The Identification of Autism Spectrum Disorders

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Presentation Outline

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

Reasons for Increased Vigilance

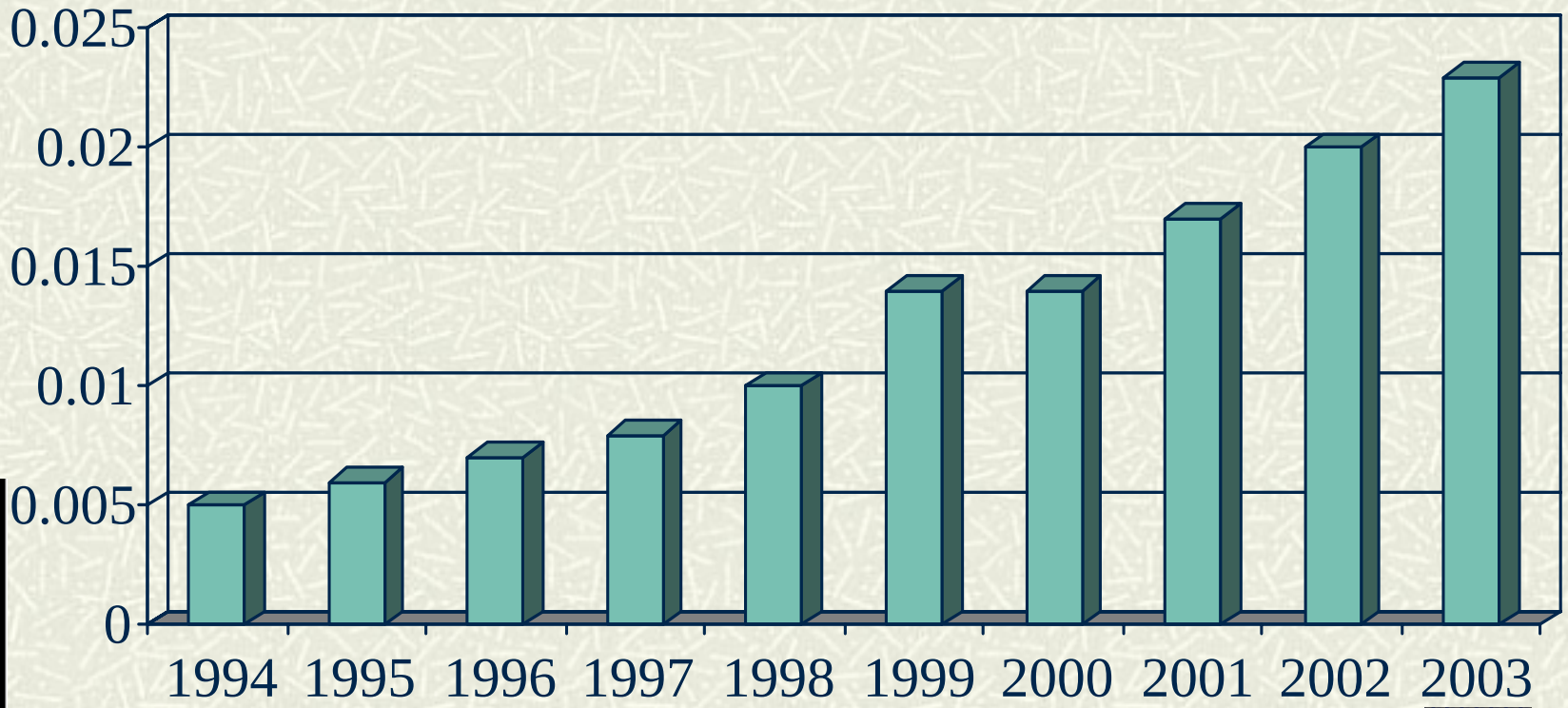
- Autistic spectrum disorders are much more common than previously suggested.
  - 60 (vs. 4 to 6) per 10,000 in the general population (Chakrabarit & Fombonne, 2001).
  - 600% increase in the numbers served under the autism *IDEA* eligibility classification (U.S. Department of Education, 2003).
  - 95% 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.

Increased Prevalence in Special Education (U.S. Department of Education, 2003)

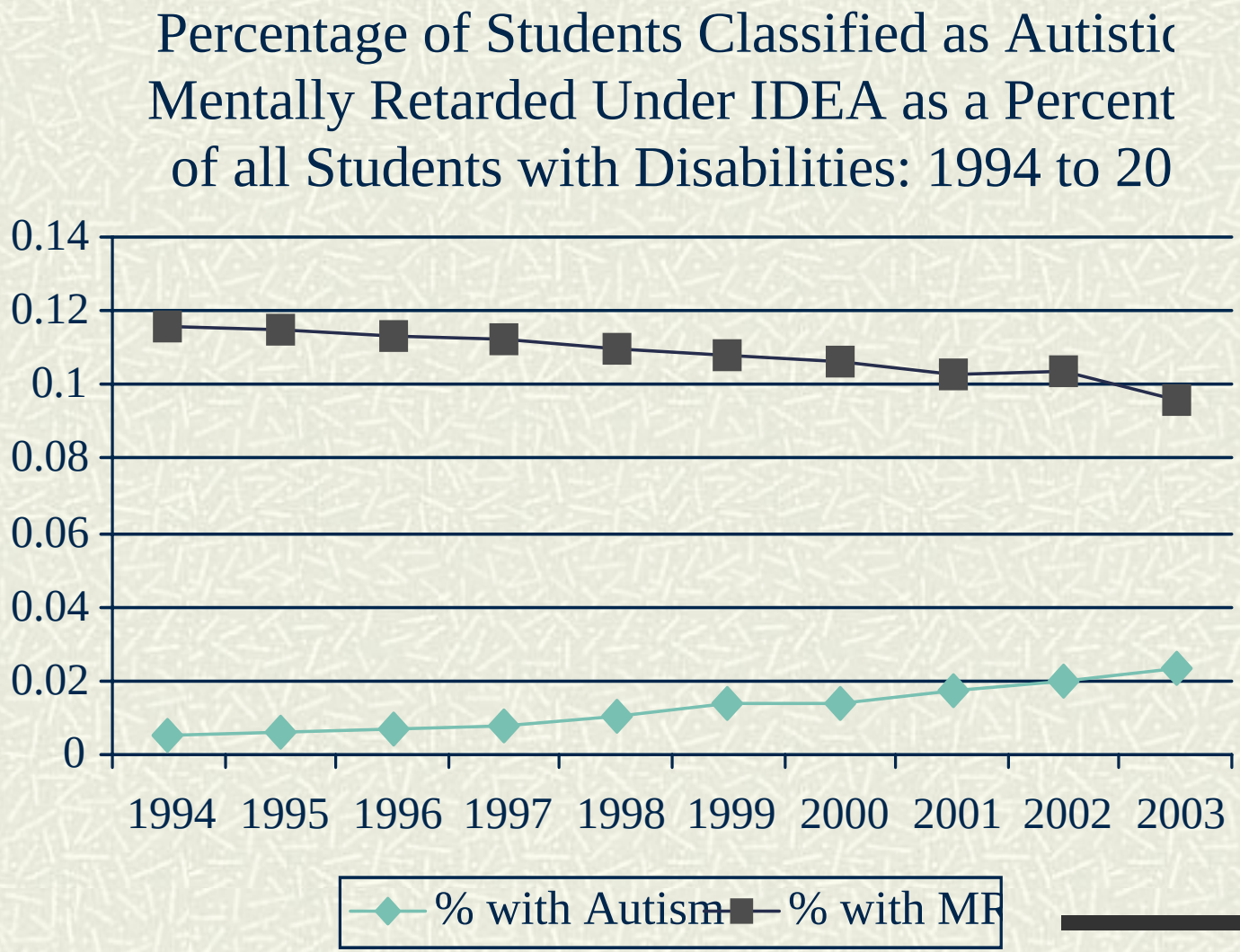
Student Classified as Autistic Under IDEA as a Percentage of Students with Disabilities: 1994 to 2003



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, 2003)



Reasons for Increased Vigilance

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

Reasons for Increased Vigilance

- Not all cases of autism will be identified before school entry.
  - Average Age of Autistic Disorder identification is 5 1/2 years of age.
  - Average Age of Asperger's Disorder identification is 11 years of age.

Reasons for Increased Vigilance

- 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).

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Diagnostic Classifications

- Autism Spectrum Disorders (ASD)
  - A diagnostic category found in DSM IV-TR.
  - Placed within the subclass of *Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence* know as *Pervasive Developmental Disorders* (PDD).
  - *PDD* includes *Autistic Disorder*, *Asperger's Disorder*, *Rett's Disorder*, *Childhood Disintegrative Disorder*, and *PDD Not Otherwise Specified* (PDD-NOS).

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.

Diagnostic Classifications

- Autistic Disorder
  - Markedly abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activity and interests.
- Asperger's Disorder
  - Markedly abnormal or impaired development in social interaction and a markedly restricted repertoire of activities and interests (language abilities and cognitive functioning are relatively uaffected).
- PDD-NOS
  - Experience difficulty in at least two of the three autistic disorder symptom clusters, but do not meet diagnostic criteria for any other PDD.

Diagnostic Classifications

- Rett's Disorder
  - Occurs primarily among females and involves a pattern of head growth deceleration, a loss of fine motor skill, and the presence of awkward gait and trunk movement.
- Childhood Disintegrative Disorder
  - Very rare. A distinct pattern of regression following at least two years of normal development.

Special Education Eligibility

IDEA Autism Classification

- P.L. 105-17, Individuals with Disabilities Education Act [IDEA], 1997:
  - *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. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance.* (sec. 300.7)

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.

Special Education Eligibility

- However, it is less clear if students with milder forms of ASD are 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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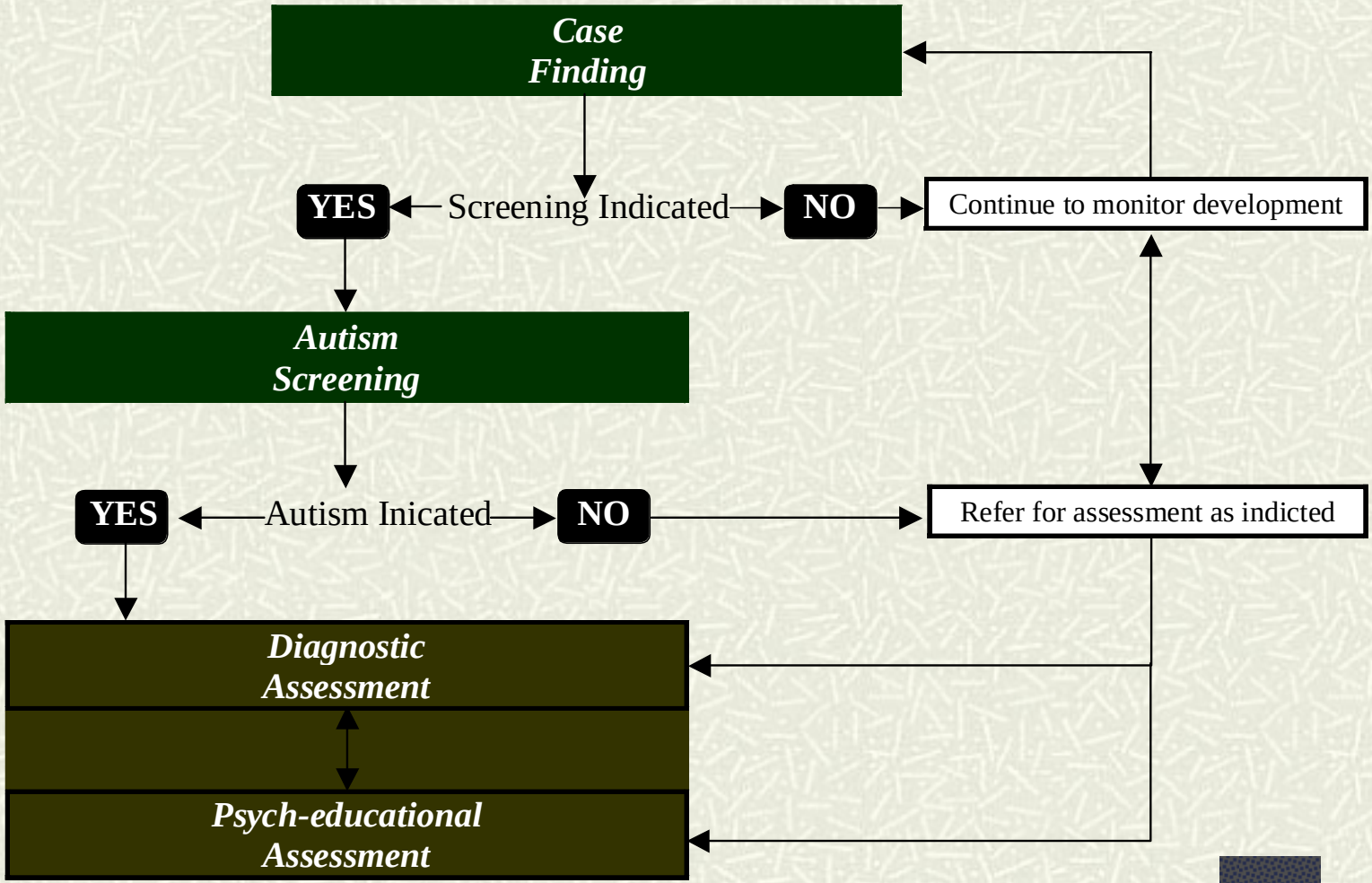
School Psychologist Roles, Responsibilities, and Limitations

- 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.

Adaptation of Filpek et al.'s (1999) Algorithm for the Process of Diagnosing Autism



School Psychologist Roles, Responsibilities, and Limitations

- 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.

School Psychologist Roles, Responsibilities, and Limitations

- 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.***

School Psychologist Roles, Responsibilities, and Limitations

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

- ***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.***

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Case Finding

- **Looking**
  - for risk factors and warning signs of atypical development.
- **Listening**
  - REALLY LISTENING to parental concerns about atypical development.
- **Questioning**
  - caregivers about the child's development.

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Screening and Referral

- Screening is designed to help determine the need for additional diagnostic assessments.
- Screening should include medical testing, audiological evaluation, and behavioral assessment.

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)
  - Baron-Cohen, S., Allen, J., & Gillberg, C. (1992). Can autism be detected at 18 months? The needle, the haystack, and the CHAT. *British Journal of Psychiatry, 161,* 839-43.
  - Baron-Cohen, S., Cox, A., Baird, G., Swettenham. J., Nightingale, N., Morgan, K., Drew, A., & Charman, T. (1996). Psychological markers in the detection of autism in infancy in a large population. *British Journal of Psychiatry, 168,* 158-163.

Behavioral Screening of Infants and Preschoolers

- *CHecklist for Autism in Toddlers* (CHAT)
  - Baird, G., Charman, T., Baron-Cohen, S., Cox, A., Swettenham, J., Wheelwright, S., & Drew, A. (2000). A screening instrument for autism at 18 months of age: A 6-year follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *39*, 694-702.
  - Baron-Cohen, S., Wheelwright, S., Cox, A., Baird, G., Charman, T., Swettenham, J., Drew, A., Coehring, P. (2000). Early identification of autism by the CHecklist for Autism in Toddlers (CHAT). *Journal of the Royal Society of Medicine*, *93*, 521-525.

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

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

http://www.autismresearchcentre.com/instruments/research_instruments.asp

Behavioral Screening of Infants and Preschoolers

- *Modified Checklist for Autism in Toddlers* (M-CHAT)
  - Robins, D. L., Fein, D., Barton, M. L., & Green, J. A. (2001). The modified checklist for autism in toddlers: An initial study investigating the early detection of autism and pervasive developmental disorders. *Journal of Autism and Developmental Disorders*, *31*, 131-144.

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 9 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.

Behavioral Screening of Infants and Preschoolers

- *Modified Checklist for Autism in Toddlers* (M-CHAT)
  - The *M-CHAT* was used to screen 1,293 18- to 30-month-old children. 58 were referred for a diagnostic/developmental evaluation. 39 were diagnosed with an autism spectrum disorder (Robins et al., 2001).
  - Will result in false positive (only 39 of 58 were actually diagnosed as a child with autism).

Modified Checklist for Autism in Toddlers

http://www.firstsigns.org/downloads/m-chat.PDF

Behavioral Screening of School Age Children

- *Childhood Asperger Syndrome Test* (CAST)
  - Scott, F. A., Baron-Cohen, S., Bolton, P., & Brayne, C. (2002). The CAST (Childhood Asperger Syndrome Test). *Autism*, *6*, 9-31.
    - 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

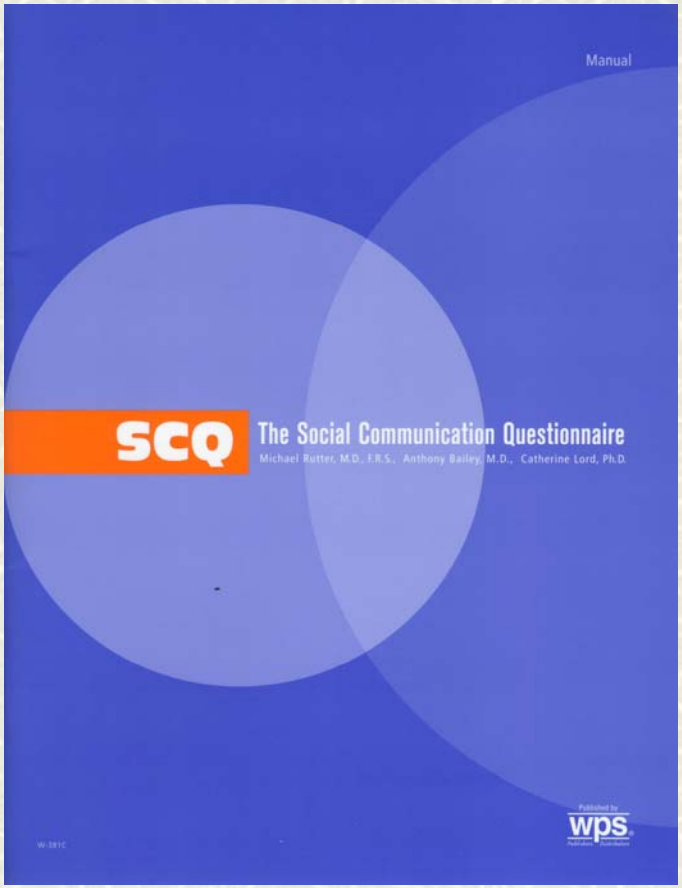
http://www.autismresearchcentre.com/instruments/research_instruments.asp

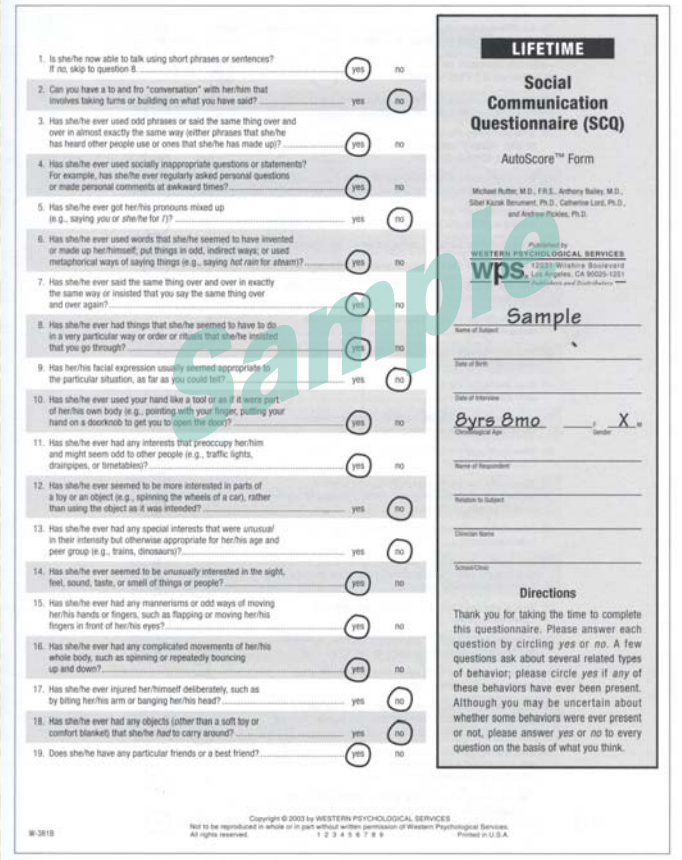
Behavioral Screening of School Age Children

- *Social Communication Questionnaire* (SCQ)
  - Berument, S. K., Rutter, M., Lord, C., Pickles, A., & Bailey, A. (1999). Autism screening questionnaire: Diagnostic Validity. *British Journal of Psychiatry*, *175*, 444-451.
  - Rutter, M., LeCouteur, A., & Lord, C. (2003). *Social Communication Questionnaire*. Los Angeles, CA: Western Psychological Services.

Behavioral Screening of School Age Children

- *Social Communication Questionnaire* (SCQ)





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.

Behavioral Screening of School Age Children

- *Social Communication Questionnaire* (SCQ)
  - While it is not particularly effective at distinguishing among the various ASDs, it has been found to have good discriminative validity between autism and other disorders including non-autistic mild or moderate mental retardation.
  - The *SCQ* authors acknowledge that more data is needed to determine the frequency of false negatives (Rutter et al., 2003).
  - This *SCQ* is available from Western Psychological Services.

Other Screening Tools

- Infants and Preschoolers
  - Siegel, B. (2004). *Pervasive Developmental Disorder Screening Test II: Early Childhood Screener for Autistic Spectrum Disorders.* San Antonio, TX: PsychCorp.
- School Age Children
  - Ehlers, S., Gillberg, G., & Wing, L. (1999). A screening questionnaire for Asperger syndrome and other high functioning autism spectrum disorders in school age children. *Journal of Autism and Developmental Disorders, 29,* 129-141.

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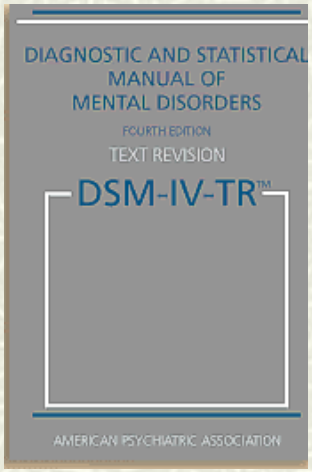
Autistic Disorder



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 two of the following:

a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction

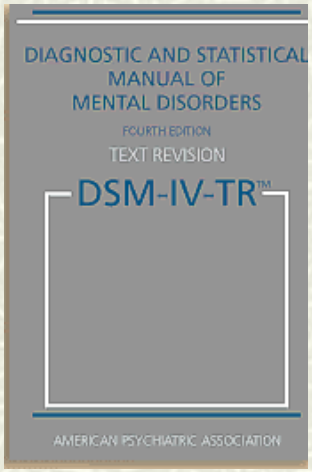
b) failure to develop peer relationships appropriate to developmental level

c) a 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)

d) lack of social or emotional reciprocity

NASP

Autistic Disorder



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):

(2) qualitative impairments in communication as manifested by at least one of the following:

a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt top compensate through alternative modes of communication such as gesture or mime)

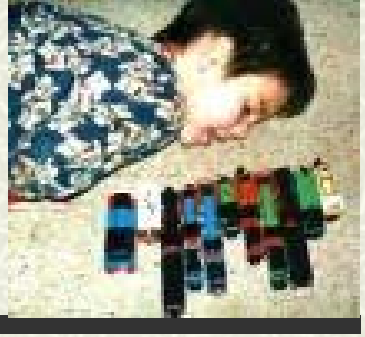
b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

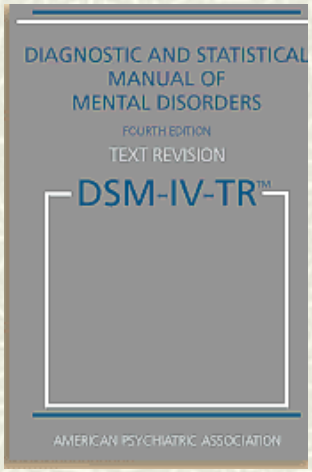
c) stereotyped and repetitive use of language or idiosyncratic language

d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

NASP

Autistic Disorder





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):

(3) restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus

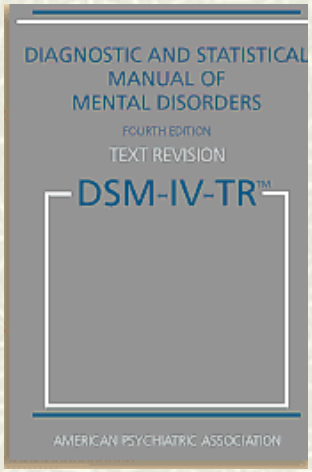
b) apparently inflexible adherence to specific, nonfunctional routines or rituals

c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)

d) persistent preoccupation with parts of objects

NASP

Autistic Disorder



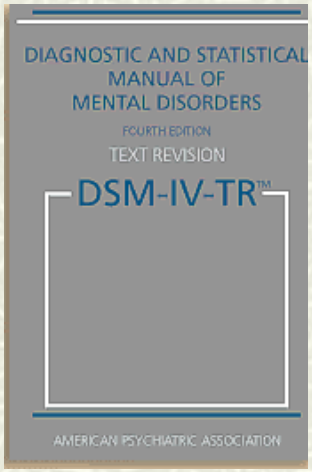
B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

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

NASP

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").



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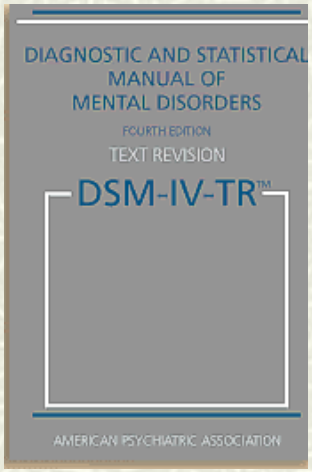
Other ASDs

- Childhood Disintegrative Disorder (CDD)



  - Criteria are essentially the same as Autistic Disorder.
  - Difference include that in CDD there has been …

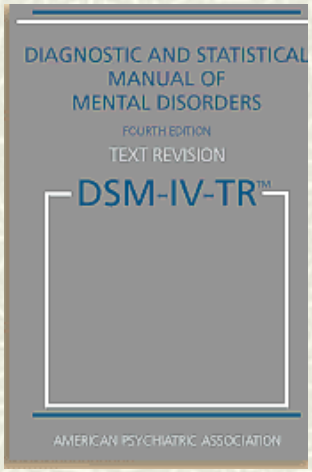
(a) "Apparently normal development for at least the first 2 years after birth as manifested by the presence of age-appropriate verbal and nonverbal communication, social relationships, play, and adaptive behavior;" and that there is

(b) "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-skills."

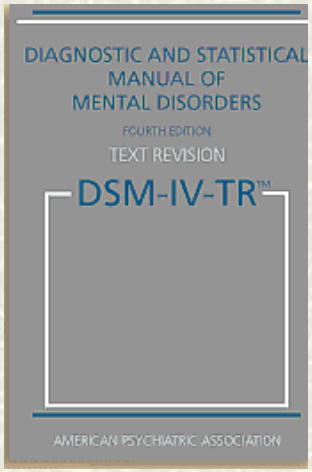
Other ASDs

- Rett's Disorder



  - Both Autistic Disorder and Rett's Disorder criteria include delays in language development and social engagement (although social difficulties many not be as pervasive).
  - Unlike Autistic Disorder, Rett's also includes
    (a) head growth deceleration,
    (b) loss of fine motor skill,
    (c) poorly coordinated gross motor skill, and
    (d) severe psychomotor retardation.

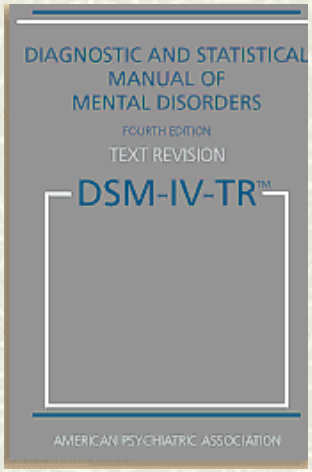
Symptom Onset



- Autistic Disorder is before the age of three years.
  - Before three years, their 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.



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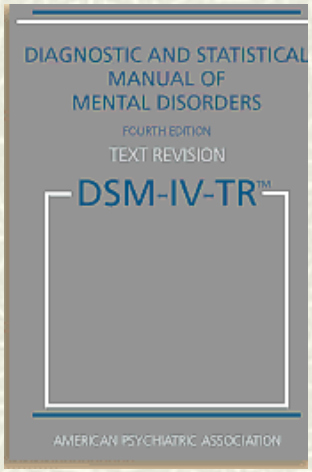
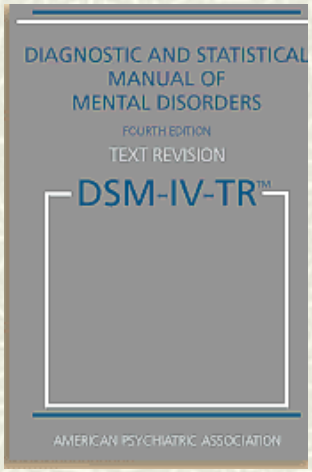
Developmental Course



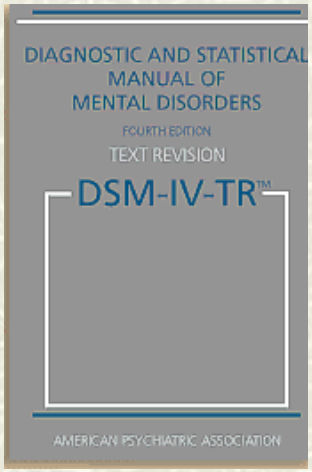
- Asperger's Disorder:
  - Motor delays or clumsiness may be some of the first symptoms noted during the preschool years.
  - Difficulties in social interactions, and symptoms associated with unique and unusually circumscribed interests, become apparent at school entry.
  - Duration is typically lifelong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



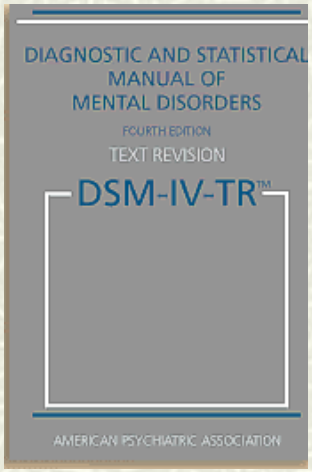
- Asperger's Disorder is the only ASD not typically associated with some degree of mental retardation.
- Autistic Disorder is associated with moderate mental retardation. Other associated features include:
  - unusual sensory sensitivities
  - abnormal eating or sleeping habits
  - unusual fearfulness 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

Disorder	*Differentiating Features from Autistic Disorder*
RettÕs 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.
AspergerÕs Disorder	• Language development is not delayed. • Normal intelligence. • Later symptom onset.
Schizophrenia	• Years of normal or near normal development. • Symptoms of hallucinations and delusions.
Selective Mutism	• Normal language in certain situations/settings. • No restricted patterns of behavior.
Language Disorders	• No severe impairment of social interactions. • No restricted patterns of behavior.
Attention-deficit/Hyperactivity Disorder	• Distractible inattention related to external (not internal) stimuli. • Deterioration in attention and vigilance over time.
Mental Retardation	• Relative to developmental level, social interactions are not severely impaired. • No restricted patterns of behavior.
Obsessive Compulsive Disorder	• Normal language and communication skills. • Normal social skills.
Reactive Attachment Disorder	• History of severe neglect and/or abuse. • Social deficits dramatically remit in response to environmental change.

Note. Adapted from APA (2000), Filipek et al. (1999), Hendren (2003), and National Research Council (2001).

Developmental and Health History

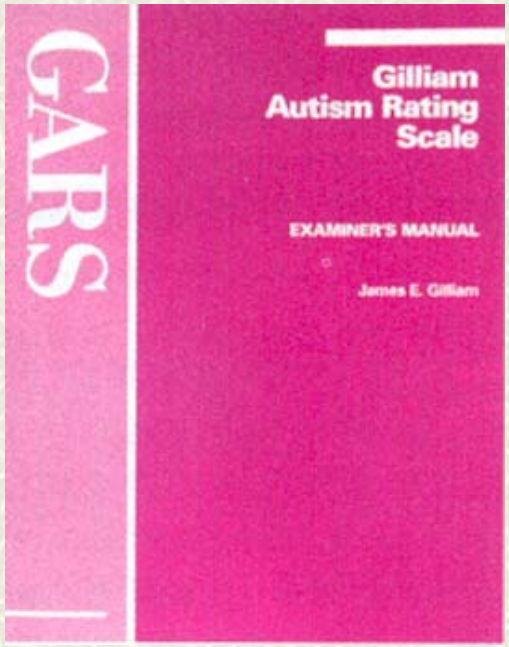
- Prenatal and perinatal risk factors
- Postnatal risk factors
- Developmental Milestones
- Diagnostic History
- Family History

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)
  - Gilliam, J. E. (1995). *Gilliam autism rating scale*. Austin, TX: Pro-Ed.



Indirect Assessment: Rating Scales

- The *Gilliam Autism Rating Scale* (GARS)
  - Normative group, 1092 children, adolescents, and young adults reported by parent or teacher to be a person with autism.
  - Age range 3 to 22.
  - Designed for use by parents, teachers, and professionals
  - 56 items, 4 scales.
  - Social Interaction, Communication, and Stereotyped Behavior scales assesses current behavior.
  - Developmental Disturbances scale assesses maladaptive behavior history.
  - Behaviors are rated on a 4-point scale ("Never Observed" to "Frequently Observed").

Indirect Assessment: Rating Scales

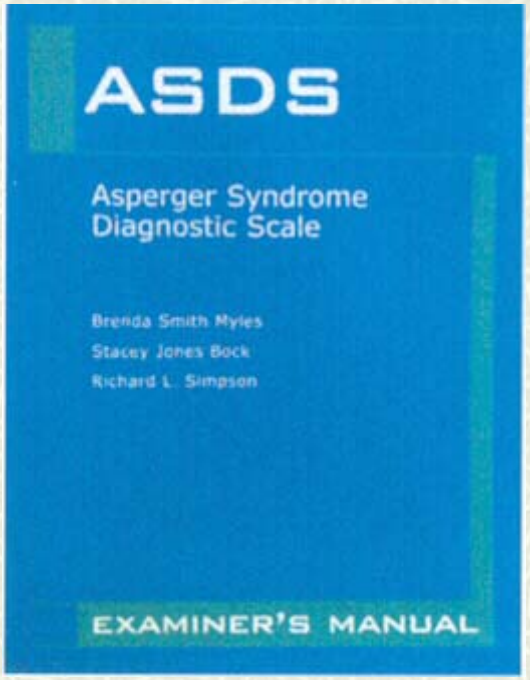
- The *Gilliam Autism Rating Scale* (GARS)
  - Yields an Autism Quotient (AQ)
  - AQs are classified on an ordinal scale ranging from "Very Low" to "Very High" probability of autism. A score of 90 or above specifies that the child is "probably autistic."

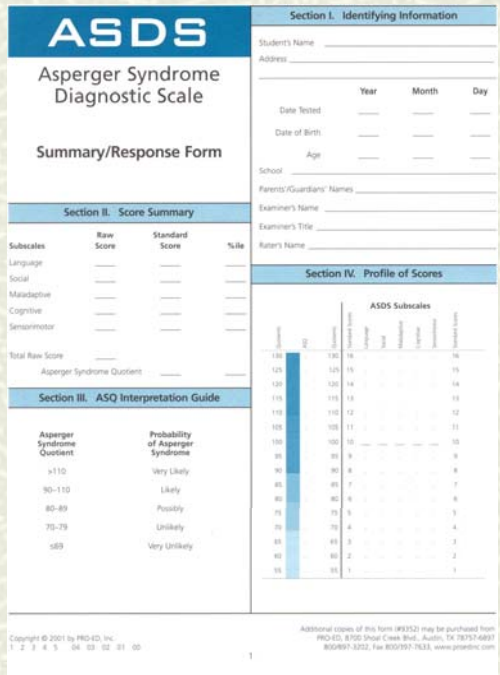
Indirect Assessment: Rating Scales

- The *Gilliam Autism Rating Scale* (GARS)
  - South, M., Williams, B. J., McMahon, W. M. Owlye, T., Filipek, P. A., Shernoff, E., Corsello, C. C., Lainhart, J. E., Landa, R., & Ozonoff, S. (2002). Utility of the Gilliam autism rating scale in research and clinical populations. *Journal of Autism and Developmental Disorders*, *32*, 593-599.
    - 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 *Asperger Syndrome Diagnostic Scale* (ASDS)



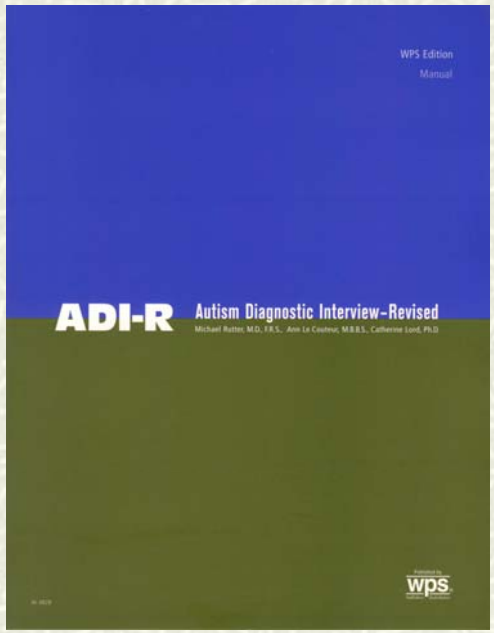


Indirect Assessment: Rating Scales

- 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)
  - Rutter, M., Le Couteur, A., & Lord, C. (2003). *Autism diagnostic interview-revised (ADI-R).* Los Angeles, CA: Western Psychological Services.



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.

Indirect Assessment: Interview

- 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).

Direct Assessments: ADOS

- The *Autism Diagnostic Observation Schedule* (ADOS)
  - Lord, C., Rutter, M., Di Lavore, P. C., & Risis, S. (). *Austims diagnostic observation schedule*. Los Angeles, CA: Western Psychological Services.

Direct Assessments: ADOS

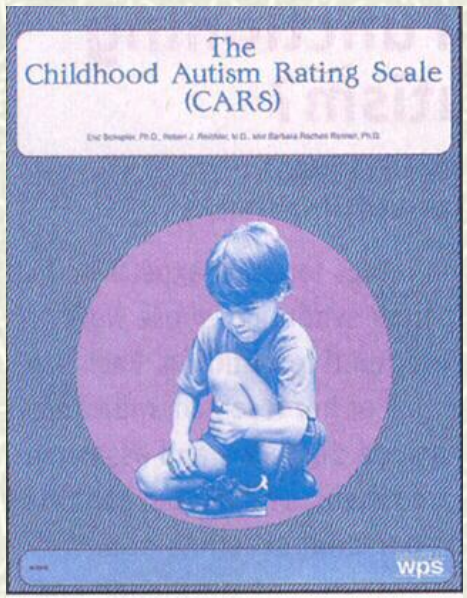
- A standardized, semi-structured, interactive play assessment of social behavior.
  - Uses “planned social occasions” to facilitate observation of the social, communication, and play or imaginative use of material behaviors related to the diagnosis of ASD.
- Consists of four modules.
  - Module 1 for 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.

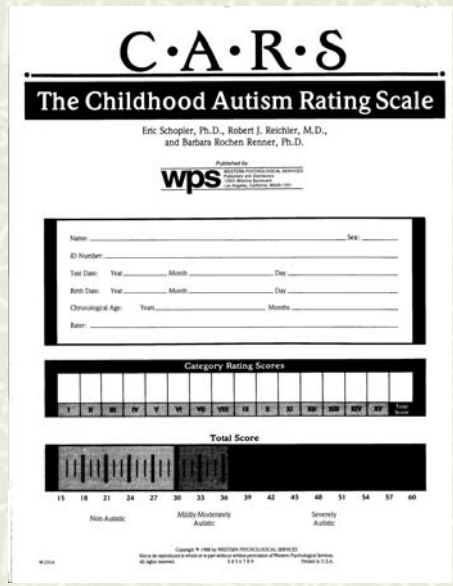
Direct Assessments: ADOS

- 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: CARS

- The *Childhood Autism Rating Scale* (CARS)
  - Schopler, E., Reichler, R., & Rochen-Renner, G. (1988). *The Childhood Autism Rating Scale (CARS*). Los Angeles, CA: Western Psychological Services.





Direct Assessments: 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

Direct Assessments: CARS

- 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.
- This may have created some problems for its current use
- 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."

Presentation Outline

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

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

- Prepare the student for the testing experience.
- Place the testing session in the student's daily schedule.
- Minimize distractions.
- Make use of pre-established physical structures and work systems.
- Make use of powerful external rewards.
- 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.

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 that 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.

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.
- Other uses of adaptive behavior scales when assessing students with ASD are:
  a) Obtain measure of child's typical functioning in familiar environments, e.g. home and/or school.
  b) Target areas for skills acquisition.
  c) identifying strengths and weaknesses for educational planning and intervention
  d) documenting intervention efficacy
  e) monitoring progress over time.

Adaptive Behavior

- 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

Language Functioning

- *Peabody Picture Vocabulary Test – Third Edition*
- *Expressive One-Word Picture Vocabulary Test*
  - When interpreting the results of such measures, it is important to keep in mind that these tests may overestimate language abilities as they do not require sentence production or comprehension, nor do they assess social language or pragmatics.
  - Also, in many higher functioning students with ASD receptive language may be lower than expressive language.

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 Achievement

- Assessment of academic functioning will often reveal a profile of strengths and weaknesses.
  - It is not unusual for students with ASD 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 – Revised* 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.

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.
- 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.

Concluding Comments

- The increasing incidence of ASDs, combined with the importance of early identification create the need for school psychologists to become better prepared to identify these disorders.
- With appropriate intervention there is hope that the students will be able to achieve significant degrees of independence. These interventions, however, can only be provided if the student with ASD is identified.
- It is hoped that this paper has provided information that will assist school psychologists in the important identification tasks

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Contact me for additional resources:

- Prevalence and Associated Conditions
- Causes
- Case Finding and Screening
- Diagnostic Assessment
- Psycho-Educational Assessment