Autism and Related Disorders:

CHLD 350a/PSYC350

Lecture II: Assessment

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Pervasive Developmental Disorders

- Reciprocal Social Interaction
- Communication
- Restricted and Repetitive Behaviors
Pervasive Developmental Disorders

Impairments in:
- a. Nonverbal behaviors: eye gaze, facial expression, body postures, and gestures to regulate social interaction
- b. Peer relationships
- c. Seeking to share enjoyment, interests, or achievements with other people
- d. Social or emotional reciprocity

- a. Delay in, or lack of development of, spoken language
- b. 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

- Motor stereotypies
- Repetitive behaviors
- Narrow Interests
- Rituals, routines
- Preoccupation with parts of objects
Diagnosis

Pervasive Developmental Disorders/ Autism Spectrum Disorders

- Autistic Disorder (Autism)
- Asperger’s Disorder
- Pervasive Developmental Disorder, NOS (PDD-NOS)
- Childhood Disintegrative Disorder
- Rett’s Disorder
Assessment

Case Example: Robert age 10
Am. J. Psychiatry, Volkmar et al., 157(2), 262-267

Autobiographical Statement

My name is Robert. I am an intelligent, unsociable but adaptable person. I would like to dispel any untrue rumors about me. I cannot fly. I cannot use telekinesis. My brain is not large enough to destroy the entire world when unfolded. I did not teach my long-haired guinea pig, Chronos, to eat everything in sight (that is the nature of the long-haired guinea pig).
Comprehensive Assessment Model

• Multi-disciplinary team
• Assess multiple areas of functioning
• Collect information across a variety of settings
• Provide a single coherent view
• Provide implications for adaptation and learning
• Communicate with schools and outside providers to support implementation of recommendations
Multi-Disciplinary Assessments

Developmental History
  * Psychologists, Psychiatrists, Social Workers

Cognitive/Developmental/Behavioral
  * Psychologists

Diagnostic Assessment
  * Psychologists, Psychiatrists

Speech, Language, & Communication
  * Speech & Language Pathologists

Assessment of Sensory and Motor Skills
  * Occupational Therapists, Physical Therapists

Specialized Medical Evaluations
  * Neurologists, Geneticists, GI

Neuropsychological, Academic, Vocational Evaluations
  * Psychologists, Educational and Vocational Specialists
Multiple Areas of Functioning

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Across Settings

• Collection of information through observation, interview, and/or questionnaires
• Across a variety of settings such as home, school, and community
• Role for parent observation
Parent Observation

- Is this an accurate representation of child’s behavior/knowledge base
- Level of effort/compliance
- Understanding and accepting validity of results
- Shared observations
- Parental perspectives
History

- Developmental history, behavioral history, educational history, family history, history of treatment/interventions
- Importance for diagnosis and for differential diagnosis
- How to obtain developmental history?
  - Clinical interview
  - Record review
  - Video recordings
Cognitive Assessment

- Levels of cognitive functioning
- Profiles of cognitive functioning
- Implications for test selection, interpretation, and intervention
Levels of Cognitive Functioning

Approx. 70-75% of individuals with *autism*

Approx 45% of individuals with *ASD*

Mean = 100

Standard Deviation = +/- 15
**Profiles: Scatter is common...**

<table>
<thead>
<tr>
<th>WISC-IV Index/IQ</th>
<th>Standard Score</th>
<th>Confidence Interval</th>
<th>Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Comprehension</td>
<td>126</td>
<td>118-131</td>
<td>96</td>
</tr>
<tr>
<td>Perceptual Reasoning</td>
<td>106</td>
<td>98-113</td>
<td>66</td>
</tr>
<tr>
<td>Working Memory</td>
<td>99</td>
<td>91-107</td>
<td>47</td>
</tr>
<tr>
<td>Processing Speed</td>
<td>65</td>
<td>60-78</td>
<td>1</td>
</tr>
<tr>
<td>Full Scale*</td>
<td>102</td>
<td>97-107</td>
<td>55</td>
</tr>
</tbody>
</table>

*Important not to interpret IQ score in isolation*
...and at the Subtest Level

Mean of Subtest Scores

0=TD 1=HFA 2=AS

WISC-III
Examples of Cognitive Measures

Common Test Batteries:
* Wechsler Scales (WPPSI-III; WISC-IV; WAIS-III)
* Differential Ability Scales, Second Edition (DAS-2)
* Kaufman Assessment Battery for Children, Second Edition (K-ABC2)
* Stanford-Binet, 5th Edition (SB-5)

Nonverbal Measure:
* Leiter International Performance Scale – Revised (Leiter-R)

Developmental Assessments:
* Mullen Scales of Early Learning (birth to 68 months)
* Bayley Scales of Infant Development, 3rd Edition (1 month to 42 months)
Selection (and Interpretation) of Cognitive Measure

- Level of **language** skills required
- Degree of **complexity** of instructions and tasks
- Level of **structure**
- Extent of **social** demands
- Use of **timed** tasks
- Level of **motor** involvement
  *May optimize or diminish performance*
Analysis and Interpretation

Observations are important too...

- Numbers yielded are important but also interested in how the score was obtained
- Integration of observations and thorough knowledge of history as well as other variables that might impact performance (e.g., fatigue, illness, and primary language in the home other than English, etc.)
Category Fluency

The category is animals....

7 yr old girl with AS

- Sulfur crested cockatoo
- Chesapeake bay retriever
- Hog nose viper
- Desert tortoise...
Frames the Evaluation

- **Cognitive (Nonverbal):**  SS = 120
- **Verbal:**  SS = 90
- **Adaptive (Social):**  SS = 62
- **Friendship response (ADOS):**

  “I realize that it is always a truce before the official friendship. It’s very difficult to explain but I make all the rules – if they follow the rules it will guide them toward a path of friendship. But people are getting more slippery – if you tell them the rules, they follow them deliberately.”
Implications for Diagnosis

- Frames the evaluation
  - E.g., CA = 4 years; MA = 2 years; Social Functioning = 2 years

- Identifies presence/absence of significant developmental delays
  - Autism vs Asperger’s disorder diagnosis

- Informs whether the child has an *Intellectual Disability*
  - *In conjunction with assessment of adaptive behavior*
Implications for Intervention

Identifying strengths/weaknesses informs intervention:

- **Areas of weakness/challenge help to define goals/objectives for the child**
  - E.g., CA = 8 years; MA = 2 years; Set goals and expectations to meet child at current level of functioning

- **Areas of weakness/challenge help to account for aspects of behavioral presentation**
  - E.g., Child appears inattentive, does not follow through on directions – assessment shows poor verbal comprehension despite good expressive vocabulary

- **Areas of strength are equally to important to identify as these can be used to help accommodate areas of weakness**
  - E.g., Visual > Verbal – Use visual strategies to support communication
Language & Communication Assessment

- Not only the **formal** aspects of language expression and comprehension
- And **atypical features**: E.g., Echolalia, pronoun reversal, scripted language
- But also:
  - **Prosody** (e.g., inflection, volume, register)
  - Other **nonverbal** forms of communication (e.g., gestures, eye contact)
  - The **use of language** for (social) communication
  - Appreciation of **nonliteral language**
Adaptive Behavior

- **Definition:** capacity for personal and social self-sufficiency in real-life situations / independent living skills
- **Importance:** clinic and representative environments
- **What if intelligence is greater than adaptive skills?**
Real-life (adaptive functioning) in higher functioning individuals with autism and PDDs

- Autism, AS, and PDD-NOS
- N=115
- Mean Age: 12 years (SD 2.9) (Range 8 to 18 years)
- Mean Verbal IQ: 103 (SD 23)
- Mean Socialization Score (Vineland): 52 (SD 12.6)
- Mean Interpersonal Age Equivalent: 3.6 years (SD 1.7 years)

From Klin, Saulnier, Sparrow, Cicchetti, Lord & Volkmar (2005)
Measuring Adaptive Behavior

Vineland Adaptive Behavior Scales, 2nd Edition (Vineland-II)

5 domains of adaptive functioning
- Communication
- Daily Living Skills
- Socialization
- Motor
- Maladaptive Behavior

3 editions: survey, expanded, classroom
Implications for Intervention

- Social disability (ADOS) and ability (Vineland): two relatively dissociated domains!!
- Social ability is negatively correlated with age (decline relative to peers, relative to increasing demands of the environment)
- Often programs emphasize reduction of symptoms
- Conclusion: Prioritize adaptive functioning (REAL-LIFE SKILLS)
Assessment of Symptoms

* Parent Report
  * Modified Checklist for Autism in Toddlers (M-CHAT); Social Communication Questionnaire (SCQ); Social Responsiveness Scale (SRS)

* Teacher Report
  * Autism Behavior Checklist (ABC), SRS

* Parent Interview
  * Autism Diagnostic Interview Revised (ADI-R)

* Child Observation and Rating
  * Childhood Autism Rating Scale (CARS)
  * Autism Diagnostic Observation Schedule (ADOS)
Autism Diagnostic Interview-Revised (ADI-R)  

(Lord et al., 1994)

* Semi-structured, investigator-based interview for caregivers
* Originally developed as a research instrument, but clinically useful
* Keyed to DSM-IV/ICD-10 Criteria
* Considerable training needed for use
  * Reliability must be established
* Good information on reliability and validity
The Autism Diagnostic Observation Schedule (ADOS)

* Unstructured play assessment - elicits child’s own initiations
  * Social initiations, play, gestures, requests, eye contact, joint attention, etc. pressed for, observed, & coded by examiner
  * Examiner pulls for target behaviors through specific use of toys, activities, & interview questions
  * Stereotypical behaviors, sensory sensitivities, aberrant behaviors also observed & coded

* Diagnostic Formulation
  * 4 Modules – based on communication level
  * Items coded on a 4-point severity rating scale
  * Diagnostic Algorithm: Autism, ASD, non-ASD
Differential Diagnosis

- Autism, Asperger syndrome, other PDDs
- Intellectual Disability
- Language Disorders
- Obsessive Compulsive Disorder
- Schizophrenia...
# DSM-IV-TR Criteria for PDDs

<table>
<thead>
<tr>
<th></th>
<th>Abnormalities in Reciprocal Social Interaction</th>
<th>Communication Impairments</th>
<th>Restricted, Repetitive, Stereotyped Patterns of Behavior</th>
<th>Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autism</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>&lt; 3 years: Abnormal language, social attachments, or play</td>
</tr>
<tr>
<td><strong>Asperger disorder</strong></td>
<td>x</td>
<td>o</td>
<td>x</td>
<td>Single words by 2 years; Phrases by 3 years; No adaptive behavior deficits before 3 years</td>
</tr>
<tr>
<td><strong>PDD-NOS</strong></td>
<td>x</td>
<td>x/o</td>
<td>x/o</td>
<td>None specified; Possibly late age of onset group</td>
</tr>
</tbody>
</table>
Clinical Features of Autism and AS

**Reciprocal Social Interactions**

**(High Functioning) Autism**
- Socially isolated with limited social interest; little social chat; aloof and resist interactions
- Passive but accept interactions when others press on them and structure the interaction
- Little initiation; reduced seeking help or comfort

**Asperger Disorder**
- Socially isolated but not withdrawn in the presence of others
- Approach others but in an inappropriate fashion; may express interest in friendships
- May be able to describe other’s emotions, intentions, social conventions but do not act on this knowledge in spontaneous or intuitive manner
Communication

(High Functioning) Autism

- Absent or delayed language
- Echolalia, pronoun reversal; reliance on scripted language
- Characteristic monotone speech pattern
- Poverty of speech; brief responses
- Respondent role in communication
- Reduced conventional gestures; gaze and pointing for instrumental purposes

Asperger Disorder

- Preserved early language & formal language skills
- Speech notable for rate and volume
- Marked verbosity
- Tangential; looseness
  - one-sided style
  - failure to provide context
  - does not mark topic changes
  - failure to suppress vocal output accompanying internal thoughts
  - likely to hear same monologue across people/settings
- Initiators but do not follow other’s lead or request for information
- Formal, pedantic quality
- Exaggerated gestures
### Behaviors

<table>
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<tr>
<th>(High Functioning) Autism</th>
<th>Asperger Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Stereotyped, restricted patterns of interest</td>
<td>• All absorbing special interests, amass information</td>
</tr>
<tr>
<td>• Preoccupation with unusual aspects of objects in play</td>
<td>• Less likely to see preoccupation with parts of objects</td>
</tr>
<tr>
<td>• Rigid adherence to nonfunctional routines</td>
<td>• Behavioral rigidity; resistance to change</td>
</tr>
<tr>
<td>• Stereotyped, repetitive motor mannerisms</td>
<td>• Less pronounced motor mannerisms</td>
</tr>
<tr>
<td>• Splinter skills – spatial, mechanical</td>
<td>• Excellent rote knowledge</td>
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Differential Diagnosis

- Autism, Asperger syndrome, other PDDs
- Intellectual Disability
- Language Disorders
- Obsessive Compulsive Disorder
- Schizophrenia...
Further Assessments

• Behavioral Observation
  – With adult
  – With peers
  – At home
  – In community

• Behavioral Assessment

• Neuropsychological Assessment

• Occupational Therapy Assessment
  – Sensory and Motor

• Academic Skills

• Medical: Neurology, genetics, hearing, etc.

• Vocational
Importance of Assessment

- **Diagnosis**
  - Emphasis on individual profiles, not just the label
  - However, importance of labels

- **Access to Services**
  - School: Educational Classification -- IDEA categories
  - Government Agencies: Department of Developmental Services (Formerly DMR)
  - National Resources: e.g., Autism Speaks (www.autismspeaks.org)
  - Community Resources: e.g., Autism Spectrum Resource Center (www.ct-asrc.org)

- **Treatment/Intervention**
  - Assessment first step toward developing treatment goals and intervention planning
Overview of Assessment Process

* Taking Thorough History
* Establishing Developmental, Cognitive, & Language Baseline
* Assessing Symptoms of Autism
  * Social, Behavioral, & Play Presentation
* Adaptive Functioning
* Medical Issues & Comorbidity
* Sensory & Motor Functioning
* Neuropsychological, Academic, Vocational
Important Issues in Assessment of ASD

- Varied *levels* of functioning
- Varied *profiles* of functioning
- Performance may vary according to level of structure, types of demands
- Presentation may change over time
- Presentation may change across settings

Thus assessment of ASDs is comprehensive— involves multiple disciplines, measures of ability and disability, and collection of information across people and contexts.
Comprehensive Assessment Model

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- Assess multiple areas of functioning
- Collect information across a variety of settings
- Provide a single coherent view
- Communicate with schools and outside providers to support implementation of recommendations
- Provide implications for adaptation and learning
Thank you!

Yale Child Study Center
Autism Program
[www.autism.fm]