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Disclosure / Conflict of Interest

• No conflict of interest
  – Do receive royalties from lectures and book publication
Overview

- Diagnostic history of autism
- DSM-5 Criteria and differences from DSM-IV
- Evaluating diagnostic changes associated with DSM-5
- Potential Impact of changes in ASD criteria
Diagnostic History of Autism
From Kanner to DSM-5
Diagnostic History of Autism

- Kanner (1943) – infantile autism
  – autistic disorder (classic autism)
- Asperger (1944) – Asperger’s disorder
- Heller (1908) – Heller’s syndrome
  – (now CDD)
Autism and DSM

- Not included in DSM-I or DSM-II
  - Childhood schizophrenia was closest term
- DSM-III
  - New class of disorders – PDD
  - Infantile autism, residual infantile autism, childhood onset PDD, residual onset PDD
  - Monothetic approach
- DSM-III-R
  - National field trial
  - New polythetic definition tended to over diagnose
    - Especially in individuals with intellectual disability
DSM-IV and ICD-10

- Revisions begun at same time
- Coordination of revision process
  - Volkmar (DSM) & Rutter (ICD)
- Slight differences in categories/criteria
- DSM-IV revision process
  - Reviews
  - Data reanalyses
  - DSM-III-R issues identified
    - Overdiagnosis autism in severe MR
    - Underdiagnosis autism in normal IQ
DSM-IV

- 5 PDDs
  - Autistic disorder
  - Asperger’s syndrome
  - Rett’s syndrome
  - Childhood disintegrative disorder
  - Pervasive developmental disorder, not otherwise specified

- Achieved good sensitivity and specificity for ASD v. non-ASD across all ages and IQ levels
DSM-IV-TR (2000)

- Slight changes to text explaining diagnostic criteria
  - Some much needed clarification, especially for Asperger’s syndrome

- No changes to actual criteria though
1. Qualitative impairment in social interaction
   a) Marked impairment in the use of multiple nonverbal behaviors
   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
   d) Lack of social or emotional reciprocity
DSM-IV-TR Diagnostic Criteria

2. Qualitative impairment in communication
   a) Delay in development of spoken language
   b) Marked impairment in 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
3. Restricted repetitive and stereotyped patterns of behavior, interests, and activities
   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
   d) Persistent preoccupation with parts of objects
DSM-IV-TR Diagnostic categories

**Autistic Disorder**
- 6 or more total symptoms
  - At least 2 in social interaction
  - At least 1 in communication
  - At least 1 restricted or stereotyped behavior
- Delays or abnormal functioning evident by age 3

**Asperger’s Disorder**
- At least 2 symptoms in social interaction
- At least 1 restricted or stereotyped behavior
- Significant impairment in functioning
- No significant delay in language, cognition, adaptive behavior

**Pervasive Developmental Disorder – Not Otherwise Specified**
- Social difficulties (1 social symptom)
- Impairments in communication or restricted/repetitive interests or behaviors (1 communication or behavioral symptom)
DSM-5 Process

• White papers (2002, 2007)
• Conferences on research base for diagnoses (2003-2008)
  – Emphasis on dimensional measures (only GAF in DSM-IV)
• Creation of DSM-5 Task Force (2006-2008)
  – 13 diagnostic area work groups reviewing literature
    • Neurodevelopmental Disorders Work Group
  – 6 study groups (e.g., Development, Gender and culture)
• Field trial phase (2010 - 2012)
  – Secondary data analysis
  – Primary data collection to test diagnostic options
  – Was cut short
• Final Approval: December 2012 (has been approved)
• Publication in May 2013
Autism Spectrum Disorders in DSM-5 (and SCD)
ASD in DSM-5

• Key Changes from DSM-IV:
  – Name change
    • Autism spectrum disorder
      – No longer pervasive developmental disorder
  – Symptom dyad
    • Social-communication
    • Restrictive and repetitive behaviors
      – Now includes a sensory item
        • Was excluded from DSM-IV - low specificity
    • Factor analyses support 2 factor split
      – 2 factor was 2\textsuperscript{nd} best fit in DSM-IV field trial
ASD in DSM-5

• Key Changes from DSM-IV:
  – Combined monothetic and polythetic requirement
  – Inclusion of social communication disorder
  – Allows more comorbidities
    • ADHD
A. **Persistent deficits in social communication and social interaction** across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive; see text):

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

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

3. Deficits in **developing, maintaining, and understanding relationships**, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.
B. **Restricted, repetitive patterns of behavior**, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):

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

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

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

4. Hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, fascination with lights or spinning objects).
DSM-5 ASD

C. Symptoms must be present in early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.
Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger’s disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

Specify if:

- With or without accompanying intellectual impairment
- With or without accompanying language impairment
- Associated with a known medical or genetic condition or environmental factor (Coding note: Use additional code to identify the associated medical or genetic condition).
- Associated with another neurodevelopmental, mental, or behavioral disorder (Coding note: Use additional code to identify the associated...)
- With catatonia (refer to criteria...)

Also have severity specifiers
DSM-5 SCD

Social (Pragmatic) Communication Disorder

A. Persistent difficulties in the social use of verbal and nonverbal communication as manifested by all of the following:

1. Deficits in using communication for social purposes, such as greeting and sharing information, in a manner that is appropriate for the social context.

2. Impairment of the ability to change communication to match context or the needs of the listener, such as speaking differently in a classroom than on a playground, talking differently to a child than to an adult, and avoiding use of overly formal language.

3. Difficulties following rules for conversation and storytelling, such as taking turns in conversation, rephrasing when misunderstood, and knowing how to use verbal and nonverbal signals to regulate interaction.

4. Difficulties understanding what is not explicitly stated (e.g., making inferences) and nonliteral or ambiguous meanings of language (e.g., idioms, humor, metaphors, multiple meanings that depend on the context for interpretation).
B. The deficits result in functional limitations in effective communication, social participation, social relationships, academic achievement, or occupational performance, individually or in combination.

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

D. The symptoms are not attributable to another medical or neurological condition or to low abilities in the domains of word structure and grammar, and are not better explained by autism spectrum disorder, intellectual disability (intellectual developmental disorder), global developmental delay, or another mental disorder.
DSM-5 and DSM-IV Comparison

• DSM-IV
  – PDD
  – 5 categories
  – Symptom triad
  – 12 possible criteria
  – Multiple criteria combinations; polythetic
  – Criteria met currently
  – Onset prior to age 3

• DSM-5
  – ASD
  – 1 category
  – Symptom dyad
  – 7 possible criteria
  – 5 criteria needed for dx (3 of 3 and 2 of 4); both mono- and polythetic
  – Criteria met currently or by history
  – Onset in early developmental period
Studies Evaluating DSM-5 ASD Criteria
McPartland, Reichow, & Volkmar (2012)

- Used data from DSM-IV field trial (Volkmar et al., 1994)
- Mapped a selection of 61 DSM-IV field trial items to proposed DSM-5 criteria
  - From DSM-III, DSM-III-R, and ICD-10 criteria and proposed DSM-IV items
  - Some items were a perfect match, most were not
  - For inexact matches, we tried to be most inclusive
    - i.e., catch as many positives as we could
McPartland et al. findings as portrayed in NY Times

Redefining Autism

In a preliminary analysis, three researchers estimate that far fewer people with autism or a related disorder would meet the criteria for autism spectrum disorder after a change proposed for the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders, or D.S.M.

Current definitions (D.S.M.–IV)

- Classic autism: 76%
- Asperger syndrome: 24%
- P.D.D.–N.O.S.*: 16%

Percentage who would qualify under new definition

Proposed definition (D.S.M.–V)

- Autism spectrum disorder

*Pervasive developmental disorder, not otherwise specified

Published: January 19, 2012
Implications of McPartland study

• Improved specificity (.95) but reduced sensitivity (.60)
• Many high functioning individuals *might* “lose” diagnosis and access to services
  – IQ < 70 (Se = .70)
  – IQ > 70 (Se = .46)
• Varied by PDD type (shown on previous graphic)
  – Autistic disorder (Se = .76)
  – Asperger’s Disorder (Se = .25)
  – PDD-NOS (Se = .28)
• Acknowledged limitations
Other Comparisons of DSM-5 and DSM-IV

- Two published systematic reviews:
  - One on-going systematic review
    - Smith, Reichow, & Volkmar
Autism and Developmental Disabilities Monitoring Network

- CDC estimates reevaluation (Maenner, Rice, et al. 2014)
  - 81% meeting DSM-IV criteria met DSM-5
  - DSM-IV
    - 2006: 9.0 per 1000
    - 2008: 11.3 per 1000
  - DSM-5
    - 2006: 7.4 per 1000
    - 2008: 10.0 per 1000
Can Se/Sp be improved?

- Many (McPartland, Mattila, Frazier, Matson, and others) have suggested relaxing Social Communication criterion from 3 of 3 to 2 of 3
  - In McPartland study, this would change Se/Sp from
    - .61/.95 (3 of 3)
    - .75/.85 (2 of 3)
      - Within this, all 3 PDDs have Se > .50
- Other possibility is to decrease RBB from 2 of 4 to 1 of 4
  - Currently, one can get a PDD-NOS dx with zero RBB
  - In McPartland study, doing this would change Se/Sp from
    - .61/.95 (2 of 4)
    - .71/.91 (1 of 4)
- What about doing both (again, using McPartland data)?
  - Se/Sp = .91/.75
Is SCD Asperger’s or PDD-NOS

- ASD and SCD combined in prevalence estimate of APA field trial
- Kim et al. (2014)
  - Prevalence of DSM-IV and DSM-5 equivalent if ASD and SCD combined
    - Most missing DSM-5 ASD met SCD
Implications
Impacts

• Impact on assessment tools
  – ADOS2 – no need for revision?
  – ADI-R – likely needs recalibration at the least

• Impact on screening tools?
  – Unknown (and little discussed)
Potential Impact

- Impact could be greatest on those who with a little extra support, can closest achieve full independent participation
- Studies suggest impact greatest on those with DSM-IV or ICD-10 diagnoses of
  – Asperger’s disorder
  – PDD-NOS
Still not known (or least well known)

- Impact on infants and toddlers
  - Might be difficult to ‘qualify’ for age-appropriate social relations if no opportunities other than parents
  - RBB might not manifest until later
- Impact on adults
  - Generally speaking, least studied group
  - Might not seek reevaluation
    - Might minimize impact
- Who qualifies for SCD
  - Is it reincarnation of PDD-NOS
  - What services might be given for this in schools
Still not well known (most importantly)

- How the new criteria are used in clinical practice
  - This was part of field trial that was canceled
  - Most of what we know is from studies using ‘gold standard’ assessments (ADOS, ADI-R)
    - One study suggested both needed to be completed to achieve adequate Se/Sp
    - Not all are trained in, or have access to these instruments

  - Early drafts appear to retain multiple categories within autism spectrum disorders
Impact on Educational Services

• US – educational services (B-21) mandated by IDEA
  – DSM diagnosis does not ensure eligibility
    • Each state determines their specific criteria

• Adult services
  – Also vary by state
  – Often tied into intellectual disability (also being revised in DSM)

• Unclear what services (if any) might be given for SCD
  – Would need to show educational impact
Additional Impacts

- Compatibility of past and future research
  - DSM-IV/ICD-10 and DSM-5
  - DSM-5 and ICD-11
- Adults
  - Most adults receiving services qualify for these with ID
    - Not likely to ‘lose’ ID diagnosis; minimal impact
  - Many adults without ID do not receive state provided services
    - Impact unknown, but possibly minor
- Loss of ‘identity’
  - Asperger’s syndrome
Personal Stories of Related to Impact
Challenges and Opportunities

- Training
  - Clinicians
    - Criteria
    - Assessments
  - Families

- IDEA
  - ASD
  - SCD

- Gold-standard diagnostic tools and Screeners
  - Recalibration or modification
Thank you!

• Questions?

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• CT Guidelines (which have DSM-5 and DSM-IV criteria) available for free download at:

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