

Helping Children on the Autism Spectrum with Anxiety and/or OCD Navigate School

Mary Durkin

Honors Thesis

SUNY New Paltz

When Valerie Paradiz' son, Elijah, was diagnosed with high-functioning autism, she went through the typical grief most parents go through when their child receives an autism diagnosis. She wondered if her son could have received a diagnosis sooner if she paid more attention. She started to analyze behaviors Elijah had performed in his infancy. As she came to terms with her son's diagnosis, Valerie started to identify with Elijah's "quirks."

There were various examples of where Valerie's behavior as a child and Elijah's would intersect. For example, while Elijah has preoccupations with cartoons, Valerie was obsessed with tornados. When in times of stress, Valerie would calm herself down by envisioning tornados touching down on the land (Paradiz, 2002, p. 88). She was also a shy child, as are most children on the autism spectrum. However, she was able to excel in school because she found great comfort in the daily routine (Paradiz, 2002, p. 89). A common characteristic among people with autism is that they strive for a daily schedule and become upset when their routine is changed. The most traumatic memory of school Valerie had was when she had to transition to another class. She writes:

I dreaded the moments between classes in high school, when I had to dash from one room to the next, dodging all the other bodies in the hallway, afraid of bumping into them, entirely unable to stop and socialize. Nervously, all I could think was the phrase 'air pockets...air pockets' over and over again in my mind. Repeating these words to myself kept me focused, so that I could find the open spaces in the hallway and slip in and out of them all the way to the next class (2002, p. 89).

Valerie's reaction to the loud environment of her hallway is similar to that of a person on the autism spectrum but also of someone who suffers from anxiety. For her, the school hallways is a nightmare for her social anxiety. It is too over-stimulating for her and she must engage in self-

soothing behavior in order to make it through. Valerie practices echolalia, a common speech pattern of people on the autism spectrum, by repeating the phrase “air pockets” to make her way through the noisy crowd which calms her down and allows her to focus on getting to her classroom. She is so concentrated on walking that she cannot stop to talk to her friends, much less focus on anything else. It seems that every time she had to walk in the hallways, her fight-or-flight instinct came over her, resulting in her running down the hallway. The faster she could move herself out of the stressful situation, the sooner she could relieve her anxiety and cease her self-soothing exercises.

Valerie originally saw these characteristics as stemming from her anxiety. It was only through extensive research and observing her son that she saw a correlation between her anxiety and autism. Her discovery led her to consult with medical professionals who were able to give her an autism diagnosis. For Valerie, it was hard to realize that she had autism as it shared characteristics with her anxiety. However, it is very common for people on the autism spectrum to have comorbidity with anxiety disorders.

The range of anxiety in young adults with an autism spectrum disorder (ASD) encompasses from eleven to eighty-one percent (Rodgers et al. 2012). Most researchers believe that about forty percent of youth with ASD will develop an anxiety disorder (Vasa et al. 2018). Growing up with both autism and anxiety can make schooling a distressing experience like Valerie's. Students can become anxious from typical events in a school day such as a change in schedule, overstimulating environments and bullying. Likewise, a subset of anxiety, OCD, is also common in the autism population. Like anxiety, OCD has a great range in the autism population but researchers have found that as many as fifty-six percent of the ASD population has OCD (La Buissonniere-Ariza, 2018). Like those with anxiety, students with autism and OCD

may feel more stressed at school as they cannot practice the compulsions or talk about the obsessions they need to calm themselves. While the comorbidity of autism with anxiety and OCD is debated, there is strong biological and environmental evidence to support the link between the neurodevelopmental disorders with these mental illnesses.

Most studies on the biological link between autism and anxiety disorders observe amygdala and cerebral cortex activity. The amygdala and cerebral cortex are responsible for triggering anxiety and fear. They also cause the fight-or-flight response that may come from intense anxiety. The amygdala is an almond-shaped region near the center of the brain (Pittman & Karle, 2015, p. 20). Even though it is tiny in size, the amygdala is the activator for an anxious response. The amygdala's main job is to act as a protector. To protect the body, the amygdala creates our fears and phobias (Johnston & Olson, 2015, p. 70). For example, a person bit by a dog when they were younger, may, as an adult, be scared of all dogs. Even though they were only bit by one dog, the amygdala will associate all dogs with the traumatic act. By restricting all activity with dogs, the chance of the person getting bit by another dog is significantly decreased.

The cerebral cortex is another aspect of kick-starting anxiety in our body. The cortex is responsible for sight, sounds and other perceptions as well as connecting memories with them (Pittman & Karle, 2015, p. 17). Similar to the amygdala, the cortex can be responsible for attributing anxiety with associations to a traumatic event. For example, someone who survived a fire may become anxious when they smell something burning. While a burnt bagel will not cause the house to burn down, the cortex makes a connection between the similar smells to send the message that it may be in danger. The cortex is also responsible for logic and reasoning (Pittman & Karle, 2015, p. 17). However, when the fight-or-flight response is activated, the cortex is overpowered by the amygdala, causing one to feel like they cannot think and instead act on

instinct (Pittman & Karle, 2015, p. 25). All rationality is thrown out the window as the amygdala takes over. This may cause someone to act unlike them in aggressive or impulsive behavior in order to protect oneself or another.

It is hypothesized that children with autism have abnormal amygdala and cerebral cortex activity as more than half of their population have phobias of some kind (Ellis, 2018, p.30). In a survey of 109 children with ASD, it was found that the most common fears/phobias were “fears of shots/needles and crowds were most common, whereas phobias typical in normative samples, such as tunnels, flying and bridges were rare” (Morrow Kerns & Kendall, 2014, p. 81). In another study, it was found that children with autism were more likely to have phobias pertaining to medical and situational situations than typically developing children (Morrow Kerns & Kendall, 2014, p. 81). Children with autism may have phobias about medical procedures because they are more likely to have serious medical conditions such as epilepsy or gastrointestinal issues. Similar to Valerie, children with autism may become anxious in crowds due to social anxiety and/or overstimulation. Common fears of tunnels, flying and bridges may be underrepresented in this population as it may be an obsession for them.

One way that researchers record amygdala use is by comparing the emotional reactions between children with autism and typically developing children when shown unfamiliar faces. In “The Role of the Amygdala in Atypical Gaze on Emotional Faces in Autism Spectrum Disorders”, researchers found that the atypical gaze associated with ASD may be a result of abnormal amygdala activity. When ASD participants were directed to look into the eyes of a stranger, their amygdala response intensified (Kliemann et al., 2012, p. 9474). Children with ASD do not normally look others in the eyes as it makes them anxious. As a result, they will look elsewhere expect at the person, resulting in a perceived atypical gaze. When forced to look

someone in the eyes, their amygdala use increased as a result of anxiety. Similarly, typically developing children's amygdalae response increased when they were instructed to look at the mouths of strangers (Kliemann et al., 2012, p. 9474). As looking someone in the mouth is an abnormal way to address someone, typically developing children's anxiety rose as they were forced to conduct an action they saw as abnormal. As anxiety does not usually inhibit a child's development, it can be inferred that children with anxiety were tested, even if it was not specified.

Connections in the cerebral cortex have also shown to cause abnormal reactions to faces of ranging emotions. In the study "Altered Right Frontal Cortical Connectivity During Facial Emotion Recognition in Children with ASD", subjects had a general impairment in recognizing positive and simple emotions (Yeung et al., 2014, p. 1574). The researchers also found that the children with ASD were more likely to view disgusted facial expressions as angry faces (Yeung et al., 2014, p. 1574). Fear and anxiety play a part in this reaction as the child is geared toward receiving a negative response that can potentially harm them. As the amygdala is the protector, it can be receiving altered messages from the cortex, causing the child to too see an angry response. The researchers hypothesized that by seeing disgust as anger, it causes children with autism to act out in aggressive behavior (Yeung et. al, 2014, p. 1574). Aggression is the amygdala's way of protecting the child. It may be the fight-or-flight response the amygdala has selected as best to protect oneself. This reaction also shows a lack of self-regulation, a characteristic common for those on the autism spectrum.

When compared to typically developing children on the autism spectrum, children with anxiety test similarly. Research has shown that "Subjects with anxiety show enhanced amygdala activity when passively viewing neutral faces, and are more likely to interpret ambiguous or

neutral stimuli as negative in comparison to non-anxious participants” (Johnston & Olson, 2015, p. 75). Here, the subjects with anxiety have similar results to participants with ASD. Both placed the emotions they could not read as negative towards them, increasing amygdala activity.

Researchers hypothesize that the ability to recognize emotions in people’s faces is linked to social competence (Yeung et al., 2014, p. 1574). The behavior exhibited in the previous studies illustrates this theory. Both parties receive heightened amygdala activity, anxiety, when they perceive an unknown or negative emotion. A person with autism may act out towards the person in a hostile way or react in a course that goes against social standards. These acts can deviate a child with autism from their class. A typically developing child may have the social skills to remove themselves from the person or talk their way through the person’s negative emotions.

Some researchers conjecture that the amygdala ceases to habituate to faces it deems unsafe for people on the autism spectrum. In their study, researchers measured amygdala function in fifty-nine children on the autism spectrum and sixty-four typically developing children by using fMRI (Swartz et al., 2013, p. 86). The results found that children with autism failed to become used to seeing sad and neutral faces than the typically developing children, with a correlation between less habituation to neutral faces and ASD severity found (Swartz et al., 2013, p. 90). As the neutral or sad faces were harder to interpret, the amygdala in children with ASD heightened and refused to loosen up in order to protect itself.

While abnormal amygdala use is common in people on the autism spectrum, damage to the amygdala would not cause symptoms of autism. In a study of two women with bilateral damage to their amygdalae from Urbach-Wiethe disease, it was found that the damage was not enough to cause the women to take on autistic behavior (Paul et al., 2010, p. 167). Although,

both women did deviate slightly from typical social behavior and self-reported social difficulties in their daily life (Paul et al., 2010, p. 169). While their behaviors did not qualify them for an autism diagnosis, the damage to their amygdala did have an impact on their lives. The results from this study lead researchers to conclude that the amygdala is a part of the social cognition system (Paul et al., 2010, p. 170) as damage to them was enough to cause a social deficit but not to the point of diagnosis for a pragmatic disorder. Damage to the amygdala can also cause impaired recognition in the emotion of faces (Paul et al., 2010, p. 166). Relating back to the face studies, it is possible that damage to the amygdala could be responsible for both people with autism and people with anxiety to misread emotions on one's face.

In all, there is a significant overlap between amygdala and cerebral cortex activity between people with ASD and people with anxiety. Both populations have considerable numbers of those within that have heavy fears or phobias. When undergoing face studies, both exhibited anxiety at viewing emotions they could not identify or when they were instructed to look at areas of faces they normally would not. The amygdala, when damaged, can cause one to not be able to identify emotion on faces which participants with autism and anxiety had difficulty doing. The amygdala, along with the cerebral cortex play a part in social cognition as well as inducing anxiety and fear.

Family history has been an interest for autism research since Kanner's seminal paper. In 1943, Kanner published a groundbreaking study based on observations with children who we know understand as being on the autism spectrum. The study denotes that one common denominator of all the children observed was that they all came from families with a high academic background (Kanner, 1943, p. 248). Another interesting connection between the children was that they had a parent or grandparent exhibit similar characteristics to the child. For

example, one child, Alfred, was prone to spending his days obsessing over the interest of the day and was prone to worrying about trivial things such as the sun going down or his bread being burnt to make toast (Kanner, 1943, p. 233). His maternal grandfather, a psychologist, was described as obsessive, having tics and intense fears related to loneliness and cardiac issues (Kanner, 1943, p. 233-234). Both family members of different generations exhibit similar phobias and tics to varying degrees. Similar to Valerie and Elijah sharing qualities of autism, Elijah's features were more prominent, leading to an autism diagnosis early in life. It is unknown if Alfred's grandfather would have received an autism diagnosis now, but Kanner makes note of the mental similarities between the two.

From studies of family members displaying symptoms of autism, the Broader Autism Phenotype (BAP) was developed. BAP is not a diagnosis, but rather a description for people related to someone with autism who have deficits in social and communication skills but also have restricted interests and behaviors (Gerds & Bernier, 2011 p. 2). Many people who can be described through BAP are family members of someone on the spectrum, but that is not necessary to be described as being on the BAP. A person may have a lot of the symptoms of autism, but to not a point where they would have a diagnosis. Because the characteristics are similar, researchers hypothesize that relatives could be unknowingly be passing down their quirks to their descendants, leading to an autism diagnosis.

The best modern example of BAP would be Silicon Valley children. The tech hub of California is experiencing a surge of diagnoses of autism in their children, leading some to think that their parents' social anxiety to serve as a genetic component for autism (Silberman, 2001). While it is true that the number of diagnoses of autism has risen worldwide, the numbers coming

out of California have been abnormally high compared to other states, specifically for Silicon Valley (Silberman, 2001). In a 2001 article for *Wired*, Steven Silberman writes:

In the past decade, there has been a significant surge in the number of kids diagnosed with autism throughout California. In August 1993, there were 4,911 cases of so-called level-one autism logged in the state's Department of Developmental Services client-management system. In 1999, the number of clients was more than double what it had been six years earlier. Then the curve started spiking. By July 2001, there were 15,441 clients in the DDS database. Now there are more than seven new cases of level-one autism- 85 percent of them children- entering the system every day.

Similar to Kanner's study, the children observed in the article also come from parents of great educational background. These parents are scientists, engineers and technological innovators who typically share autistic characteristics. Their systematic thinking, proficiency in math and typical social awkwardness could be a few examples of characteristics passed down to their children with ASD.

The link between familial mental illness and autism helps prove a further association between autism and mental illness. Family members with a BAP also had a mental illness at rates higher than for a family of a typically developing child (Mazefsky et al., 2008, p. 52). As mental illness is hereditary, it would make sense for a child with autism to also have a mental illness due to their genes. OCD has been specifically correlated with ASD and family history. One study found that OCD "is more common than expected among relatives of subjects with autism. Moreover, OCD was more common in parents of those children with autism that scored high on repetitive behavior and stereotypies" (Bejerot, 2007, p. 103). Children with ASD may develop behaviors that mimic the disorder but turn out to become OCD.

Most studies on caregivers focused on mothers. Researchers Ozyurt and Besiroglu (2018) compared anxiety ratings of mother with their children who are on the autism spectrum. The study first found a positive correlation between ASD symptoms and OCD severity (Ozyhurt and Besiroglu, 2018, p. 45). The number of symptoms of autism a person had, actions such as ruminating over the object of the day or uncontrollable tics, caused their OCD to be harsher. The ASD symptoms only aide in enhancing these compulsions. The OCD mothers group scored higher on the Social Communication Questionnaire than controls, signaling higher characteristics of ASD (Ozyhurt & Besiroglu, 2018, p. 45). The mothers could have potentially passed down their quirks to their children in the form of autism and OCD.

Bejerot proposes that there is a subtype related to autism in OCD that explains why severity of OCD in ASD individuals is more intense and harder to treat (Ozyhurt & Besiroglu, 2018, p. 45). As there is such a high number of people on the spectrum with OCD, making a separate entity for this population may help this population receive better treatment. Bejerot also correlates her subtype of autism with genetics. In her study, she writes, “OCD is more common than expected among relatives of subjects with autism. Moreover, OCD was more common in parents of those children with autism that scored high on repetitive behavior and stereotypies” (Bejerot, 2007, p. 103). In a similar study it was found that with an initial diagnosis of ASD, an individual was twice as likely to receive a diagnosis of OCD and that an individual diagnosed with OCD early in life was four times as likely to be diagnosed as being on autism spectrum (Ozyhurt & Besiroglu, 2018, p. 44-45). Once again, because of genetics, the chances of a person on the autism spectrum receiving a diagnosis of OCD is heightened depending on their family history.

When a loved one receives an autism diagnosis, there can be a flurry of emotions for caregivers and surrounding family members. Caring for someone with autism, while rewarding, brings on more stressors for caregivers such as making sure their child is receiving the right services, dealing with their outbursts and meeting their daily schedule. Caregivers must do this and more, all while maintaining a marriage, job and their other children. Family members of someone on the spectrum are more likely to have a mental disorder than family members of a typically developing child (Strang, 2016, p.36). While the family member had this mental illness before their loved one received a diagnosis, the stress resulting from it can exacerbate the illness.

Family history has played an important role in the prominence of mental illness in the autism community. From the beginning of autism research, it was observed that families of children on the spectrum shared similar quirks. Once it was revealed that many people, some related to ones on the autism spectrum, exhibited many symptoms of autism, the broader autism phenotype was developed to categorize these people. Because of BAP and mental illness is associated higher for those related to people on the spectrum, the chances of someone on the autism spectrum to have a mental illness is intensified.

There are many similar characteristics shared between autism, anxiety and OCD. For this paper, I will narrow down these characteristics to restricted repetitive behavior (RRB), perfectionism and obsessions. Because they share so many similar characteristics, it can be hard for a professional to be able to distinguish between and for someone to receive the right diagnoses (Morrow Kerns & Kendall, 2014, p.76). However, even though they all share similar actions, finding the reasoning behind their actions can lead medical professionals to the right diagnosis.

RRBs are seen as one of the core symptoms of autism. They are actions such as hand flapping or rocking used to soothe oneself. RRB is popular among those with mental illness as well. RRB has been linked with the compulsive aspect of OCD. As compulsions can also include doing a specific movement such as rocking, as a ways to soothe oneself, it can be hard to distinguish from autism or OCD (Morrow Kerns & Kendall, 2014, p. 81). However, the reasoning for the behaviors are different.

For both parties, participating in RRB may help alleviate some anxiety from a trigger. However, for someone with autism, engaging in RRB is a more positive experience as one does purely to soothe oneself from a situation (Wu et al., 2014, p. 109). Whereas for someone with OCD, RRB is both self-soothing and distressing. Wu et. al writes:

If the individual has OCD, there may be a need to tap the table exactly seven times to counteract intrusive thoughts about catastrophic repercussions if failing to tap the table in a way that is 'just right'. In this case, the repetitive tapping is intended to counteract the specific obsession and temporarily relieves distress which contributes to the maintenance of these symptoms (2014, p. 109).

A person with OCD needs to complete their RRB in order to counter any adverse outcome they think may happen if they are unable to complete what they set out to do. Meanwhile, a person with autism would complete RRB in order to be able to complete an unpleasant activity or to get out of one. For someone with OCD and autism, RRB can be a distressing occurrence to them but a medical professional may never know if they believe it is purely from their autism. They would never know that their client was actually exhibiting intrusive thoughts that cause their RRB.

Researchers believe that RRB comes in the forms of other repetitive behaviors. One realm that they are exploring is repetitive questioning. They have noticed how children with autism will ask the same question over and over when they are noticeably distressed as a way to self-soothe (Gillott, Furniss & Walter, 2001, p. 278; Syriopoulou-Delli, et al, 2019, p. 705). As someone with OCD is faced with obsessive thoughts, it wouldn't be out of character for someone with autism and OCD to be repetitive. A medical professional seeing someone who may have both these disorders should seek out the reasoning for this behavior to determine if it stems from OCD and autism.

Perfectionism is also associated both with autism and anxiety. When taken off schedule, people with autism tend to become frustrated. People with anxiety expect more perfection from themselves. It is originally thought that they expect perfection more so from others to maintain their daily regimen. However, research is finding that children on the spectrum are pinning similar high standards onto themselves as someone with anxiety. When a person has both autism and anxiety/OCD they can also turn in on themselves. When compared to typically developing groups, ASD groups were more likely to “endorse dysfunctional and socially-prescribed perfectionistic beliefs” (Greenaway & Howling, 2010, p. 1183). As these sentiments can cause further anxiety and depression they are definitely worth investigating in this at-risk population.

Researchers think that children with autism may have high standards for themselves because they cannot understand common encouragement phrases. For example, a person with autism may interpret “I want you to give 110%” as literal (Greenaway & Howling, 2010, p. 1184). A person with autism may feel inadequate because they could not give more of themselves, even though it is impossible to give 110% to something. This can give the child more anxiety and lower their self-worth.

Both children on the spectrum and those with OCD have obsessions. Similar to compulsions, the difference between obsessions with these two populations is the enjoyment one gains and the manner of one's interests. Obsessions for people with OCD are distressing and are usually one's worst nightmare or goes against what they actually think (Wu et al. 2014, p. 108; Ellis, 2018, p.29). For people on the spectrum, as seen in Kanner's study as well as the example of Valerie, their interests are comforting to them. For Valerie, tornadoes- a distressing event to think of for some, was soothing to her.

Similar with compulsions, the manner of how the obsessions are pictured in one's mind plays a role of separating autism from OCD. Once again, thinking of tornadoes daily is comforting to someone on the spectrum. They take the time to learn everything they can about tornadoes for enjoyment. Whereas, someone with OCD spends their time thinking about tornadoes but in fear. They obsess over a tornado killing them or their family (Wood & Gadow, 2010, p. 283). They think that unless they complete a certain compulsion that they or their loved ones will be in danger.

Hoarding is another common trait shared by these populations. 24.3% of children with autism exhibit hoarding behavior (La Buissonnière-Ariza et al. 2018, p. 4168). Their obsessions cause children to hoard things related to them. Some also think that hoarding is related to anxiety as well. Hoarding items makes the child feel safe from their fears (La Buissonnière-Ariza et al. 2018, p. 4168). By collecting items, they may be fulfilling a compulsion or distracting themselves from what they fear. One study found rates as high as 40% of children with ASD presenting with hoarding behaviors, which is much higher than the rate for typically developing children (La Buissonnière-Ariza et al. 2018, p. 4174). Hoarding is usually the result of high

anxiety and OCD. Children on the autism spectrum who may have anxiety and/or OCD need to get tested to prohibit hoarding behaviors from forming.

Even with the evidence and reported high incidences of comorbidity of autism with anxiety and/or OCD, it is still hard to receive a differential diagnosis. Because there are many similarities between the disorders such as phobias, obsessions, restricted repetitive behaviors and more it can be harder to differentiate between what is an action caused by autism or mental illness. This happens primarily because medical professionals are more likely to describe symptoms of anxiety as belong to autism as it is likely more prominent (Morrow Kearns, 2014, p. 75). Because of its prominence at two years of age, autism is also more likely to be diagnosed before mental illness, helping professionals lean more towards the original diagnosis.

Reporting mental illness can be difficult for a person with autism. It is hard enough for someone with autism to read someone else's emotions let alone their own. The most commonly used method for reporting mental illness for people is a self-report which proves to be difficult for someone with ASD (Spain et al., 2017, p. 10; Syriopouloud-Delli, et al., 2019, p. 713). Parents have completed mental health reports for their children by using their own perceptions of how their child is feeling because it proved to be too hard for their child (Anxiety in Children & Adolescents with ASD, p.220). While the parent is well intentioned, they ultimately cannot understand how their child is feeling on a daily basis. They are not in their headspace and are depending on what their child tells them. The child could also be downplaying the severity of their mental illness to avoid stressing out their caregiver or they can be unable to perceive their mental illness into words.

Children higher on the autism spectrum have reported feeling more anxiety than people lower on the autism spectrum (Syriopouloud-Delli, et al., 2019, p. 712). There are a few

noteworthy reasons for this finding. First, someone higher on the autism spectrum is able to voice their anxieties, compared to someone on the spectrum who is unable to communicate verbally. There is also the likely chance that because these individuals are higher functioning, they are mainstreamed into a typically-developing classroom where there are higher standards for their work as well as for social activities. For these reasons, we should not assume that those lower functioning on the autism spectrum are immune from mental illness.

School presents many challenges for children on the autism spectrum and have mental illness. The challenges that I will be focusing on are overstimulation, limitation of RRBs, negative relationships with teachers and bullying. All of these factors can influence anxiety and negatively affect a child's performance in school. School can be an overstimulating experience, as seen in the example of Valerie's experience in her school hallway between classes. It is thought that stimulation is a main cause of anxiety for this population (Syriopoulou-Delli et al., 2019, p. 705). Classrooms can prove to be an overstimulating experience for someone on the spectrum due to the sheer size of the class. As inclusive classrooms grow in size, there is more room for distractions from other classmates. A lot of the distractions in the classroom that are simply out of the teacher's grasp of handling.

In a classroom, a child cannot talk about their obsessions or practice their compulsions as it is a distraction to other students (Wood & Gadow, 2010, p. 285). As these behaviors are anxiety relievers for this population, restricting this population from talking about their obsessions and acting on their compulsions will increase their anxiety. While it is understandable as to why a teacher would prohibit this behavior from the classroom, it is ultimately adding more stress to the child. Stress could inhibit their performance in school as all they are focusing on may be on the restricted repetitive behavior they cannot practice.

Because of their behaviors, children on the spectrum with these mental illnesses are more at risk for being seen as “problem students” (Ashburner, Ziviani & Rodger, 2010, p. 19). The restrictive repetitive behavior and obsessions these children have may seem like it is something that can be easily stopped. This idea, mixed in with the amount of time and effort teachers need to put in to discipline these students may result in a negative student-teacher relationship (Ashburner, Ziviani & Rodger, 2010, p. 19). In fact, from a survey of 173 families of a child with ASD, forty percent report concern over the response of school staff towards their child’s behaviors, listing that they did not believe teachers had enough awareness for their child’s condition (Ashburner, Ziviani & Rodger, 2010, p. 20). While having the children perform their behaviors in class will be distracting, there must be some middle ground maintained in order for the child to be comfortable in the classroom and perform to the best of their ability.

Bullying is also a widely reported problem for this population. It is estimated that seventy percent of the ASD children population are being bullied (Mazefsky & Harrington, 2014, p. 92). Bullying happens in this population for many reasons. As ASD and mental illness can both cause deficits in communication, it can render someone the ability of being able to speak or make them awkward in social situations. Children on the spectrum and mental illness also have trouble self-regulating themselves. If these children are prone to emotional outbursts such as crying or visible anxiety, it can put them at even more risk of bullying (Schroeder, et al., 2014, p. 1522) Bullying can also cause mental illness to increase (Cappadocia, Weiss & Pepler, 2012, p. 271). When a child is being bullied in school, that environment is no longer a comfort. School for the child becomes a negative environment that only increases anxiety.

Perhaps the most important point to be made is that children on the spectrum with mental illness are performing lower than their typically developing classmates in the same classroom

(Ashburner, Ziviani & Rodger, 2010, p.27). This is despite having a teacher aide, speech-language pathologist, occupational therapist and a child psychologist on the child's team(Ashburner, Ziviani & Rodger, 2010, p.27). Because their mental illness may not be accounted for, many children on the spectrum can be falling through the cracks. School, for them, is a place of anxiety as they cannot practice their compulsions or obsessions. If a child is being bullied and does not have a good relationship with their teacher, they may feel further alienated.

However, there are several ways in which school professionals can help alleviate the stress these students face in the classroom. I have chosen the school-aged population for dealing with autism and mental illness as the sooner someone with a mental illness is taught coping mechanisms, the more likely they will be able to use these techniques later in life to tackle tougher social situations. It is important to note that these techniques can be used to help lessen anxiety and characteristics of autism but ultimately cannot cure either mental illness or autism. Only some school professionals can practice these methods, however, the more educated these professionals are, the more likely is that they will recommend a child to receive treatment from someone who can perform these skills.

The most popular technique for alleviating anxiety and OCD symptoms for children on the autism spectrum was Cognitive Behavioral Therapy (CBT). As CBT requires one to be in touch with their emotions, it has been amended to meet the needs of those on the autism spectrum. It is being implemented in schools by school psychologists to positive results. In one study, when compared to a non-experimental group, the group of children with ASD who practiced CBT were less anxious which was consistent with previous studies of CBT (Clarke, et al., 2016, p. 3891). Parents also noticed that there was a gradual change of the children's thought

processes. Rather than avoiding a situation, the children became more likely to use the problem-solving skills they used through CBT (Clarke, et al., 2016, p. 3891). It is important to note that these changes took time and that one should not expect to see results immediately. CBT has also been noted to help with self-regulation (Sung, 2011, p. 644). This is important as self-regulation is needed to help a child cope with tough situations.

In a literature review, it was found that 71.4% of ASD youth benefitted from CBT (Vasa et al., 2014, p. 3225). CBT has also been proven to have lasting effect. In another study of fifteen participants, 73% maintained the positive effects of therapy three months post treatment (Storch et al., 2013, p. 139). However, there are some difficulties that CBT cannot work around. For example, an intolerance for uncertainty, common among children on the spectrum, has been found to diminish the results of CBT. When comparing populations of ASD with and without this characteristic, both populations saw a reduction in anxiety but children with this intolerance saw it less so (Keefer, 2016, p. 3954). While a person on the autism spectrum can benefit from this therapy, certain characteristics can stop a person from feeling the effects more fully.

Social skills groups are a therapy commonly associated with CBT. When compared with CBT, social skills groups show similar results (Murphy et al., 2017, p. 3454). Social skills group, like CBT, helps children with problem solving skills, self-regulation and have long-standing post treatment results (Cotugno, 2009, p. 1275; Deckers, 2016, p. 3501). Social skills groups are important in that it groups together children of a similar age on the spectrum. Together, they can form friendships that can cast out their loneliness and work together to push through the problems that plague them.

Mindfulness is becoming a popular practice for people with anxiety and is even being implemented in some schools. However, it has also been proven to help children on the autism

spectrum with their anxiety. In one study, it was found to lessen anxiety as well as aggression (Keenan-Mount et al., 2016). It is also shown to help with social behavior and self-regulation, two characteristics that can help a student communicate better with their fellow classmates (Routhier-Martin, 2017). As mindfulness is a short practice, focused on breathing, it is easier to implement than other techniques. As it also does not require any sort of certification, any professional can implement the technique.

Modeling is another way in which school professionals can help children on the spectrum lift their anxiety. Modeling is a fantastic way to help with this as it can be used to learn tough subjects in school as well as social and independent skills. In one study using modeling mathematic skills as a way to gain independence it was found that modeling help the children understand the concept better and stayed in their minds (Yakubova, 2016, p. 2358). Modeling has started to become more technological, making participants more inclined to practice this skill. One way of modeling that is becoming more popular is video modeling, where one is recorded performing a task, then is able to watch back and pinpoint where they went wrong (Schaeffer, 2016, p. 17). This way is becoming more popular as the children enjoy being able to watch themselves and can learn through visual modalities. Modeling is a fantastic illustration to help a child on the spectrum physically work through a social situation that gives them anxiety. That way when the situation comes, they feel more prepared and are less anxious about it.

In all, there is an ample amount of evidence that proves anxiety and OCD can co-occur with an autism diagnosis. Biologically, the amygdala and cerebral cortex behave in abnormal patterns to elicit fear and anxiety to protect oneself for both people with autism and with anxiety. Mental illness is also more common in families of people with autism, causing the individual to be more likely to receive a diagnosis. The Broader Autism Phenotype, created to categorize those

who have symptoms of autism is also closely linked to autism. There are many behaviors that both populations share such as restricted repetitive behaviors, obsessions, perfectionism and hoarding. As perfectionism and hoarding are common for those with mental illness, it is interesting that children on the spectrum also suffer the same amount from these characteristics. Restrictive repetitive behaviors and obsessions seem to be the same on the outside. However the reasoning behind these behaviors is what separates a behavior of autism or a behavior of mental illness. Because of their similarities, it can be hard to diagnosis a mental illness for the ASD community. Medical professionals are more likely to categorize mental illness under the ASD umbrella. It is hard for someone on the spectrum to report on how they are feeling so parents have taken to writing their reports for them, resulting in false results.

School is the biggest social environment in a child's life. Because of this, it can also the biggest environment for anxiety. At school, a child on the spectrum and with mental illness is prohibited from practicing their restricted repetitive behaviors and talking about their obsessions. These activities, while disruptive, are a stress relief. School is also an overstimulating environment and a hotbed for bullying. Even with additional help, it appears that this population is performing under their typically developing classmates. This could be because the mental illness they have is not receiving any attention. However, there are several techniques school professional can practice or refer to a child with autism and mental illness. Cognitive Behavioral Therapy and social skills groups seem to be the most promising as they help children form relationships, acquire problem-solving skills and have great post-treatment results. Mindfulness is becoming more popular for anxiety relief due to its easy implementation and growing accessibility. Modeling is another rising treatment technique as it goes through stressful events step-by-step and allows one to see where they went wrong. Even with all these techniques being

implemented, what is key is that everyone on this child's team must be on the same page. The team must be able to recognize that this child is on the spectrum but also has a mental illness.

Treatment should be a holistic experience that takes all aspects of the client's life into account.

References

- Ahlers, K. P., Gabrielsen, T. P., Lewis, D., Brady, A. M., & Litchford, A. (2017). Supporting Individuals with Autism Spectrum Disorder in Understanding and Coping with Complex Social Emotional Issues. *School Psychology International, 38*(6), 586–607. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=eric&AN=EJ1161936>
- Ashburner, J., Ziviani, J., & Rodger, S. (2010). Surviving in the mainstream: Capacity of children with autism spectrum disorders to perform academically and regulate their emotions and behavior at school. *Research in Autism Spectrum Disorders, 4*(1), 18–27. <https://doi.org/10.1016/j.rasd.2009.07.002>
- Bejerot, S. (2007). An Autistic Dimension: A Proposed Subtype of Obsessive-Compulsive Disorder. *Autism: The International Journal of Research & Practice, 11*(2), 101–110. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=eric&AN=EJ755405>
- Cappadocia, M., Weiss, J., & Pepler, D. (2012). Bullying Experiences Among Children and Youth with Autism Spectrum Disorders. *Journal of Autism & Developmental Disorders, 42*(2), 266–277. <https://doi.org/10.1007/s10803-011-1241-x>
- Chang, Y.-C., Quan, J., & Wood, J. (2012). Effects of Anxiety Disorder Severity on Social Functioning in Children with Autism Spectrum Disorders. *Journal of Developmental & Physical Disabilities, 24*(3), 235–245. <https://doi.org/10.1007/s10882-012-9268-2>
- Clarke, C., Hill, V., & Charman, T. (2017). School based cognitive behavioural therapy targeting anxiety in children with autistic spectrum disorder: a quasi-experimental randomised controlled

trail incorporating a mixed methods approach. *Journal of Autism & Developmental Disorders*, 47(12), 3883–3895. <https://doi.org/10.1007/s10803-016-2801-x>

Deckers, A., Muris, P., Roelofs, J., & Arntz, A. (2016). A Group-Administered Social Skills Training for 8- to 12-Year-Old, High-Functioning Children with Autism Spectrum Disorders: An Evaluation of Its Effectiveness in a Naturalistic Outpatient Treatment Setting. *Journal of Autism and Developmental Disorders*, 46(11), 3493–3504. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1117512&site=ehost-live>

Ellis, M. DO. (2018). *Caring for Autism: Practical Advice from a Parent and Physician*. New York, NY: Oxford University Press.

Gerdts, J., & Bernier, R. (2011). The Broader Autism Phenotype and Its Implications on the Etiology and Treatment of Autism Spectrum Disorders. *Autism Research & Treatment*, 1–19. <https://doi.org/10.1155/2011/545901>

Gillott A, Furniss F, & Walter A. (2001). Anxiety in high-functioning children with autism. *Autism: The International Journal of Research & Practice*, 5(3), 277–286. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=rzh&AN=106934838>

Greenaway, R., & Howlin, P. (2010). Dysfunctional attitudes and perfectionism and their relationship to anxious and depressive symptoms in boys with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 40(10), 1179–1187. <https://doi.org/10.1007/s10803-010-0977-z>

Griffiths, D. L., Farrell, L. J., Waters, A. M., & White, S. W. (2017). ASD Traits Among Youth with Obsessive--Compulsive Disorder. *Child Psychiatry and Human Development*, (6), 911. <https://doi.org/10.1007/s10578-017-0714-3>

Johnston, E., Olson, L (2015). *The Feeling Brain: The Biology and Psychology of Emotions*. New York, NY: W.W. Norton & Company.

Kanner, L. (1943). Autistic Disturbances of Affective Contact. *Nervous Child*, 2, 217-250. Retrieved from https://www.rescuepost.com/files/library_kanner_1943.pdf

Keefer, A., Kreiser, N. L., Singh, V., Blakeley-Smith, A., Duncan, A., Johnson, C., ... Vasa, R. A. (2017). Intolerance of Uncertainty Predicts Anxiety Outcomes Following CBT in Youth with ASD. *Journal of Autism and Developmental Disorders*, 47(12), 3949–3958. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1160218&site=ehost-live>

Keenan-Mount, R., Albrecht, N. J., & Waters, L. (2016). Mindfulness-based approaches for Young People with Autism Spectrum Disorder and their Caregivers: Do these Approaches Hold Benefits for Teachers?. *Australian Journal of Teacher Education*, 41(6) 68-86.

Kliemann, D., Dziobek, I., Hatri, A., Baudewig, J., & Heekeren, H. R. (2012). The Role of the Amygdala in Atypical Gaze on Emotional Faces in Autism Spectrum Disorders. *Journal of Neuroscience*, 32(28), 9469–9476. <https://doi.org/10.1523/JNEUROSCI.5294-11.2012>

La Buissonnière-Ariza, V., Wood, J. J., Kendall, P. C., McBride, N. M., Cepeda, S. L., Small, B. J., ... Storch, E. A. (2018). Presentation and Correlates of Hoarding Behaviors in Children with Autism Spectrum Disorders and Comorbid Anxiety or Obsessive-Compulsive Symptoms. *Journal of Autism & Developmental Disorders*, 48(12), 4167–4178. <https://doi.org/10.1007/s10803-018-3645-3>

Mazefsky, C. A., Williams, D. L., & Minshew, N. J. (2008). Variability in adaptive behavior in autism: Evidence for the importance of family history. *Journal of Abnormal Child Psychology*, 36(4), 591–599. <https://doi.org/10.1007/s10802-007-9202-8>

- Mazefsky, C. A. & Herrington, J.D. (2014). Autism and Anxiety: Etiologic Factors and Transdiagnostic Processes. In *Handbook of Autism and Anxiety* (pp. 75-91). New York, NY: Springer.
- Morrow Kerns, C., & Kendall, P. C. (2014). Autism and Anxiety: Overlap, Similarities, and Differences. In *Handbook of Autism and Anxiety* (pp. 75-91). New York, NY: Springer.
- Murphy, S. M., Chowdhury, U., White, S. W., Reynolds, L., Donald, L., Gahan, H., ... Press, D. A. (2017). Cognitive Behaviour Therapy versus a Counselling Intervention for Anxiety in Young People with High-Functioning Autism Spectrum Disorders: A Pilot Randomised Controlled Trial. *Journal of Autism and Developmental Disorders*, 47(11), 3446–3457. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1156902&site=ehost-live>
- Ozyurt, G., & Besiroglu, L. (2018). Autism Spectrum Symptoms in Children and Adolescents with Obsessive Compulsive Disorder and Their Mothers. *Archives of Neuropsychiatry*, (1), 40. <https://doi.org/10.29399/npa.18138>
- Paul, L. K., Corsello, C., Tranel, D., & Adolphs, R. (2010). Does bilateral damage to the human amygdala produce autistic symptoms? *Journal of Neurodevelopmental Disorders*, 2(3), 165–173. <https://doi.org/10.1007/s11689-010-9056-1>
- Paradiz, V. (2002). *Elijah's Cup: A Family's Journey into the Community and Culture of High-Functioning Autism and Asperger's Syndrome*. New York, NY: The Free Press.
- Pittman, C. M., PhD, & Karle, E. M., MLIS. (2015). *Rewire Your Anxious Brain: How to Use the Neuroscience of Fear to End Anxiety, Panic & Worry*. Oakland, CA: New Harbinger Publications.
- Rodgers, J., Glod, M., Connolly, B., & McConachie, H. (2012). The Relationship between Anxiety and Repetitive Behaviours in Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 42(11), 2404–2409. Retrieved from

<https://libdatabase.newpaltz.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ983183&site=ehost-live>

Routhier-Martin, K., Roberts, S. K., & Blanch, N. (2017). Exploring Mindfulness and Meditation for the Elementary Classroom: Intersections across Current Multidisciplinary Research. *Childhood Education*, 93(2), 168–175. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=eric&AN=EJ1132702>

Silberman, S. (2001, December 01). The Geek Syndrome. *Wired*. Retrieved from <https://www.wired.com/2001/12/aspergers/>

Schaeffer, K. M., Hamilton, K. A., & Bauman Johnson, W. L. (2016). Video Self-Modeling Interventions for Students with Autism Spectrum Disorder. *Intervention in School and Clinic*, 52(1), 17–24. Retrieved from <http://search.ebscohost.com.libdatabase.newpaltz.edu/login.aspx?direct=true&db=eric&AN=EJ1109225&site=ehost-live>

Schroeder, J. H., Cappadocia, M. C., Bebko, J. M., Pepler, D. J., & Weiss, J. A. (2014). Shedding Light on a Pervasive Problem: A Review of Research on Bullying Experiences among Children with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*, 44(7), 1520–1534. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,url,uid,cookie&db=eric&AN=EJ1038352>

Spain, D., Rumball, F., O'Neill, L., Sin, J., Prunty, J., & Happe, F. (2017). Conceptualizing and Treating Social Anxiety in Autism Spectrum Disorder: A Focus Group Study with Multidisciplinary

Professionals. *Journal of Applied Research in Intellectual Disabilities*, (S1), 10.

<https://doi.org/10.1111/jar.12320>

Strang, J.F. (2016). Scope and Prevalence of the Problem. From *Comorbid Conditions Among Children with Autism Spectrum Disorders* (pp. 27-45). New York, NY: Springer

Storch, E. A., Arnold, E. B., Lewin, A. B., Nadeau, J. M., Jones, A. M., De Nadai, A. S., ... Murphy, T. K. (2013). The Effect of Cognitive-Behavioral Therapy versus Treatment as Usual for Anxiety in Children with Autism Spectrum Disorders: A Randomized, Controlled Trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 52(2), 132–142. Retrieved from

<http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1007178&site=ehost-live>

Sung, M., Ooi, Y. P., Goh, T. J., Pathy, P., Fung, D. S. S., Ang, R. P., ... Lam, C. M. (2011). Effects of Cognitive-Behavioral Therapy on Anxiety in Children with Autism Spectrum Disorders: A Randomized Controlled Trial. *Child Psychiatry and Human Development*, 42(6), 634–649. Retrieved from

<http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ946241&site=ehost-live>

Swartz, J. R., Wiggins, J. L., Carrasco, M., Lord, C., & Monk, C. S. (2013). Amygdala Habituation and Prefrontal Functional Connectivity in Youth With Autism Spectrum Disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, 52(1), 84–93.

<https://doi.org/10.1016/j.jaac.2012.10.012>

Syriopoulou-Delli, C. K., Polychronopoulou, S. A., Kolaitis, G. A., & Antoniou, A.-S. G. (2019). Views of teachers on anxiety symptoms in students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 49(2), 704–720. <https://doi.org/10.1007/s10803-018-3752-1>

Vasa, R. A., Carroll, L. M., Nozzolillo, A. A., Mahajan, R., Mazurek, M. O., Bennett, A. E., ... Bernal, M. P. (2014). A Systematic Review of Treatments for Anxiety in Youth with Autism Spectrum

Disorders. *Journal of Autism and Developmental Disorders*, 44(12), 3215–3229. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1044854&site=ehost-live>

Vasa, R. A., Keefer, A., Reaven, J., South, M., & White, S. W. (2018). Priorities for Advancing Research on Youth with Autism Spectrum Disorder and Co-Occurring Anxiety. *Journal of Autism and Developmental Disorders*, 48(3), 925–934. Retrieved from <https://libdatabase.newpaltz.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1170748&site=ehost-live>

Wood, J. J., & Gadow, K. D. (2010). Exploring the Nature and Function of Anxiety in Youth with Autism Spectrum Disorders. *Clinical Psychology: Science & Practice*, 17(4), 281–292. <https://doi.org/10.1111/j.1468-2850.2010.01220.x>

Wu, M.S., Rudy, B.M., & Storch, E.A. (2014). Obsessions, Compulsions, and Repetitive Behavior: Autism and/or OCD. In *Handbook of Autism and Anxiety* (pp. 75-91). New York, NY: Springer.

Yakubova, G., Hughes, E. M., & Shinaberry, M. (2016). Learning with Technology: Video Modeling with Concrete-Representational-Abstract Sequencing for Students with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 46(7), 2349–2362. Retrieved from <http://search.ebscohost.com.libdatabase.newpaltz.edu/login.aspx?direct=true&db=eric&AN=EJ1103830&site=ehost-live>

Yeung, M. K., Han, Y. M. Y., Sze, S. L., & Chan, A. S. (2014). Altered right frontal cortical connectivity during facial emotion recognition in children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, (11), 1567. <https://doi.org/10.1016/j.rasd.2014.08.013>