harm to self or others. Such behaviors as hyperactivity and anxiety-related avoidance can similarly lead to impaired relationships and are often the impetus for bringing the child into care.

Pharmacological Approaches

Although there are no U.S. Food and Drug Administration (FDA)-approved medications for treatment of the core symptoms of ASD, there are medications that are approved for the treatment of irritability and aggressive behaviors and co-occurring mental disorders.

Irritability and Aggressive Behaviors.

The only FDA-approved medications for ASD-related irritability and aggression are risperidone and aripiprazole for children aged 5 (risperidone) and 6 (aripiprazole) to 17. Risperidone is a second-generation antipsychotic (SGA) that blocks dopamine at the D_2 receptor and serotonin $5HT_{2A}$ receptors. The dosage range for children is 0.25 mg (for children weighing <20 kg [<44 lbs]) or 0.5 (for children weighing ≥ 20 kg [≥ 44 lbs]); with a maximum dosage of 3 mg per day (Riddle, 2019). In the experience of the first author (L.B.), a low dose at bedtime can lead to rapid and sustained improvement in behaviors with low side effects.

Aripiprazole is often referred to as a third-generation antipsychotic (TGA) because the mechanism of action is different from SGAs; it has partial agonist activity at dopamine D_2 receptors and blocks activity at the serotonin $5HT_{1A}$ receptors and blocks activity at the serotonin $5HT_{2A}$ receptors. The recommended dosage range is 2 mg to 10 mg daily. The first author tends to start at 1 mg to 2 mg at bedtime and titrate up slowly by approximately 2 mg weekly, generally seeing a good response by 5 mg to 7.5 mg nightly.

Common adverse effects of risperidone and aripiprazole include sedation and anticholinergic effects (e.g., dry mouth, constipation). Major risks include weight gain, metabolic abnormalities (i.e., elevated glucose, cholesterol, or triglyceride levels), and persistent involuntary movements (e.g., tardive dyskinesia). All of these risks are worse for risperidone than aripiprazole (Mano-Sousa et al., 2020; Riddle, 2019; Scahill et al., 2016). The risk of metabolic abnormalities is linked to weight gain. Although weight gain is initially less with aripiprazole compared to risperidone, the differences with long-term treatment may not persist (DeVane et al., 2019).

Before starting the medication, a personal and family history should be obtained of metabolic or cardiovascular disease, weight/body mass index, waist

circumference, blood pressure, fasting plasma glucose, and fasting lipid profile. Weight should be monitored at all follow-up visits. For children, there are no specific guidelines for monitoring; however, the standard of practice is to use the guidelines of the American Diabetes Association et al. (2014), which include monitoring blood pressure, fasting plasma glucose, and lipid profile at 12 weeks and annually (Riddle, 2019). The first author recommends obtaining a comprehensive metabolic panel at baseline because it includes liver function.

For children who are insured by Medicaid, many states require the clinician to submit an Authorization for Antipsychotic Prescription prior to treatment, at 3 months, and then every 6 months (Part E, Substance Abuse and Mental Health Services Administration, 2019). The clinician is required to document the target symptoms and laboratory results, as well as the score on the Abnormal Involuntary Movement Scale. Gynecomastia and amenorrhea are potential adverse effects associated with risperidone due to elevations in prolactin. A prolactin level should be obtained if symptomatic, and if hyperprolactinemia is present, a decrease in dosage should be considered.

Attention, Impulsivity, and Hyperactivity. There are three ADHD presentations in the *DSM-5*: predominantly inattentive, predominantly hyperactive/impulsive, and combined. Children with ASD and ADHD share impairments of social skills deficits, distractibility and executive functioning (Antshel & Russo, 2019; Walter et al., 2020), and soft neurological motor symptoms (Reiersen et al., 2008). Differentiating the two disorders is difficult when inattention is the predominant presentation of ADHD. The motor and behavioral symptoms more clearly differentiate ASD and ADHD. Whereas children with ASD may display stereotypic and repetitive behaviors, children with ASD who also display general hyperactivity and impulsivity are more likely to have co-occurring ADHD

(APA, 2013; Shephard et al., 2019). In children with ADHD—inattentive type, the differential is more challenging.

For children, stimulant medications (methylphenidate or amphetamine compounds) are the first line treatments for ADHD (Wolraich et al., 2019). Methylphenidate has been found to be effective in improving attention and reducing impulsivity and hyperactivity and is well-tolerated for treatment of comorbid ADHD among children and adolescents with ASD (Ventura et al., 2020). The first author's clinical approach is to start with a long-acting methylphenidate, particularly if the child is struggling with aggression, which can be intensified when treated with amphetamine-based stimulants. Parents/guardians and teachers can help by noting changes in behavior once the treatment begins.

The starting dose of long-acting methylphenidate (Concerta[®]) is 18 mg each morning and has a duration of effect of up to 12 hours. Parents/guardians are asked to start the medication on a day when the child will be home with them to assess for effectiveness and side effects. A checklist of routine daily activities (e.g., chores, homework completion) can often help parents/guardians identify how well the child is able to attend and control impulsive/hyperactive behaviors, and it is valuable information for the clinician to understand where impairments lie to better target symptoms. Caution must be used, as some children with ASD can experience an increase in anxiety when treated with stimulants. An increase in stereotyped/repetitive behaviors (which can resemble tics), obsessive-compulsive disorder (OCD)-like behaviors, and irritability are also possible risks after initiation of a stimulant. Parents/guardians are asked to discontinue the stimulant and call the clinician if the child experiences worrisome side effects. As the half-life of stimulants is fairly short, side effects typically resolve quickly, and long-term side effects are rare.

Non-stimulant medications, such as guanfacine/clonidine (alpha agonists) and atomoxetine (norepinephrine reuptake inhibitor) are FDA-approved for ADHD in children aged ≥ 6 years and are frequently useful for adjunctive therapy with stimulants (using the lowest effective dose of stimulant). In clinical studies, non-stimulants are most useful for treating agitation/hyperactivity related to ADHD and are somewhat less effective for inattention and rarely used as monotherapy for ADHD. Overall, children with ASD respond better to guanfacine or atomoxetine than clonidine (Reiersen & Todd, 2008). Side effects include sedation and hypotension, so these medications are given at bedtime.

Anxiety and Compulsive Behaviors. The prevalence of anxiety disorders or symptoms among young children with ASD is higher than in children with other neurodevelopmental disorders (Vasa et al., 2020). Diagnosable anxiety disorders co-occur with ASD, as do atypical expressions of anxiety that concern ASD-related challenges. Kerns et al. (2014) reported that 63% of a sample of 59 youths with ASD presented with anxiety that impaired functioning, with 17% having only diagnosable co-occurring anxiety disorders (i.e., specific phobias, generalized anxiety disorder [GAD], and social phobias were most common), 15% having only atypical ASD-related anxiety symptoms (e.g., worries and fears around routine, novelty, unusual specific fears, atypical social fears without fears of rejection, compulsive behaviors with ambiguous purpose), and 31% having a diagnosable anxiety disorder with co-occurring ASD-related anxiety symptoms.

In general, nonpharmacological evidence-based treatments, such as CBT, should be recommended prior to a medication trial. Children and their parents/guardians benefit from cognitive and behavioral anxiety management strategies. The newly drafted guidelines published by the Academy of Child and Adolescent Psychiatry

(Walter et al., 2020) recommend, for children and adolescents ages 6 to 18 with diagnosed social anxiety, GAD, separation anxiety, specific phobia, or panic disorder, that CBT be offered as the first-line treatment for mild to moderate severity. For children with greater anxiety severity and related impairment, they recommend combination treatment (CBT and selective serotonin reuptake inhibitor [SSRI]) be offered preferentially over CBT alone or a SSRI monotherapy alone due to evidence that the combination is a more effective short-term treatment for anxiety in children and adolescents than either treatment alone (Walter et al., 2020). Vasa et al. (2020) also recommend an ASD-specific therapy called Pivotal Response Treatment (PRT) that focuses on providing and rewarding appropriate social communication and is also helpful in reducing anxiety (Lei et al., 2017).

The only FDA-approved medication for treatment of an anxiety disorder (e.g., GAD) in children and adolescents is the serotonin-norepinephrine reuptake inhibitor (SNRI), duloxetine, yet it is considered a secondary treatment due to having more adverse effects than SSRIs (Riddle, 2019; Walter et al., 2020). SSRIs that have FDA approval for the treatment of major depressive disorder or OCD in children and adolescents and have been shown to have efficacy for the treatment of anxiety disorders include fluoxetine, escitalopram, sertraline, and fluvoxamine (Riddle, 2019).

Before starting a child on a SSRI, it is important to review the potential for adverse effects with the parents/guardians and child. Although the risk is low, all antidepressants carry a FDA boxed warning for suicidal thinking and behavior up through age 24, so close monitoring is recommended during the first few months of treatment and following dosage increases (Walter et al., 2020). Behavioral activation/agitation that includes increased motor or mental restlessness, insomnia,

impulsiveness, talkativeness, disinhibited behavior, and aggression can occur with SSRI treatment, so starting the dose low and increasing the dose gradually to the lowest effective dose over several months is recommended. Best practice guidelines for the discontinuing treatment of children with anxiety disorders who are taking antidepressants recommend a slow taper during a relatively stress-free period, following at least 12 months of symptom remission (Walter et al., 2020). In the experience of the first author, sertraline or escitalopram may be good choices due to having a short metabolic half-life and the ability to discontinue or taper the medication more rapidly in case of adverse side effects. Of all SSRIs/SNRIs, escitalopram has the lowest risk for pharmacokinetic drug-drug interactions (Riddle, 2019).

Sleep Dysregulation. Children with sleep dysregulation are at risk for anxiety, behavioral problems, daytime sleepiness, and poorer health and general functioning. There are currently no FDA-approved medications for sleep disorders among children. For treating insomnia and disrupted sleep behaviors in children and adolescents with ASD, the American Academy of Neurology (AAN; Williams Buckley et al., 2020) recommend behavioral strategies as a first-line approach. Parents/guardians can be asked to monitor sleep behaviors (Shapiro, 1998). If the sleep problem does not improve with behavioral strategies (e.g., CBT-Insomnia), they recommend the use of low-dose melatonin. Melatonin has been found to be safe for children for short-term use, but the safety for long-term use remains unknown. The AAN guidelines provide evidence that melatonin alone or with CBT-Insomnia can reduce bedtime resistance, sleep-onset latency, sleep continuity, and total sleep time in children with ASD (Williams Buckley et al., 2020). The first author finds that starting with the lowest dose (1 mg) of the standard formulation

and titrating to a maximum of 5 mg nightly is well tolerated. If the child's sleep difficulties have not improved within 1 month, further evaluation is warranted.

Monitoring Response to Treatment

Behavioral and symptom measures help practitioners evaluate a child's baseline functioning and response to treatment. Having parents/guardians and teachers monitor changes in behavior using a checklist or severity rating tool are common practice. There are many scales available for screening and monitoring of symptoms in children related to ASD, ADHD, anxiety, sleep, and behavioral dysregulation. The first author uses the National Institute for Children's Health Quality (n.d.) Vanderbilt Assessment Scale in clinical practice for assessing children with ASD and co-occurring ADHD because it allows for parent and teacher ratings, with shorter versions for monitoring ongoing symptoms. The Vanderbilt also measures changes in aggressive/defiant behavior and anxiety and mood symptoms. Her interprofessional team uses the Swanson, Nolan, and Pelham (SNAP) rating scale (Swanson et al., 1983) on the inpatient pediatric behavioral health unit, which is completed by a psychiatric staff nurse based on observed behavior. (For additional ADHD measurement tools, see Limandri [2020]). The Screen for Child Anxiety Related Disorders (SCAReD) is used for children aged <13 years (Birmaher et al., 1999), whereas the Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006) is validated for use in children aged ≥13 years. The Children's Sleep Habits Questionnaire (CSHQ; Owens et al., 2000) is a validated measure for monitoring changes in sleep habits over time.

IMPLICATIONS FOR PSYCHIATRIC-MENTAL HEALTH NURSE PRACTITIONERS

As illustrated by the case composite of the 10-year-old boy with ASD and

co-occurring ADHD with anxiety and behavioral and sleep problems, the approach of the PMHNP (first author) would be to collaborate with the child's therapist to reinforce the parents' preference to increase psychotherapy frequency to target his newly problematic avoidance-based behaviors and executive functioning skills. The PMHNP might consider initiating a low dose of guanfacine extended release at bedtime to augment the continued risperidone treatment. The PMHNP would monitor outcomes, anticipating that after several months, the child would be less fearful of going to school and would be interacting more appropriately with his peers and falling asleep more easily.

Psychiatric comorbidity is common in children with ASD. PMHNPs are called on to treat problems that impair functioning, negatively impact relationships, and put the child or others at risk for harm. Vasa et al. (2020) note that anxiety disorders or symptoms are correlated with sensory over-responsivity, sleep disturbance, aggression/defiance, and ADHD symptoms. This correlation highlights the importance of working with children with ASD and their families to find ways to manage everyday stressors, to use consistent sleep hygiene practices, and reinforce positive social interactions. When necessary, medications can be useful in conjunction with nonpharmacological interventions to attain more comprehensive symptom control.

Integrated care, where all care is delivered by one team in one location, or *collaborative care*, where primary and mental health care practitioners coordinate care through close communication, increase the likelihood that children will receive needed mental health care services (Stadnick et al., 2020). The American Association of Nurse Practitioners (2020) supports and encourages implementation of integrated and coordinated health care delivery. For primary care nurse practitioners who wish to specialize in treating chil-

dren with ASD, there are now a variety of online certificate programs available, including post-graduate PMHNP programs and autism certificate programs. Connecting parents/guardians with resources (e.g., Autism Speaks, 2018; Neupane, 2020; The Reach Institute, n.d.), including respite care, can be helpful in improving their ability to successfully care for their child and cope with the demands.

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Ms. Beauvois is Nurse Practitioner, The Johns Hopkins Children's Mental Health Center, and Dr. Kverno is Assistant Professor, Johns Hopkins University School of Nursing, Baltimore, Maryland.

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Address correspondence to Karan Kverno, PhD, PMHNP-BC, PMHCNS-BC, Assistant Professor, Johns Hopkins University School of Nursing, 525 N. Wolfe Street, Baltimore, MD 21205; email: Kkverno1@jhu.edu.

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