Identifying, Screening, & Assessing Autism at School

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California State University Sacramento
NASP & AHI Summer Conference
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Presentation Outline

- Introduction: Reasons for Increased Vigilance
- Diagnostic Classifications and Special Education Eligibility
- School Psychologist Roles, Responsibilities, and Limitations
- Case Finding
- Screening and Referral
- Assessment: Diagnostic and Psycho-educational Evaluation

Introduction: Reasons for Increased Vigilance

- Autistic spectrum disorders are much more common than previously suggested.
  - 60 (vs. 4 to 6) per 10,000 in the general population (Chakrabarti & Fombonne, 2001).
  - 600% increase in the numbers served under the autism IDEA eligibility classification (U.S. Department of Education, 2003).
  - 95% of school psychologists report an increase in the number of students with ASD being referred for assessment (Kohrt, 2004).

Explanations for Changing ASD Rates in the General Population

- Changes in diagnostic criteria.
- Heightened public awareness of autism.
- Increased willingness and ability to diagnose autism.
- Availability of resources for children with autism.
- Yet to be identified environmental factors.


Acknowledgement

Adapted from…
Explanations for Changing ASD Rates in Special Education

- Classification substitution
  - IEP teams have become better able to identify students with autism.
  - Autism is more acceptable in today’s schools than is the diagnosis of mental retardation.
  - The intensive early intervention services often made available to students with autism are not always offered to the child whose primary eligibility classification is mental retardation.

Increased Prevalence in Special Education (U.S. Department of Education, 2005)

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<thead>
<tr>
<th>Year</th>
<th>Mental Retardation</th>
<th>Autism</th>
</tr>
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<tbody>
<tr>
<td>1991</td>
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<td>2002</td>
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</tr>
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Reasons for Increased Vigilance

- Autism can be identified early in development, and...
- Early intervention is an important determinant of the course of autism.

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Most children with autism are identified by school resources.
- Only three percent of children with ASD are identified solely by non-school resources.
- All other children are identified by a combination of school and non-school resources (57 %), or by school resources alone (40 %) (Yeargin-Allsopp et al. 2003).
Evolution of the Term “Autism”

- First used by Swiss psychiatrist Eugen Bleuler in 1911. Derived from the Greek autos (self) and ismos (condition), Bleuler used the term to describe the concept of “turning inward on oneself” and applied it to adults with schizophrenia.
- In 1943 Leo Kanner first used the term “infantile autism” to describe a group of children who were socially isolated, were behaviorally inflexible, and who had impaired communication. Initially viewed as a consequence of poor parenting, it was not until the 1960’s, and recognition of the fact that many of these children had epilepsy, that the disorder began to be viewed as having a neurological basis.

Evolution of the Term “Autism”

- In 1980, infantile autism was first included in the third edition of the Diagnostic and Statistical Manual (DSM), within the category of Pervasive Developmental Disorders.
- Also occurring at about this time was a growing awareness that Kranner’s autism (also referred to a classic autism) is the most extreme form of a spectrum of autistic disorders.
- Autistic Disorder is the contemporary classification used since the revision of DSM’s third edition (APA, 1987).

Diagnostic Classifications

- Pervasive Developmental Disorders
  - Autistic Disorder
  - Asperger’s Disorder
  - PDD-NOS
  - Rett’s Disorder
  - Childhood Disintegrative Disorder

In this workshop the terms “Autism,” or “Autistic Spectrum Disorders (ASD)” will be used to indicate these PDDs.

Special Education Eligibility: Proposed IDEIA Regulations

- IDEIA 2004 Autism Classification
  - P.L. 108-446, Individuals with Disabilities Education Improvement Act (IDEIA), 2004
  - Proposed USDOE Regulations for IDEA 2004 [§ 300.8(c)(1)]
  - Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child’s education performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotypical movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. (i) Autism does not apply if a child’s educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in paragraph (c)(4) of this section. (ii) A child who manifest the characteristics of autism after age three could be identified as having autism if the criteria in paragraph (c)(1)(i) of this section are satisfied.

Special Education Eligibility

- For special education eligibility purposes distinctions among PDDs may not be relevant.
- While the diagnosis of Autistic Disorder requires differentiating its symptoms from other PDDs, Shriver et al. (1999) suggest that for special education eligibility purposes “the federal definition of ‘autism’ was written sufficiently broad to encompass children who exhibit a range of characteristics” (p. 539) including other PDDs.

- However, it is less clear if students with milder forms of ASD are always eligible for special education.
- Adjudicative decision makers almost never use the DSM IV-TR criteria exclusively or primarily for determining whether the child is eligible as autistic” (Fogt et al.,2003).
- While DSM IV-TR criteria are often considered in hearing/court decisions, IDEA is typically acknowledged as the “controlling authority.”
- When it comes to special education, it is state and federal education codes and regulations (not DSM IV-TR) that drive eligibility decisions.
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School Psychologist Roles, Responsibilities, and Limitations

1. School psychologists need to be more vigilant for symptoms of autism among the students that they serve, and better prepared to assist in the process of identifying these disorders.

2. Case Finding
   - All school psychologists should be expected to participate in case finding (i.e., routine developmental surveillance of children in the general population to recognize risk factors and identify warning signs of autism).
   - This would include training general educators to identify the risk factors and warning signs of autism.

3. Screening
   - All school psychologists should be prepared to participate in the behavioral screening of the student who has risk factors and/or displays warning signs of autism (i.e., able to conduct screenings to determine the need for diagnostic assessments).
   - All school psychologists should be able to distinguish between screening and diagnosis.

4. Diagnosis
   - Only those school psychologists with appropriate training and supervision should diagnose a specific autism spectrum disorder.

5. Special Education Eligibility
   - All school psychologists should be expected to conduct the psycho-educational evaluation that is a part of the diagnostic process and that determines educational needs.
   - NOTE:
     - The ability to conduct such assessments will require school psychologists to be knowledgeable of the accommodations necessary to obtain valid test results when working with the child who has an ASD.

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**Case Finding**

- **Known Risk Factors**
  - **High Risk**
    - Having an older sibling with autism.
  - **Moderate Risk**
    - The diagnosis of tuberous sclerosis, fragile X, or epilepsy.
    - A family history of autism or autistic-like behaviors.

- **Currently there is no substantive evidence supporting any one non-genetic risk factor for ASD.**
- **However, given that there are likely different causes of ASD, it is possible that yet to be identified non-heritable risk factors may prove to be important in certain subgroups of individuals with this disorder.**

**Case Finding**

- **Infant & Preschooler Warning Signs**
  - **Absolute indications for an autism screening**
    - No big smiles or other joyful expressions by 6 months.
    - No back-and-forth sharing of sounds, smiles, or facial expressions by 8 months.
    - No back-and-forth gestures, such as pointing, showing, reaching or waving bye-bye by 12 months.
    - No babbling at 12 months.
    - No single words at 16 months.

  **Sources:** Filipek et al., 1999; Greenspan, 1999; and Ozonoff, 2003.

- **School-Age Children Warning Signs**
  - **Social/Emotional Concerns**
    - Poor at initiating and/or sustaining activities and friendships with peers.
    - Playfree-time is more isolated, rigid and/or less interactive.
    - Atypical interests and behaviors compared to peers.
    - Unaware of social conventions or codes of conduct (e.g., seems unaware of how comments or actions could offend others).
    - Excessive anxiety, fears or depression.
    - Atypical emotional expression (emotion, such as distress or affection, is significantly more or less than appears appropriate for the situation).

  **Sources:** Adapted from Asperger’s Syndrome A Guide for Parents and Professionals (Attwood, 1998), Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (APA, 1994), and The Asperger Syndrome Diagnostic Scale (Myles, Bock and Simpson, 2000).

- **Communication Concerns**
  - Unusual tone of voice or speech (seems to have an accent or monotone, speech is overly formal).
  - Overly literal interpretation of comments (confused by sarcasm or phrases such as “pull up your socks” or “looks can kill”).
  - Atypical conversations (one-sided, on their focus of interest or on repetitive/unalusual topics).
  - Poor nonverbal communication skills (eye contact, gestures, etc.).

  **Sources:** Adapted from Asperger’s Syndrome A Guide for Parents and Professionals (Attwood, 1998), Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (APA, 1994), and The Asperger Syndrome Diagnostic Scale (Myles, Bock and Simpson, 2000).
Case Finding

- School-Age Children Warning Signs
  - Behavioral Concerns
    - Excessive fascination/perseveration with a particular topic, interest or object
    - Unduly upset by changes in routines or expectations
    - Tendency to flap or rock when excited or distressed
    - Unusual sensory responses (reactions to sound, touch, textures, pain tolerance, etc.)
    - History of behavioral concerns (inattention, hyperactivity, aggression, anxiety, selective mute)
    - Poor fine and/or gross motor skills or coordination

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Screening and Referral

- Screening is designed to help determine the need for additional diagnostic assessments.
- In addition to the behavioral screening (which at school should typically be provided by the school psychologist), screening should include medical testing (lead screening) and a complete audiological evaluation.

Behavioral Screening for ASD

- School psychologists are exceptionally well qualified to conduct the behavioral screening of students suspected to have an ASD.
- Several screening tools are available
- Initially, most of these tools focused on the identification of ASD among infants and preschoolers.
- Recently screening tools useful for the identification of school aged children who have high functioning autism or Asperger’s Disorder have been developed.

Behavioral Screening of Infants and Preschoolers

- Checklist for Autism in Toddlers (CHAT)
  - Designed to identify risk of autism among 18-month-olds
  - Takes 5 to 10 minutes to administer
  - Consists of 9 questions asked of the parent and 5 items that are completed by the screener’s direct observation of the child.
  - 5 items are considered to be “key items.” These key items, assess joint attention and pretend play.
  - If a child fails all five of these items they are considered to be at high risk for developing autism.
### Checklist for Autism in Toddlers

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your child enjoy being swung, bounced on your knee, etc.?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your child enjoy playing peek-a-boo/hide-and-seek?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your child ever use his/her index finger to point to indicate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your child ever use his/her index finger to ask for something?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your child ever pretend, for example, to make a cup of tea using</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can your child play properly with small toys (e.g., cars or bricks) without</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your child ever bring objects over to you (parent) to show your</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your child ever use his/her index finger to point at the light?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can the child build a tower of bricks? (if so how many?)</td>
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</tr>
</tbody>
</table>

From Baron-Cohen et al. (1996, p. 139).

### Behavioral Screening of Infants and Preschoolers

- **Modified Checklist for Autism in Toddlers (M-CHAT)**
  - Designed to screen for autism at 24 months of age.
  - More sensitive to the broader autism spectrum.
  - Uses the 8 items from the original CHAT as its basis.
  - Adds 14 additional items (23-item total).
  - Unlike the CHAT, however, the M-CHAT does not require the screener to directly observe the child.
  - Makes use of a Yes/No format questionnaire.
  - Yes/No answers are converted to pass/fail responses by the screener.
  - A child fails the checklist when 2 or more of 6 critical items are failed or when any three items are failed.

### Modified Checklist for Autism in Toddlers

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
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<td>Can the child build a tower of bricks? (if so how many?)</td>
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From Baron-Cohen et al. (1996, p. 139).

http://www.autisticsociety.org/article136.html

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**Modified Checklist for Autism in Toddlers**

<table>
<thead>
<tr>
<th>Item</th>
<th>Parent</th>
<th>Teacher</th>
<th>Likelihood Ratio</th>
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<td>1.6</td>
</tr>
<tr>
<td>25</td>
<td>No</td>
<td>No</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Robins et al. (2001, p. 142)

**Behavioral Screening of School Age Children**

**Autism Spectrum Screening Questionnaire (ASSQ)**
- The 27 items rated on a 3-point scale.
- Total score range from 0 to 54.
- Items address social interaction, communication, restricted/repetitive behavior, and motor clumsiness and other associated symptoms.
- The initial ASSQ study included 1,401 7- to 16-year-olds.
  - Sample mean was 0.7 (SD 2.6).
  - Asperger mean was 26.2 (SD 10.3).
- A validation study with a clinical group (n = 110) suggests the ASSQ to be “a reliable and valid parent and teacher screening instrument of high-functioning autism spectrum disorders in a clinical setting” (Ehlers, Gilber, & Wing, 1999, p. 139).

**Different parent and teacher ASSQ cutoff scores with true positive rate (% of children with an ASD who were rated as a given score), false positive rate (% of children without an ASD who were rated as a given score), and the likelihood ratio of a given score predicting ASD.**

<table>
<thead>
<tr>
<th>Cutoff Score</th>
<th>False Positive Rate</th>
<th>True Positive Rate</th>
<th>Likelihood Ratio</th>
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<tr>
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<td>0.9</td>
<td>0.7</td>
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<tr>
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<tr>
<td>3</td>
<td>0.3</td>
<td>0.7</td>
<td>1.4</td>
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<tr>
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<td>0.5</td>
<td>0.9</td>
<td>1.6</td>
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<td>0.7</td>
<td>1.8</td>
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<td>0.9</td>
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<td>0.5</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Robins et al. (2001)
**Behavioral Screening of School Age Children**

- **Childhood Asperger Syndrome Test (CAST)**
  - A screening for mainstream primary grade (ages 4 through 11 years) children.
  - Has 37 items, with 31 key items contributing to the child’s total score.
  - The 6 control items assess general development.
  - With a total possible score of 31, a cut off score of 15 “NO” responses was found to correctly identify 87.5 (7 out of 8) of the cases of autistic spectrum disorders.
  - Rate of false positives is 36.4%.
  - Rate of false negatives is not available

**Childhood Asperger Syndrome Test**


**Behavioral Screening of School Age Children**

- **Social Communication Questionnaire (SCQ)**
  - Two forms of the SCQ: a Lifetime and a Current form.
  - **Current** ask questions about the child’s behavior in the past 3 months, and is suggested to provide data helpful in understanding a child’s “everyday living experiences and evaluating treatment and educational plans.”
  - **Lifetime** ask questions about the child’s entire developmental history and provides data useful in determining if there is need for a diagnostic assessment.
  - Consists of 40 Yes/No questions asked of the parent.
  - The first item of this questionnaire documents the child’s ability to speak and is used to determine which items will be used in calculating the total score.
Behavioral Screening of School Age Children

- **Social Communication Questionnaire (SCQ)**
  - An “AutoScore” protocol converts the parents’ Yes/No responses to scores of 1 or 0.
  - The mean SCQ score of children with autism was 24.2, whereas the general population mean was 5.2.
  - The threshold reflecting the need for diagnostic assessment is 15.
  - A slightly lower threshold might be appropriate if other risk factors (e.g., the child being screened is the sibling of a person with ASD) are present.

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Autistic Disorder Diagnostic Criteria

A. A total of six (or more) items for (1), (2), and (3), with at least two from (1), and one each for (2) and (3):

1. Qualitative impairment in social interaction, as manifested by at least one of the following:
   - Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction
   - Failure to develop peer relationships appropriate to developmental level
   - Lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by lack of showing, bringing, or pointing out objects of interest)
   - Lack of social or emotional reciprocity

2. Qualitative impairments in communication as manifested by at least one of the following:
   - Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
   - In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
   - Stereotyped and repetitive use of language or idiosyncratic language
   - Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

3. Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:
   - Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
   - Apparent inflexible adherence to specific, nonfunctional routines or rituals
   - Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
   - Persistent preoccupation with parts of objects
Autistic Disorder Diagnostic Criteria

B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

C. The disturbance is not better accounted for by Rett’s Disorder or Childhood Disintegrative Disorder.

Other ASDs

- Asperger’s Disorder
  - The criteria for Asperger’s Disorder are essentially the same as Autistic Disorder with the exception that there are no criteria for a qualitative impairment in communication.
  - In fact Asperger’s criteria require “… no clinically significant general delay in language (e.g., single words used by 2 years, communicative phrases used by 3 years”).

Other ASDs

- Childhood Disintegrative Disorder (CDD)
  - Criteria are essentially the same as Autistic Disorder.
  - Difference include that in CDD there has been …
    - “Apparently normal development for at least the first 2 years after birth as manifested by the presence of age-appropriate verbal and nonverbal communication, social relationships, play, and adaptive behavior;” and that there is
    - “Clinically significant loss of previously acquired skills (before age 10 years) in at least two of the following areas:
      1. expressive or receptive language;
      2. social skills or adaptive behavior;
      3. bowel or bladder control;
      4. play;
      5. motor-skill.”

Other ASDs

- Rett’s Disorder
  - Both Autistic Disorder and Rett’s Disorder criteria include delays in language development and social engagement (although social difficulties may not be as pervasive).
  - Unlike Autistic Disorder, Rett’s also includes
    - Head growth deceleration,
    - Loss of fine motor skill,
    - Poorly coordinated gross motor skill, and
    - Severe psychomotor retardation.

Symptom Onset

- Autistic Disorder is before the age of three years.
  - Before three years, there must be “delays or abnormal functioning” in at least one of the following areas: (a) social interaction, (b) social communicative language, and/or (c) symbolic or imaginative play.

- Asperger’s Disorder may be somewhat later.
- Childhood Disintegrative Disorder is before the age of 10 years.
  - Preceded by at least two years of normal development.
- Rett’s Disorder is before the age of 4 years.
  - Although symptoms are usually seen by the second year of life.

Developmental Course

- Autistic Disorder:
  - Parents may report having been worried about the child’s lack of interest in social interaction since or shortly after birth.
  - In a few cases the child initially developed normally before symptom onset. However, such periods of normal development must not extend past age three.
  - Duration of Autistic Disorder is typically life long, with only a small percentage being able to live and work independently and about 1/3 being able to achieve a partial degree of independence. Even among the highest functioning adults symptoms typically continue to cause challenges.
Developmental Course

Asperger’s Disorder:
- Motor delays or clumsiness may be some of the first symptoms noted during the preschool years.
- Difficulties in social interactions, and symptoms associated with unique and unusually circumscribed interests, become apparent at school entry.
- Duration is typically lifelong with difficulties empathizing and modulating social interactions displayed in adulthood.

Rett’s and Childhood Disintegrative Disorders:
- Lifelong conditions.
- Rett’s pattern of developmental regression is generally persistent and progressive. Some interest in social interaction may be noted during later childhood and adolescence.
- The loss of skills associated with Childhood Disintegrative Disorder plateau after which some limited improvement may occur.

Associated Features

Asperger’s Disorder is the only ASD not typically associated with some degree of mental retardation.
- Autistic Disorder is associated with moderate mental retardation. Other associated features include:
  - unusual sensory sensitivities
  - abnormal eating or sleeping habits
  - unusual fearfulness of harmless object or lack of fear for real dangers
  - self-injurious behaviors
- Childhood Disintegrative Disorder is associated with severe mental retardation.
- Rett’s Disorder is associated with severe to profound mental retardation.

Age Specific Features

Chronological age and developmental level influence the expression of Autistic Disorder.
- Thus, assessment must be developmentally sensitive.
- For example, infants may fail to cuddle; show indifference or aversion to affection or physical contact; demonstrate a lack of eye contact, facial responsiveness, or socially directed smiles; and a failure to respond to their parents’ voices.
- On the other hand, among young children, adults may be treated as interchangeable or alternatively the child may cling to a specific person.

Gender Related Features

With the exception of Rett’s Disorder, which occurs only among females, all other ASDs appear to be more common among males than females.
- The rate is four to five times higher in males than in females.

Differential Diagnosis

Rett’s Disorder
- Affects only girls
- Head growth deceleration
- Loss of fine motor skill
- Awkward gait and trunk movement
- Mutations in the MECP2 gene

Childhood Disintegrative Disorder
- Regression following at least two years of normal development

Asperger’s Disorder
- Expressive/Receptive language not delayed
- Normal intelligence
- Later symptom onset

Schizophrenia
- Years of normal/near normal development
- Symptoms of hallucinations/delusions
- Loss of fine motor skill
- Awkward gait and trunk movement
- Mutations in the MECP2 gene

Selective Mutism
- Normal language in certain situations or settings
- No restricted patterns of behavior

Language Disorder
- No severe impairment of social interactions
- No restricted patterns of behavior
**Differential Diagnosis**

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Diagnostic Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD</td>
<td>Distractible inattention related to external (not internal) stimuli</td>
</tr>
<tr>
<td></td>
<td>Deterioration in attention and vigilance over time</td>
</tr>
<tr>
<td>Mental Retardation</td>
<td>Relative to developmental level, social interactions are not severely impaired</td>
</tr>
<tr>
<td></td>
<td>No restricted patterns of behavior</td>
</tr>
<tr>
<td>OCD</td>
<td>Normal language/communication skills</td>
</tr>
<tr>
<td></td>
<td>Normal social skills</td>
</tr>
<tr>
<td>Reactive Attachment Disorder</td>
<td>History of severe neglect and/or abuse</td>
</tr>
<tr>
<td></td>
<td>Social deficits dramatically remit in response to environmental change</td>
</tr>
</tbody>
</table>

**Developmental and Health History**

- **Prenatal and perinatal risk factors**
  - Greater maternal age
  - Maternal infections
    - Measles, Mumps, & Rubella
    - Influenza
    - Cytomegalovirus
    - Herpes, Syphilis, HIV
  - Drug exposure
  - Obstetric suboptimality

- **Postnatal risk factors**
  - Infection
  - Case studies have documented sudden onset of ASD symptoms in older children after herpes encephalitis.
  - Infections that can result in secondary hydrocephalus, such as meningitis, have also been implicated in the etiology of ASD.
  - Common viral illnesses in the first 18 months of life (e.g., mumps, chickenpox, fever of unknown origin, and ear infection) have been associated with ASD.
  - Chemical exposure?
  - MMR?

- **Developmental Milestones**
  - Language development
  - Concerns about a hearing loss
  - Social development
    - Atypical play
    - Lack of social interest
  - Regression

- **Medical History**
  - Vision and hearing
  - Chronic ear infections (and tube placement)
  - Immune dysfunction (e.g., frequent infections)
  - Autoimmune disorders (e.g., thyroid problems, arthritis, rashes)
  - Allergy history (e.g., to foods or environmental triggers)
  - Gastrointestinal symptoms (e.g., diarrhea, constipation, bloating, abdominal pain)

- **Diagnostic History**
  - ASD is sometimes observed in association other neurological or general medical conditions.
    - Mental Retardation (up to 80%)
    - Epilepsy (3-30%)
      - May develop in adolescence
      - EEG abnormalities common even in the absence of seizures
    - Genetic Disorders
      - 10-20% of ASD have a neurodevelopmental genetic syndrome
        - Tuberous Sclerosis (found in 2-4% of children with ASD)
        - Fragile X Syndrome (found in 2-8% of children with ASD)
Identification, Screening, and Assessing Autism at School

Developmental and Health History

- Family History
  - Epilepsy
  - Mental Retardation
  - Genetic Conditions
    - Tuberous Sclerosis Complex
    - Fragile X Syndrome
    - Schizophrenia
    - Anxiety
    - Depression
    - Bipolar disorder
  - Other genetic condition or chromosomal abnormality

Diagnostic Assessments

- Indirect Assessment
  - Interviews and Questionnaires/Rating Scales
    - Easy to obtain
    - Reflect behavior across settings
    - Subject to interviewee/rater bias

- Direct Assessment
  - Behavioral Observations
    - More difficult to obtain
    - Reflect behavior within limited settings
    - Not subject to interviewee/rater bias

Indirect Assessment: Rating Scales

- The Gilliam Autism Rating Scale (GARS)
  - Yields an Autism Quotient (AQ)
  - AQt are classified on an ordinal scale ranging from “Very Low” to “Very High” probability of autism. A score of 90 or above specifies that the child is “probably autistic.”

Indirect Assessment: Rating Scales

- The Gilliam Autism Rating Scale (GARS)
  - Among a sample of 119 children with “strict DSM-IV diagnoses of autism,” the GARS consistently underestimated the likelihood that autistic children in this sample would be classified as having autism.
  - The South et al. (2002) sample mean (90.10) was significantly below the GARS mean (100).
Indirect Assessment: Rating Scales

- The Gilliam Autism Rating Scale (GARS)

- The Asperger Syndrome Diagnostic Scale (ASDS)
  - Age range 5-18.
  - 50 yes/no items.
  - 10 to 15 minutes.
  - Normed on 227 persons with Asperger Syndrome, autism, learning disabilities, behavior disorders and ADHD.
  - ASQs are classified on an ordinal scale ranging from “Very Low” to “Very High” probability of autism. A score of 90 or above specifies that the child is “Likely” to “Very Likely” to have Asperger’s Disorder.

Indirect Assessment: Interview

- The Autism Diagnostic Interview-Revised (ADI-R)
  - Semi-structured interview
  - Designed to elicit the information needed to diagnose autism.
  - Primary focus is on the three core domains of autism (i.e., language/communication; reciprocal social interactions; and restricted, repetitive, and stereotyped behaviors and interests).
  - Requires a trained interviewer and caregiver familiar with both the developmental history and the current behavior of the child.
  - The individual being assessed must have a developmental level of at least two years.

- The Autism Diagnostic Interview-Revised (ADI-R)
  - The 93 items that comprise this measure takes approximately 90 to 150 minutes to administer.
  - Solid psychometric properties.
  - Works very well for differentiation of ASD from nonautistic developmental disorders in clinically referred groups, provided that the mental age is above 2 years.
  - False positives very rare.
  - Reported to work well for the identification of Asperger’s Disorder.
  - However, it may not do so as well among children under 4 years of age.
  - According to Klinger and Renner (2000): “The diagnostic interview that yields the most reliable and valid diagnosis of autism is the ADI–R” (p. 481).
Identifying, Screening, and Assessing Autism at School

Stephen E. Brock, Ph.D., NCSP

Direct Assessments: ADOS

- The Autism Diagnostic Observation Schedule (ADOS)

- Administration requires 30 to 45 minutes.
- Because its primary goal is accurate diagnosis, the authors suggest that it may not be a good measure of treatment effectiveness or developmental growth (especially in the later modules).
- Psychometric data indicates substantial interrater and test-retest reliability for individual items, and excellent interrater reliability within domains and internal consistency.
- Mean test scores were found to consistently differentiate ASD and non-ASD groups.

Direct Assessments: ADOS

- A standardized, semi-structured, interactive play assessment of social behavior.
  - Uses "planned social occasions" to facilitate observation of the social, communication, and play or imaginative use of material behaviors related to the diagnosis of ASD.
- Consists of four modules.
  - Module 1 for individuals who are preverbal or who speak in single words.
  - Module 2 for those who speak in phrases.
  - Module 3 for children and adolescents with fluent speech.
  - Module 4 for adolescents and adults with fluent speech.

Direct Assessments: CARS

- The Childhood Autism Rating Scale (CARS)

- 15-item structured observation tool.
- Items scored on a 4-point scale ranging from 1 (normal) to 4 (severely abnormal).
- In making these ratings the evaluator is asked to compare the child being assessed to others of the same developmental level.
  - Thus, an understanding of developmental expectations for the 15 CARS items is essential.
- The sum ratings is used to determine a total score and the severity of autistic behaviors
  - Non-autistic, 15 to 29
  - Mildly-moderately autistic 30-37
  - Severely autistic, 37

- Data can also be obtained from parent interviews and student record reviews.
- When initially developed it attempted to include diagnostic criteria from a variety of classification systems and it offers no weighting of the 15 scales.
- Currently includes items that are no longer considered essential for the diagnosis of autism (e.g., taste, smell, and touch response) and may imply to some users of this tool that they are essential to diagnosis (when in fact they are not).
- Psychometrically, the CARS has been described as "acceptable," "good," and as a "well-constructed rating scale."
Psycho-educational Assessment

- **Purposes**
  - Develop goals and objectives (which are similar to those developed for other children with special needs).
  - To make progress in social and cognitive proficiencies, verbal and nonverbal communication abilities, and adaptive skills.
  - To minimize behavioral problems.
  - To generalize competencies across multiple environments.

Testing Accommodations

- The core deficits of autism can significantly impact test performance.
  - Impairments in communication may make it difficult to respond to verbal test items and/or generate difficulty understanding the directions that accompany nonverbal tests.
  - Impairments in social relations may result in difficulty establishing the necessary joint attention.
- Examiners must constantly assess the degree to which tests being used reflect symptoms of autism and not the specific targeted abilities (e.g., intelligence, achievement, psychological processes).

Testing Accommodations

- It is important to acknowledge that the autistic population is very heterogeneous.
- There is no one set of accommodations that will work for every student with autism.
- It is important to consider each student as an individual and to select specific accommodations to meet specific individual student needs.

Testing Accommodations

- Minimize distractions.
- Make use of pre-established physical structures and work systems.

Testing Accommodations

- Prepare the student for the testing experience.
- Place the testing session in the student’s daily schedule.

Testing Accommodations

- Make use of powerful external rewards.
- Carefully pre-select task difficulty.
- Modify test administration and allow nonstandard responses.
**Testing Accommodations**

- Carefully pre-select task difficulty.
- Modify test administration and allow nonstandard responses.

**Behavioral Observations**

- Students with ASD are a very heterogeneous group, and in addition to the core features of ASD, it is not unusual for them to display a range of behavioral symptoms including hyperactivity, short attention span, impulsivity, aggressiveness, self-injurious behavior, and (particularly in young children) temper tantrums.
- Observation of the student with ASD in typical environments will also facilitate the evaluation of test taking behavior.
- Observation of test taking behavior may also help to document the core features of autism.

**Choice of Assessment Instruments**

- Child’s level of verbal abilities.
- Ability to respond to complex instructions and social expectations.
- Ability to work rapidly.
- Ability to cope with transitions during test activities.
- In general, children with autism will often perform best when assessed with tests that require less social engagement and verbal mediation.

**Cognitive Functioning**

- Assessment of cognitive function is essential given that, with the exception of Asperger’s Disorder, a significant percentage (as high as 80 percent) of students with ASD will also be mentally retarded.
- Severity of mental retardation can also provide some guidance regarding differential diagnosis among ASDs.
- IQ is associated with adaptive functioning, the ability to learn and acquire new skills, and long-term prognosis.
  - Thus, level of cognitive functioning has implications for determining how restrictive the educational environment will need to be.

**Cognitive Functioning**

- A powerful predictor of ASD symptom severity.
- However, given that children with ASD are ideally first evaluated when they are very young, it is important to acknowledge that it is not until age 5 that childhood IQ correlates highly with adult IQ.
  - Thus, it is important to treat the IQ scores of the very young child with caution when offering a prognosis, and when making placement and program planning decisions.
  - However, for school aged children it is clear that the appropriate IQ test is an “…excellent predictor of a student’s later adjustment and functioning in real life” (Frith, 1989, p. 84).

**Cognitive Functioning**

- Regardless of the overall level of cognitive functioning, it is not unusual for the student being tested to display an uneven profile of cognitive abilities.
- Thus, rather than simply providing an overall global intelligence test score, it is essential to identify these cognitive strengths and weaknesses.
- At the same time, however, it is important to avoid the temptation to generalize from isolated or “splinter” skills when forming an overall impression of cognitive functioning, given that such skills may significantly overestimate typical abilities.
Identifying, Screening, and Assessing Autism at School

Cognitive Functioning
- Selection of specific tests is important to obtaining a valid assessment of cognitive functioning (and not the challenges that are characteristic of ASD).
- The Wechsler and Stanford-Binet scales are appropriate for the individual with spoken language.

On the other hand, for students who have more severe language delays measures that minimize verbal demands are recommended (e.g., the Leiter International Performance Scale – Revised, Raven Coloured Progressive Matrices)

Functional/Adaptive Behavior
- Given that diagnosing mental retardation requires examination of both IQ and adaptive behavior, it is also important to administer measures of adaptive behavior when assessing students with ASD.
- Profiles of students with ASD are unique.
- Individuals with only mental retardation typically display flat profiles across adaptive behavior domains
- Students with ASD might be expected to display relative strengths in daily living skills, relative weaknesses in socialization skills, and intermediate scores on measures of communication abilities.
- To facilitate the use of the Vineland Adaptive Behavior Scales in the assessment of individuals with ASD, Carter et al. (1998) have provided special norms for groups of individuals with autism

- Other uses of adaptive behavior scales when assessing students with ASD are:
  - Obtain measure of child’s typical functioning in familiar environments, e.g. home and/or school.
  - Target areas for skills acquisition.
  - Identifying strengths and weaknesses for educational planning and intervention
  - Documenting intervention efficacy
  - Monitoring progress over time.

Other tools with subtests for assessing functional/adaptive behaviors:
- Brigance Inventory of Early Development.
- Early Learning Accomplishment Profiles.
- Scales of Independent Behavior-Revised.
- AAMD Adaptive Behavior Scale.
- Learning Accomplishments Profile.
- Developmental Play Assessment Instrument.

Typical problem areas/issues:
- Understanding facial expressions and gestures
- Knowing how and when to use turn-taking skills, including focusing on the interest of others
- Interpreting non-literal language such as idioms and metaphors
- Recognizing that others’ intentions do not always match their verbalizations
- Understanding the hidden curriculum – those complex social rules that often are not directly taught (Myles & Simpson, 2001, p. 6)

Tools that provide an overview of social functioning (i.e., social needs and current repertoire):
- Vineland Adaptive Behavior Scales.
- Scales of Independent Behavior-Revised.
Language Functioning (AACAP, 1999)

- Measures of single word vocabulary (receptive and expressive).
- Actual use of language (receptive and expressive).
- Articulation and Oral-Motor skills as indicated
- Pragmatic Skills (the child’s capacities for use of whatever level of communication skills he/she has in relation to the social context).

Language Functioning

- Specific Tests (Myles & Adreon, 2001)
  - Clinical Evaluation of Language Fundamentals – Third Edition
  - Comprehensive Receptive and Expressive Vocabulary Test
  - Peabody Picture Vocabulary Test – Third Edition
  - Test of Language Competence – Expanded Edition (Level 2)
  - Test of Pragmatic Language
  - Test of Problem Solving - Adolescent

Psychological Processes

- Helps to further identify learning strengths and weakness.
- Depending upon age and developmental level, traditional measures of such processes may be appropriate.
- It would not be surprising to find relatively strong rote, mechanical, and visual-spatial processes; and deficient higher-order conceptual processes, such as abstract reasoning.
- While IQ test profiles should never be used for diagnostic purposes, it would not be surprising to find the student with Autistic Disorder to perform better on non-verbal (visual/spatial) tasks than tasks that require verbal comprehension and expression.
  - The student with Asperger's Disorder may display the exact opposite profile.

Academic/Developmental Assessment

- Assessment of academic functioning will often reveal a profile of strengths and weaknesses.
  - It is not unusual for students with ASD to be hyperverbal/hyperlexic, while at the same time having poor comprehension and difficulties with abstract language. For others, calculation skills may be well developed, while mathematical concepts are delayed.
  - For students functioning at or below the preschool range and with a chronological age of 6 months to 7 years, the Psychoeducational Profile – Third Edition may be an appropriate choice.
  - For students who are very severely cognitively delayed, the Adolescent and Adult Psychoeducational Profile (AAPEP) may be an appropriate choice.

- For older, higher functioning students, the Woodcock-Johnson Tests of Achievement and the Wechsler Individual Achievement Test would be appropriate tools.

Academic/Developmental Assessment

- Curriculum-based assessment
  - Reading decoding (often a strength) should be compared to comprehension (often a weakness).
  - Comprehension may be related to
    - Subject matter
    - Instructional setting (large group vs. individual work)
    - Stress level
  - Written language skills to be assessed
    - Organization and coherence
    - Provision of sufficient background
    - Creativity
  - Computer generated writing samples should be compared to handwritten samples (fine motor often weak).
Emotional Functioning

- 65% present with symptoms of an additional psychiatric disorder such as AD/HD, oppositional defiant disorder, obsessive-compulsive disorder and other anxiety disorders, tics disorders, affective disorders, and psychotic disorders.
- AD/HD is the most common comorbid diagnosis among adolescents and adults.
- Disorders of mood (both depression and mania) are the second most common co-existing diagnosis and are seen particularly in higher-functioning individuals among individuals latency age and beyond.
  - 16.9% of CBCL (parent) ratings have elevated depression subscales.

Emotional Functioning

- There are occasional reports of schizophrenia developing in adolescence.
- Given these possibilities, it will also be important for the school psychologist to evaluate the student’s emotional/behavioral status.
- Traditional measures such as the Behavioral Assessment System for Children would be appropriate as a general purpose screening tool, while more specific measures such as The Children’s Depression Inventory and the Revised Children’s Manifest Anxiety Scale would be appropriate for assessing more specific presenting concerns.

Emotional Functioning

When to consider comorbidity in ASD (Hendren, 2003, p. 39)
1. When signs of problems outside the autism spectrum are apparent.
2. When there is an abrupt change in behavior from “baseline.”
3. When there is a severe and incapacitating problem behavior.
4. When there is a worsening of symptoms already present.
5. When student does not respond as expected to intervention.

Sensory Assessments

- Occupational Therapy Assessments
  - Particularly if there is some degree of sensory hyper or hyposensitivity or difficulties in motor development.
  - The Sensory Profile (Dunn, 1999)
  - Short Sensory Profile (McIntosh et al., 1999)
  - Sensory Integration Inventory – Revised (Reisman & Hanschu, 1992)

Functional Behavioral Assessment

- Identify and describe target behavior
- Describe establishing operations and immediate antecedents
- Collect baseline data/work samples
- Determine the function of the behavior
- Develop a behavior intervention plan
- Assessment tools
  - http://www.csus.edu/indiv/b/brocks/Courses/EDS%20240/student_materials.htm

Special Education Report Recommendations

- Target specific areas of need and strive to build upon learning assets.
- Sample recommendations
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