

Obsessive–Compulsive Disorder in Autism Spectrum Disorder Across the Lifespan



Markian Pazuniak, MD^a, Scott R. Pekrul, MD^{b,*}

KEYWORDS

- Autism spectrum disorders (ASD) • Obsessive–compulsive disorder (OCD)
- Obsessions • Compulsions • Stereotypic behaviors • Restricted interests

KEY POINTS

- Obsessive–compulsive disorder and autism spectrum disorder have overlapping behaviors that can be difficult to differentiate.
- Key to distinguish repetitive behaviors primary to autism spectrum disorder from those unique to obsessive–compulsive disorder are: autism spectrum disorder-only the behaviors are calming, sensory seeking, and ego-syntonic, whereas in obsessive–compulsive disorder they are ego-dystonic, cause distress, and driven by anxiety.
- Diagnostic scales can be used including the Children’s Yale-Brown Obsessive Compulsive Scale for ASD.
- Pharmacology studies have shown mixed results but we recommend starting with a selective serotonin reuptake inhibitor, being mindful of the increase risk for side effects with patients with autism spectrum disorder.
- Exposure-response prevention can be used with patients with obsessive–compulsive disorder and autism spectrum disorder but modifications are necessary.

Autism spectrum disorder (ASD) and obsessive–compulsive disorder (OCD) are both common pediatric psychiatric conditions with a prevalence of rate in recent studies of 1% to 2% and 1% to 3%, respectively.^{1–3} OCD is characterized by intrusive thoughts, images, or urges (obsessions) with purposeful mental or physical actions (compulsions) aimed at reducing anxiety caused by the obsession.⁴ ASD can be characterized as impairments in social relationships and social-emotional reciprocity, and nonverbal communication combined with restricted and repetitive actions and interests.⁴ Before the publication of the *Diagnostic and Statistical Manual of Mental Disorders IV-TR*, the

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^a Department of Child and Adolescent Psychiatry, University of Maryland Medical Center, 701 West Pratt Street, 2nd Floor, Baltimore, MD 21201, USA; ^b Sheppard Pratt Health System, 6501 North Charles Street, Baltimore, MD 21204, USA

* Corresponding author.

E-mail address: spekrul@sheppardpratt.org

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Abbreviations	
ASD	Autism spectrum disorder
ASD-OCD	ASD and comorbid OCD
ASD-only	ASD and without OCD
CYBOCS-ASD	Children's Yale-Brown Obsessive Compulsive Scale for ASD
OCD	Obsessive-compulsive disorder

diagnostic criteria of ASD or OCD precluded the diagnosis of the other disorder.^{5,6} These exclusionary criteria were in part based on the idea that repetitive, restricted behavior as well as narrow and fixated interests found in ASD seemed to be similar to the obsessions and compulsions found in OCD. However, research suggests differences exist in the repetitive and restricted behavior between the 2 disorders. Further, studies indicate children and adolescents with ASD and comorbid OCD (ASD-OCD) may have unique symptomatology compared with patients with ASD and without OCD (ASD-only). Given the differences in treatment approaches between ASD and OCD, it is import for the clinician to recognize the similarities and differences between the 2 disorders to guide the most effective therapeutic interventions. This article reviews prior literature regarding the prevalence, diagnosis, and treatment in children and adolescents with autism and comorbid OCD from a developmental perspective.

EPIDEMIOLOGY

Individuals at any age with ASD are 2 times more likely to be diagnosed with OCD than the general population⁷ with a suggested a comorbidity rate of 6% to 37%.^{8,9} Within the pediatric population, 1 meta-analysis published in 2011 suggests a prevalence rate of 12.5% or 17.4% depending on the methodology used.¹⁰ OCD symptoms were more prevalent in children with ASD than matched children diagnosed with an anxiety disorder and children with no psychiatric diagnosis.¹¹ Parents of children with ASD rated their children as having higher obsessive-compulsive symptoms than parents of children with other anxiety disorders.¹¹ Parent's report of obsessive and compulsive symptoms yielded a higher comorbidity rate (20.2%) than the frequency based on the child's report (10.7%).¹² However, a selection bias may occur because these comorbid rates might be reflective of how children with ASD-OCD have more severe symptoms, which leads to more referrals to psychiatric care.^{8,13}

Children and adolescents diagnosed with OCD are at increased risk of being diagnosed with ASD. In addition, 4% to 8% of children and adolescents diagnosed with OCD are diagnosed with ASD.¹⁴ A diagnosis of ASD is 4 times more likely to be present in a youth diagnosed with OCD.⁷ A survey of an outpatient clinic sample placed the frequency rate of Autism in children with OCD at 3.8%.¹⁵ Subthreshold symptoms of ASD were also found to be elevated in pediatric patients with OCD compared with controls, with ranges from 18% to 35%.^{13,16–18} Tics, symptoms of attention deficit hyperactivity disorder, and pathologic doubt, but not patient's insight, were correlated with increased symptoms of ASD within the OCD population.¹⁷

FAMILY HISTORY

Family history suggests a common etiology between OCD and ASD. Increased family history of ASD and ASD symptoms in youth with OCD has been observed in a few studies. Higher OCD symptoms were found in mothers of children with ASD-only and increased ASD symptoms are found in mothers of children with OCD-only.¹⁶ ASD-only youth with higher scores on the repetitive behavior domain of the ADI-R

and on the narrow restricted interests and rituals domain of the ADI-R were more likely to have parents with higher scores on Yale-Brown Obsessive-Compulsive Scale checklist.¹⁹ Youth who displayed more complex stereotypies and repetitive movements are also more likely to have relatives diagnosed with OCD compared with those who displayed simple stereotypies and repetitive movements.^{19,20}

PRESENTATION OF SYMPTOMS

The diagnosis of OCD in a child with ASD can be challenging. The previous exclusion of comorbid OCD and ASD before *Diagnostic and Statistical Manual of Mental Disorders-IV* unfortunately limited additional research on this topic in the past.^{5,6} One of the complications is that children with ASD and language impairment add to diagnostic challenges because these patients often have difficulty conveying their thoughts and internal states.²¹ Further, many individuals with ASD struggle with emotion identification and decreased insight, which can impact their ability to self-report symptoms.²¹ Conversely, OCD symptoms may mask an underlying ASD diagnosis, especially if the child is on the autism spectrum and higher functioning.^{14,22} Therefore, obsessive and compulsive symptoms may have to be ascertained via behavioral observation to a greater extent in those with ASD than without ASD.

There are many complications differentiating compulsive behavior in OCD-only from restricted and repetitive movements in ASD-only. For example, restrictive and repetitive behaviors that are more complex in ASD-only often present as similar to obsessions and compulsions in OCD-only.^{5,23} In contrast, a child with OCD-only can present with the same severity of rigid and repetitive behavior, which are both higher than typically developing youth.²⁴ For a diagnosis of OCD, the repetitive behavior has to be impairing, which is difficult to assess in children with ASD owing to the reasons discussed elsewhere in this article.²⁴ ASD-only youth who acted out their favorite television or book characters are more likely to endorse obsessive and compulsive symptoms than ASD-only youth who are simply fixated with an with a toy or object, or those who collect facts about a topic.²⁵

Although restricted and fixed interests in ASD-only can seem to be similar to obsessions in OCD-only, several diagnostic factors can help the clinician to separate these 2 features. For example, patients with ASD-only are likely to view their obsession or restricted interest as a source of pleasure (ie, ego syntonic) or as an interest that is engaging. Conversely, patients with OCD-only are more likely to be disturbed by their obsessions (ie, ego dystonic).^{24,26,27} Further, fixed interests and restricted and repetitive movements are a source of validation, anxiety relief, and security for individuals with ASD-only.²⁷ Individuals with OCD-only will make an effort to avoid thinking about the obsessions, which they view as unacceptable, intrusive, and a source of anxiety.²⁸ However, children with ASD-only may not view the intrusive thoughts as harmful or distressing.²⁶

Overall, youth (ages 7–16 years old) with OCD-only report a higher number of obsessions (except religious obsessions, which were similar between the 2 disorders) than youth with ASD-only.²⁴ A second study finds more mixed results with youth diagnosed with OCD-only exhibiting more aggressive obsessions than children with ASD-only.²⁹ In contrast, children with ASD-only are more likely to exhibit hoarding behaviors than OCD-only and the general population, but the difference between ASD-only and OCD-only did not reach statistical significance.²⁹ Hoarding has been reported to be a common obsession in children and adolescents with ASD.^{25,29} It is important to note that these papers only diagnosed youth as either OCD-only or ASD-only, so none of these individuals were diagnosed as comorbid ASD-OCD.

OCD compulsions can seem to be similar to the restricted, repetitive behaviors and stereotypies of ASD. Similar to how obsessions and restricted interests can be distinguished via careful observations, compulsions can also be differentiated from restricted and repetitive behaviors. One key element of compulsions in OCD is that the act itself is disturbing and maladaptive, unlike the restricted and repetitive behaviors of ASD, which are pleasurable and ego-syntonic.^{7,8,21,28,30} In fact, the behavior of restricted and repetitive behaviors in ASD may be a goal in themselves for the individual.²⁸ One case study discusses a child with ASD-OCD combined who had an elevated heart rate and irritable affect when unable to complete his compulsion.³¹ Children with OCD-only reported an overall greater number of compulsions compared with children with ASD-only.²⁴ In ASD-only youth, higher rates of repetitive movements are related to a greater number of obsessions.²⁴ Additionally, compulsive symptoms, as measured via the Repetitive Behaviors Scale-Revised compulsive score subset, is slightly inversely proportional with IQ.³²

Studies are inconclusive with respect to which type of compulsion is more common in ASD versus OCD.^{24,29} Ordering type compulsions are more common in OCD-only compared with ASD-only in 1 study and checking compulsions are more common in OCD compared with ASD in a second study.^{24,29} For youth, the compulsions in ASD-only are less elaborate and complex than in OCD-only.²⁴ Several compulsions, including repeating (56%), ordering (21%–56%), hoarding (25%–28%), and other compulsive behaviors (41%) are more prevalent in ASD-only patients than OCD-only patients.^{25,29,33} Some of these compulsions, such as ordering, are positively correlated with severity of restricted interests in children and adolescents with ASD-only.²⁵

Within the adult population, hoarding is noted to be more common in both the OCD-only and ASD-only populations.³⁴ In comparison with adults with ASD-only, those with OCD-only are found to have more repeating compulsions, but similar amounts of cleaning, checking, counting, arranging, and hoarding compulsions.³⁵ Again, it is important to note that many of these studies investigating compulsions and repetitive behavior did not take into account a possible ASD-OCD combined group. Instead, the studies separated subjects into only their primary diagnosis. However, a few of the studies did create an ASD-OCD group, which they compared with youth with OCD-only or youth with ASD-only. In these studies, the ASD-OCD combined group were more likely to display restricted and repetitive behaviors and interests as well as sensory motor behaviors compared with the ASD-only group.³⁶ There were conflicting studies for whether the obsessions in ASD-OCD combined groups were less severe or more severe than in OCD-only youth.^{11,37,38} The ASD-OCD combined group may be associated with a greater prevalence of religious obsessions and a lesser prevalence of checking and washing compulsions compared with the OCD-only group.³⁸ The prevalence of many compulsions (including touching, tapping, rubbing, or ordering) and the prevalence of many obsessions (sexual, aggressive, or contamination) were similar between the ASD-OCD combined group and the OCD-only group.^{15,38} Hoarding was present in 34% of children and adolescents with ASD-OCD, with 7% exhibiting severe hoarding behavior.³⁹

ASD-OCD children were found to have poor insight.²⁹ Children with OCD-ASD combined had fewer prosocial behaviors and more difficulty relating with peers compared with their peers with OCD-only.¹⁵ Adults with ASD-OCD combined blamed themselves significantly less for their intrusive thoughts when compared with OCD-only patients. Further, patients with ASD-OCD combined believed significantly less that their thoughts can cause harm when compared with those with OCD-only.²⁶ ASD-OCD youth were also more likely to be diagnosed with social phobia, attention deficit

hyperactivity disorder, and separation anxiety compared with their OCD-only counterparts.³⁸

In adults with OCD-ASD combined, there is conflicting evidence as to whether obsessive and compulsive severity and presentation differed between the comorbid group, the OCD-only group, and the ASD-only group. In 1 study, compulsive symptoms were found to be more prevalent than those with ASD-only.⁴⁰ The compulsion types that were more common in adults with ASD-OCD included repeating, touching, tapping, hoarding, and ordering as well as sexual obsessions.^{9,34,40} Cleaning, checking, counting, and aggressive obsessions and compulsions were less likely in the ASD-OCD group than in OCD-only group.⁴⁰ Hoarding was also common in the ASD-only group.⁴⁰

DIAGNOSTIC TOOLS

Current diagnostic and rating scales developed for and used in OCD do not take into consideration the diagnosis of comorbid ASD.²¹ However, some scales have been adopted to include an ASD diagnosis. For example, the Children's Yale-Brown Obsessive Compulsive Scale for ASD (CYBOCS-ASD) may be a reliable adaptation of the widely scale for obsessions and compulsions for comorbid OCD and ASD.²¹ A scale such as the Obsessive Compulsive Inventory-Revised may also be helpful to separate restrictive and repetitive behaviors in ASD from compulsions primary to OCD.^{23,40} The Kiddie Schedule for Affective Disorders and Schizophrenia has an adaptation for patients with Autism and includes questions to assess for OCD symptoms.²¹ The Autism Co-morbidity Interview-Present and Lifetime Version was created to assess for comorbid symptoms of anxiety with reliability and validity for OCD.³³ The Children's Inventory for Psychiatric Syndromes-Parent Version also has promise to assess for OCD in ASD.²¹ Functional behavioral analysis may be helpful with the diagnosis of OCD in the ASD population, because it could uncover obsessions as possible antecedents for the targeted behavior, and compulsions or relief of prior anxiety as the consequence of the action.⁴¹

TREATMENT

Obsessive and compulsive symptoms in children and adolescents with comorbid ASD-OCD are more resistant to treatment than the OCD-only population.^{22,42} General recommendations for treatment may require adapting existing treatments of OCD to address the unique challenges of those with ASD.

Both psychotherapy and psychopharmacology have some evidence to support their efficacy. Multiple studies, including a few randomized control studies, showed efficacy of cognitive behavioral therapy (CBT) in the combined OCD and ASD population.^{43–47} A case study and 1 case series suggested that CBT may even be efficacious in individuals who have low functioning ASD or a severe cognitive disability.^{31,48} Conversely, another study did not support CBT in this population because it did not separate from the anxiety management therapy, which functioned as the control.⁴⁷ Additionally, CBT was found to be less effective in the ASD-OCD group compared with the OCD-only group.⁴⁹ One limitation of these studies was that some may have focused mostly only on those who individuals with ASD who are considered higher functioning.²¹ Another limitation was that 1 study only had 25% of the study population in the adolescent age range.⁴⁷ A lack of parent training for some of the CBT treatments was reported to be another limitation.⁴³

Similar to their counterparts with ASD-only, children with ASD-OCD may also benefit from social skills training.²³ Social skills training and CBT can help youth

with ASD-OCD in specific ways. For example, combining social skills training with CBT provides knowledge of what behaviors one can do in a specific situation, which is sometimes a difficulty for patients with comorbid ASD and OCD.²⁶

Adaptations in the CBT protocol for OCD have been made to the comorbid ASD-OCD population.⁴⁶ The general CBT protocol for OCD consists of 5 components:

1. Psychoeducation
2. Fear hierarchy development
3. Exposure/response prevention
4. Cognitive strategies
5. Generalization/relapse prevention^{43,50,51}

Prior studies indicate that CBT treatments were on average 17 sessions long with each session lasting between 35 minutes and 2 hours.⁴³ The decrease in compulsive behavior did not decrease until after the exposure response prevention plan was completed.⁴³ Adjustments that were made to CBT for this population account for the difficulty in completing thought diaries or considering alternate thinking strategies.⁴⁹ Young children with ASD may require more structured CBT therapy and cognitive restructuring may be less helpful.²³ Further modifications to the CBT program included more psychoeducation on affective identification and anxiety, creating a timeline for the sessions with the amount of time spent on each activity to create more structure, and identifying triggers for dysregulation. Additional adaptations found helpful included greater parental involvement, increasing a child's awareness of his or her compulsive behavior, use of preferred interests of the patient in the examples, increased use of visual aids, and positive reinforcement.^{43,52,53} Exposure and relapse prevention are conducted at home rather than at the clinic in this case study for the findings to become generalizable with the exposure and response prevention tasks conducted by the parent at the end of each session.⁵³ Overall, less focus was placed on cognitive techniques in the OCD-ASD group than in an OCD-only group.

Evidence for the efficacy of psychopharmacologic treatment for comorbid ASD and OCD remains mixed and limited. Common complications of psychopharmacologic treatment was that those with ASD may be more sensitive to the activating side effects of a selective serotonin reuptake inhibitor.²¹ Because risperidone and aripiprazole are approved for the treatment of irritability in ASD, they are both drugs that have been investigated for its possible role in OCD. Two studies show a marginal, but statistically significant, decrease in obsessions and compulsions with Aripiprazole use as measured by the CYBOCS-ASD (95% confidence intervals in 2 separate studies is a 0.27–1.77 decrease and a 1.65–4.35 decrease).^{54,55} However, treatment with risperidone was not associated with an improvement in CYBOCS-ASD scores from placebo.⁵⁶ Additionally, a later 2016 Cochrane review combined the data of the 2 studies of aripiprazole and concluded that aripiprazole did not differentiate from placebo in reducing CYBOCS-ASD score (95% confidence interval of decrease, 3.86–0.00).⁵⁷ Within the adult population, risperidone was associated with a mild decrease in the CYBOCS-ASD score from 16.15 ± 3.58 to 12.77 ± 3.63 ($P < .01$), which separated from placebo^{58,59}

Selective serotonin reuptake inhibitors are used as first-line psychopharmacologic treatment for the OCD-only population.^{60,61} However, its effectiveness within the pediatric comorbid OCD and ASD population remains mixed. Citalopram was not found to separate from placebo in reducing CYBOCS-ASD scores.⁶² For children and adolescents, fluoxetine, at low dosages (9.9 ± 4.35 mg), was associated with a decrease in repetitive behaviors, but not with an improvement in the Clinical Global Improvement scale.⁶³ However, the improvement in CYBOCS-ASD score was not replicated

in a much larger study at a similar dosage.⁶⁴ Fluvoxamine is poorly tolerated in the ASD-OCD pediatric group. Only 1 of the 18 children randomized to fluvoxamine clinically improved in a 12-week double blind placebo-controlled study.⁶⁵ Fluvoxamine was found to reduce OCD symptoms in adults with ASD in a small study of 30 adults.⁶⁶

Clomipramine was associated with a decrease in the OCD symptoms for those with ASD-OCD combined, which separated from placebo.⁶⁷ Average dose of clomipramine in the study is 152 mg/d.⁶⁷ A case study suggests that deep brain stimulation of the nucleus accumbens in an adult patient with ASD, refractory OCD, and aggression may decrease OCD symptoms as measured from the CYBOCS-ASD with effects lasting for up to 1 year.⁶⁸

PROGNOSIS

Increased autistic traits in children with OCD increased functional impairment, but was not associated with OCD severity.¹⁸ However, this paper suggested that intensive family involvement may have acted as a mediating factor (Griffiths). Advancing age is correlated with fewer compulsive behaviors.⁶⁹ A comorbid diagnosis was not related to the severity of compulsions.⁶⁹ Many of the features associated with a poorer prognosis in ASD (difficulties in interpersonal relationship, hoarding, presence of a cluster A personality disorder) were also associated with poor outcomes in those with ASD-OCD.²²

SUMMARY AND RECOMMENDATIONS

The diagnosis of comorbid OCD and ASD can be difficult to make because the symptomatology of OCD and ASD can seem similar. Further, children and adults on the autism spectrum can present with a wide variation in terms of severity and those with language impairment who are lower functioning will have increased limitations in self-report. However, even those individuals on the autism spectrum who are considered higher functioning can often present with poor insight and have challenges conveying their internal states. It may therefore be more critical for the clinician to rely on observation and caregiver reports regardless of language delay. However, as reported, some OCD scales such as the CYBOCS-ASD have been modified for ASD and can be used clinically for diagnosis and monitoring progression of treatment. Identification of situations and mental states that precede episodes of emotional and behavioral dysregulation as well as behaviors associated with relief can also aid in the diagnosis of OCD in ASD. One of the key features that clinicians can use to distinguish repetitive behaviors primary to ASD from OCD-only is that in ASD-only the behaviors are often calming, sensory seeking, and ego-syntonic, whereas in OCD they are often ego-dystonic, cause distress, and are primarily driven by anxiety. Further, OCD symptoms may appear as new behaviors and different from baseline stereotypic behaviors the individuals with autism may have displayed for an extended periods of time before the onset of OCD. Hoarding in a child or adolescent with ASD may indicate a comorbid ASD-OCD diagnosis. The type of obsessions and compulsions in pediatric ASD-OCD may be similar to those with OCD-only, but some evidence suggests that there may be fewer checking and washing compulsions and more religious obsessions in the combined ASD-OCD group. More studies are recommended to discern which obsessions and compulsions are more common in the ASD population, because there have been conflicting studies with respect to diagnosis.

In regard to treatment, if a person on the autism spectrum has been diagnosed with OCD, we recommend following standard clinical guidelines for OCD with some modifications. For example, we recommend starting with a modified CBT for ASD for those

that are deemed higher functioning and/or with good expressive-receptive language abilities. Specifically, exposure and relapse prevention can be helpful, especially with adaptations to fit children and adults with ASD. Such adaptations may include more structure, greater emphasis on affective identification, less emphasis on cognitive schema modulation, and home sessions to increase generalizability of therapy. Although studies have not shown reliable efficacy for a specific medication to treat OCD in patients with ASD, there is some evidence to support the use of clomipramine, fluoxetine, and fluvoxamine. Lower dosages of fluoxetine are found to be effective in a few studies. However, because persons with ASD tend to have higher rates of side effects with psychotropic medications, we recommend starting with a selective serotonin reuptake inhibitor that has evidence for efficacy in OCD-only and using the principle of start low and go slow.

Although we recommend starting with CBT and adding a medication if there is poor or only partial response, some on the autism spectrum, especially if they are lower functioning and/or have significant language delay, may be unable or unwilling to participate in therapy. For those individuals, it may be necessary to start with a psychotropic intervention in addition to standard behavioral interventions for ASD. If first-line treatment with a selective serotonin reuptake inhibitor is either ineffective or demonstrates only a partial response after 2 trials, it may be necessary to try clomipramine. If clomipramine is either not tolerated, ineffective, or shows a partial response, the clinician can consider augmenting or replacing these medications with a second-generation antipsychotic that has evidence for efficacy in OCD such as risperidone or aripiprazole.^{70–98} However, it should be noted that there were mixed results when using risperidone and aripiprazole in comorbid ASD-OCD. An advantage of using either risperidone or aripiprazole is they have approval from the US Food and Drug Administration for irritability related to ASD in children.

Suggested topics for future research include (1) possibly identifying specific subgroups within the OCD-ASD group, because this patient population may be a heterogeneous grouping that can have different pathology, presentation, and treatment; (2) further elaborating adaptations in the CBT protocol for the different functional levels of ASD; (3) and additional randomized controlled trials that measure the efficacy of selective serotonin reuptake inhibitors and antipsychotics.

DISCLOSURE

The authors have nothing to disclose.

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