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# Assessment of anxiety in children with autism spectrum disorders in the schools

Amy Dasaro

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RUNNING HEAD: ASSESSMENT OF ANXIETY AND AUTISM

Assessment of Anxiety in Children With Autism Spectrum Disorders in the Schools

Graduate Thesis

Submitted to the Faculty

Of the School Psychology Department

College of Liberal Arts

ROCHESTER INSTITUTE OF TECHNOLOGY

By

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## Abstract

This study surveyed school psychologists to explore rating scales being used to assess for in children with Autism Spectrum Disorders (ASDs) in the school setting. Participants were randomly selected from the New York Association of School Psychologists (NYASP) membership directory. For this sample, the most commonly used rating scales were the Behavior Assessment System for Children-2 (BASC-2; Reynolds & Kamphaus, 2000) instruments for assessing anxiety in students with ASD. The BASC-2 instruments were reported to be most useful for screening compared to treatment planning, progress monitoring, and eligibility determination. Usefulness of the BASC-2 for parent and teacher scales were predicted by perceived skill in assessing for anxiety in the general population. Usefulness for parent, teacher, and youth self-report scales were predicted by perceived importance of the rating scales. In general, this sample was not well-trained for core features and assessing for Emotional Behavioral Disorders (EBDs) in the ASD population. This study further emphasizes the importance of additional training and research for assessment of anxiety and other EBDs in the ASD population.

## CHAPTER ONE

### Introduction

Autism spectrum disorder (ASD) affects multiple domains of an individual's life, and can be a serious challenge to those living with this disorder. ASD refers to the DSM-IV-TR (American Psychiatric Association, 2000) diagnostic categories of Autistic Disorder, Asperger's Disorder, and Pervasive Developmental Disorder-Not Otherwise Specified. ASD is characterized by qualitative impairments in socialization and communication, and the presence of a restricted range of interests and/or stereotyped and repetitive behaviors. There are many associated features that are common in children with ASD that affects daily functioning. Many exhibit executive dysfunction, learning problems, health concerns, and deficits in adaptive skills. Individuals with ASD also appear to be at a relatively high risk for developing co-occurring emotional and behavioral disorders (EBDs). Anxiety is one of the most commonly co-occurring emotional disorders for children and adolescents with ASD (White, Oswald, Ollendick, & Scahill, 2009). Anxiety is a frequent concern for school-aged children in general, and individuals with Autism Spectrum Disorder (ASD) may be at a greater risk for developing anxiety.

Having an additional co-occurring disorder tends to increase the severity of functional impairment over and above that due to the ASD. This places these individuals at a greater risk for undesirable outcomes as well as an increased need for support and intervention. According to the Individuals with Disabilities Education Improvement Act (IDEIA) of 2004, (Individuals with Disabilities Education Improvement Act, 2004), students with disabilities are required to be in the least restrictive placement, and to maximize opportunities to interact with students without disabilities. A child with ASD that has co-occurring anxiety will most likely need extensive

support and interventions in the classroom, in order to function well in the least restrictive environment. Therefore it is essential to have the most comprehensive assessment of students with ASD to accurately identify co-occurring EBDs and understand the effect it has on their ability to learn and function, and to provide appropriate disorder-specific supports. If the examiner is using inaccurate assessment tools, this may forestall intervention and treatment for that individual.

There are many reasons why it may be difficult to assess for anxiety in the ASD population. First of all, many ASD symptoms overlap with anxiety, and diagnostic overshadowing may occur because it is challenging to actually differentiate between the disorders. Diagnostic overshadowing refers to the misattribution of EBD symptoms to the ASD. Internalizing and externalizing disorders may not be diagnosed because of the belief that the symptoms are better explained by the ASD diagnosis. This raises the risk of individual students failing to receive the best treatment for their specific disorder. Anxiety disorders may also present differently in children and youth with ASD. If the presentation of anxiety is different than what is typically observed in the general population, anxiety symptoms may be unnoticed. The core symptoms or associated features of ASD, such as impairments in communication, also may affect the actual assessment process. For instance, children with ASD are often characterized as lacking the ability to appropriately perceive and interpret one's own emotions (Losh, & Capps, 2006). This will most likely affect a self-report of mental health, and affect how others' perceive their emotional state as well. Therefore third party reports such as rating scales are often part of the assessment process.

Children with ASD, especially those with co-occurring disorders will most likely need additional support due to their complex needs. In particular, school is a setting where these

individuals may need extensive services because of the academic, behavioral and social demands of the environment. However, the anxiety may further impair school performance and daily functioning, over and above the impairments related to their autism. Therefore it is essential that the school psychologist and other school personnel have the appropriate tools and measures to assess for anxiety, as part of a process of differential diagnosis in children with ASD. This will increase the likelihood of early detection and allow for more timely anxiety-specific intervention.

Ensuring the use of measurement tools appropriate for individuals with ASD is necessary in the assessment process. However because anxiety disorders may present differently in individuals with ASD, it is important that measurement tools be validated with this population. Currently very few anxiety assessment tools have been designed or validated for children or adolescents with ASD. Because individuals with ASD may present anxiety symptoms differently, it may not be appropriate to use measures that were designed and normed with the general population unless there is empirical evidence that suggests these measures are valid.

For the general population, rating scales are commonly used in many contexts, including schools, to assess for anxiety due to their often quick and efficient administration and psychometric properties. Rating scales are used for all purposes of assessment which include screening, planning treatment/interventions, eligibility determination, and progress monitoring. The following broad band rating scales are commonly used to assess for many kinds of EBDs, including anxiety or anxious behavior in the general population: (a) measures from the Achenbach System of Empirically Based Assessment (ASEBA) which include the Child Behavior Checklist/6-18 (CBCL; Achenbach & Rescorla, 2001) and CBCL/1.5-5 (Achenbach & Rescorla, 2000), the Teacher Report Form (TRF), and the Youth Self Report (YSR) (Achenbach & Rescorla, 2001); (b) measures from the Behavior Assessment System for Children Second



Edition, (BASC-2; Reynolds & Kamphaus, 2000) which include the Parent Rating Scale (PRS), Teacher Rating Scale (TRS), and Self Report of Personality (SRP); and (c) the Child Symptom-Inventory-4 (CSI-4; Gadow & Sprafkin, 2002). The most commonly used anxiety-specific rating scales used in the general population include the Revised Children's Manifest Anxiety Scale-2 (RCMAS-2; Reynolds & Richmond, 2008), and the State Trait Anxiety Scale for Children (S-TAIC; Spielberger, 1973). There are also scales that were developed for individuals with intellectual disability (ID) such as the Aberrant Behavior Checklist (ABC; Aman, Singh, Stewart, & Field, 1985) and the Nisonger Child Behavior Rating Form (NCBRF; Aman, Tasse, Rojahn, & Hammer, 1996). While test manuals for these scales report strong reliability and validity, they were not developed for individuals with ASD. Research has just begun to examine the psychometric properties of these rating scales in children with ASD (see Lecavalier, Aman, Hammer, Stoica, & Mathews, 2004; Pandolfi, Magyar, & Dill, 2009; 2012).

The extent to which school psychologists believe these rating scales are useful in assessing for anxiety in children with ASD is currently unknown. Because the use of multiple methods and informants is considered best practice in assessment, and because third-party reports are often helpful when evaluating students with ASD, it is likely that rating scales are being used in schools with this population. Therefore it may be beneficial to survey school psychologists specifically asking about their perceptions of the usefulness of commonly used rating scales for the various purposes of assessment.

The current study surveyed school psychologists to examine the extent in which they used several of the most commonly used EBD measures, and the extent to which they reported them to be useful for the various purposes of assessment. The survey also examined factors related to perceived usefulness such as perceived skill of assessing anxiety in the general

population, perceived skill of assessing anxiety in students with ASD, caseload of students with ASD, perceived importance of a rating scale when working with children with ASD with anxiety, and number of years worked as a school psychologist.

It may also be informative to those individuals and families, the extent of training school psychologists have in relation to ASD and co-occurring EBDs. By surveying their perceptions of the usefulness of these tools across assessment purposes, results may provide evidence for specific training needs for school psychologists to better establish evidence-based practices in the schools. Improved assessment practices may hopefully lead to early identification and referral, which in turn may lead to better treatment outcomes for individuals with ASD.

Therefore this study will address the following research questions. First, to what extent do school psychologists report using the most commonly used and best researched rating scales when assessing for anxiety in youth with ASD? Secondly, to what extent do school psychologists find rating scales useful for screening, treatment planning, eligibility determinations, and progress monitoring? Lastly, what factor best predicts reports of usefulness?

## CHAPTER TWO

### Literature Review

#### *Autism Spectrum Disorder: Diagnostic Features*

Autism Spectrum Disorder (ASD) is a developmental disorder that affects several aspects of an individual's life. ASD refers to the specific DSM-IV-TR (APA, 2000) disorders: Autistic Disorder, Asperger's Disorder, and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS). According to the DSM-IV TR, all children with ASD demonstrate qualitative impairments in communication and socialization, as well as the presence of stereotyped behavior and/or restricted interests. For a diagnosis of Autistic Disorder, a child must show impairments in all three areas with the onset before age three years (APA, 2000). Children with Asperger's Disorder demonstrate restricted interests and stereotyped/repetitive behaviors and socialization impairment, but communication is not impaired, although pragmatic language difficulties are very common. Children with PDD-NOS have impairment in at least two of the three core symptom domains but do not meet the criteria for any other pervasive developmental disorder (APA, 2000). In addition to these ASDs, the other pervasive developmental disorders listed by the DSM, (Rett's Disorder and Childhood Disintegrative Disorder) will not be examined in this study because of the low level of prevalence of these disorders.

The DSM-IV-TR describes a qualitative deficit in social interaction as marked impairment in using nonverbal behaviors, showing lack of interest in others, lack of emotional reciprocity, and/or failure to develop appropriate relationships with others (APA, 2000). This inability to develop relationships may stem from impairment in several key aspects of relationships, such as expressing emotions effectively and engaging in affective sharing experiences with others (Klinger, Dawson & Renner, 2003). Impairments in communication are

described as a delay or lack of the development of spoken language, poor ability to sustain or initiate conversation, and lack of developmentally appropriate play (APA, 2000). Make-believe and social imitative play is an important developmental step for young children as it enables them to explore their environment, and understand the nature of social relationships and to develop social-communication skills. Individuals with ASD also may have stereotyped or repetitive use of language, such as immediate or delayed echolalia. For many, language impairments are most pronounced in pragmatic aspects of language such as poor turn-taking, using irrelevant details in conversation, or inappropriate shifts in topic (Klinger, et al., 2003). Stereotyped and repetitive motor mannerisms can include hand or finger flapping, rocking, or spinning. Interests may be restricted to only a few activities or content areas, and can be abnormal in either intensity or focus (APA, 2000). All three areas of impairment that define the ASDs are related to significant functional impairment at home, in the school, and/or the community.

It is common for these individuals to have a co-occurring emotional or behavioral disorder. Research varies on prevalence, but higher rates of depression, anxiety disorders, tic or seizure disorders, and aggression have been reported in the literature (see Klinger, et al., 2003; Matson, & Nebel-Schwalm, 2007). Attention problems and hyper-activity have also been commonly observed in children with ASD (Leyfer, Folstein, Bacalman, Davis, Dinh, Morgan, et al., 2006). Self-injurious behaviors such as head banging, biting, head slapping and hair pulling have been observed, and may be more commonly observed in lower functioning individuals such as those with co-occurring intellectual disability (Klinger, et al., 2003).

There are also many other associated features that are common in children with ASD. Many children with ASD have difficulty performing executive function tasks that help with

everyday adaptation to the environment such as planning, impulse control, working memory, shifting attention, and inhibition of irrelevant responses (Klinger, et al., 2003). Individuals with ASD tend to have difficulty with abstract thinking and there is empirical evidence that many have impairments in implicit or automatic learning. This is defined as an early developmental skill that enables the child to naturally integrate previous experiences and information, and generalize to new situations (Klinger, et al., 2003). Implicit learning impairments would be related to difficulty in academic and social-communication impairments that characterize autism. Except with Asperger's disorder, it is also common for individuals on the spectrum to have an intellectual disability or mental retardation. In many cases, the core symptoms of autism such as language delays or stereotyped behavior increases as the severity of the intellectual disability increase (Matson, & Nebel-Schwalm, 2007). Although the rate of ID and ASD may be high, many children with ASD do have intact intellectual ability, which suggests that they are distinct disorders (Klinger, et al., 2003). It is not uncommon for children to have sleep and eating problems. Children with ASD may also present with unusual sensitivities to sensory stimuli (Klinger, et al., 2003). There are also specific medical concerns that are often reported in individuals with ASD. These include disorders such as tuberculosis, sclerosis, cerebral palsy, and epilepsy (Tidmarsh & Volkmar, 2003).

### *Prevalence and Etiology*

Based on a reporting period of 2008 by the United States Center of Disease Control, Autism Spectrum Disorder may be as common as 1 in every 88 children ([www.cdc.gov/NCBDDD/autism](http://www.cdc.gov/NCBDDD/autism)). However, there is debate over whether this reflects better assessment measures, broader definitions of the disorder, increased awareness or an actual increase (Klinger, et al., 2003). Regardless of the reason, there are many children identified with

ASD attending public schools that have learning and behavior management needs that require fairly intense support services.

There currently is no exact etiology of ASD, although like many disorders, there appears to be evidence for both genetic and environmental factors. Several studies including family and twin studies, do suggest that many genes may be involved. Research indicates that genetic abnormalities are linked to abnormal neuronal growth and pruning, and therefore autism affects the way the brain is structured and the way it functions (Klinger, et al., 2003). This gives rise to the behaviors we observe. There also has been research on prenatal and perinatal risk factors, including increased maternal age being related to higher incidences of ASD compared to typically developed siblings or peers (Klinger, et al., 2003). It also has been hypothesized that autism may be related to immunizations, although research has not supported this theory ([www.cdc.gov/NCBDDD/autism](http://www.cdc.gov/NCBDDD/autism)).

### *Prognosis*

Autism is a pervasive disorder that can be very debilitating on daily activities and functioning. Because of the impairments across multiple domains, and the longevity of this disorder, the outcome for these individuals can be poor if not receiving appropriate treatment, guidance or support (Klinger, et al., 2003). The presence of co-occurring disorders or associated features will also have a huge influence on outcomes for these individuals (Matson, & Nebel-Schwalm, 2007). Due to the pervasiveness of the disorder, and its adverse impact on functioning, early intervention is tremendously important and research has supported that early intervention is linked with improved outcomes in children with ASD (Klinger, et al., 2003).

### *Evidence Based Assessment of ASD*

There are several important considerations that should inform the assessment process. Assessment for autism should include multiple sources and contexts, as symptoms may be dependent on the environment (Ozonoff, Goodlin-Jones, & Solomon, 2005). For example, presentation of social impairments may differ in an individual between the home and school setting. A recommended core assessment battery first includes an interview with caregivers to examine the child's early developmental history (especially communication, social and behavioral development) and current concerns. Core symptoms may be examined using specific diagnostic interviews, rating scales, and diagnostic observation instruments.

The Autism Diagnostic Interview-Revised (ADI-R; Lord, Rutter, & Le Couteur, 1994) and the Autism Diagnostic Observation Schedule (ADOS; Lord, Rutter, DiLavore, & Risi, 1999) are two frequently used measures that are considered to have strong psychometric properties for assessing for autism. The ADI-R is a comprehensive parent interview that collects information on current behavior and developmental history (Lord, et al., 1994). The ADI-R is very labor intensive, and may not be diagnostically accurate for individuals with lower IQ (<20). It is best used for the initial diagnosis of autism, but it is not designed to assess progress or change (Ozonoff, Goodlin-Jones, & Solomon, 2005). The ADOS is a semi-structured interactive observation instrument that is comprised of four modules, which are tailored to language and developmental level. It has excellent psychometric properties across the modules, as well as strong diagnostic validity (Lord, et al., 1999). The ADOS has been used as a treatment outcome measure, but is also less effective with lower functioning children (Ozonoff, Goodlin-Jones, & Solomon, 2005).

Because individuals with ASD may also display associated features, other domains to assess include intelligence, academic achievement, language, communication, attention, adaptive

behavior, neuropsychological functions, and emotional and behavioral disorders (Ozonoff, Goodlin-Jones, & Solomon, 2005). These areas should be assessed across different settings such as school and home. Assessing all of these areas allow for a thorough understanding of the child and helps in the development of comprehensive interventions for a more positive prognosis.

### *Diagnostic Features of Anxiety*

The DSM-IV-TR mentions several types of anxiety disorders including Generalized Anxiety Disorder, Social Anxiety Disorder, Post Traumatic Stress Disorder, Specific Phobia, Panic Disorder, Acute Stress Disorder and Obsessive Compulsive Disorder (APA, 2000). These disorders share anxiety as the predominant feature, or an excessive or unfounded level of worry or distress that impairs some level of functioning. Anxiety is expressed through specific and discrete cognitive, behavioral, and physiological reactions (Albano, Chorpita, & Barlow, 2003). For example, anxiety may be expressed across these three response channels through obsessing about the feared situation (cognitive), avoiding the specific situation (behavioral) and having autonomic responses such as nausea or chest pain when encountering this situation (physiological). There are normal levels of anxiety that everyone experiences that is seen to be adaptive and expected. However, pathological anxiety differs from normal levels of anxiety by the degree of interference of daily functioning and pervasiveness of the anxiety (Albano, Chorpita, & Barlow, 2003).

What distinguishes the different anxiety disorders from one another is the focus of a child's anxiety. Specific phobia is a marked or persistent fear that is excessive or unreasonable and is usually cued by a specific object or situation. Social phobia is when the marked or persistent fear is of a social or performance situation, and the individual fears that that they will act in a humiliating way (APA, 2000). General Anxiety Disorder is an excessive anxiety and



worry about a number of events or activities, and the person finds it difficult to control this worry. Panic disorder is characterized by recurrent or unexpected panic attacks. It can occur with or without agoraphobia, which involves an intense fear of having a panic attack in a situation where help or escape is unlikely (APA, 2000). Separation Anxiety is described as an excessive and persistent worry concerning separation from home or from caregivers. Some level of separation anxiety is typical for young children, but it becomes a problem when it is developmentally inappropriate and causes distress or impairment in important areas of functioning. Obsessive Compulsive Disorder is when an individual has persistent, intrusive thoughts, and compulsive behaviors meant to reduce distress triggered by the cognitions. Post Traumatic Stress Disorder is the re-experiencing of an extremely traumatic event accompanied by increased arousal and avoidance of the stimuli related to that trauma. Acute Stress Disorder begins during or immediately after a stressful event but is more debilitating than a typical reaction to a stressful event (APA, 2000).

#### *Prevalence and Presentation of Anxiety in ASD*

Currently, anxiety is not considered to be a characteristic of ASD, although several studies suggest a high prevalence of anxiety in the ASD population (Bellini, 2006; Gadow, DeVincent, Pomeroy, & Azizan, 2004). In one sample of children with PDD-NOS, at least one co-occurring psychiatric disorder was present in 89 percent of the children (De Bruin, Ferdinand, Meester, de Nijs, & Verheij, 2007). For the ninety-four children with PDD-NOS (6-12 yrs.) 55.3% had an anxiety disorder, with most having simple phobia (38.3%), followed by Generalized Anxiety Disorder (5.3%). Results also demonstrated that according to parent responses, those with a co-occurring disorder had more deficits in social communication

compared to those without a co-occurring disorder. This suggests that children with ASD and an additional disorder may have greater impairments.

Although there is evidence for a high prevalence of anxiety in children with ASD, there is great variability in rates of reported prevalence due to several issues, including diagnostic shadowing and differences in the methods used across studies that examine anxiety in ASD. Anxiety disorders such as Social Phobia and OCD may be rarely diagnosed in people with ASD due to a belief that the symptoms are better explained by the ASD diagnosis. A study by Russel and Sofronoff (2004) reported that children with Asperger's Syndrome had similar levels of overall anxiety as indicated on self-report measures, compared to clinically anxious children. Parent reports revealed higher ratings of overall anxiety in children with Asperger syndrome as well as obsessive compulsive symptoms and physical injury fears compared to the clinically anxious sample. This study reported that higher levels of OCD could be interpreted as a reflection of the general characteristics of the Asperger's syndrome. Individuals with autism may in fact use repetitive behaviors as a means of reducing anxiety or occur as a consequence of experiencing anxiety.

One study attempted to overcome the issues of diagnostic overshadowing between anxiety and autism, by removing what they considered to be overlapping items from the measures used to assess for anxiety. Kuusikko, et al., (2008) examined social anxiety symptoms in children and adolescents with High-Functioning Autism/Asperger Syndrome (HFA/AS) compared with nonclinical control groups, using self- and parent-report measures, including the CBCL. The authors also wanted to examine the association between age and internalizing symptoms of social anxiety and to compare differences between parent and child reports of anxiety symptoms. Data revealed that despite removing overlapping items, significant

differences in social anxiety symptoms remained between HFA/AS and nonclinical control groups. Also, parents of children with HFA/AS reported significantly more internalizing problems and social anxiety than parents of children in the control group. The authors believe that as a whole, the data suggested that social and evaluative anxiety may be clinically significant and perhaps an under-recognized problem (Kuusikko, et al., 2008). Although this study tried to overcome the symptom overlap issue by removing overlapping items on measures, the exact phenomenology of anxiety in children with ASD is still being explored, and it is not clear if the items that were removed were definitely overlapping items. This again emphasizes the need for using appropriate and valid instruments, as well as the complexities involved in the assessment of anxiety in ASD.

Because of the important implications of assessing children with a co-occurring anxiety, many studies have assessed whether or not the presentation of symptoms of anxiety in the ASD population are different than anxiety in the general population. White et al., (2009) reviewed several studies to examine the phenomenology of anxiety in children with ASD. The studies had no uniformity in describing the phenomenology, as there was little consistency in measurement tools used as well as how respondents viewed anxious symptoms. White et al., (2009) indicated that many individuals with ASD have different sensory profiles and unique ways of processing information and therefore symptoms of anxiety may be expressed differently. However, the methodological issues across the studies greatly limit the knowledge of the presentation of anxiety in children with ASD.

A study by Guttman-Steinmetz, Gadow, DeVincent, & Crowell (2010) examined how ASD and other co-occurring disorders can influence clinical presentation of anxiety. This study examined clinical features of Autism Spectrum Disorder, Attention Deficit Hyperactivity

Disorder (ADHD) and chronic multiple tic disorder (CMTD). Anxiety was examined using the Child Symptom-Inventory-4 (CSI-4; Gadow and Sprafkin 2002) which allowed the teacher and parents to rate how often the child presents with a number of different symptoms. The study compared the following groups of clinically-referred boys: ASD+ADHD, CMTD+ADHD, ADHD only and ASD only, as well as community controls. Results showed that the ASD +ADHD group and the ASD only group had similar levels of General Anxiety Disorder but not Separation Anxiety Disorder. All three ADHD groups had higher levels of anxiety compared with controls, but there were differences by type of anxiety, symptoms, informant and co-morbidity. Although results are considered preliminary and more research is needed, this study suggests that co-occurring syndromes do contribute to relative differences in the severity of anxiety as well as the pattern of symptoms (Guttmann-Steinmetz, et al., 2010).

Developmental characteristics such as age, cognitive level and social communication, may also complicate the presentation of anxiety in children with ASD. Anxiety or problem behaviors may be attributed to the child's development level or age, which is another example of diagnostic overshadowing. It is quite possible that children with ASD face greater difficulties during adolescence because of social impairments and other developmental differences, or at least are at greater risk for anxiety (White et al., 2009). Again, the individual's level of functioning and intelligence may moderate this as it may affect his/her level of awareness. The core symptoms of communication and social impairment may also affect assessment procedures. Studies suggest that children with ASD may have different ways of viewing, understanding or conveying their emotions, and have limited capacity for self-reflection and insight (Losh, & Capps, 2006; Volker et al., 2009). This would have an effect on their ability to report subjective symptoms of anxiety and other disorders either through interview or self-report rating scales.

There is great variability with both anxiety and ASD, with respect to how they manifest across individuals and within the same individuals over time, as well as the presence of other developmental characteristics (such as ID). Therefore, it is certainly important to use evidence based measurement tools from different informants and across settings. Because both anxiety and ASD symptoms may change over the course of childhood, it is best practice for assessment to be comprehensive and on-going (see Mash & Dozois, 2003). Currently, there is no separate diagnostic criteria set for anxiety for children with ASD, thus the use of multiple methods and validated measures over time is critical to gain an understanding of individualized needs for students with ASD.

#### *Evidence-Based Assessment of Anxiety in the General Population*

Having evidence-based and validated assessment tools are necessary as there are many challenges in differentiating between symptoms of ASD, anxiety, and other internalizing or externalizing disorders. Similar with assessing for ASD, when assessing for anxiety it is best practice to use multimodal assessment techniques and multiple informants to gain the most comprehensive assessment (MacNeil, Lopes, & Minnes, 2009). In a literature review, Silverman and Ollendick (2005) describe evidence-based assessment tools used for assessing in anxiety in the general population. Semi-structured and structured interviews are commonly used in the clinical setting for diagnosis. The most frequently used interview in the research literature is the Anxiety Disorders Interview Schedule: Parent and Child Versions (ADIS; Silverman & Albano, 1996), and research has supported its psychometric properties (Silverman, Saavedra, & Pina, 2001). When using clinical interviews to assess for co-occurring symptoms, detailed information should be collected concerning the onset, course, and the specific contexts where anxiety is apparent to help distinguish between the different kinds of anxiety disorders (Silverman &

Ollendick, 2005). Clinical interviews do require more time in administration and training and thus are less likely to be used in the school setting and therefore the present study will not examine interview tools.

Rating scales have been used most often for screening, evaluating treatment outcome, eligibility determination, and progress monitoring (Achenbach & Rescorla, 2001; Reynolds & Kamphaus, 2000). Rating scales are likely to be used in the schools because of the ease of their administration and scoring and they require far less training than diagnostic interviews. Many rating scales are available to assess for anxiety, but only those that are the most widely used and best researched are reviewed here.

The Revised Children's Manifest Anxiety Scale-Second Edition (RCMAS-2; Reynolds & Richmond, 2008) is a full revision of the Revised Children's Manifest Anxiety Scale, which is considered to be the most widely used and researched self-report anxiety rating scale (Silverman & Ollendick, 2005). The RCMAS-2 is a brief self-report survey that contains three subscales: physiological anxiety, worry and social anxiety (Reynolds & Richmond, 2008). The RCMAS-2 is norm-referenced, and is used with children and adolescents aged 6-19 years. There are 49 items in which children respond with "yes" or "no" and it usually takes about 10-15 minutes to complete. There are nine items making up a Defensiveness scale, which is a measure of social desirability. The RCMAS-2 is frequently used for screening purposes as identifying anxious symptoms, and evaluating treatment outcome.

Another commonly used and well researched anxiety scale is the State Trait Anxiety Scale for Children (S-TAIC; Spielberger, 1973). The S-TAIC is a self-report for children ages 8 to 15 years. There are two subscales with 20 questions each: the anxiety trait subscale (T-Anxiety) which assesses chronic symptoms of anxiety, and the anxiety state subscale (S-

Anxiety) which assesses acute, transitory anxiety. The State-Anxiety scale asks the individual to respond how they feel at “this very moment” on a three point scale such as “I feel: *very upset, upset, or not upset.*” This is used to evaluate how respondents feel at a particular time or in particular situations (such as before an examination), and as an indicator of change in anxiety level due to the intervention. The Trait-Anxiety scale asks the individual to report the frequency they experience anxiety symptoms on a three point scale (*hardly ever true, sometimes true, often true*). This is used for identifying children with high levels of chronic anxiety and also to evaluate treatment effectiveness. By comparing both subscales, the authors believe that the S-TAIC can be used to distinguish between anxious behavior that is rooted in personality or more due to a transitory emotional state.

Silverman and Ollendick (2005) also discuss broad based scales for assessing anxiety which include the ASEBA scales and the BASC-2 scales. These scales are most often used for screening purposes but can also be used for treatment evaluation. The Achenbach Child Behavior Checklist 6-18 is a parent rating scale for children aged 6-18 years (Achenbach & Rescorla, 2001). There is also the CBCL 1.5/5 for young children aged 1.5 to 5 years (Achenbach & Rescorla, 2000). Both CBCL measures contain empirically based Syndrome Scales for externalizing and internalizing disorders. There are also DSM Oriented scales, which were conceptually derived and developed to correspond with general DSM-IV diagnostic categories (Achenbach & Rescorla, 2000; 2001). The CBCL 1.5-5 and 6-18 manuals reported favorable psychometric properties for the respective measures. The ASEBA Caregiver/Teacher Report Form (Achenbach & Rescorla, 2000) and Teacher Report Form 6-18 (TRF; Achenbach & Rescorla, 2001) complement the parent rating scales. There is also a Youth Self-Report version that is available (YSR; Achenbach & Rescorla, 2001). All three of the school-aged forms have

a number of statements about a child's behaviors and recorded on a 3 point Likert scale from *Not true, Somewhat or Sometimes True*, and *Very True or Often True* (Achenbach, & Rescorla, 2001).

One meta-analysis study investigated the ability of the RCMAS, the CBCL, and the S-TAIC to differentiate between anxious and non-anxious youth as well as children with externalizing disorders (Seligman, Ollendick, Langley, & Bechtoldt Baldacci, 2004). These instruments were found to be useful in discriminating between youth with an anxiety disorder and youth with an externalizing disorder. However, they were not found to be useful in discriminating between youth with an anxiety disorder and youth with an affective disorder (Seligman, et al., 2004). This may be because of shared symptomology between anxiety and affective disorders. This is also a potential issue for using rating scales to discriminate between anxiety-specific and ASD-specific symptoms. Similar to anxiety and affective disorders, anxiety also shares symptoms with ASD, and therefore it may be difficult to have a rating scale differentiate between the disorders. This further emphasizes the importance of multiple measures.

The Behavior Assessment System for children 2<sup>nd</sup> ed. (BASC-2; Reynolds, & Kamphaus, 2000) is also well-used and researched. The BASC-2 Parent Rating Scales (PRS) measure a child's behaviors in the community and home settings. It assesses the broad domains of Externalizing Problems and Internalizing Problems, and also measures Adaptive Skills, and provides broad composite score, the Behavioral Symptoms Index. Items are rated on a four point scale from *Never* to *Almost always*. There are different forms for three age levels (preschool, child, and adolescent) that accounts for the developmental changes in the behavioral manifestations of the child (Reynolds, & Kamphaus, 2000).



The BASC-2 Teacher Rating Scale (TRS) measures adaptive skills and problem behaviors at school. It assesses almost all of the same domains that the BASC-2 PRS measures, although there is a School Problems composite and a few different scales that do not appear on the PRS, such as Leadership and Learning Problems (Reynolds, & Kamphaus, 2000).

The BASC-2 Self-Report of Personality (SRP) is comparable to the two third-party rating scales (Reynolds, & Kamphaus, 2000). There are some differences between the SRP and PRS/TRS in the composite and primary scales but also assess both positive and problematic behaviors. Instead of the Behavioral Symptoms Index, the SRP has an Emotional Symptoms Index. Items include the same four-point Likert responses as the PRS and TRS, as well as some items that require a true/false response. There are three age groups assessed which include child, adolescent and for young adults attending post-secondary school (Reynolds, & Kamphaus, 2000).

The test manual contains evidence to support the psychometric properties of the BASC-2. There are general and clinical norms, considered representative to the U.S population based on race, parent education, geographic region, and special education classification. There are also combined-sex, and separate-sex, norms available for each norm sample. There are also validity indexes to help identify biased or inconsistent responding.

The CBCL 6-18 and BASC-2 PRS are considered to be commonly used to assess for anxiety and other emotional and behavioral problems (Silverman & Ollendick, 2005). The ease of administration also makes it appropriate to use for school psychologists. There has been less research on Achenbach's Teacher Report Form and the BASC-2 Teacher version, in regards to anxiety, even for the general population. This may be due to a general consensus that teachers may be more helpful in assessing for externalizing disorders and less helpful for internalizing

disorders (Silverman & Ollendick, 2005). Many symptoms of internalizing disorders may be less readily observable. Also, as children enter middle and high school, students work with several teachers during the day, and therefore teachers have more distant relationships with students. However, teachers are still often called upon to rate their students, and therefore more research is needed in order to further evaluate the utility of teacher rating scale data especially in assessing for anxiety in children with ASD (Volker, et al., 2009).

Another commonly used rating scale is the Child Symptom-Inventory-4 (CSI-4; Gadow & Sprafkin, 2002). It has both parent and teacher forms based on the DSM-IV. The Child Symptom Inventory is for ages 5-12 years. There also is the Early Child Inventory-4 for ages 3-5 years and the Adolescent Symptom Inventory-4 for ages 12 -18 years. The rating scales assess for several behavioral and emotional disorders including Generalized Anxiety Disorder, Social Phobia, Specific Phobia, Obsessive Compulsive Disorder and Separation Anxiety Disorder. Symptom severity is assessed using a 4-point scale from 0=*never* to 3=*very often*. Authors do report adequate reliability and validity. There are many available measurement tools to assess for anxiety, however these measures were developed for the general population.

#### *Evidence Based Measures for Special Populations*

As discussed before, very few measures of emotional and behavioral disorders (EBDs) have been validated with or designed for individuals with ASD. However, some measures have been developed for individuals with intellectual disability (ID). One commonly used measure is the Nisonger Child Behavior Rating Form (NCBRF; Aman, Tasse, Rojahn, & Hammer, 1996). The NCBRF is a rating scale developed for individuals with ID measuring social competence and problem behaviors. There are both parent and teacher versions, with similar content but the subscale scoring method is slightly different from one another. There are 10 questions for the

prosocial behaviors, distributed across two subscales: Compliant/Calm and Adaptive/Social. There are 66 questions to measure problem behavior, distributed across six subscales: Conduct Problem, Insecure/Anxious, Hyperactive, Self-Injury/Stereotypic, Self-Isolated Ritualistic, and Overly Sensitive (parent version) or Irritable (teacher version). All questions use a four point rating scale (0-3). The authors reported good psychometric properties (see Aman et al., 1996).

The Aberrant Behavior Checklist (ABC; Aman, Singh, Stewart, & Field, 1985) is another norm-referenced measure of problem behaviors developed for persons with ID. The ABC does have good psychometric properties. The ABC is a 58-item caregiver report checklist using a four-point rating scale (0-3). Higher scores reflect more maladaptive behaviors. The items are grouped into five subscales: Irritability/Agitation/Crying, Lethargy/Social Withdrawal, Stereotypic Behavior, Hyperactivity/Noncompliance, and Inappropriate Speech.

Recently, there have been instruments developed specifically for assessing co-morbidities in the ASD population, although their psychometric properties are still being researched. One example is the Autism Comorbidity Interview-Present and Lifetime version (ACI-PL; Leyfer et al., 2006). This is a modified version of the Kiddie Schedule for Affective Disorders and Schizophrenia Present and Lifetime Version (K-SADS-PL; Kaufman, et al., 1997). The K-SADS-PL is a semi-structured diagnostic interview by a trained clinician that assesses both lifetime and current diagnostic status based on DSM-IV (Kaufman, et al., 1997). This tool has high inter-rater agreement and good test-retest reliability (Kaufman, et al., 1997). For the ACI-PL, the K-SADS-PL was modified for children with ASD by developing additional screening questions that are considered to be common presenting concerns expressed by caregivers of children with ASD. If the screening questions are positive, then more detailed questions are asked to address the specific concerns and symptom presentation for that individual (Leyfer, et

al., 2006). There is empirical evidence for preliminary support for use of these measures when assessing individuals with ASD, but more research is needed to establish the reliability and validity of this tool (Leyfer, et al., 2006).

Another recently developed measure is the Autism Spectrum Disorder-Comorbid for Children (ASD-CC; Matson, LoVullo, Rivet, & Boisjoli, 2009). This is a 49-item informant-based rating scale designed to assess symptoms of emotional and behavioral disorders which commonly occur in ASD (Matson, et al., 2009). Subscales included Tantrum Behavior, Repetitive Behavior, Worry/Depressed, Avoidant Behavior, Under-eating, Over-eating and Conduct. The authors believe that the ASD-CC does appear to be a valid measure of comorbid psychopathology in the ASD population. This test was compared to BASC-2 subscales, and there was a range of the strength of the correlations for the different scales. Although some correlations between scales were strong, there was a poor correlation with the Avoidant Behavior scale in the ASD-CC and the Anxiety Subscale of the BASC-2 (Matson, et al., 2009). This may be due to the authors attempt to correlate a scale purported to measure a specific aspect of anxiety with one purported to measure broader manifestations of anxiety. Measurement tools used to assess for comorbidity of children with ASD are just beginning to be developed but more research is needed in order to demonstrate that they have suitable levels of reliability and validity.

#### *Research on EBD Measures in ASD Samples*

The CBCL is one instrument that has been recently studied in ASD samples, and is researched more often in ASD samples than any other measure. Pandolfi, Magyar, & Dill, (2012) found initial support for the unidimensionality of syndrome scales and support for the CBCL factor structure at the scale level. Group comparisons also indicated that children with

ASD and a co-occurring emotional and behavioral disorder had scores exceeding the mean scores obtained by the ASD only group. This is the only current study that has examined whether the CBCL/6-18 could discriminate with ASD only from those with ASD and an EBD.

Diagnostic accuracy tests indicated that many scales exhibited acceptable sensitivity, but low specificity (Pandolfi, Magyar, & Dill, 2012).

The CBCL/1.5-5 also has been studied, and analyses concluded that the scales are internally consistent and there is support for the factor structure (Pandolfi, Magyar, & Dill, 2009). Diagnostic accuracy analyses were not conducted, and more research is needed to determine the extent to which it can identify EBDs in children with ASD. It was recommended that practitioners consider significant elevations on scales as a potential indicator of an emotional or behavioral disorder and therefore may require further assessment. Both the CBCL 6-18 and CBCL 1.5-5 have shown positive initial psychometric results for children with ASD (Pandolfi, Magyar, & Dill, 2009; Pandolfi, Magyar, & Dill, 2012). Research examining specific subgroups within the ASD population, such as those with various levels of intellectual disability, would further gain important information in possible moderators of CBCL scores (Pandolfi & Magyar, 2012).

A factor analysis was also completed on the CSI-4 (Lecavalier, Gadow, DeVincent, & Edwards, 2009). Results support using a DSM-IV conceptual model for characterizing psychopathology in ASD. Factor loadings were substantial for most items, which suggest that the items are good indicators of that diagnostic construct being measured (Lecavalier, Gadow, DeVincent, & Edwards, 2009). This measure contains subscales that assess for some of the most commonly observed DSM-IV disorders in individuals with ASD

Measures developed for individuals with developmental disabilities have been studied with children with ASD. Brinkley et al., (2007) examined the factor structure of the ABC in the ASD sample. Results indicated that the obtained factor structure of the ABC was similar to the one identified in the original test development sample. Although limited by small sample size, this study also revealed a self-injury factor, which was not part of the original scale and warrants further exploration. Similarly, with the NCBRF, factor analysis did supply evidence for using this scale with children with ASD as well (Lecavalier, et al., 2004).

Research is lacking on the BASC-2 in ASD samples. However, it has been studied with children with ASD compared to typically developing peers to see if children with ASD have a certain profile on this measure. Volker, et al., (2009) aimed to examine and compare the clinical and adaptive BASC-2 PRS profile of students with High-Functioning ASD with a typically developing matched control group. All four BASC-2 PRS composites yielded statistically significant differences between the ASD and the control group. These included Externalizing Problems, Internalizing Problems, Behavioral Index and Adaptive Skills. Scales assessing for anxiety and depression were also elevated. The results suggested that high functioning individuals with ASD do have a certain profile on the BASC-2 PRS that includes an increased level of anxious symptoms compared to a control group. However, it is unclear whether the heightened level of anxiety and internalizing problems scores reflect autism symptoms and/or other co-occurring disorders, or whether the profile is really specific to ASD.

Mahan and Matson (2011) also compared children and adolescents with ASD and typically developing peers using the BASC-2 PRS. Again, findings suggested that individuals with ASD score differently than typically developing peers using these broad based measures, as many scales were elevated. Contrary to the results of Volker et al (2009), and to the study's

hypotheses, children with ASD were not elevated on the anxiety subscales. The authors believed that this may reflect that some items on this scale require the individual to verbally communicate effectively (Mahan & Matson, 2011). In this study's sample, 7.9% was nonverbal and at least 18.4% were diagnosed ID, which may have affected the ability of these individuals to communicate. With the Volker et al., (2009) study, the ASD sample were higher-functioning, and they may have been able to better communicate their anxious symptoms to caregivers. It is also important to note that in the Mahan and Matson (2011) study, 11 out of 38 individuals had a previous or current comorbid diagnosis according to caregivers, and only two of these were anxiety disorders. This may explain the lower scores on the anxiety subscales for this sample. Discrepancies between the studies further emphasize the need for more validation research on this measure in ASD samples.

In regards to teacher and self-report measures, there is little to no empirical evidence for assessing for anxiety in children with ASD. The RCMAS and STAIC are considered to be commonly used for anxiety, although again it is not validated with the ASD population. Although youth are often reluctant to self-disclose, self-report measures of anxiety may bring in valuable information for that child (Silverman & Ollendick, 2005). Teacher reports of behavior and emotional development bring in important information in the school setting. Research is needed to explore the effectiveness of self-report and teacher-based measures of anxiety in children with ASD.

Overall, several research studies have supplied some evidence for using a few specific measurement tools with children with ASDs. This has important implications as it is best practice to use a multi-method, multi-informant approach with assessment. Rating scales in particular are very widely used in the school setting due to their ease of administration and

scoring. The CBCL 6-18 has one study to support a wide range of psychometric properties in an ASD sample, which supports its use in school-based assessment. However, the CBCL and the other measures reviewed above need more research to firmly establish them as evidence-based. Therefore it will be interesting to see the extent to school psychologists believe that rating scales are useful when assessing for anxiety in children with ASD.

### *Role of the School Psychologist*

There is an increased role for school psychologists and other school personnel in mental health assessment and treatment. Having a healthy mental state is necessary for optimal school performance and daily functioning in general. An individual will not be able to perform to their potential in school if they are presenting with anxious or depressed symptoms. School-based practitioners are in a unique position to help minimize the risk and prevent the development of anxiety disorders. According to the National Association of School Psychologists training standards (NASP, 2010), school psychologists are mandated to be trained in several domains. These include data-based decision making and accountability, prevention, crisis intervention, and mental health, and research and program evaluation. Mental health screening, the development of intervention plans, and progress monitoring are some of the essential functions of school psychologists. It is crucial that school psychologists are skilled at using and selecting appropriate assessment methods and measures to inform decision-making for students (see Williams, 2010).

In addition to receiving training in the domains identified above, it is also important for school psychologists to be adequately trained to work with different populations of students, including those with ASD. Currently, there are very few data on how much training school psychologists receive in ASD. One national survey (Gilmour, 2010) did look at school



psychologists' amount and type of training received in working with children with ASD. Results indicated that the majority of school psychologists did not report high levels of training with this population. The majority received their training on ASD and EBDs through portions of courses and/or through workshops and expressed an interest in gaining more training in assessment and intervention with children with ASD (Gilmour, 2010).

Being adequately trained to work with children with ASD is important when determining what measures to use as part of the assessment process. Assessment practices for any disorder or concern should be comprehensive and multidisciplinary (Ozonoff, Goodlin-Jones, & Solomon, 2005). However, a good understanding about the nature of ASD, how EBD may present in this population, and knowledge of the evidence-based literature is important because school psychologists are mandated to make empirically-based decisions regarding educational programming and behavior management practices. It is essential that the measures they use are reliable and valid for this population. Using measures that are reliable and valid are the best way of identifying problems early which will lead to early interventions and increased likelihood for more positive outcomes.

### *The Present Study*

The present study hopes to further explore the assessment practices of school psychologists in regard to assessment of anxiety in children and adolescents with autism. The literature suggests a high prevalence of anxiety disorders in the ASD population and co-occurring EBDs are associated with impairment over and above that due to ASD alone. There are many challenges when assessing for a co-occurring disorder: (a) the apparent symptom overlap between anxiety and ASD symptoms, (b) developmental characteristics which may affect their ability to self-report, (c) the heterogeneity of symptoms between different individuals

with ASD and within the same person over time, and (d) relatively little psychometric research existing on measures used to identify anxiety in ASD samples. The CBCL is perhaps the best researched measure. Unfortunately very few studies have evaluated the reliability and validity of rating scales for use with ASD.

The school setting is an environment in particular where children or adolescents with ASD, and especially those who present with a co-occurring disorder such as anxiety, may need extensive support and services. To appropriately plan interventions and treatments in the school that is both the least restrictive and comprehensive, it is essential to have a thorough assessment and to be using valid measurement tools.

If there is little empirical evidence for the use of these measures for children with ASD, it will be informative to see the extent to which they are used by school psychologists, and the extent to which they find them useful for screening, treatment planning, eligibility decisions, and progress monitoring.

#### *Research Questions*

1. To what extent do school psychologists report using the most commonly used and best researched rating scales when assessing for anxiety in youth with ASD?
2. To what extent do school psychologists find rating scales useful for screening, treatment planning, eligibility decisions and progress monitoring?
3. What factor best predicts reports of usefulness?

## CHAPTER THREE

### Method

#### *Participants*

The current study randomly sampled 500 school psychologists from New York State, selected from the membership directory of the New York Association of School Psychologists (NYASP). The contact mailing list was provided by the NYASP membership board. Permission from both NYASP and the Rochester Institute of Technology Institutional Review Board was obtained. Out of the 500 surveys mailed, 123 were returned. Fifteen of those surveys returned could not be used due to missing data or statistical analyses recommending their removal. The final sample size was 108, for a 21.6% return rate.

#### *Measures*

A survey developed by the researcher is located in Appendix A. It was estimated that the survey should not take more than 15 minutes to complete. The survey asked for information about school psychologists' demographics (e.g. age, gender, race, ethnicity), characteristics of their school, number of years as practicing school psychologist, training in working with children with ASD and grade ranges served. To examine their experience with working with children with ASD, the survey asked for their case load information concerning students with ASD for that current year. Using 5-point Likert scales, participants were asked to rate how frequently they use the following scales: BASC-2 scales (PRS, TRS, SRP), ASEBA scales (CBCL, TRF, YSR) RCMAS-2, S-TAIC, CSI-4, ABC, and NCBRF. The participants were then asked using 5 point Likert Scales, to rate how useful they thought each measure was for a) screening individuals with ASD for an anxiety disorder, b) planning anxiety treatment/intervention, c) progress monitoring and d) eligibility determination for special education or 504 services. The

survey then asked for the participants to rate the importance of parent, teacher, and youth self-report rating scales, if they believed that rating scales could be interpreted the same way for youth with ASD compared to youth in the general population, and also to rate their own skill level in assessing for anxiety in the general population and for youth with ASD. A cover letter (located in Appendix B), was attached to the survey that described the purpose of the study to participants, and how confidentiality is maintained. The cover letter also stated that consent is given with the action of returning the survey. Participants have the option to fill out a separate sheet of paper to include their email or mailing address to be able to enter into a drawing for two chances to win a \$25 dollar gift certificate. This was to increase response rate, but entering the drawing was voluntary.

#### *Data Collection Procedure*

The participants were randomly selected from the NYASP membership directory using a random numbers table. A cover letter, survey, and self-addressed, stamped envelope were sent to each participant. Each survey was assigned a number that corresponded to each name on the mailing list. The responses were coded and entered into a database to run appropriate statistical analyses. The data was only accessible to the examiner and advisor.

#### *Data Analysis*

**Descriptive Statistics:** The data was entered into the SPSS version 15.0 for analysis (2006). Means and standard deviations were obtained for quantitative data and the frequency and percentages of rating scales were obtained for categorical data.

**Analysis of Variance:** The survey examined self-reports of how useful respondents perceived each measure to be for the different purposes of assessment: screening for anxiety, treatment planning, progress monitoring, and eligibility determination. A one-way repeated

measures analysis of variance compared mean ratings of perceived usefulness of each scale across the different purposes of assessment. Post hoc tests following a significant omnibus test included paired sample *t*-tests to determine if there are any significant mean differences between specific functions. Partial eta squared and Cohen's *d* determined effect size for the overall ANOVA and post hoc tests respectively.

**Regression analysis:** Regression analysis was conducted to determine what variables might predict perceived usefulness of the scales for screening. This was the focus because it is the main purpose of the measures. The predictor variables were: perceived skill of assessing anxiety in the general population (Item #9), perceived skill of assessing anxiety in students with ASD (Item #10), caseload of students with ASD (Item #2), perceived importance of that rating scale when working with children with ASD with anxiety (Item 7a, b or c) and number of years worked as a school psychologist (Item #15).

To run the regression analysis, the assumptions of homoscedasticity, linearity, normality and independence were assessed. The standardized residuals and Cooks statistic were used to assess for outliers. Leverage and Standardized Difference in Beta were each examined for cases that may be influential. The  $R^2$ , adjusted  $R^2$ , significance of  $R^2$  and the squared semi-partial correlation of each individual predictor was calculated.

**Additional Analyses:** A dependent *t*-test was used to compare the differences between ratings of anxiety assessment skill with general population compared to anxiety assessment skill with students with ASD. The survey also asked the extent that the respondent agreed if rating scale scores can be interpreted the same way for youth with an ASD, as for youth in the general population. An independent *t*-test was calculated to compare the mean of this question to the

value of 2.0 signifying “neither agree or disagree”. Cohen’s  $d$  was calculated to assess effect size.

## CHAPTER FOUR

### Results

#### *Participant Characteristics*

Descriptive statistics were obtained for the sample of survey respondents and can be found in Table 1. The total sample included 80.4% female and 19.6 % male respondents. The total mean age was 40.6 years. The mean number of years working as a school psychologist was 12.4 years. The mean number of students with ASD worked within the current year was 8.31. The majority of the respondents were white (97.1%), non-Hispanic/Latino (97.1%), and had full time employment (89.7%).

Participants in this study worked at various grade levels. The greatest number of school psychologists worked at the K-5<sup>th</sup> grade (56.1%), followed by 9<sup>th</sup>-12<sup>th</sup> (23.4%), 6<sup>th</sup>-8<sup>th</sup> (17.8%) and Pre-K (2.8%). For primary school setting, the greatest number of school psychologists worked in a suburban (42.3%), followed by rural (34.6%), and urban setting (23.1%). Most psychologists in the survey had a Specialist/ED.S degree (55.1%), followed by MA/MS (23.4%), Doctoral (20.6%), and one had a Bachelor's degree (.9%).

Table 2 displays self-report training for the core and associated features of ASD, and training for ASD and EBDs. The most commonly reported trainings consisted of a workshop/in-service only (core ASD: 25.0%, ASD and EBDs: 39.8%), or a combination of a workshop/in-service and portion of a course (core ASD: 34.3%, ASD and EBDs: 20.4%).

#### *Frequency of Use for Rating Scales for Assessing for Anxiety in Youth in ASD*

Table 3 indicates the frequency of use for the different rating scales for assessing anxiety in youth with ASD. The majority used the BASC-2 instruments more than all other rating scales assessed. The majority of respondents reported using the BASC-2 PRS (72.9%), TRS (77.8%)

“Often” or “Almost Always.” About half (49.1%) reported using the SRP “Often” or “Almost Always.” By contrast, very few reported using the other measures including the RCMAS-2 and STAIC which are anxiety-specific measures, and those that were developed for persons with ID (ABC and NCBRF).

### *Analysis of Variance*

As previously stated, the large majority of the sample reported using the BASC-2 instruments (PRS, TRS and SRP) over other rating scales assessed. Due to the low frequency of reported use of other scales, only data related to the BASC-2 were used for significance tests that assessed for differences in perceptions of usefulness across the major purposes of assessment: screening, treatment planning, progress monitoring, and eligibility determination.

The one-way multivariate repeated measures analysis of variance (ANOVA) assumes that data are normally distributed, that the scores in one sample are in no way related to scores in the other sample, and homogeneity of variance. Skewness and kurtosis indices and histograms indicated no significant violations of the normality assumption. Independence was assumed as every survey was filled out separately. The homogeneity was also met as the variances of all perceived usefulness fell within a 4:1 ratio.

Table 4 reports the mean and standard deviations for the usefulness of the instruments across all purposes of assessment for the entire sample. In general, the BASC-2 instruments were reported to be used more often compared to other instruments, and the most common purpose reported for the BASC-2 instruments was for screening. Table 5 contains the same data for participants who supplied data for the ANOVAs (i.e., those with no missing data across all purposes of assessment). For the BASC-2 Parent Rating Scale, results of the ANOVA indicated that there was a statistically significant difference in perceived usefulness across the purposes of



assessment ( $F_{3, 83}=21.92, p<.001, \epsilon^2=.44$ ). Post hoc analyses were conducted to identify the paired group means that were significantly different from each other, and Cohen's  $d$  was used to calculate the effect size. The Dunn-Bonferroni correction was chosen for these analyses to control for Type 1 error ( $\alpha_{DB}=.008$ ). The post-hoc tests indicated that for the BASC-2 PRS, ratings for perceived usefulness for screening was significantly higher than perceived usefulness for treatment planning ( $t= 5.70, p<.001, d= .61$ ), progress monitoring ( $t= 7.54, p<.001, d= .81$ ), and eligibility determination ( $t= 5.34, p<.001, d= .58$ ). All three effect sizes were medium to large. None of the remaining post-hoc comparisons were statistically significant, and effect sizes were small.

For the BASC-2 Teacher Rating Scale, results of the ANOVA indicated that there was a statistically significant difference in means of perceived usefulness across the various purposes of assessment ( $F_{3, 84}=25.53, p<.001, \epsilon^2=.47$ ). Post hoc analyses, again using the Dunn-Bonferroni correction to control for Type 1 error ( $\alpha_{DB}=.008$ ), indicated the same pattern of results. For the BASC-2 TRS, perceived usefulness for screening was significantly higher than perceived usefulness for treatment planning ( $t= 6.39, p<.001, d= .55$ ), progress monitoring ( $t= 8.00, p<.001, d= .75$ ), and eligibility determination ( $t= 5.54, p<.001, d= .51$ ). These three effect sizes were medium to large and statistically significant. The remaining comparisons were not statistically significant and the effect sizes were small.

For the BASC-2 Self-Report of Personality, results of the ANOVA indicated that there was a statistically significant difference in means of perceived usefulness across assessment purposes ( $F_{3, 74}=16.48, p<.001, \epsilon^2=.40$ ). Post hoc analyses with Dunn-Bonferroni correction ( $\alpha_{db}=.008$ ) indicated the same pattern of results. For the BASC-2 SRP, perceived usefulness for screening was significantly higher than perceived usefulness for treatment planning ( $t= 4.88$ ,

$p < .001$ ,  $d = .68$ ), progress monitoring ( $t = 6.57$ ,  $p < .001$ ,  $d = .86$ ), and eligibility determination ( $t = 4.50$ ,  $p < .001$ ,  $d = .59$ ). These three effect sizes were medium to large and statistically significant.

The remaining comparisons were not statistically significant and the effect sizes were small.

#### *Regression Analysis for Predictors of Usefulness of the BASC-2*

Regression analyses were conducted to determine what factors would predict levels of school psychologists' perceived usefulness of the BASC-2 for screening for anxiety in children with ASD. Again, the examiner only analyzed predictors of the BASC-2 PRS, TRS, and SRP, because relatively few respondents reported use of the other rating scales. The predictors analyzed were perceived importance of that scale (either parent, teacher or self-report), anxiety assessment skill with the general population of students, anxiety assessment skill with youth with ASD, case load, and years working as a school psychologist.

The assumptions of independence, normality, linearity and homoscedasticity were evaluated. Independence was assumed for each regression because all respondents were assumed to have filled out their surveys on their own. No violations of normality, homoscedasticity, or linearity were observed. To assess for outliers and influential data points, the standardized residuals, Leverage, Cook's  $d$ , and Standardized Difference in Beta were each examined.

Three cases were identified to be outliers using the Standardized Residual and Leverage statistics for the BASC-2 PRS, TRS, and SRP. Further examination revealed that one case worked with an exceptionally large ASD case load (100) and was removed from the analyses, as it was very atypical compared to the other respondents. One person attempted to complete the survey and items related to the BASC-2 even though he or she did not actually use it. This case was therefore removed from analysis. A third case appeared influential as indicated by the

Standardized Difference in Beta associated with the predictors. However, it was retained in the analyses for two reasons: (a) there did not appear to be any substantive reasons for its removal, and (b) results were not significantly different when the case was included than when it was excluded.

The results of the regression analyses are presented in Table 6. In each analysis, the statistically significant  $R^2$  indicated that one or more predictors accounted for a significant proportion of variance in perceived usefulness for screening. The squared semi-partial correlation ( $sr^2$ ) was calculated to determine the amount of variance uniquely accounted for by each predictor. For the Parent Rating Scale, the predictors accounted for a 21.94% of the variance in perceived usefulness ( $R^2=.219$ , Adjusted  $R^2= .175$ ,  $F_{5, 89}$ ,  $p<.001$ ). Significance tests of individual predictors indicated that only the perceived importance of parent rating scales ( $t=2.45$ ,  $p=.016$ ,  $sr^2=.05$ ) and the perceived anxiety assessment skill with the general population ( $t=2.72$ ,  $p=.008$ ,  $sr^2=.07$ ) were statistically significant.

For the teacher rating scale, the predictors accounted for a 23.89% of the variance in usefulness of the BASC-2 ( $R^2=.238$  Adjusted  $R^2= .196$   $F_{5,90}$ ,  $p<.001$ ). Similar to the parent rating scales, significant tests of individual predictors indicated that only the perceived importance of teacher rating scales ( $t=2.65$ ,  $p=.010$ ,  $sr^2=.06$ ) and the perceived anxiety assessment skill with the general population ( $t=2.76$ ,  $p=.007$ ,  $sr^2=.06$ ) were statistically significant.

For the self-report of personality scale, the predictors accounted for a 23.7% of the variance in usefulness of the BASC-2 ( $R^2=.237$  Adjusted  $R^2= .191$   $F_{5,82}$ ,  $p<.001$ ). Significant tests of individual predictors indicated that only the perceived importance of the self-report of personality rating scales ( $t=4.01$ ,  $p<.001$ ,  $sr^2=.15$ ) were statistically significant.

### *Additional Analyses*

Respondents were also asked to report the extent they agreed that rating scale scores can be interpreted the same way for youth with an ASD as for youth in the general population. The mean rating score ( $M=2.15$ ,  $SD=.89$ ) was compared to the value of 2 (neither disagree or agree with the statement). Results of the one-sample t-test indicated that there was not a significant difference between the mean rating score and score of 2 ( $t=1.74$ ,  $df=106$ ,  $p=.084$ ;  $CI_{95diff}=-.02-.32$  at  $\alpha=.05$ , two-tailed). The results indicated that the average rating of agreement to the statement that rating scale scores can be interpreted the same way for youth with an ASD compared to the general population, was not statistically different from the neutral score of 2 (neither agree or disagree).

Respondents were also asked to report on their perceived skills at assessing for anxiety disorders for all students, and their skills in assessing for anxiety for students with ASD. A dependent t-test indicated perceived skill for assessing anxiety in the general population was significantly greater than perceived skill at assessing anxiety in students with ASD ( $t=8.43$ ,  $df=107$ ,  $p<.001$ ,  $CI_{95diff}=.41-.66$ ) at  $\alpha=.05$ , two tailed. The effect size of the mean difference was calculated using Cohen's  $d$ . The effect size of the mean difference between perceived skill assessing for anxiety with the general population, and with students with ASD was .81, which represented a medium to large effect.

## CHAPTER FIVE

### Discussion

#### *Participants*

The purpose of the study was to survey School Psychologists in New York State for what measures are being used to assess for anxiety in children with ASD. Several analyses were performed. The current sample's demographics indicated a majority of white women who worked full-time. Participants worked across the grade levels with more than half at the kindergarten through fifth grade setting. For primary school setting, the greatest number of school psychologists worked in a suburban district, followed by a rural and an urban setting. Most psychologists in the survey had a Specialist/Ed.S degree, followed by MA/MS, Doctoral, and only one had a Bachelor's degree. For self-reports of training, the most common consisted of a workshop/in-service and for a portion of a course. In general, this sample reported having little training in terms of core and associated features of ASD, and even less so in co-morbid EBDs in ASD populations.

New York State Association of School Psychologist (NYASP) membership data were not available. Compared to NASP membership data, (see Curtis, Castillo, & Gelley, 2012), the current sample had similar gender ratio, race, primary school setting, and mean age. Issues of generalizability of this sample are discussed in the Limitations section.

#### *Frequency of Use for Rating Scales for Assessing for Anxiety in Youth in ASD*

Respondents were asked to indicate the frequency of use for the different rating scales for assessing anxiety in youth with ASD. The majority of respondents reported using the BASC-2 PRS and TRS "often" or "almost always" and close to half indicated they used the SRP "often"

or “almost always.” However, research is lacking on the use of the BASC-2 instruments when assessing for anxiety or other co-morbid disorders with the ASD population.

In comparison, very few respondents reported using other measures including the ASEBA measures, anxiety-specific measures such as the RCMAS-2 and STAIC, and rating scales developed for persons with disabilities such as the ABC and NCBRF. Both the CBCL 6-18 and CBCL1.5-5 have shown positive initial psychometric results in their use of children with ASD (Pandolfi, Magyar, & Dill, 2012). However, the majority reported that they never use it. Both the ASEBA instruments and BASC-2 instruments are broad based measures, that measure adaptive and a variety of problem behaviors, one of which is anxiety. Even though the CBCL has more evidence to support its use for youth with ASD than the BASC-2 PRS, school psychologists in NYS reported they are using the BASC-2 measures more frequently than the ASEBA measures for assessing for anxiety in ASD populations. Although the current survey did not assess this, it may be useful to examine whether school psychologists in NYS are using the BASC-2 measures over the ASEBA measures for the general population as well.

There is also initial evidence for using the CSI-4, ABC and NCBRF with ASD populations (Brinkley et al., 2007; Lecavalier, Aman, Hammer, Stoica, & Mathews, 2004; Lecavalier, Gadow, DeVincent, & Edwards, 2009). However, again respondents reported rarely using these measures. It is likely that the respondents are unaware of these measures, and would benefit on additional training of assessment in ASD.

In general, even though the BASC-2 was reported to be most often used, other rating scales have more psychometric data published on it for youth with ASD. Also, few respondents mentioned using anxiety-specific rating scales, even though the questions specifically states “when assessing for anxiety in children with ASD.” The survey did not ask participants why

they may chose one rating scale over the other and therefore the reason is unclear. One possible explanation is the actual availability of the measures. As previously mentioned, school psychologists may be using the same rating scales they more frequently use with the general population. If they are never or rarely using these measures, it is likely they will not find them useful.

Self-reports of level of training for this sample indicated that there was little training for assessing youth with ASD for EBDs, and therefore school psychologists may not be aware of the high co-morbidity rate, and often atypical presentation of youth with ASD and co-occurring anxiety. They also may not be aware of the importance of using measures specifically validated for the ASD population. Because research is only starting to emerge for some of these rating scales, it is likely that the school psychologists using these rating scales may not be fully aware of these initial findings.

### *Perceived Usefulness*

Respondents were also asked to indicate how useful they perceived each measure across different purposes of assessment (screening for anxiety, treatment planning, progress monitoring, and eligibility determination). Results indicated that the BASC-2 instruments were perceived to be significantly more useful for screening than for the other purposes of assessment. The rating scales are designed for screening purposes and may be one reason why screening is considered to be the most useful.

The lack of training with assessing for EBDs and the lower perceived skill of assessing for anxiety in the ASD population may be impacting perceived usefulness of these measures. Someone with greater training and experience assessing for anxiety with youth with ASD may be more likely to find rating scales useful for other purposes such as eligibility determination,

especially if those data are combined with other data sources (e.g. observations, interviews, record review etc.). The current survey did not explore these possible reasons, and may be a topic for future research. Although the BASC-2 instruments are broad based measures created for screening purposes, there is little research on the diagnostic accuracy of the BASC-2 instruments. The current survey also did not ask whether participants believed the BASC-2 data were related to correct classification decisions. As a result, the accuracy in identifying anxiety disorders in youth with ASD is uncertain.

It is also interesting to note that very few respondents indicated other measures they found useful. Currently, there are a small number of standardized measures specifically created for EBD assessment for ASD populations. A few respondents indicated other practices such as a functional behavioral analysis or diagnostic interviews to assess for anxiety. These were not included in the analysis as there were very few reported, and the current study focused on rating scales.

#### *Predictors of Usefulness for the BASC-2*

Several variables were analyzed to explore what predicts perceived usefulness for the BASC-2 instruments for screening. The predictors analyzed were: perceived importance of that scale (either parent, teacher or self-report), anxiety assessment skill with the general population of students, anxiety assessment skill with youth with ASD, case load, and years working as a school psychologist. For both the parent and teacher reports, perceived importance of the parent or teacher scale, and the assessment skill with the general population, were statistically significant. For the SRP, only the perceived importance of the self-report assessment scale was a significant predictor of usefulness. Understandably, these results indicate the more likely a



person believes that a rating scale is important for the assessment of anxiety, the more likely they will find it useful.

By examining variables that were not statistically significant also indicates important information. There are some possible explanations as to why anxiety assessment skill with the general population of students would be significant for parent and teacher scales, but not for the self-report. Self-reports of young children are often not considered as much to be an accurate assessment for intrinsic problems such as anxiety or depression, as they may not be able to fully comprehend their negative emotions or able to accurately express it. With adolescents, self-reports are considered more helpful and can be more reliable for internalizing problems more than parent or teacher reports. Given that more than half of our sample (56.1%) predominantly worked with grades K-5, this may have impacted perceived skill with the general population using self-reports, as using teacher or parent rating scales for younger children are recommended.

Anxiety assessment skill with youth with ASD was not seen to be a predictor for any of the BASC-2 instruments. This may be because in general this sample had less experience with training for assessing EBDs in youth with ASD. Case load and years working as a school psychologist was also not seen to be a predictor. The number of years working for school psychologists may not be as much a factor compared to working with children with ASD and co-morbid EBDs or quality of training in this area. However training was not assessed as a predictor because training levels were uniformly low.

#### *Additional Analysis*

Respondents were also asked to report the extent they agreed that rating scale scores can be interpreted the same way for youth with an ASD as for youth in the general population. The

average respondent reported that they “neither agree nor disagree” with that statement. These results were predictable as there is only preliminary research in this area. If psychologists are using measures with an ASD population and are not certain if the results can be interpreted the same way, this is cause for concern. The importance of assessment and screening for anxiety disorders cannot be overstated, as using effective and valid measures may lead to better outcomes for individuals with autism.

Results also indicated that self-reports on perceived skill at assessing anxiety in the general population was significantly higher compared to perceived skill in assessing anxiety for youth with ASD. These results are also expected, as the sample in general was not well trained for assessing EBDs in ASD populations. This also emphasizes the importance of more quality training in regards to co-occurring emotional and behavioral problems in youth with ASD.

### *Limitations*

Several limitations for this study exist. First only NYASP members were included in the survey, and of those who were randomly selected from the member list, only those who volunteered to complete and return the survey could be included in the final sample. Therefore, there could be some characteristic of those that chose to fill out the survey that is not found in all school psychologists. Also, school psychologists who live and work in New York may have different characteristics from psychologists who live in other places in the country. Consequently, the results found may not generalize to all school psychologists.

Second, the data collected were based on self-reports, and therefore what the school psychologist could recall. Because of this, the accuracy of their reports of variables such as case load, or frequency of using test measures is uncertain. Any questions regarding perceived skill may be skewed as well. Also, school psychologists were asked about the type of training

received, but the survey did not account for the quality of training received. Quality training, in addition to the amount of training, could have impacted their reports on perceived skill or usefulness of measures.

Another challenging issue with assessing for ASD is the complexity and variability of levels of functioning. A school psychologist's report of usefulness for a rating scale may be very different depending on the level of functioning of that child. The current study did not distinguish between levels of functioning for youth with ASD, which could have led to very different results. For example, a school psychologist who works predominantly with high-functioning students with ASD may have different uses and perception of usefulness for rating scales compared to someone who works with non-verbal students with ASD. The current study did not breakdown by grade level, which also could have led to interesting results.

### *Implications*

The current study indicated several important implications for training, practice, and future research. First of all, the literature review indicated that there is limited research on rating scales to assess for anxiety and other EBDs for youth with ASD. There also should be more research on using current measures for students with ASD, that were developed for the general population and for people with intellectual disabilities. This would provide practitioners with a wider variety of instruments to select from, making it more likely that they will select an instrument appropriate to the characteristics and needs of the child.

This study also emphasized the need for more quality training for school psychologists. The majority of this sample had little training in assessing for EBDs in ASD populations. This may have impacted their confidence in using common rating scales for these purposes, and for reporting perceived usefulness. It is very common for youth with ASD to have some other co-

morbid emotional or behavioral disorder, and therefore specific training regarding these co-morbid disorders is essential for a comprehensive assessment.

The survey results indicated what rating scales were most commonly used for assessing for anxiety but did not question the reasons why. Future surveys may potentially question school psychologists on the reasons why they chose certain rating scales over the other. Also, as this survey emphasized what rating scale measures were used, future research may also want to explore what other methods they use frequently and find important. A few respondents mentioned other methods including interviews and functional behavioral assessment. It is best practice to use a multi-method, comprehensive approach, and therefore it would be interesting to examine what methods school psychologists believe are important. Different methods may be considered more important depending on the individual student.

### *Conclusions*

The purpose of this study was to gain knowledge on what rating scales are commonly being used for assessing for anxiety in youth with ASD, and how useful the rating scales are perceived to be for the various purposes of assessment. It also examined possible predictors of usefulness. For this sample of school psychologists in New York, the most commonly used rating scales were the BASC-2 instruments, even though there is little research supporting the use of these scales for assessing for co-morbidities in the ASD population. Anxiety-specific scales and rating scales for youth with intellectual disabilities were reported to be rarely used. The BASC-2 instruments were found to be most useful for screening compared to treatment planning, progress monitoring and eligibility determination. Usefulness of the BASC-2 was predicted by perceived importance of the rating scale for the parent, teacher, and youth self-report scales. Usefulness of the BASC-2 for the parent and teacher scales was also predicted by

perceived skill in assessing for anxiety in the general population. In general, the sample was not well-trained for core features of ASD and even less so for assessing for EBDs in the ASD population.

These results emphasize the importance of additional training and research for assessment of anxiety and other EBDs for the ASD population. It is also crucial to gain empirical evidence for commonly used rating scales for assessing anxiety in the general population for youth with ASD. In general, when assessing for anxiety in children with ASD, using a multi-method, multi-informant approach is best practice. Having rating scales that accurately assess for co-occurring EBDs are critical for a comprehensive assessment. Better assessment practices may lead to increased likelihood for more positive outcomes for youth with ASD.

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Appendix A  
Survey

**GENERAL DIRECTIONS:** Please read and respond to each item below.

*Base your answers on the current school year.*

1. Indicate the grade level of the students you spend the **most** time with.

Pre-school      K-5<sup>th</sup>                  6<sup>th</sup>-8<sup>th</sup>                  9th -12<sup>th</sup>

2. How many students with an *Autism Spectrum Disorder (ASD)* have you worked with this year?\*

\*ASD includes Autistic Disorder, Asperger's Disorder, and Pervasive Developmental Disorder NOS. Consider all work related to assessment, counseling, development of behavior intervention plans, and case consultation.

3. What kinds of training have you had to increase your knowledge about the **core diagnostic and associated features (e.g. learning, medical problems) of ASD**? *Check all that apply.*

Entire Course                   Entire Course and supervised field experience                   None  
 Portion of Course(s)                   Workshop/In-service                   Other(Specify): \_\_\_\_\_

4. What kinds of training have you had to increase your knowledge about **co-occurring emotional and behavioral problems in youth with ASD**? *Check all that apply.*

Entire Course                   Entire Course and supervised field experience                   None  
 Portion of Course(s)                   Workshop/In-Service                   Other(Specify): \_\_\_\_\_

Items 5 and 6 will ask about several rating scales that are used to help assess for anxiety in children and adolescents. For your convenience, the table below presents the full name and abbreviation for each measure.

Behavior Assessment System for Children- 2nd Ed. (BASC-2)	Achenbach System of Empirically Based Assessment (ASEBA)	Other Measures
a. BASC-2 PRS: Parent Rating Scale	d. CBCL: Child Behavior Checklist (Parent Report)	g. RCMAS-2: Revised Children's Manifest Anxiety Scale-2
b. BASC-2 TRS: Teacher Rating Scale	e. TRF: Teacher Report Form	h. S-TAIC: State-Trait Anxiety Inventory for Children
c. BASC-2 SRP: Self Report	f. YSR: Youth Self-Report	i. CSI-4: Child Symptom Inventory-4
		j. ABC: Aberrant Behavior Checklist
		k. NCBRF: Nisonger Child Behavior Rating Form

Survey continues on the next page

5. For each rating scale, place an “X” in the box that indicates how frequently you use each measure when assessing for anxiety in children with ASD.

	Never	Rarely	Sometimes	Often	Almost Always
a. BASC-2: PRS					
b. BASC-2: TRS					
c. BASC-2: SRP					
d. ASEBA: CBCL					
e. ASEBA: TRF					
f. ASEBA: YSR					
g. RCMAS-2:					
h. STAIC					
i. CSI-4					
j. ABC					
k. NCBRF					

6. Use the KEY to the right to indicate how useful you think each measure is for:

- (a) Screening individuals with ASD for an anxiety disorder  
 (b) Planning anxiety treatment/intervention  
 (c) Progress monitoring  
 (d) Eligibility determination for Special Education or 504 services

If you have never used the measure, check N/A. If you use other measures to assess for anxiety in youth with ASD, please identify up to three in the “other” boxes below and rate their usefulness using the key.

<b>KEY:</b>
<b>0</b> = Not at all Useful
<b>1</b> = Of Little Use
<b>2</b> = Somewhat Useful
<b>3</b> = Very Useful
<b>4</b> = Extremely Useful

	(a) Screening	(b) Treatment Planning	(c) Progress Monitoring	(d) Eligibility Determination	N/A
a. BASC-2: PRS					
b. BASC-2: TRS					
c. BASC-2: SRP					
d. ASEBA: CBCL					
e. ASEBA: TRF					
f. ASEBA: YSR					
g. RCMAS-2:					
h. S-TAIC					
i. CSI					
j. ABC					
k. NCBRF					
Other:					
Other:					
Other:					

Survey continues on the next page

For items 7-10, please circle ONE response.

7. In the context of a multi-method assessment (e.g. interview, file review, direct observation, rating scales):

a. How important are parent rating scales when assessing for anxiety in children with ASD?

0	1	2	3	4
Not at all	Slightly Important	Important	Very Important	Extremely Important

b. How important are teacher rating scales when assessing for anxiety in children with ASD?

0	1	2	3	4
Not at all	Slightly Important	Important	Very Important	Extremely Important

c. How important are youth-self report rating scales when assessing for anxiety in children with ASD?

0	1	2	3	4
Not at all	Slightly Important	Important	Very Important	Extremely Important

8. Rating scale scores can be interpreted the same way for youth with an ASD as for youth in the general population (i.e. higher scores reflect higher levels of anxiety, lower scores reflect lower levels of anxiety).

0	1	2	3	4
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

9. When considering ALL students you work with, how skilled do you think you are in assessing for anxiety disorders?\_

0	1	2	3	4
Not at all	Slightly Skilled	Skilled	Very Skilled	Extremely Skilled

10. How skilled do you think you are in assessing for anxiety disorders in students with ASD, specifically?

0	1	2	3	4
Not at all	Slightly Skilled	Skilled	Very Skilled	Extremely Skilled

Survey continues on the next page

Please provide the information requested in items 11-18. This information will help us understand who results of the study apply to.

11. Your Age: \_\_\_\_\_ years

12. Gender (circle):      Male                  Female

13. Race (circle):

Asian                  Black/African American                  White                  American Indian/ Native Hawaiian/  
Alaska Native                  Pacific Islander

Other (Please specify): \_\_\_\_\_

14. Ethnicity (circle):                  Hispanic/Latino                  Non-Hispanic/Latino

15. How many years have you worked as a School Psychologist? \_\_\_\_\_

16. Current employment (circle):                  Full Time                  Part Time                  Other (Please specify): \_\_\_\_\_

17. Primary School setting (circle):                  Urban                  Suburban                  Rural

18. Highest Degree Earned (circle):                  Bachelors                  MA/MS  
(Approx. 30-36 semester hours)                  Specialist/Ed.S.  
(Approx. 60 semester hours)                  Doctoral

**THANK YOU FOR YOUR PARTICIPATION!**

Appendix B  
*Cover Letter*

Dear School Psychologist,

You are invited to participate in a research study investigating school psychologists' use of rating scales when assessing for anxiety disorders in children with Autism Spectrum Disorders (ASD). The results from this study will help us better understand what measures are being used and their perceived usefulness in assessment. It is hoped that the results will inform future school psychology training and research that may be needed to help improve outcomes for students with ASD.

Your name was one of 500 randomly selected from the NYASP membership directory. NYASP's research committee approved my proposal which included a request to access contact information. You are asked to complete the enclosed survey, which is estimated to take only 10-15 minutes to complete.

The study involves minimal risks, no more than you would encounter during a typical work day. This study will have several safeguards to keep personal information confidential. All surveys and names on the mailing list will be coded in order to track who returned the survey, and to identify persons who may be sent a follow-up survey. The coded surveys will be kept separately from the mailing list. The surveys, mailing list, and statistical data files will be kept in a secure location by the researcher. Only the researcher and university advisor will have access to the survey, mailing list, and to the electronic data files created for statistical analysis. The results will present data in group format only. Completion and return of the survey signifies your consent to participate in the study.

There is also a chance to win a \$25 dollar gift card to Target or Wal-Mart! **If you would like to enter a random drawing for the gift card fill out the enclosed index card with your contact information.** The card will be immediately separated from your survey and the mailing list, and stored in a secure location until the drawing. **Please complete and return the survey and drawing card in the enclosed envelope within two weeks.** A separate envelope is enclosed for your convenience.

Participation in this study is completely voluntary and you may withdraw from participating at any time without penalty. If you decide to withdraw after returning a completed survey, you can contact the researcher to let her know, and your survey will be destroyed and the data will not be used for analysis.

If you have any questions or concerns regarding the study, please contact me or my faculty advisor, Dr. Vincent Pandolfi, at 585-475-6701.

Thank you in advance for your participation! I greatly appreciate your time and consideration. It is my hope that with every study we will continue to work towards improving the field of school psychology.

Respectfully submitted,

Amy Dasaro  
School Psychology Graduate Student  
Rochester Institute of Technology

Table 1

*Sample Demographics*

	Frequency	Percentage
Gender: <i>N</i> =107		
Female	86	80.4
Male	21	19.6
Race: <i>N</i> =103		
Black/African American	2	1.9
White	101	98.0
Ethnicity: <i>N</i> =69		
Hispanic/Latino	2	2.9
Non-Hispanic/Latino	67	97.1
Current Employment <i>N</i> =100		
Full-Time	96	98.0
Part Time	4	4.0
Primary School Setting <i>N</i> =104		
Urban	24	23.1
Suburban	44	42.3
Rural	36	34.6
Highest Degree Earned <i>N</i> =107		
Bachelors	1	.9
MA/MS	25	23.4
Specialist/Ed.S.	59	55.1
Doctoral	22	20.6
Grade Level <i>N</i> =107		
Pre-K	3	2.8
K-5 <sup>th</sup>	60	56.1
6 <sup>th</sup> -8 <sup>th</sup>	19	17.8
9 <sup>th</sup> -12 <sup>th</sup>	25	23.4
	Mean	SD
Current Age: <i>N</i> =108	40.66	11.57
Years Working as a School Psychologist <i>N</i> =106	12.40	9.84
Case Load <i>N</i> =108	8.31	8.03

Table 2

*School Psychologists Self Reports of Types of ASD Training Received*

	Training in the Core and Associated Features of ASD		Training for ASD and co-occurring EBDs	
	Frequency	Percentage	Frequency	Percentage
Entire Course	1	.9	2	1.9
Portion of Course	2	1.9	6	5.6
Entire Course and Field Experience	1	.9		
Work-Shop/in-service	27	25.0	43	39.8
Entire course and Workshop/in-service	8	7.4	5	4.6
Portion of course, entire course, and supervised field experience	1	.9	0	0
Portion of course and Workshop /in-service	37	34.3	22	20.4
Entire course and supervised field experience	3	2.8	0	0
Portion of course, entire course, supervised field experience, workshop/in-service	1	.9	0	0
None	0	0	7	6.5

Note. Other Training mentioned: Practicum experiences, full-day trainings, self-directed study/own research (5), consultation with other professionals (3), job experience (8).



Table 3

*School Psychologists Self Report of Frequency of Use of Rating Scales for Students with ASD*

		Never	Rarely	Sometime	Often	Almost Always
	<i>N</i>	%age	%age	%age	%age	%age
a. BASC-2: PRS	107	5.6	2.8	18.7	35.5	37.4
b. BASC-2: TRS	108	5.6	1.9	14.8	36.1	41.7
c. BASC-2: SRP	106	16.0	11.3	23.6	30.2	18.9
d. ASEBA: CBCL	94	68.1	14.9	11.7	4.3	1.1
e. ASEBA: TRF	94	70.2	12.8	10.6	5.3	1.1
f. ASEBA: YSR	92	79.3	7.6	8.7	3.3	1.1
g. RCMAS-2	94	71.3	9.6	11.7	6.4	1.1
h. STAIC	91	95.6	1.1	0	2.2	1.1
i. CSI-4	93	94.6	2.2	2.2	0	1.1
j. ABC	91	95.6	1.1	1.1	1.1	1.1
k. NCBRF	91	96.7	0	1.1	1.1	1.1

Table 4

*School Psychologists Self-Report of Perceived Importance of Use when Assessing for Anxiety in Students with ASD*

	<i>N</i>	Mean <sup>1</sup>	SD
<b>BASC-2: PRS</b>			
Screening	97	2.75	.79
Treatment Planning	94	2.14	.99
Progress Monitoring	90	1.87	1.12
Eligibility Determination	92	2.24	1.00
<b>BASC-2 TRS</b>			
Screening	98	2.80	.80
Treatment Planning	95	2.14	.99
Progress Monitoring	91	1.90	1.12
Eligibility Determination	93	2.29	.96
<b>BASC-2 SRP</b>			
Screening	89	2.64	.84
Treatment Planning	85	2.11	.98
Progress Monitoring	81	1.86	1.06
Eligibility Determination	83	2.24	.95
<b>ASEBA CBCL</b>			
Screening	25	2.92	.64
Treatment Planning	23	2.26	1.01
Progress Monitoring	21	2.14	1.32
Eligibility Determination	21	2.38	.87
<b>ASEBA TRF</b>			
Screening	25	2.92	.57
Treatment Planning	23	2.30	.97
Progress Monitoring	22	2.14	1.32
Eligibility Determination	22	2.27	.99
<b>ASEBA YSR</b>			
Screening	20	2.65	.75
Treatment Planning	20	2.20	.89
Progress Monitoring	19	2.00	1.11
Eligibility Determination	20	2.15	.81
<b>RCMAS-2</b>			
Screening	26	2.88	.82
Treatment Planning	25	2.64	.76
Progress Monitoring	23	1.91	1.04
Eligibility Determination	23	2.39	.89

<sup>1</sup>Likert Category: 0=Never, 1=Rarely, 2=Sometimes, 3=Often, 4=Almost Always

Table 4

*(School Psychologists Self-Report of Perceived Importance of Use when Assessing for Anxiety in Students with ASD Continued)*

	<i>N</i>	Mean	SD
<b>S-TAIC</b>			
Screening	2	2.50	.71
Treatment Planning	2	2.00	.00
Progress Monitoring	2	2.50	.71
Eligibility Determination	2	2.50	.71
<b>CSI-4</b>			
Screening	1	1.00	-
Treatment Planning	1	3.00	-
Progress Monitoring	1	3.00	-
Eligibility Determination	1	3.00	-
<b>ABC</b>			
Screening	1	1.00	-
Treatment Planning	1	3.00	-
Progress Monitoring	1	3.00	-
Eligibility Determination	1	3.00	-
<b>NCBRF</b>			
Screening	0	-	-
Treatment Planning	0	-	-
Progress Monitoring	0	-	-
Eligibility Determination	0	-	-

<sup>1</sup>Likert Category: 0=Never, 1=Rarely, 2=Sometimes, 3=Often, 4=Almost Always  
 - = n/a

Table 5

*Descriptive Statistics for Analysis of Variance*

	Mean <sup>1</sup>	SD
<b>BASC-2: PRS N=86</b>		
Screening	2.78 <sup>a</sup>	.78
Treatment Planning	2.13 <sup>b</sup>	1.02
Progress Monitoring	1.86	1.15
Eligibility Determination	2.21	1.02
<b>BASC-2: TRS N=87</b>		
Screening	2.83 <sup>a</sup>	.80
Treatment Planning	2.13 <sup>b</sup>	1.01
Progress Monitoring	1.90 <sup>b</sup>	1.14
Eligibility Determination	2.26 <sup>b</sup>	.98
<b>BASC-2: SRP N=77</b>		
Screening	2.68 <sup>a</sup>	.84
Treatment Planning	2.13 <sup>b</sup>	.98
Progress Monitoring	1.88 <sup>b</sup>	1.06
Eligibility Determination	2.21 <sup>b</sup>	.96

Note: Means with different superscripts were significantly different from one another.

Means with the same superscript were not significantly different from one another.

<sup>1</sup> Likert Category: 0=Not at all Useful, 1=Of Little Use, 2=Somewhat Useful, 3=Very Useful, 4=Extremely Useful

Table 6

*Predictors of Perceived Usefulness for Screening for the BASC-2 Measures*

Predictor	BASC-2 PRS (N= 95)				
	<i>B</i>	<i>SE</i>	95% <i>CI</i>	<i>sr</i> <sup>2</sup>	<i>t</i>
Importance of Parent Rating Scale	.23	.10	.04, .42	.05	2.45*
Anxiety Assessment Skill with General Population	.39	.14	.11, .67	.07	2.72*
Anxiety Assessment Skill with Youth with ASD	-.09	.12	-.33, .15	<.01	-.76
Case Load	<.01	.01	-.02, .02	<.01	.33
Years Working as a School Psychologist	.01	.01	-.01, .02,	<.01	.81

$R^2=0.219^*$ , Adjusted  $R^2=0.175$

Predictor	BASC-2 TRS (N= 96)				
	<i>B</i>	<i>SE</i>	95% <i>CI</i>	<i>sr</i> <sup>2</sup>	<i>t</i>
Importance of Teacher Rating Scale	.27	.10	.07, .49	.06	2.66*
Anxiety Assessment Skill with General Population	.39	.14	.11, .67	.06	2.76*
Anxiety Assessment Skill with Youth with ASD	-.06	.12	-.30, .17	<.01	-.53
Case Load	<.01	.01	-.02, .02	<.01	.27
Years Working as a School Psychologist	.01	.01	-.01, .03	.01	1.29

$R^2=0.238^*$ , Adjusted  $R^2=0.196$

Predictor	BASC-2 SRP (N= 88)				
	<i>B</i>	<i>SE</i>	95% <i>CI</i>	<i>sr</i> <sup>2</sup>	<i>t</i>
Importance of Youth Self-Report Rating Scale	.39	.01	.20, .58	.15	4.01*
Anxiety Assessment Skill with General Population	.20	.16	-.12, .52	.01	1.24
Anxiety Assessment Skill with Youth with ASD	.10	.13	-.16, .36	<.01	.77
Case Load	.01	.01	-.01, .03	<.01	.78
Years Working as a School Psychologist	.01	.01	-.01, .03	.01	1.24

$R^2=0.237^*$ , Adjusted  $R^2=0.191$

Note:  $sr^2$ =Squared semi-partial  
 $p<.05$