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Relevant Disclosure
- Compensated speaker.

Goals
- Briefly discuss the historical theories of Autism Spectrum Disorders (ASD).
- Define ASD and new DSM 5 criteria.
- Briefly discuss symptoms of ASD by age.
- Briefly discuss a core theory of ASD.
- Briefly review hypothesized causes.
- Discuss data from the ASRS, the largest epidemiological/standardization sample collected of normal children and those with ASD.
- Discuss the ASRS and other methods for assessment, diagnosis and treatment of autism.
- Discuss issues of diagnosis versus eligibility.
We are social beings.

What Benefits Do We Derive From Socialization?

- Support
- Survival
- Affiliation
- Pleasure
- Procreation
- Knowledge
- Friendship

The social development of autistic children is qualitatively different from other children.
In normal children perceptual, affective and neuroregulatory mechanisms predispose young infants to engage in social interaction from very early on in their lives.
Hello!

You look like an interesting guy.

See what I can do! Wanna take me home?
Where are Autism’s Roots?

› In the bible?
› In ancient cultures?
› In history?
› In religion?
› Portrayed in art?
Les âges de l'ouvrier

Léon FRÉDÉRIC 1895

Is this child portrayed as autistic?
Autism’s First Child

As new cases of autism have increased in recent years—some form of the condition afflicts about one in 150 children today—studies have shifted to examining accommodations the estimated 3 million adults with autism have made. After four decades alone, what they found was great diversity. In U.S. states long regarded for their exceptional autism care, patients often do not have the same kind of accommodations. The Special Education Act of 1975 and other laws have led to significant accommodations, but much remains to be done.

By Asher Lowenfeld and Laron Zebrowski

Atlantic Monthly, October 2010
Psychiatric comorbidity in autism spectrum disorder: Correspondence between mental health clinician report and structured parent interview

This study (1) examined correspondence between psychiatric diagnoses reported by mental health clinicians and those derived from a structured diagnostic interview and (2) identified predictors of agreement between clinician-reported and diagnostic interview-derived diagnoses in a sample of 197 children aged 4–14 years with autism spectrum disorder receiving mental health services.

Cohen’s kappa was calculated to examine agreement between Mini-International Neuropsychiatric Interview, parent version and clinician-reported diagnoses of comorbid conditions. Children met criteria for an average of 2.83 (standard deviation = 1.92) Mini-International Neuropsychiatric Interview, parent version diagnoses. Agreement was poor across all diagnostic categories (κ values: 0.06–0.18).

Results underscore the need for training mental health clinicians in targeted assessment of specific psychiatric disorders and prioritizing treatment development and testing for specific diagnoses to improve care for children with autism spectrum disorder served in publicly funded mental health settings.

Autism spectrum disorders and their treatment with psychotropic medications in a nationally representative outpatient sample: 1994–2009

Rates of visits with coded ASD per 100 outpatient medical visits increased from 0.04% to 0.82% from 1994 to 2009. Factors associated with an ASD diagnosis included male gender, lack of private insurance, white race, and later study period. The most frequent comorbid behavioral diagnoses were ADHD, anxiety, disruptive behavior, and mood disorders. Older age was linked to an increased likelihood of having a comorbid behavioral diagnosis and using psychotropic medications. Geographic region was also associated with having a comorbid behavioral diagnosis, and psychotropic use was linked to have a behavioral comorbidity. Comorbidities with the highest rates of psychotropic use were ADHD, mood, and anxiety disorders.

Conclusions

Pediatric outpatient visits with an ASD diagnosis have increased dramatically from 1994 to 2009. Further study is needed to determine the reasons for the observed sociodemographic disparities in ASD diagnosis.

Use of complementary and alternative medicine in children and adolescents with autism spectrum disorder: A systematic review

Despite limited evidence, complementary and alternative medicine treatments are popular in autism spectrum disorder. The aim of this review was to summarize the available evidence on complementary and alternative medicine use frequency in autism spectrum disorder. A systematic search of three electronic databases was performed. All research studies in English or German reporting data on the frequency of complementary and alternative medicine use in individuals with autism spectrum disorder were included. Two independent reviewers searched the literature, extracted information on study design and results, and assessed study quality using an established quality assessment tool. Twenty studies with a total of 9540 participants were included. The prevalence of any complementary and alternative medicine use ranged from 28% to 93% (median: 54%). Special diets or dietary supplements (including vitamins) were the most frequent complementary and alternative medicine treatments, ranking first in 75% of studies. There was some evidence for a higher prevalence of complementary and alternative medicine use in autism spectrum disorder compared to other psychiatric disorders and the general population. Approximately half of children and adolescents with autism spectrum disorder use complementary and alternative medicine. Doctors should be aware of this and should discuss complementary and alternative medicine use with patients and their caregivers, especially as the evidence is mixed and some complementary and alternative medicine treatments are potentially harmful.

Autism, Published May 25, 2016
Social Skills Training for Children and Adolescents With Autism Spectrum Disorder: A Randomized Controlled Trial

Social skills group training (SSGT) for children and adolescents with autism spectrum disorder (ASD) is widely applied, but effectiveness in real-world practice has not yet been properly evaluated. This study sought to bridge this gap.

This 12-week pragmatic randomized controlled trial of SSGT compared to standard care alone was conducted at 13 child and adolescent psychiatry outpatient units in Sweden. Twelve sessions of manualized SSGT ("KONTAKT") were delivered by regular clinical staff. Participants (N = 296; 88 females and 208 males) were children (n = 172) and adolescents (n = 124) aged 8 to 17 years with ASD without intellectual disability. The primary outcome was the Social Responsiveness Scale rating by parents and blinded teachers. Secondary outcomes included parent- and teacher-rated adaptive behaviors, teacher-rated global functioning and clinical severity, and self-reported child and caregiver stress.

Assessments were made at baseline, posttreatment, and 3-month follow-up. Moderator analyses were conducted for age and gender.

Significant treatment effects on the primary outcome were limited to parent ratings for the adolescent subgroup (posttreatment: –8.3; 95% CI = –14.2 to –1.9; p = .012, effect size [ES] = 0.32; follow-up: –8.6; 95% CI = –15.4 to –1.8; p = .015, ES = 0.33) and females (posttreatment: –8.9; 95% CI = –16.2 to –1.6; p = .019, ES = 0.40). Secondary outcomes indicated moderate effects on adaptive functioning and clinical severity.

Conclusion

SSGT for children and adolescents with ASD in regular mental health services is feasible and safe. However, the modest and inconsistent effects underscore the importance of continued efforts to improve SSGT beyond current standards.

Journal of the American Academy of Child & Adolescent Psychiatry
Volume 56, Issue 7, July 2017, Pages 585-592

Can findings from randomized controlled trials of social skills training in autism spectrum disorder be generalized? The neglected dimension of external validity

Systematic reviews have traditionally focused on internal validity, while external validity is often overlooked. In this study, we systematically reviewed determinants of external validity in the accumulated randomized controlled trials of social skills group interventions for children and adolescents with autism spectrum disorder. We extracted data clustered into six overarching themes: source population, included population, context, treatment provider, treatment intervention, and outcome. A total of 15 eligible randomized controlled trials were identified. The eligible population was typically limited to high-functioning school-aged children with autism spectrum disorder, and the included population was predominantly male and Caucasian. Scant information about the recruitment of participants was provided, and details about treatment providers and settings were sparse. It was not evident from the trials to what extent acquired social skills were enacted in everyday life and maintained over time. We conclude that the generalizability of the accumulated evidence is unclear and that the determinants of external validity are often inadequately reported. At this point, more effectiveness-oriented randomized controlled trials of equally high internal and external validity are needed. More attention to the determinants of external validity is warranted when this new generation of randomized controlled trials are planned and reported.

Autism, First Published May 11, 2015

Does sex influence the diagnostic evaluation of autism spectrum disorder in adults?

This study reports sex differences in clinical outcomes for 1244 adults (935 males and 309 females) referred for autism spectrum disorder assessment. Significantly, more males (72%) than females (66%) were diagnosed with an autism spectrum disorder of any subtype (x² = 4.09; p = 0.04).

Males had significantly more repetitive behaviors/restricted interests than females (p = 0.001, d = 0.3). A multivariate analysis of variance indicated a significant interaction between autism spectrum disorder subtype (full-autism spectrum disorder/partial-autism spectrum disorder) and sex: in full-autism spectrum disorder, males had more severe socio-communicative symptoms than females; for partial-autism spectrum disorder, the reverse was true.

There were no sex differences in prevalence of co-morbid psychopathologies. The sexes may present with different manifestations of the autism spectrum disorder phenotype and differences vary by diagnostic subtype. Understanding and awareness of adult female repetitive behaviors/restricted interests warrant attention and sex-specific diagnostic assessment tools may need to be considered.
Telehealth delivery of cognitive–behavioral intervention to youth with autism spectrum disorder and anxiety: A pilot study

This study details the pilot testing of a telehealth version of an empirically supported intervention targeting anxiety in youth with autism spectrum disorders. The primary focus of this study was on feasibility, with evaluation of outcomes as a starting point for future randomized trials. In all, 33 families of youth with autism spectrum disorders and significant anxiety symptoms participated in this study (Telehealth Facing Your Fears (FYF) Intervention: n = 17; Wait-list control: n = 16). Youth of all functioning levels were included. Acceptability was strong; however, the usability of the technology was problematic for some families and impeded some sessions significantly. Fidelity of the telehealth version to the critical elements of the original, in vivo version was excellent. More work is needed to improve delivery of exposure practices and parent coaching. Preliminary efficacy analyses are promising, with improvements observed in youth anxiety over time (relative to a comparison group waiting for live intervention) and parent sense of competence (within group). Clearly, stronger designs are necessary to evaluate efficacy sufficiently; however, this study does provide support for further investigation of clinic-to-home videoconferencing as a direct intervention tool for youth with autism spectrum disorders and their parents.

Open-trial pilot study of a comprehensive outpatient psychosocial treatment for children with high-functioning autism spectrum disorder

This study examined the feasibility and initial outcomes of a comprehensive outpatient psychosocial treatment (MAXout) for children aged 7–12 years with high-functioning autism spectrum disorder. The 18-week treatment, two 90-minute sessions per week, included instruction and therapeutic activities targeting social/social communication skills, facial emotion recognition, non-literal language skills, and interest expansion.

A behavioral system was implemented to reduce autism spectrum disorder symptoms and problem behaviors and increase skills acquisition and maintenance. Feasibility was supported via high levels of treatment fidelity and parent, child, and staff satisfaction. Significant post-treatment improvements were found for the children's non-literal language skills and facial emotion recognition skills, and parent and staff clinician ratings of targeted social/social communication skills, broad social skills, autism spectrum disorder symptoms, and problem behaviors.

Results suggested that MAXout was feasible and may yield positive outcomes for children with high-functioning autism spectrum disorder.

The mental health of individuals referred for assessment of autism spectrum disorder in adulthood: A clinic report

High rates of mental health problems have been reported in young people and adults with autism spectrum disorder. However, sampling and methodological issues mean prevalence estimates and conclusions about specificity in psychiatric co-morbidity in autism spectrum disorder remain unclear.

A retrospective case review of 859 adults referred for assessment of autism spectrum disorder compared International Classification of Diseases, Tenth Revision diagnoses in those that met criteria for autism spectrum disorder (n = 474) with those that did not (n = 385). Rates of psychiatric diagnosis (>57%) were equivalent across both groups and exceeded general population rates for a number of conditions.

The prevalence of anxiety disorders, particularly obsessive compulsive disorder, was significantly higher in adults with autism spectrum disorder than adults without autism spectrum disorder. The implications of this study highlight the need for careful consideration of mental health needs in all adults referred for autism spectrum disorder diagnosis.
Effects of an employer-based intervention on employment outcomes for youth with significant support needs due to autism

The purpose of this study was to develop and investigate an employer-based 9-month intervention for high school youth with autism spectrum disorder to learn job skills and acquire employment. The intervention modified a program titled Project SEARCH and incorporated the use of applied behavior analysis to develop Project SEARCH plus Autism Spectrum Disorder Supports.

A randomized clinical trial compared the implementation of Project SEARCH plus Autism Spectrum Disorder Supports with high school special education services as usual. Participants were 49 high-school-aged individuals between the ages of 18 and 21 years diagnosed with an autism spectrum disorder and eligible for supported employment. Students also had to demonstrate independent self-care. At 3 months post-graduation, 90% of the treatment group acquired competitive, part-time employment earning US$9.53–US$10.66 per hour. Furthermore, 87% of those individuals maintained employment at 12 months post-graduation. The control group's employment outcomes were 6% acquiring employment by 3 months post-graduation and 12% acquiring employment by 12 months post-graduation. The positive employment outcomes generated by the treatment group provide evidence that youth with autism spectrum disorder can gain and maintain competitive employment.

Employment programs and interventions targeting adults with autism spectrum disorder: A systematic review of the literature

In this systematic review, empirical peer-reviewed studies on employment programs, interventions and employment-related outcomes in individuals with autism spectrum disorder over 18 years with and without intellectual disability were identified and evaluated.

From 32,829 records identified in the initial search, 10 review and 50 empirical articles, comprising N=58,134 individuals with autism spectrum disorder, were included in the review. Selected articles were organized into the following themes: employment experiences, employment as a primary outcome, development of workplace skills, non-employment-related outcomes, assessment instruments, employer-focused and economic impact. Empirical studies were limited by poor participant characterization, small sample size and/or a lack of randomization and use of appropriate controls. Poor conceptualization and measurement of outcomes significantly limited study quality and interpretation.

Future research will require a multidisciplinary and multifaceted approach to explore employment outcomes on the individual, the family system, co-workers and the employer, along with the impact of individual differences on outcome.

DSM 5

› Combine social and communication categories.
› Tighten required criteria reducing the number of symptom combinations leading to a diagnosis.
› Omit Retts and Childhood Disintegrative Disorder.
› Clarify co-morbidity issues
› Eliminate PDD NOS and Aspergers in favor of Autism Spectrum.
Five criteria.

Seven sets of symptoms in the first two criteria – Social/Communication and Restrictive/Repetitive behaviors, interests or activities.

All three symptoms are required to meet the first criteria (although a typo omits this).

Two out of four are needed for the second criteria.

Some symptoms have been combined. Sensory sensitivity has been added.

Normally Developing Children:

• Show interest in the human face.
• Demonstrate a differential preference for speech sounds.
• Possess imitative capacity.
• Seek physical comfort.
• Attach to caretakers.

Social competence is an ability to take another’s perspective concerning a situation and to learn from past experience and to apply that learning to the ever changing social landscape.

Margaret Semrud-Clikeman
Social competence has been scientifically linked to mental and physical health.

Impairment in Social Competence Caused By:
- Aggressive, hostile behavior.
- Perceptual deficits in interpreting social behavior.
- Executive and self-regulation deficits

Social Information Processing
- Encoding of relevant stimuli.
- Interpretation of cues (both cause and intent).
- Goal setting.
- Comparison of the present situation to past experience.
- Selection of possible responses.
- Acting on a chosen response.

Crick and Dodge (1994)
Between September 23, 2009 and October 12, 2009, Massachusetts Advocates for Children conducted an online survey in hopes of learning more about the extent of bullying of children on the autism spectrum in Massachusetts schools. Parent respondents were informed that data and examples provided would be used to support the passage of H.3804, An Act Addressing Bullying of Children with ASD. Almost 400 parents responded.

88% reported their children had been bullied.

Autism is increasingly referred to as a spectrum disorder in which individuals can present problems ranging from total impairment to near reasonable functioning.

In a Spectrum Disorder genetic and phenotypic factors predispose certain individuals to express certain Central Nervous System vulnerabilities leading to poorly adapted variations in development and behavior.
In a Spectrum Disorder all symptoms are considered relevant to the extent they present in each disorder. Thus a symptom is not exclusive to a disorder.

The form that a Spectrum Disorder assumes is determined by its composite symptoms. These symptoms often have complex relationships.

Core DSM and ICD Autistic Symptoms
- Impaired social relations.
- Impaired communication skills.
- Impaired behavior.
Symptoms Present Before 24 Months: Failure To:

- Orient to name
- Attend to human voice
- Look at face and eyes of others
- Imitate
- Show objects
- Point
- Demonstrate interest in other children

Symptoms Present Before 36 Months:

- Use of other’s body to communicate or as a tool
- Stereotyped hand/finger/body mannerisms
- Ritualistic behavior
- Failure to demonstrate pretend play
- Failure to demonstrate joint attention

Meet Kevin
Limited, often absent
When present usually characterized by: repetitive themes, rigidity, isolated acts, one-sided play, limited imagination.
A two-factor solution was best for parent and teacher raters
- **Factor I**: included primarily items related to both socialization and communication (e.g., keep a conversation going, understand how someone else felt) - Social/Communication
- **Factor II**: included items related to behavioral rigidity (e.g., insist on doing things the same way each time), stereotypical behaviors (e.g., flap his/her hands when excited), and overreactions to sensory stimulation (e.g., overreact to common smells) - Unusual Behaviors

A three-factor solution was best for both parent and teachers versions of the ASRS
- **Factor I**: included primarily items related to both socialization and communication - Social/Communication
- **Factor II**: included items related to behavioral rigidity, stereotypical behaviors and overreactions to sensory stimuli - Unusual Behaviors
- **Factor III**: included items related to attention problems (e.g., become distracted), impulsivity (e.g., have problems waiting his/her turn), and compliance (e.g., get into trouble with adults, argue and fight with other children) - Self-Regulation.
Factor Consistency

- The consistency of the ASRS scale structure across several demographic groups (gender, age group, race, and clinical status) was studied.
- The factor loadings for the groups were correlated using the coefficient of congruence.
  - Results revealed a very high degree of consistency between all groups.
  - Indicating that the factor structure of the forms generalized across the demographic groups.

Current View of ASD In ASRS

- Based on the factor analysis, we suggest that ASD is best described as having two clusters of behaviors for children ages 2–5 and three for those aged 6 to 18 years of age.
  - Ages 2 – 5 years
    - Social / Communication
    - Unusual Behaviors
  - Ages 6 – 18 years
    - Social / Communication
    - Unusual Behaviors
    - Self-Regulation
  - This is the organizational form of the ASRS.

Goals of the ASRS

Goldstein & Naglieri (2009)
ASRS Scale Goal #1

1. Develop a multi-dimensional scale to adequately reflect the Autism Spectrum based on statistical as well as logical organization of items

- Content Scales
  - DSM Scales
  - Treatment Scales
- Empirical Scales
  - Ages 2–5
    - Social / Communication
    - Unusual Behaviors
  - Ages 6 – 18 years
    - Social/Communication
    - Unusual Behavior
    - Self –Regulation

ASRS Scale Goal #2

1. Develop a multi-dimensional scale to adequately reflect the Autism Spectrum based on statistical as well as logical organization of items

- Content Scales
  - DSM Scales
  - Treatment Scales
- Empirical Scales
  - Ages 2–5
    - Social / Communication
    - Unusual Behaviors
  - Ages 6 – 18 years
    - Social/Communication
    - Unusual Behavior
    - Self –Regulation
ASRS Empirical & Treatment Scales

- Treatment Scales
  - Peer Socialization
  - Adult Socialization
  - Social/Emotional Reciprocity
  - Atypical Language
  - Stereotypy
  - Behavioral Rigidity
  - Sensory Sensitivity
  - Attention (Attention/Self-Regulation)

- Items were grouped based on content similarity and treatment utility of the groups.

ASRS Interpretation

- The DSM-IV-TR Scale includes items that represent the symptoms used as part of the diagnostic criteria for ASD.
- Additional criteria (e.g., age of onset, differential diagnosis, and level of impairment) must be met before a DSM-IV-TR diagnosis can be assigned.
- Remember the DSM and ASRS Total scores may be different due to slightly different content.

ASRS Scale Goal #2

- Base the ASRS standard scores on a national sample of individuals aged 2 – 18 years who represent the US on a number of key variables.
- Why compare children’s scores to a nationally representative sample?
Sample was stratified by:
- Sex, age, race/ethnicity, parental education level (PEL; for cases rated by parents), geographic region
- Race/ethnicity of the child (Asian/Pacific Islander, Black/African American/African Canadian, Hispanic, White/Caucasian, Multi-racial by the rater)
- Parents provided PEL of both parents
  - the higher of the two levels was used to classify the parental education level of the child
- All raters completed the ASRS via the paper-and-pencil or online methods.

Validity samples were collected:
- a single primary diagnosis was indicated
- a qualified professional (e.g., psychiatrist, psychologist) had made the diagnosis
- Criteria were made using DSM-IV-TR or ICD-10
- Clinical samples include:
  - ASD (N = 580)
  - ADHD (N = 250)
  - Communication Delay (N = 180)
  - Developmental Delay (N = 140)
  - Anxiety / Depression (N = 100)
Produce a rating scale that includes behaviors associated with ASRS that meets the various needs of the clinician.

- Has different forms for early childhood and school-aged populations
- Uses the same set of questions for parents and teachers
- Is easy to administer and score
- Have reliability and validity

Let's look at the forms and their use...
ASRS Forms

**ASRS** (6–18 Years)

**PARENT RATINGS**

*San Antonio, Ph.D., & S.A., Engslin, Ph.D.*

During the past four weeks, how often did the child:

1. Seem fidgety or move restless or tap an object?
2. Move the eyes when not in use?
3. Feel little motion?
4. Feel something that he could be contacted?
5. Appear soft and other children?
6. Have problems leaving the room?

**Underlying page contains item ratings and separation of items into scales.**

**Peek at items**

ASRS Forms

**ASRS** (6–18 Years)

**PARENT RATINGS**

*San Antonio, Ph.D., & S.A., Engslin, Ph.D.*

**Underlying page contains item ratings and separation of items into scales.**

**Peek at items**

ASRS Forms

**ASRS** (6–18 Years)

**PARENT RATINGS**

*San Antonio, Ph.D., & S.A., Engslin, Ph.D.*

**Underlying page contains item ratings and separation of items into scales.**

**Peek at items**

Scale Score Summary Table for Ages 6–11 Years

<table>
<thead>
<tr>
<th>Scale Score</th>
<th>T-Score</th>
<th>Z-Score</th>
<th>Standard Deviation</th>
<th>Standard Error of the Mean</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
<td>0 – 25</td>
<td>26 – 50</td>
<td>51 – 75</td>
<td>Very Obtunded</td>
<td>0.05</td>
</tr>
<tr>
<td>Social Competence</td>
<td>0 – 25</td>
<td>26 – 50</td>
<td>51 – 75</td>
<td>Very Obtunded</td>
<td>0.05</td>
</tr>
<tr>
<td>Social Maturity</td>
<td>0 – 25</td>
<td>26 – 50</td>
<td>51 – 75</td>
<td>Very Obtunded</td>
<td>0.05</td>
</tr>
<tr>
<td>Self-Regulation</td>
<td>0 – 25</td>
<td>26 – 50</td>
<td>51 – 75</td>
<td>Very Obtunded</td>
<td>0.05</td>
</tr>
</tbody>
</table>
Raw scores are converted to T-scores, percentile ranks, and confidence intervals are recorded on the form.
ASRS Reliability

ASRS Reliability Ages 2–5 Parents & Teachers (or caregivers)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Parent Ratings</th>
<th>Teacher Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal Sample</td>
<td>Clinical Sample</td>
</tr>
<tr>
<td>Total Score</td>
<td></td>
<td></td>
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<tr>
<td>ASRS Scales</td>
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<tr>
<td>Social Communication</td>
<td>94</td>
<td>87</td>
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<tr>
<td>Unusual Feelings</td>
<td>91</td>
<td>86</td>
</tr>
<tr>
<td>COMMA N Scale</td>
<td>81</td>
<td>77</td>
</tr>
<tr>
<td>Treatment Scales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Socialization</td>
<td>77</td>
<td>66</td>
</tr>
<tr>
<td>Social Interaction</td>
<td>77</td>
<td>66</td>
</tr>
<tr>
<td>Sensory Sensitivity</td>
<td>71</td>
<td>54</td>
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<tr>
<td>Auditory Language</td>
<td>73</td>
<td>60</td>
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<tr>
<td>Aggression</td>
<td>73</td>
<td>60</td>
</tr>
<tr>
<td>Emotional Rigidity</td>
<td>83</td>
<td>71</td>
</tr>
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<tr>
<td>Abnormal Feelings</td>
<td>83</td>
<td>71</td>
</tr>
</tbody>
</table>

ASRS Reliability Ages 6–18 : Parents

<table>
<thead>
<tr>
<th>Scale</th>
<th>6–11 Years</th>
<th>12–18 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal Sample</td>
<td>Clinical Sample</td>
</tr>
<tr>
<td>Total Score</td>
<td>87</td>
<td>77</td>
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<tr>
<td>ASRS Scales</td>
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<td></td>
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<tr>
<td>Social Communication</td>
<td>84</td>
<td>77</td>
</tr>
<tr>
<td>Emotional Rigidity</td>
<td>83</td>
<td>77</td>
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<tr>
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<tr>
<td>Abnormal Feelings</td>
<td>81</td>
<td>77</td>
</tr>
</tbody>
</table>
And an updated view of ASD

Factor analysis is a valuable tool to understand how items group. But we also need to know if the items have validity.

Discriminating children with ASD from the regular population is important.

Discriminating children with ASD from those who are not in the regular population but not ASD is very important.
ASRS Profiles

- A scale like the ASRS should differentiate children with ASD from the normal population.
- Comparison to regular children should show that those with ASDs have high scores.
- Comparisons to other clinical groups should also show differences from those with ASDs.
- Comparisons of the ASD to regular and other clinical samples gives an essential examination of validity.

ASRS Validity for ages 2–5

ASRS Validity: Ages 6–18 Parents
ASRS Validity: Ages 6–18 Teachers

Classification Accuracy ages 2–5 Parents

Classification Accuracy ages 2–5 Teachers
Classification Accuracy ages 6–18
Parents

<table>
<thead>
<tr>
<th>DSM-IV-TR Scale</th>
<th>Social/Communication</th>
<th>Unusual Behaviors</th>
<th>Self-Regulation</th>
<th>Overall Correct Classification (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Score</td>
<td>91.3</td>
<td>91.3</td>
<td>88.3</td>
<td>86.5</td>
</tr>
<tr>
<td>Sensitivity (%)</td>
<td>90.3</td>
<td>90.7</td>
<td>87.7</td>
<td>86.1</td>
</tr>
<tr>
<td>Specificity (%)</td>
<td>92.2</td>
<td>92.5</td>
<td>88.9</td>
<td>86.9</td>
</tr>
<tr>
<td>Positive Predictive Value (%)</td>
<td>91.3</td>
<td>92.3</td>
<td>88.6</td>
<td>86.6</td>
</tr>
<tr>
<td>False Positive Rate (%)</td>
<td>7.8</td>
<td>7.5</td>
<td>11.1</td>
<td>8.1</td>
</tr>
<tr>
<td>True Negative Rate (%)</td>
<td>9.7</td>
<td>10.0</td>
<td>12.3</td>
<td>13.1</td>
</tr>
<tr>
<td>N</td>
<td>183</td>
<td>195</td>
<td>201</td>
<td>201</td>
</tr>
</tbody>
</table>

Classification Accuracy ages 6–18 Teachers

<table>
<thead>
<tr>
<th>DSM-IV-TR Scale</th>
<th>Social/Communication</th>
<th>Unusual Behaviors</th>
<th>Self-Regulation</th>
<th>Overall Correct Classification (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Score</td>
<td>91.4</td>
<td>90.0</td>
<td>87.1</td>
<td>85.2</td>
</tr>
<tr>
<td>Sensitivity (%)</td>
<td>92.1</td>
<td>90.5</td>
<td>88.9</td>
<td>85.1</td>
</tr>
<tr>
<td>Specificity (%)</td>
<td>90.1</td>
<td>90.0</td>
<td>89.8</td>
<td>85.1</td>
</tr>
<tr>
<td>Positive Predictive Value (%)</td>
<td>92.5</td>
<td>87.8</td>
<td>95.3</td>
<td>85.5</td>
</tr>
<tr>
<td>False Positive Rate (%)</td>
<td>9.3</td>
<td>12.9</td>
<td>10.2</td>
<td>14.9</td>
</tr>
<tr>
<td>True Negative Rate (%)</td>
<td>7.9</td>
<td>8.9</td>
<td>4.6</td>
<td>14.8</td>
</tr>
<tr>
<td>N</td>
<td>212</td>
<td>229</td>
<td>212</td>
<td>221</td>
</tr>
</tbody>
</table>

ASD vs Communication Disorders
Race Ethnic Differences Short Form

| Age       | Gender | AA | Ht | WH | $d$ | $|d|_{AA-WH}$ | $|d|_{WH-RI}$ |
|-----------|--------|----|----|----|----|--------------|--------------|
| Parent    | M      | 45.5| 49.2| 40.8| 0.34| 0.06         |              |
|           | F      | 44.4| 49.2| 40.8| 0.34| 0.06         |              |
|           | N      | 32  | 39  | 32  |     |              |              |
| Teacher   | M      | 48.6| 47.0| 50.7| 0.18| 0.14         |              |
|           | F      | 48.6| 47.0| 50.7| 0.18| 0.14         |              |
|           | N      | 47  | 48  | 49  |     |              |              |
| C-10 Years| Parent | M   | 51.6| 46.2| 45.8| 0.09| 0.28         |              |
|           | F      | 50.8| 47.0| 45.7| 0.09| 0.28         |              |
|           | N      | 51  | 50  | 50  |     |              |              |
| Teacher   | M      | 51.8| 50.0| 48.9| 0.07| 0.16         |              |
|           | F      | 50.6| 48.8| 47.6| 0.07| 0.16         |              |
|           | N      | 51  | 50  | 49  |     |              |              |

DSM IV TR Autism and Asperger Syndrome

ASRS preliminary findings

Lorna Wing
Gillberg & Wing (1999)

- There was a marked difference in prevalence rates between studies that included children born before 1970 (.5 per 1,000) and those that included only children born in 1970 and after (1 per 1,000).
- Concluded that *autism* (including Aspergers) is considerably more common than previously believed.

Autism vs Asperger

- ASRS means for ages 2–5 years were typically somewhat higher for children with Autism than those with Asperger’s syndrome.
  - Exception being Unusual Behaviors where the two groups were similar.
- ASRS means for ages 6–18 years were consistently higher for children with Autism than those with Asperger’s syndrome.

Autism vs Asperger 2–5 years

Parents

Teachers

Students
Autism vs Asperger 6–18 Years

Autism vs Asperger 6–18

Descriptive Statistics and Comparisons Between individuals with Autism (n = 20) and Asperger Syndrome (n = 23).

<table>
<thead>
<tr>
<th></th>
<th>PLAN Asperger</th>
<th>Autism</th>
<th>T</th>
<th>Sig</th>
<th>d-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMM</td>
<td>101.0</td>
<td>15.3</td>
<td>3.33</td>
<td>.08</td>
<td>.54</td>
</tr>
<tr>
<td>ATT</td>
<td>86.9</td>
<td>17.7</td>
<td>0.30</td>
<td>.39</td>
<td>0.17</td>
</tr>
<tr>
<td>NUC</td>
<td>98.9</td>
<td>15.7</td>
<td>2.46</td>
<td>.12</td>
<td>0.37</td>
</tr>
<tr>
<td>Autism</td>
<td>88.5</td>
<td>25.6</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

ASRS Interpretation Options
ASRS Interpretation

- For ages 2–5 years the ASRS Total T-Score (mean of 50 and SD of 10) is an equally weighted composite of:
  - Social/Communication
  - Unusual Behaviors
- For ages 6–18 years the Total T-score is an equally weighted composite of:
  - Social/Communication
  - Unusual Behaviors
  - Self-Regulation scales

Description of T scores

<table>
<thead>
<tr>
<th>T score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 30</td>
<td>Low Score (fewer concerns that are typically reported)</td>
</tr>
<tr>
<td>30–39</td>
<td>Average Score (typical levels of concern)</td>
</tr>
<tr>
<td>40–49</td>
<td>Slightly Elevated Score (somewhat more concerns than are typically reported)</td>
</tr>
<tr>
<td>50–59</td>
<td>Elevated Score (more concerns than are typically reported)</td>
</tr>
<tr>
<td>&gt; 60</td>
<td>Very Elevated Score (many more concerns than are typically reported)</td>
</tr>
</tbody>
</table>

Estimated true score confidence intervals are provided for all scales.

ETS Confidence Intervals

<table>
<thead>
<tr>
<th>T score</th>
<th>90% Confidence Intervals: ASRS (6–11 Years) Teacher</th>
<th>90% Confidence Intervals: ASRS (12–18 Years) Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td>60–63</td>
<td>70–73</td>
</tr>
<tr>
<td>62</td>
<td>61–64</td>
<td>71–74</td>
</tr>
<tr>
<td>63</td>
<td>62–65</td>
<td>72–75</td>
</tr>
<tr>
<td>64</td>
<td>63–66</td>
<td>73–76</td>
</tr>
<tr>
<td>65</td>
<td>64–67</td>
<td>74–78</td>
</tr>
<tr>
<td>66</td>
<td>65–68</td>
<td>75–80</td>
</tr>
<tr>
<td>67</td>
<td>66–69</td>
<td>76–81</td>
</tr>
<tr>
<td>68</td>
<td>67–70</td>
<td>77–82</td>
</tr>
<tr>
<td>69</td>
<td>68–71</td>
<td>78–83</td>
</tr>
<tr>
<td>70</td>
<td>69–72</td>
<td>79–84</td>
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<tr>
<td>71</td>
<td>70–73</td>
<td>80–85</td>
</tr>
<tr>
<td>72</td>
<td>71–74</td>
<td>81–86</td>
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<tr>
<td>73</td>
<td>72–75</td>
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<td>74</td>
<td>73–77</td>
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</tr>
<tr>
<td>75</td>
<td>74–78</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>75–80</td>
<td></td>
</tr>
</tbody>
</table>

A T of 85 on Social Communication has a confidence interval of 80 to 87 (85 minus 5 and 85 plus 2).
### ASRS Interpretation

#### What do the scales tell you?

<table>
<thead>
<tr>
<th>Scale</th>
<th>Common Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
<td>Abnormal behavior characteristics similar to individuals diagnosed with an Autism Spectrum Disorder.</td>
</tr>
<tr>
<td>ASRS Scales</td>
<td>Inappropriate use of verbal and non-verbal communication to initiate, engage in, and maintain social contact.</td>
</tr>
<tr>
<td></td>
<td>Unusual behaviors</td>
</tr>
<tr>
<td></td>
<td>Sensory irritation and/or inattentive control is argumentative.</td>
</tr>
<tr>
<td>DSM-IV-TR Scale</td>
<td>Has symptoms associated with the DSM-IV-TR diagnostic criteria for an Autism Spectrum Disorder.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale</th>
<th>Common Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Socialization</td>
<td>Has limited interest and capacity to successfully engage in activities that develop and maintain relationships with other children.</td>
</tr>
<tr>
<td>Social Interaction</td>
<td>Has limited interest and capacity to successfully engage in activities that develop and maintain relationships with other children.</td>
</tr>
<tr>
<td>Emotional Reactivity</td>
<td>Has limited ability to provide an appropriate emotional response to another person in a social situation.</td>
</tr>
<tr>
<td>Physical Language</td>
<td>Speech overactivity may be repetitive, incoherent, or echolalic.</td>
</tr>
<tr>
<td>Sensory Reactivity</td>
<td>Engages in apparent pretense, repeated or seemingly non-functional activities.</td>
</tr>
<tr>
<td>Sensory Sensitivity</td>
<td>Has difficulty tolerating changes in routine activities or behavior; aspects of the environment must remain unchanged.</td>
</tr>
<tr>
<td>Attention/Deficit</td>
<td>Has trouble appropriately focusing attention on one thing or ignoring distractions.</td>
</tr>
<tr>
<td></td>
<td>Sensory Sensitivity (ASRS [2-5 years] only)</td>
</tr>
<tr>
<td></td>
<td>Sensory Sensitivity (ASRS [6-13 years] only)</td>
</tr>
</tbody>
</table>

### ASRS Interpretation

#### Values for Significance When Comparing ASRS T-scores Across Raters for children Aged 2 to 5 Years.

<table>
<thead>
<tr>
<th></th>
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<tbody>
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<td>T1</td>
<td>12</td>
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<td>12</td>
<td>12</td>
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<tr>
<td>T3</td>
<td>10</td>
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<td>10</td>
<td>10</td>
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<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

---

36
There are three types of reports:
- Interpretive
- Comparative (Parent vs Parent, Teacher vs Parent, Teacher vs Teacher)
- Progress over time

Once you click ‘Generate Report’, the report appears on screen. This is the Interpretive Report. From this screen you can print and close the report and access it again later. Or you can save the report in PDF format to your computer.
ASRS Comparative Report

Summary of Significant Differences Between Raters

The following table presents a summary of significant differences between raters’ assessments of June 6th. Note: T = 1; C = Confidence Interval.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Total Score</th>
<th>Communication</th>
<th>Social Functioning</th>
<th>Self-Regulation</th>
<th>Externalizing</th>
<th>Total Score</th>
<th>Confound</th>
<th>Grade</th>
<th>Significant Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ASRS Automated Report

<table>
<thead>
<tr>
<th>Scale</th>
<th>Total Score</th>
<th>P</th>
<th>T</th>
<th>Confound</th>
<th>Grade</th>
<th>Significant Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ASRS Comparative Report

Detailed Scores: Comparisons across Raters

The following table displays T scores, Confidence intervals, and Percentiles for each scale, as well as any statistically significant T scores for multiple comparisons. For example, a T score between two raters is statistically significant if the difference between the two T scores is greater than 2.58. The table also indicates if the difference between these two raters did not reach statistical significance. Note: D = 1; 95% Confidence Interval; T = Parent and/or Teacher.
Behaviors associated with Autism Spectrum Disorders should be measured using well developed nationally standardized scales.

DSM-IV and ICD 10 provide a good base for understanding ASDs but require revision.

ASD is best represented by a 3 factor model: Social/Communication, Unusual Behaviors, & Self-Regulation.

The prevalence of ASD appears to be increasing...
Important Conclusions

- BUT, understanding the prevalence of ASD requires
  - Equally valid assessment procedures over time
  - Standardized methods for diagnosis
  - Psychometrically sound measures of behavior

- “The question of whether there are really more children with ASD now than in the past cannot be answered definitely” (p. 44).
  - Wing and Potter’s Chapter 2 in Assessment of Autism Spectrum Disorders (Goldstein, Naglieri, & Ozonoff, 2009)

- Clearly what is needed is well developed tools that
  - Are standardized on a typical sample that represents the US population
  - Represent current understanding of ASDs, especially the role of self-regulation
  - Have good reliability and validity
  - Have relevance to intervention
  - Are relatively easy to administer and score

- These were our goals when we developed the ASRS

ASRS Mean T-Scores (N = 90) for a Sample of Children Diagnosed with ASD
Determining Eligibility as an Autistic Student

Students that have a DSM or ICD diagnosis are not automatically eligible for special education services, according to the Individuals with Disabilities Education Improvement Act (IDEIA).

Educational eligibility and subsequent services are determined by conducting assessments and testing performed by a school’s multidisciplinary team and not that of medical diagnostic tests.

These can include observations, history, developmental information, behavior information and a documented prevalence over a period of time.
WAC 991-172X-0105 Review of existing data for evaluations and reevaluations. As part of an initial evaluation, if appropriate, and as part of any reevaluation, the IEP team and other qualified professionals, as appropriate, must:

1. Review existing evaluation data on the student, including:
   (a) Evaluations and information provided by the parents of the student;
   (b) Current classroom-based, local, or state assessments, and classroom-based observations; and
   (c) Observations by teachers and related services providers.
2. On the basis of that review, and input from the student’s parents, identify what additional data, if any, are needed to determine:
   (i) Whether the student is eligible for special education services, and what special education and related services the student needs; or

(a) (i) Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a student’s educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements; resistance to environmental change or change in daily routines; and unusual responses to sensory experiences.
   (ii) Autism does not apply if a student’s educational performance is adversely affected primarily because the student has an emotional behavioral disability, as defined in subsection (b)(4)(a) of this section.
   (iii) A student who manifests the characteristics of autism after age three could be identified as having autism if the criteria in (a) (i) of this subsection are satisfied.
WAC 292-172A-03020 Evaluation procedures. (1) The school district must provide prior written notice to the parents of a student, in accordance with WAC 292-172A-03010, that describes any evaluation procedures the district proposes to conduct.

(2) In conducting the evaluation, the group of qualified professionals selected by the school district shall:

(a) Use a variety of assessment tools and strategies to gather relevant functional, developmental, and academic information about the student, including information provided by the parent, that may assist in determining;

(b) Whether the student is eligible for special education as defined in WAC 292-172A-01170; and

(c) The context of the student’s IEP, including information related to enabling the student to be involved in and progress in the general education curriculum, or for a preschool child, to participate in appropriate activities;

(d) Not use any single measure or assessment as the sole criterion for determining whether a student’s eligibility for special education and for determining an appropriate educational program for the student; and

(e) Use technically sound instruments that may assess the relative contribution of cognitive and behavioral factors, in addition to physical or developmental factors.

WAC 292-172A-03025 Special education.

1. Special education means specially designed instruction, at no cost to the parents, to meet the unique needs of a student eligible for special education.

2. Special education means, at a minimum, instruction provided in whole or in part in special classes or other group settings; individualized instruction; and related services as defined in WAC 292-172A-03030.

3. The provision of special education, including related services, in a special class or other group setting for a child with an IEP is not the exclusive means by which the child’s educational needs are met.

4. Related services means related to special education and speech-language pathology, occupational therapy, physical therapy, and related services as defined in WAC 292-172A-03030.

5. Physically handicapped means a handicap resulting from congenital abnormalities, deformities, or diseases affecting the person’s vision, hearing, speech, or motor development.

6. Terminally ill means a student whose prognosis is such that death is imminent.

7. Emotional disturbance means a disability significantly impairing a student’s academic performance, as determined by a qualified professional, based on the student’s behavior and not actions stemming from emotional reactions to treatment or illness.

8. Gifted means a student who is functioning at a superior level in one or more areas of performance and who requires educational opportunities distinctly different from those provided in the regular education program.

9. Health impairment means a disability due to a chronic medical condition characterized by intermittent periods of poor health and by periods of improved health and performance.

10. Learning disability means a disability primarily affecting the ability to understand or use spoken or written language.

11. Mental retardation means a disability significantly affecting general adaptive behavior characterized by impairment in conceptual, social, and/or practical adaptive skills.

12. Multiple handicaps means a combination of two or more physical, mental, emotional, or other impairments, resulting in a pattern of strengths, weaknesses, and needs sufficiently unique to require special education and related services not available to students with disabilities individually classified.

13. Musculoskeletal disorder means a disorder of the musculoskeletal system that adversely affects a student’s ability to learn.

14. Orthopedic impairments means a disability that adversely affects a student’s ability to learn.

15. Other health impaired means a disability that adversely affects a student’s ability to learn for reasons that are not fully accommodated under another specific category of handicaps and that requires educational services in addition to regular educational services.

16. Visual impairment means a disability adversely affecting general adaptive behavior characterized by impairment in visual process or spatial orientation and function, resulting from eye defects or visual field defects.
Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.

2. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.

3. Deficits in developing, maintaining, and understanding relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):

1. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypies, lining up toys or flipping objects, echolalia, idiosyncratic phrases).

2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).

3. Highly restricted, fixed interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).

4. Hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).
Specify if:
With or without accompanying intellectual impairment.
With or without accompanying language impairment.
Associated with a known medical or genetic condition or environmental factor.
Associated with another neurodevelopmental, mental, or behavioral disorder.
With catatonia.

DSM 5 Criteria C, D, E.
C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).
D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur: to make co-morbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

Social (Pragmatic) Communication Disorder Criteria A
- Persistent difficulties in the social use of verbal and nonverbal communication as manifested by all of the following:
  - Deficits in using communication for social purposes, such as greeting and sharing information, in a manner that is appropriate for the social context.
  - Impairment of the ability to change communication to match context or the needs of the listener, such as speaking differently in a classroom than on a playground, talking differently to a child than to an adult, and avoiding use of overly formal language.
  - Difficulties following rules for conversation and storytelling, such as taking turns in conversation, rephrasing when misunderstood, and knowing how to use verbal and nonverbal signals to regulate interaction.
  - Difficulties understanding what is not explicitly stated (e.g., making inferences) and non-literal or ambiguous meanings of language (e.g., idioms, humor, metaphors, multiple meanings that depend on the context for interpretation).
Social (Pragmatic) Communication Disorder Criteria B, C, and D

B. The deficits result in functional limitations in effective communication, social participation, social relationships, academic achievement, or occupational performance, individually or in combination.

C. The onset of the symptoms is in the early developmental period (but deficits may not become fully manifest until social communication demands exceed limited capacities).

D. The symptoms are not attributable to another medical or neurological condition or to low abilities in the domains of word structure and grammar, and are not better explained by autism spectrum disorder, intellectual disability (intellectual developmental disorder), global developmental delay, or another mental disorder.

Autism Diagnostic Observation Schedule (ADOS)

- Age range toddlers to adults.
- No speech to those who are verbally fluent.
- Semi-structured assessment.
- Five modules across age ranges with each requiring 45 minutes to administer.
- A module is chosen depending upon expressive language and age.
- Non-verbal teens and adults can't be reliably evaluated.
- Autism and Autism Spectrum cut off scores are provided for two domains (Social Affective and Restricted Repetitive Behaviors).

Autism Diagnostic Observation Schedule

CURRENT

- Social Domain
- Communication Domain

NEW

- Social Affect Domain
- Restrictive Repetitive Behaviors Domain
Sample Description

- University of Virginia Autism Genetic Resource Exchange (AGRE) project data
- Sample selection
  - If the child met criteria for ASD or Autism on the ADOS and met criteria for Autism on the ADI-R, they were considered to be on the autism spectrum – ASD or Autism – (whichever they met according to the ADOS).
  - In the AGRE dataset the ADOS is used in conjunction with the ADI to classify the child
- Sample selection (continued)
  - The ADOS and ADI are used for designating the sample as ASD or Autism.
  - If the child did not meet criteria on either instrument there was a case conference to discuss the case in depth – taking into consideration multiple test results (in addition to ADOS and ADI) and reviewing video of the child. At that time the clinical psychologist and the clinician who administered the ADOS and ADI would come to a decision as to what to classify the child.
**Sample Description**

- Ages 6–18 (Mean = 10.3; SD = 3.1)
- N = 90
- 82% (N = 74) Males, 18% (N = 16) Females

**ADOS (N = 90)**

<table>
<thead>
<tr>
<th>ADOS Diagnosis Classification</th>
<th>Met Criterion</th>
<th>Did Not Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>ASD</td>
<td>18</td>
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<tr>
<td>No Diagnosis</td>
<td>9</td>
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</table>

<table>
<thead>
<tr>
<th>Met Criterion</th>
<th>Did Not Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Autism</td>
<td>64</td>
</tr>
<tr>
<td>Communication Autism Spectrum</td>
<td>83</td>
</tr>
<tr>
<td>Social Autism</td>
<td>80</td>
</tr>
<tr>
<td>Social Autism Spectrum</td>
<td>86</td>
</tr>
<tr>
<td>Communication + Social Autism</td>
<td>66</td>
</tr>
<tr>
<td>Communication + Social Autism Spectrum</td>
<td>84</td>
</tr>
</tbody>
</table>

**ASRS Mean T-Scores (N = 90)**

<table>
<thead>
<tr>
<th>ASRS TOTAL T-Score Value</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>70+</td>
<td>35</td>
</tr>
<tr>
<td>65+</td>
<td>26</td>
</tr>
<tr>
<td>60+</td>
<td>19</td>
</tr>
<tr>
<td>&lt;60</td>
<td>10</td>
</tr>
</tbody>
</table>

**ASRS Scales**

- DSM
- Self-Regulation
- Unusual Behaviors
- Social Communication
- Total

**Not applicable**
### ADOS & ASRS Different Scales

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>ADOS</th>
<th>ASRS Total (T &gt; 59)</th>
<th>ADOS Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism or ASD</td>
<td>81</td>
<td>80</td>
<td>0 69</td>
</tr>
<tr>
<td>No Diagnosis</td>
<td>9</td>
<td>10</td>
<td>0 69</td>
</tr>
</tbody>
</table>

Note: 0 = Not identified on ADOS

### Intervention

- Despite strong claims no curative treatment has been studied vigorously.
- “In the absence of a definitive cure there are a thousand treatments” (Klin).
- Behavior modification, educational intervention and pharmacology have been studied.

http://autismpdc.fpg.unc.edu/content/briefs

http://autismpdc.fpg.unc.edu/content/briefs
http://autismpdc.fpg.unc.edu/content/briefs

**EVIDENCE-BASED PRACTICES FOR CHILDREN AND YOUTH WITH ASD**

- Antecedent-Based Interventions (ABI)
- Computer-Assisted Instruction
- Differential Reinforcement
- Discrete Trial Training
- Extinction
- Functional Behavior Assessment
- Functional Communication Training
- Naturalistic Intervention
- Parent-Implemented Interventions
- Peer-Mediated Instruction and Intervention
- Picture Exchange Communication System (PECS)
-tower Response Training
- Visual Reinforcement
- Response Interruption/Restriction
- Self-Management
- Social Narratives
- Social Skills Groups
- Speech Generating Devices/Voka
- Structured Work Systems
- Task Analysis
- Visual Supports
- Video Modeling
- Visual Schedules

---

**Components of an Effective Treatment Program**

- Structured behavioral treatment
- Parent involvement
- Treatment at an early age
- Intensive intervention
- Social skill development
- Focus on generalization of skills
- Appropriate school setting
- Medication?

---

**Challenges to Treatment**

- Concrete thinkers
- Difficulty with humor
- Problems regulating affect
- Difficulty interpreting others' feelings
- Rule-bound
- Diminished empathy
- Decreased desire to please significant others
Symptom focused medications: stimulants for attention, anti-depressants for mood, anti-psychotics for "oddities".

Condition focused medications?

Drugs that increase serotonin transmission may be useful in reducing interfering repetitive behaviors and aggression as well as improving social relatedness (few controlled studies).

Promoting Social Behavior With Oxytocin in High-Functioning Autism Spectrum Disorders

- Published (2/10) online in the Proceedings of the National Academy of Sciences.
- Oxytocin is a hormone known to promote mother-infant bonds.
- A French research group investigated the behavioral effects of oxytocin in 13 subjects with autism.
- Under oxytocin, children with ASD responded more strongly to others and exhibited more appropriate social behavior and affect, suggesting a therapeutic potential of oxytocin through its action on a core dimension of autism.

Oxytocin is a hormone known to promote mother-infant bonds.

A French research group investigated the behavioral effects of oxytocin in 13 subjects with autism.

Under oxytocin, children with ASD responded more strongly to others and exhibited more appropriate social behavior and affect, suggesting a therapeutic potential of oxytocin through its action on a core dimension of autism.
Conclusions: Medication plus PT resulted in greater reduction of serious maladaptive behavior than Medication alone in children with PDDs, with a lower risperidone dose.

J. AM. ACADEM. CHILD ADOLESC. PSYCHIATRY, 48:12, DECEMBER 2009.

Comorbid ADHD and Anxiety Affect Social Skills Group Intervention Treatment Efficacy in Children With Autism Spectrum Disorders

Kerri M. Amthor, PhD, Carol Parry, PhD, NP, Michael McElhatton, CSW, Karen Drygert, NP, Laura Spencer, MA, Lindsay Drygert, BS, Laura Miller, BA, Fatima Fakir

ABSTRACT: Objective: To assess the influence of psychiatric comorbidity of social skill training outcomes for children with autism spectrum disorder (ASD). Method: A community sample of 40 children (23 males, 9 females) with an ASD (mean age = 9.5 ± 2.3 years) and common comorbid disorders participated in a 15-week social skills training group. The first 5 weeks of the group focused on emotion recognition skills and the second 5 weeks focused on social problem-solving skills. A treatment control group was also included in the treatment. Social skills were assessed using the Social Skills Rating System. Ratings were completed by parents at pre- and post-treatment time periods. Results: Children with ADHD and children with an ASD and comorbid anxiety disorders improved in their parent-reported social skills. Children with ASD and comorbid attention-deficit/hyperactivity disorder failed to improve. Conclusions: Psychiatric comorbidity affects social skill training gains in the ASD population.
The first randomized, controlled trial for comprehensive autism treatment for children as young as 18 months old.

While certainly not a cure for the condition, the study did find that intense early treatment yields major improvements in IQ scores, language processing, and in the ability to manage everyday tasks essential for early childhood development and education.

Published in Pediatrics the University of Washington study was funded by the National Institute of Mental Health. It involved 48 children ages 18 to 36 months, half of whom were randomly assigned to receive the Early Start Denver Model, an intensive autism therapy protocol. The other half were assigned to a control group and received less intensive therapy.

After two years, those who participated in the Denver Model group had average IQ scores 7.6 points higher than the control group, putting them within the range of normal intelligence, while those in the other group gained just seven points, remaining in the zone of intellectual disability.
The SCERTS® Model

What is SCERTS®?

SCERTS® is an innovative educational model for working with children with autism spectrum disorder (ASD) and their families. It provides specific guidelines for helping individuals and families work together and together with professionals (e.g., teachers, therapists, and families) to enhance the development of relationships and skills in areas that are critical for promoting effectiveness in learning and development.

---

The Conger Senior Floortime Approach

Learn Floortime from Dr. Stanley Greenspan

Register/Log In

---

Floortime Registration

Registration for the Conger Senior Floortime Approach is here. If you are interested in learning more about floortime, please fill in the form below. You will receive a confirmation email with your floortime start date.

Amend Your Child
Learn Floortime at
Additional

---

The dir Floortime

---
Step 1: Identify specific area or areas of need based on ASRS T-scores of 60 or more which indicates many characteristics similar to individuals diagnosed with an ASD.

- Examine ASRS Total Score
- The Total Score is, however, insufficient for treatment planning because it is too general.

Step 2: Look at the separate treatment scales

---

**Total Score of 73 by Parent & Teacher**

- Social Communication scores are high for both raters meaning he has problems with appropriate use of verbal and non-verbal communication requiring him to initiate, engage in, and maintain social contact (Social Communication T-scores of 77 and 78).

---

**Table A.1: Case of Danny: parent and teacher ASRS T-scores and for significance**

<table>
<thead>
<tr>
<th></th>
<th>Parent</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Score</td>
<td>73</td>
<td>73</td>
</tr>
<tr>
<td>Social communication</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Attention</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Self-regulation</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Emotional behavior</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Deficit</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Social isolation</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Social awareness</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Social interaction</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

7 scores greater than 60 appear in bold text

Note: Differences needed for significance when compared to Table A.5 of the ASRS Manual
... and he struggles with maintaining control over his behavior (i.e., he is very argumentative) and attending in complex settings (Self-Regulation score of 70).

### Treatment Evaluation with ASRS

- Raters agree except for Unusual Behavior and Behavioral Rigidity scales.

### Table A.3: Cas of Donny: parent and teacher ASRS values needed for significance

<table>
<thead>
<tr>
<th>Scale</th>
<th>Parent</th>
<th>Teacher</th>
<th>Difference</th>
<th>Difference needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total score</td>
<td>73</td>
<td>72</td>
<td>1</td>
<td>NS</td>
</tr>
<tr>
<td>Social communication</td>
<td>77</td>
<td>79</td>
<td>-2</td>
<td>NS</td>
</tr>
<tr>
<td>Unusual behavior</td>
<td>66</td>
<td>55</td>
<td>-11</td>
<td>NS</td>
</tr>
<tr>
<td>Self-regulation</td>
<td>70</td>
<td>68</td>
<td>-2</td>
<td>NS</td>
</tr>
<tr>
<td>Treatment scales</td>
<td>70</td>
<td>72</td>
<td>-2</td>
<td>NS</td>
</tr>
<tr>
<td>Poor socialization</td>
<td>65</td>
<td>68</td>
<td>-3</td>
<td>NS</td>
</tr>
<tr>
<td>Adult socialization</td>
<td>66</td>
<td>65</td>
<td>1</td>
<td>NS</td>
</tr>
<tr>
<td>Social interaction</td>
<td>55</td>
<td>51</td>
<td>-4</td>
<td>NS</td>
</tr>
<tr>
<td>Rambling</td>
<td>49</td>
<td>44</td>
<td>5</td>
<td>NS</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>73</td>
<td>68</td>
<td>-5</td>
<td>NS</td>
</tr>
<tr>
<td>Anxiety</td>
<td>71</td>
<td>73</td>
<td>2</td>
<td>NS</td>
</tr>
</tbody>
</table>

7 scores greater than 50 appear in italic text

The difference between Donny’s Unusual Behavior scores as rated by his mother (60) and teacher (51) suggests that behaviors in the home and the classroom are different; which implies that the exploration of the environmental impact on his odd behaviors could lead to good intervention options.

The significant difference between Donny’s Behavioral Rigidity scores as rated by his mother (72) and teacher (48), which also warrants further exploration.
Treatment Evaluation with ASRS

- Consistently high scores on Peer Socialization, Social/Emotional Reciprocity and Attention

<table>
<thead>
<tr>
<th>Item</th>
<th>Parent</th>
<th>Teacher</th>
<th>Difference</th>
<th>Difference needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-regulation</td>
<td>70</td>
<td>74</td>
<td>-4</td>
<td>7 NS</td>
</tr>
<tr>
<td>Social/emotional reciprocity</td>
<td>87</td>
<td>91</td>
<td>-4</td>
<td>8 NS</td>
</tr>
<tr>
<td>Exit responses</td>
<td>52</td>
<td>54</td>
<td>-2</td>
<td>5 NS</td>
</tr>
<tr>
<td>Frontal lobe</td>
<td>77</td>
<td>77</td>
<td>0</td>
<td>6 NS</td>
</tr>
<tr>
<td>Social communication</td>
<td>77</td>
<td>78</td>
<td>1</td>
<td>6 NS</td>
</tr>
<tr>
<td>Social processing</td>
<td>89</td>
<td>93</td>
<td>-4</td>
<td>8 NS</td>
</tr>
<tr>
<td>Social interaction</td>
<td>77</td>
<td>75</td>
<td>-2</td>
<td>5 NS</td>
</tr>
</tbody>
</table>

Item level analysis within Peer Socialization helps clarify the exact nature of the behaviors that led to the high score.

Quick Solution Finder

**Peer Socialization**

- Increase ability to seek out other children.
- Increase ability to play appropriately with other children.
- Increase ability to understand humor.

**Item**

- 14. Have trouble talking with other children.
- 50. Talk too much about things that other children don’t care about.
- 54. Choose to play alone?
- 56. Show good peer interaction? (R)

**Score**

- 3
- 4
- 3
- 2
Treatment Evaluation with ASRS

- The Quick Solution Guide provides the correspondence of behaviors associated with ASD and specific interventions provided by authors in the chapters that appear in the book.
- For example, Donny had a high ASRS T-score on the Social/Emotional Reciprocity scale and one of the items that addressed "looking at others when spoken to" was very high. Interventions for this behavior can be found on pages 18, 184, 185.

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Progress monitoring (Time 2 - 1)</th>
<th>Progress monitoring (Time 3 - 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total score</td>
<td>77</td>
<td>70</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Social communication</td>
<td>77</td>
<td>77</td>
<td>66</td>
<td>0</td>
</tr>
<tr>
<td>Unusual behavior</td>
<td>60</td>
<td>58</td>
<td>58</td>
<td>-2</td>
</tr>
<tr>
<td>Self-regulation</td>
<td>70</td>
<td>67</td>
<td>62</td>
<td>-3</td>
</tr>
<tr>
<td>DSM-IV scale</td>
<td>69</td>
<td>65</td>
<td>63</td>
<td>-1</td>
</tr>
<tr>
<td>Treatment scale</td>
<td>70</td>
<td>69</td>
<td>68</td>
<td>-1</td>
</tr>
<tr>
<td>Peer socialization</td>
<td>56</td>
<td>58</td>
<td>58</td>
<td>0</td>
</tr>
<tr>
<td>Social interaction</td>
<td>77</td>
<td>77</td>
<td>63</td>
<td>0</td>
</tr>
<tr>
<td>Social empathy</td>
<td>52</td>
<td>52</td>
<td>52</td>
<td>0</td>
</tr>
<tr>
<td>Sensory sensitivity</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>0</td>
</tr>
<tr>
<td>Attention</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>0</td>
</tr>
</tbody>
</table>

T-scores greater than 59 appear in italic text

Note: Differences needed for significance when comparing scores over time for Parent and Teacher ratings are found in Table 4.11 of the ASRS Manual (p = 0.05 with Bonferroni correction)

The “Prime Directive” is Independence

- Reduce reliance on prompts.
- Help individual’s predict and control environment and behavior.
- Increase self-esteem and self-efficacy.
- Develop independence through a “learning to swim” mindset.

9/6/17
Final Thoughts About the ASRS

- Accurate diagnosis requires well developed tools that
  - Are standardized on a typical sample that represents the US population
  - Represent current understanding of ASDs, especially the role of self-regulation
  - Have good reliability and validity
  - Have relevance to intervention
  - Are relatively easy to administer and score
- These were our goals when we developed the ASRS

Wore They but There at Night

There is a developer field where every stone
In a glass, gleaming glass, like stars from the sky
All except one, a gray grey rock stone in the center
It is surrounded by reflections

People are moving, voices, questions, photographs, muffled

To see such shining balls, unfamiliar to the beholder
Ode! Ode! Look at this one! Come quickly!

Ridiculous with fragrance and point entire on the city
But the grey rock remained ignored

Are you both as a glowing mood
The cars sit, everyone here

And two rocks the same size of the field
For whose right side, the grey rock to be center
It glows in the dark

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