AUTISM, LANGUAGE DISORDER, AND SOCIAL (PRAGMATIC) COMMUNICATION DISORDER

DSM V and Differential Diagnoses

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Autism and Communication Disorders

In the past decade: there has been an “explosion” in public and professional awareness of autism and an increase in the prevalence rate among children

- Overall: prevalence: 1:88 (1.1%) children
- boys: 1:54 (1.8%); girls – 1:252 (0.4%)
- Increase in research: focus on etiology and interventions
- Increase in availability of services for children with autism

Language disorders remain relatively “unknown” (publically and professionally) despite a much higher prevalence rate (~7-8%)

Both disorders share some common features, especially in the preschool years and “differential diagnosis” may be difficult in very young children

AUTISM SPECTRUM DISORDERS (ASD)

DSM V and the New Diagnostic Criteria

- Strengthens the concept of an “autistic spectrum” with varying degrees of symptom severity
- Removed broad “communication impairment” from the definition
- Emphasis on deficits in social and non-verbal aspects of communication
- Removed the 5 “subtypes” of autism
  - Infantile autism
  - Asperger syndrome
  - Pervasive Developmental Disorder (PDD)
  - Childhood Disintegrative Disorder
  - Rett’s syndrome

Autism: DSM-IV to DSM-V

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<thead>
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<th>DSM-IV</th>
<th>DSM-V</th>
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<tr>
<td>• Autistic Disorder</td>
<td>• Autism Spectrum Disorder</td>
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<td>• Rett’s Disorder</td>
<td>• Severity level: mild, moderate, severe</td>
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<td>• Childhood Disintegrative Disorder</td>
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<td>• Asperger Disorder</td>
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<td>• Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS)</td>
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Autism: DSM-V Definition

A. Persistent deficits in social communication and social interaction across multiple contexts: (All 3 must be present)
1) Social-emotional reciprocity
2) Nonverbal communicative behaviors
3) Developing, maintaining, and understanding relationships

B. Restricted, repetitive patterns of behavior, interests, or activities: (At least 2 present)
1) Stereotyped or repetitive motor movements, use of objects, or speech
2) Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior
3) Highly restricted, fixated interests that are abnormal in intensity or focus
4) Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment

C. Symptoms must be present in the early development period (may not become fully manifest until social demands exceed limited capacities)

D. Symptoms cause significant impairment in social, occupational or other areas of
Autism: Etiology

- Genetics:
  - Known genetic or chromosomal condition (e.g., Down syndrome, fragile X syndrome, tuberous sclerosis) in ~10%
- Heredity:
  - A couple with 1 child with autism has a 2%-18% chance of having a 2nd affected child
  - Twins: if one identical twin has autism, the other will also be affected 36-95% of the time
- Other biological risk-factors:
  - Preterm
  - Low birth weight
  - Older parents

Autism: Developmental Trajectory

Symptoms typically recognized in the 2nd year of life (12-24 months old)

- Lack of interest in social interaction
- Delay in language development or uneven pattern (knows letters/numbers but can’t use words to communicate)
- Odd play patterns
- Marked ritualistic, repetitive behaviors become apparent at later ages
  - 1/3 have regression (rapid or gradual loss of language or social behaviors)
  - Following regression, very few regain normal development
- Children with higher IQ often make great gains; less able children remain relatively stable or show only small improvement over time

Comorbidity:
- Cognitive impairment (~50-70%)
- Epilepsy (25% before adulthood)

Change in ASD Symptoms as Child Ages

Kanner (1943) described a gradual lessening of extreme autistic symptoms as children aged:

“After many outbursts of frustration, he gradually and reluctantly learns to compromise when he finds no way out, obeys certain orders, complies in matters of daily routine, but always strictly insists on the observance of his rituals. When there is company, he moves among the people like a stranger.”

Outcome Studies of Individuals with Autism


- Summary of 25 research papers over 30+ year period
- Focus on individuals with diagnosis of “autism,” not those that included Asperger disorder or PDD-NOS (to avoid more favorable ‘bias’ in findings)
- Includes: prospective, longitudinal studies; retrospective studies; large-scale, cross-sectional studies

Outcome in Autism

“The accumulated evidence summarized in this article indicates that the core symptoms of autism abate to some degree during adolescence and young adulthood…however, improvements are not seen for all individuals and, even in those who do improve, changes are seldom substantial enough to move the individual into the normal range of functioning.”

Gotham et al. Pediatrics 2012

- 345 children who were diagnosed with autism at research centers
- Autism Diagnostic Interview-Revised (ADI-R), Vineland Adaptive Behavior Scales, verbal and non-verbal IQ scores at baseline
- Mentored Parent-Implemented Structured Teaching and ABA was monitored
- Children were repeatedly re-assessed with the Autism Diagnostic Observation Schedule (ADOS) between ages 2-10 years of age

Results:
- Change in ADOS scores (autism severity)
  - 84% remained in either persistently high or moderate severity
  - 9% had worsening severity
  - 7% had decreasing severity (improvement in functioning)

- Trajectory was not related to:
  - Gender, race, baseline verbal or non-verbal IQ, or to the type or amount of behavior therapy
  - Improvement in ADOS score was related to increase in verbal IQ over time
  - Adaptive behavior worsened over time in all groups except the “improvers” who remained stable

Communication Disorders: DSM V

Communication refers to any verbal or nonverbal behavior that influences the behavior, ideas, or attitudes of another individual

Speech refers to sound production – articulation, fluency, voice

Language refers to the form, function, and use of a conventional system of symbols (spoken words, sign language, written words, pictures)

Communication Disorders

<table>
<thead>
<tr>
<th>DSM-IV</th>
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<tbody>
<tr>
<td>Expressive Language Disorder</td>
<td>Language Disorder*</td>
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<td>Mixed Receptive-Expressive Language Disorder</td>
<td>Speech Sound Disorder</td>
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<td>Phonological Disorder</td>
<td>Childhood-Onset Fluency Disorder (Stuttering)</td>
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<td>Stuttering</td>
<td>Social (Pragmatic) Communication Disorder*</td>
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<td>Communication Disorder - NOS</td>
<td>Unspecified Communication Disorder</td>
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Language Disorder: DSM-V Definition

A. Persistent difficulty in acquisition and use of language (spoken, written, sign language) due to deficits in comprehension or production:
   1) Reduced vocabulary
   2) Limited sentence structure
   3) Impairments in discourse
B. Language abilities are substantially below those expected for age, resulting in functional limitations in communication, social participation, academic achievement, or occupational performance
C. Onset in the early developmental period
D. Not attributable to hearing or other sensory impairment, motor dysfunction, another medical or neurological condition, and not explained by intellectual disability or global developmental delay
Early Symptoms of Language Disorder

- Delay in onset or use of words – often compensated for by relying on gestures or other body language
- May repeat phrases or dialog from movies or stories in an echolalic fashion – usually appropriate to the situation
- Reliance on routines and schedules – as language improves this need decreases
- Play patterns reflect imitation and pretending
- Appropriate interaction with family members and familiar individuals
- Difficulty engaging with peers despite a “social interest” – may do better with younger or older children and adults

Emotional and Behavioral Problems

- Most young children with a language disorder have emotional or behavioral difficulty
  - They may not understand what is going on around them
  - They may be frustrated or frightened in new situations
- In a series of studies in Canada:
  - 50% of young children referred to a Child Psychiatry Clinic were found to have previously unrecognized language disorders
  - 50% of young children with language disorders were found to have behavioral and emotional adjustment difficulties

Language, Behavior and Social Skills

Language Difficulties with SLI

Children with SLI:

- Require about 3 times as many exposures to learn unfamiliar words
- Greater difficulty learning verbs vs nouns
  - They have a smaller vocabulary compared to age peers
  - Rely on a small number of “all-purpose” verbs
- Have persisting difficulty with verb tenses and agreement
  - 3rd person singular: “I talk” – “She talks”
  - Regular past tense: “I walk” – “I walked”

Aria: 4-year-old with Language Impairment

Growth in Vocabulary
Growth in Sentence Length

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Language Disorder: Period of “Illusory Recovery”

- Between 4-5 years, many children show significant improvement in understanding and use of language – particularly at the "basic level" (form and content of language)
- Approximately 40-60% have persisting language difficulties through adulthood: “Higher-level" communication: comprehension, inference, pragmatics
- Academic difficulty: language-based learning disorders (reading/writing) and math
- Social difficulty with peers: shyness, peer relationships, risk of victimization (bullying)

Comorbidity:
- Anxiety disorder
- Attention disorder

SLI: Developmental Trajectory

- Between ages 7-17 years language (expressive and receptive) and non-verbal cognitive growth remains stable in 2/3 of individuals
- About 1/3 no longer show a discrepancy between verbal and non-verbal abilities by age 17 years
- A recently published follow-up of LI children through age 31 years showed the rates of psychiatric difficulties decreased once they left school and was equivalent to those who did not have LI as children.
  - The majority were married and had families

Grammatical Judgment

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Language Disorder: Etiology

- SLI is largely influenced by genetics
  - Clusters in families (22% of family of probands vs 7% controls)
  - High concordance in monozygotic twins (0.5-0.97)
- Social and environmental factors
  - Poverty
  - Cognitive development
  - Specific syndromes
    - Williams syndrome
    - Fragile X syndrome
  - Acquired
    - Brain injury
    - Landau-Kleffner syndrome (epileptic aphasia)
Social (Pragmatic) Communication Disorder: DSM V Definition
A: Persistent difficulty in the social use of verbal and nonverbal communication as manifest by ALL of the following:
1) Deficits in using communication for social purposes in a manner that is appropriate for the social context
2) Impairment in ability to change communication to match context or needs of listener
3) Difficulties following rules for conversation and storytelling: taking turns in conversation, rephrasing when misunderstood, and knowing how to use verbal and nonverbal signs to regulate interaction
4) Difficulties understanding what is not explicitly stated and nonliteral or ambiguous meanings of language
B. Deficits result in functional limitations in effective communication, social participation, social relationships, academic achievement, or occupational performance

Early Symptoms of SPCD
• May not be identified until age 4-5 years, when peer social interactions become prominent
• Socially “naive” children may be bullied or ostracized
• Difficulties with conversation and storytelling despite good grammar and sound production
• Emotional and conduct problems may stem from poor understanding of social conventions and overly literal interpretations of situations

Prognosis in SLI, SPCD and ASD
• Whitehouse et al. (2009) compared adults who had been diagnosed with ASD, SLI, and SPCD as children
• All had normal NV IQ as children
• Mean age: 21-24 years old
• Outcomes:
  • SLI: pursued vocational training and work in jobs not requiring a high level of language/literacy ability
  • PLI: obtained higher levels of education and work in “skilled” professions
  • ASD: lower levels of independence and more difficulty obtaining employment
• All 3 groups had difficulty establishing social relationships, but SLI had fewer difficulties than the SPCD and ASD groups
Comparison of Specific Language Impairment, Social (Pragmatic) Communication Disorder, and Autism Spectrum Disorder

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Non-Specific Symptoms

Repetitive and “just so” behaviors

- Evans (1997): 60% of parents of 2-6 year old children reported a variety of compulsive and “just right” behaviors
  - Arranging objects until they satisfy some sensory-perceptual criteria for being “just right”
  - Repetitive behaviors with insistence on sameness
  - Prefers the same household schedule or routine every day
  - Acts out the same thing over and over in pretend play
  - Repeats certain actions over and over
  - Has strong preference for certain foods

Motor Stereotypies

- Arm and hand flapping, rocking or spinning body:
  - Common reaction to excitement or distress
  - E.g., Lambeau Field when the Packers are playing
- Idiopathic stereotypic movement disorder:
  - Simple or complex sequences of motor movements in children and adults without autism or intellectual disorders
  - Typically begin by 1 year of age and frequently persists into adulthood
  - Family history of stereotypical movements is noted in up to 25% of such individuals

Evans (1997); Ritual, habit, and perfectionism: the prevalence and development of compulsive-like behavior in normal young children. Child Development

Motor Stereotypies – non-autistic
Autism, Social (Pragmatic) Communication Disorder, and Specific Language Impairment

SLI  ASD  SPCB