Explaining the New DSM-5 Criteria for Autism Spectrum Disorders
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Today’s Presentation

- Why were changes made to the Diagnostic and Statistical Manual’s (DSM) definition of autism and other pervasive developmental disorders?
- What is the definition of autism(s) in DSM-5?
- Will DSM-5 criteria miss children with ASD?
- How does this affect research and clinical practice?
**DSM-IV Model of Autism: Pervasive Developmental Disorders (PDDs)**

- Symptoms conceptualized as a “triad of impairments”
- Distinctions among ASDs based on particular pattern of symptoms (number, severity and developmental trajectory)*

*Example: child with significant impairments in social functioning and in communication, but no RRBs = PDD-NOS

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The research on DSM-IV:

- **Symptom structure:**
  - Social and communication symptoms as one domain
  - Restricted and repetitive behaviors (including sensory interests/aversions) are highly prevalent, especially by history; RRBs contribute to diagnostic stability, etc

- **DSM-IV Subtypes:**
  - Uniform symptom presentations across DSM-IV subtypes in samples of children as well as adults
  - DSM-IV subtypes to be poor predictors of later outcome
  - Limited reliability in how DSM-IV subtypes are assigned
### Predictors of various ASD diagnoses by site

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*Lord et al., 2011*
DSM-5 Definition of ASD:

- Changes in the conceptualization of the disorder:
  - moving to a single diagnostic category of ASD;
  - allowing ASD to be diagnosed with other disorders

- Changes in modeling of symptoms:
  - adding symptoms not previously included as a criterion in DSM-IV such as sensory interests and aversions
  - using a two-domain model of symptoms;
  - relaxing age of onset criteria;
  - requiring social communication deficits and RRBs

Will the new criteria miss children previously diagnosed with an ASD?

Should we worry about DSM-5?

- there is support for the construct validity of the new, two-domain symptom model proposed for DSM-5 (Snow & Lecavalier, 2008; Gotham et al., 2008; Frazier et al., 2008)

- also emerging evidence of adequate sensitivity (Mandy et al., 2012; Frazier et al., 2012)

- but relatively little attention has been paid as to the specificity of DSM-5
McPartland et al. Conclusions

- Individuals with IQs below 70 more likely to be diagnosed with ASD
- Reduced sensitivity may deny individuals with ASD the correct services

However, the study relied on a sample from the DSM-IV field trials:
- 657 patients with ASD and 276 with non-ASD
- Wide age span, ASD group: 1-43 years; non-ASD group: 1-39 years
- DSM-IV checklist items were matched to the proposed DSM-5 criteria

Thus, these results give an incomplete picture.
What if we try to match parent-reported symptoms to the new criteria?

Huerta et al., 2012:

- Previously collected data were obtained from three sources:
  CPEA: a multi-center study of ASD (includes non-ASD)
  UMACC: databank of research participants and clinical referrals
  SSC: a genetic consortium study focusing on “simplex” ASD families

- Total N:
  - 4,453 subjects with ASD
  - 690 subjects with non-ASD diagnoses

- Items from ADI-R (“current” items) and ADOS were matched to DSM-5 criteria against DSM-IV derived diagnoses of Autistic Disorder, Asperger Disorder, and PDD-NOS
Autism Diagnostic Interview-Revised (ADI-R)


Autism Diagnostic Observation Schedule (ADOS)

The Research Question:
Will children with previous DSM-IV diagnoses of autism, PDD-NOS, and Asperger syndrome end up in the “right” jar?
Classification: Sensitivity and Specificity

Chocolate Chip Cookie Test:
6 chocolate chip cookies (correctly) put in chocolate chip jar.
Two Oreos (incorrectly) put in chocolate chip jar.
Sensitivity=.60, Specificity=.80
## Results: 1 ADI-R symptom per required domain

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<th>DSM-IV Criteria</th>
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<td>n = 428</td>
<td>n = 236</td>
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### DSM-IV Criteria
- Autistic Disorder Criteria: 0.89, 0.69, 0.87, 0.72, 0.95, 0.78, 0.89, 0.48, 0.95, 0.88, 0.93, 0.93
- Asperger Syndrome Criteria: 0.97, 0.86, 0.96, 0.51, 0.99, 0.90, 0.96, 0.30, 0.99, 0.92, 0.99, 0.97
- PDD-NOS Criteria: 0.99, 0.92, 0.98, 0.36, 0.99, 0.93, 0.97, 0.20, 0.99, 0.96, 0.98, 0.98

### DSM-5 Criteria
- 0.94, 0.77, 0.93, 0.63, 0.95, 0.78, 0.89, 0.49, 0.93, 0.83, 0.94, 0.91

## Requiring Direct Observation and Parent Report

<table>
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### PARENT REPORT ONLY
- 0.94, 0.77, 0.93, 0.63, 0.95, 0.78, 0.89, 0.49, 0.93, 0.83, 0.94, 0.91

### PARENT REPORT AND DIRECT OBSERVATION
- At least 1 symptom from A1 and A2 (from ADI and ADOS), 1 symptom from A3 (either ADI or ADOS), and at least 1 symptom from any 2B subdomains (either ADI or ADOS):
- 0.93, 0.69, 0.91, 0.69, 0.96, 0.72, 0.88, 0.62, 0.93, 0.80, 0.92, 0.90
Who got missed?

- ASD met full DSM-5 criteria
- ASD met social but not restricted repetitive behavior
- ASD met restricted repetitive behavior but not social
- ASD did not meet social or restricted repetitive behavior criteria

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Sensitivity of DSM-5 in phenotypic subgroups (parent report only)

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<tr>
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Examination of the new ASD Criteria: 
Results affected by methods

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<td>858-1465</td>
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1. DSM-IV checklist mapped to DSM-5 criteria  
2. SRS and SCQ-L items mapped to DSM-5 criteria  
3. ADI-R items mapped to DSM-5 criteria

DSM-5 Summary

- Analyses of existing data indicate that we can expect the vast majority of children previously classified as ASD under DSM-IV to be similarly classified under DSM-5.

- Since we relied on existing measures that were, in part, modeled after DSM-IV, prospective studies of DSM-5 are needed to truly evaluate how new criteria will function differently than DSM-IV and to ensure that we will capture who we intend to (DSM-5 trials will be held).

- Accumulating evidence suggests that DSM-5 criteria better reflect our current understanding of ASD as a disorder.
AUTISM SPECTRUM DISORDERS

- Social Impairment
- Repetitive Behaviors & Restricted Interests
- Intellectual Disabilities
- Speech/Communication Deficits
- Motor problems: Apraxia

- ADHD
- OCD
- Social Phobia
- Sleep Disturbance
- Immune Dysfunction
- Epilepsy-EEG abnormalities
- Gastro-intestinal Dysfunction
- Mood Disorders
- Aggression
- Expressive/Receptive Language Disorders

DSM-5 Diagnostic Decision-Making:
From Grzadzinski, Huerta and Lord, 2013

AUTISM SPECTRUM DISORDERS

Criteria A
- Social-Emotional Reciprocality
- Non-verbal Social Communication
- Reciprocal Relationships
- Repetitive Movements or Use of Objects
- Adherence to Routines/Rituals
- Restricted/Intense Interests
- Unusual Sensory Interests/Reactions

Criteria B
- 1. Language Level
  - Expressive Language
  - Receptive Language
  - Language Delay
- 2. Intellectual Functioning
- 3. Adaptive Functioning
- 4. Comorbid Symptoms
  - ADHD
  - Anxiety
  - Mood
  - etc.
- 5. Medical Conditions
Recommendations for clinical practice and research

Thank you for your attention!