

# Exploring the Validity of the Social Anxiety Scale in Youths with Autism Spectrum Disorder

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## Background

- Previous research indicates a high prevalence of co-morbid anxiety in youths with autism spectrum disorder (ASD). A recent meta-analysis showed that 39.6% of youths with ASD had at least one co-morbid anxiety disorder, and social anxiety was the third most common (16.6%; van Steensel et al., 2011).
- Despite the specific relevance of co-morbid social anxiety to social disability, there has been a limited focus on this subtype of anxiety in ASD. Additionally, it is important to have measures that differentially capture symptoms of social anxiety and deficits in social behavior reliably across reporters.
- While the *Multidimensional Anxiety Scale for Children* is accepted as a measure of anxiety in ASD, there remains a need for additional valid measures of social anxiety (White, Schry, & Maddox, 2012).
- The *Social Anxiety Scale for Adolescents* and the *Social Anxiety Scale for Children, Revised* are both valid measures of social anxiety in typically developing (TD) individuals. The current study explored whether these measures accurately assess social anxiety in youths with ASD.

### Objectives:

- Evaluate the convergent validity of the SAS-A/SASC-R in capturing symptoms of social anxiety in individuals with ASD through comparison to another established measure, the MASC.
- Measure child-parent agreement in reports of the child's social anxiety, as well as the relationship between social anxiety and social behavior in ASD.

## Method

### Participant Demographics

|            | Age*         | Age Range  | Sex | IQ*            |
|------------|--------------|------------|-----|----------------|
| ASD (n=50) | 13.84 (2.73) | 8.01-17.99 | 37M | 106.58 (17.74) |
| TD (n=50)  | 13.03 (2.66) | 8.13-17.69 | 25M | 106.74 (11.26) |

\*Groups matched on age and IQ. Additionally, groups did not differ significantly on Verbal, Nonverbal, or Spatial IQ.

### Clinical Measures:

Cognitive and diagnostic evaluation obtained by research reliable clinicians:

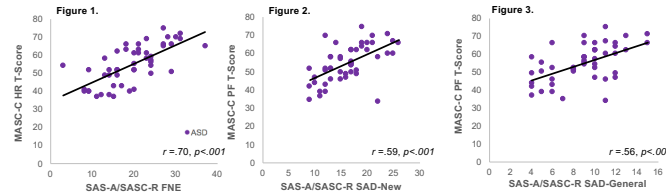
- Differential Ability Scales, Second Edition*
- Autism Diagnostic Observation Schedule, Second Edition*
- Social Responsiveness Scale, Second Edition (SRS-2), Parent Report*

Child- and parent-report of social anxiety symptomatology:

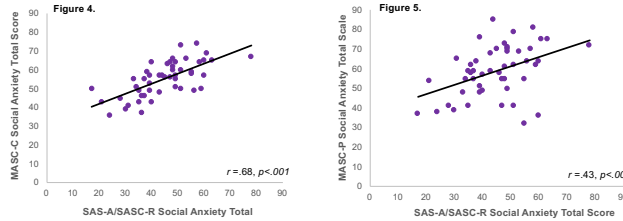
- Social Anxiety Scale for Adolescents (SAS-A)* and *Social Anxiety Scale for Children Revised (SASC-R)*
  - Fear of Negative Evaluation (FNE) subscale
  - Social Avoidance and Distress in New Situations or With Unfamiliar Peers (SAD-New) subscale
  - Social Avoidance and Distress That Is More General (SAD-General)
- Multidimensional Anxiety Scale for Children – Child Report (MASC-C) and Parent-Report (MASC-P)*
  - Humiliation and Rejection (HR) subscale
  - Performance Fears (PF) subscale

**Procedure:** Data for this study was collected from 2013-2016 as part of a larger study conducted at the Yale Autism Program, in the McPartland Lab. ANOVAS and correlations were conducted using SPSS statistical software (ver. 24).

## Results

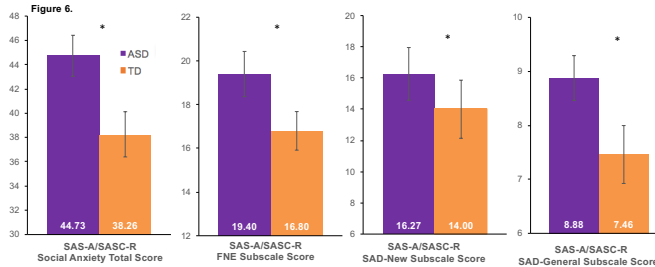


**Figures 1-3. Relationship between SAS-A/SASC-R and MASC-C Subscales in ASD.** A very strong positive correlation was found between the SAS-A/SASC-R FNE and MASC-C HR subscales (Figure 1), while the FNE was not correlated with MASC-C PF [ $r=.16, p=.27$ ]. A strong positive association was found between the SAS-A/SASC-R SAD-New and MASC-C PF subscale (Figure 2), while the SAD-New was weakly correlated with the MASC-C HR subscale [ $r=.31, p=.03$ ]. The SAS-A/SASC-R SAD-General was moderately correlated with the MASC-C HR subscale [ $r=.28, p=.05$ ] and highly correlated with the MASC-C PF subscale [ $r=.56, p<.001$ ] (Figure 3).



**Figure 4. Relationship Between Social Anxiety Total Scores on MASC-C and SAS-A/SASC-R in ASD.** A strong positive correlation was found between the overall level of social anxiety symptoms reported on the MASC-C and the SAS-A/SASC-R, by children/adolescents with ASD.

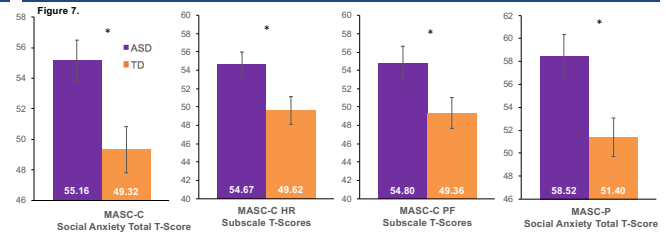
**Figure 5. Relationship Between Social Anxiety Total Scores on MASC-P and SAS-A/SASC-R in ASD.** Parent-report of perceived concerns with their child's social anxiety was moderately correlated with the child-report of overall social anxiety symptoms on the SAS-A/SASC-R.



### Figure 6. Group Differences on SAS-A/SASC-R and SRS-2

- According to SAS-A/SASC-R scores, children and adolescents with ASD reported having more overall symptoms of social anxiety than their TD peers [ $F(1,97)=6.62, p=.01$ ]. The ASD group also exhibited more symptoms associated with FNE [ $F(1,97)=3.69, p=.05$ ], SAD-New [ $F(1,97)=5.81, p=.02$ ], and SAD-General [ $F(1,97)=4.36, p=.04$ ] than the TD group (Figure 6).
- The ASD group had higher levels of autistic traits compared to the TD group as measured by the SRS-2 [ $F(1,92)=133.24, p<.001$ ].

## Results



### Figure 7. Group Differences on MASC-C and MASC-P

- Based on MASC-C scores, children and adolescents with ASD reported having more overall symptoms of social anxiety [ $F(1,97)=8.44, p=.01$ ] as well as more symptoms associated with HR [ $F(1,97)=5.70, p=.02$ ] and PF [ $F(1,97)=6.58, p=.01$ ] than the TD group.
- Examining MASC-P scores, parents of children and adolescents with ASD reported that their children were more likely to be experiencing symptomatology related to social anxiety than did the parents of the TD group [ $F(1,98)=8.20, p=.01$ ].

## Conclusions

In examining the utilization of the SAS-A/SASC-R as a measure of symptoms of social anxiety in children and adolescents with ASD, we found this scale to be a valid measure in capturing these symptoms when compared to the previously established MASC.

- Since the SAS-A/SASC-R did not correlate with the SRS-2 ( $p=.30$ ), the measure is likely capturing true symptoms of social anxiety in children with ASD that are distinct from difficulties in social behavior that are captured on the SRS-2.
- Although this measure was not specifically developed for the ASD population, results support its utilization to capture symptoms of social anxiety in ASD.

The SAS-A/SASC-R can provide insight into specific factors of social anxiety that may be affecting children/adolescents with ASD.

- As captured by the FNE subscale, youths with ASD reported being worried about whether others liked them and how they were being perceived.
- As captured by the SAD-New subscale, youths with ASD reported anxiety symptoms related to being in new situations as well as being in the presence of new, unfamiliar peers.
- Since the SAS-A/SASC-R is a self-report measure, youths with ASD demonstrate insight into their own worries and anxieties.

Overall, youths with ASD are experiencing higher levels of social anxiety in comparison to TD youths. Results suggest that future research efforts may benefit from use of the SAS-A/SASC-R to tap variance uniquely associated with social anxiety in ASD.

### References:

van Steensel, F. J., Bögels, S. M., & Perrin, S. (2011). Anxiety disorders in children and adolescents with autistic spectrum disorders: a meta-analysis. *Clinical Child and Family Psychology Review*, 14(3), 302.  
White, S. W., Schry, A. R., & Maddox, B. B. (2012). Brief report: The assessment of anxiety in high-functioning adolescents with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 42(6), 1138-1145.

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