Essential behaviours for the diagnosis of DSM-5 Autism Spectrum Disorder

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The Wales Autism Research Centre
Diagnosing DSM-5 ASD: The DISCO

- Questions regarding the sensitivity and specificity of the DSM-5 criteria for ASD

- Diagnostic Interview for Social and Communication Disorders (DISCO)
  - Standardised clinical interview tool
  - Based on the concept of an **autism spectrum**
  - Suitable for children and adults, all ability levels
  - Diagnostic algorithms (e.g. DSM-IV-TR/ICD-10)
  - Wide range of items (n=320)
  - Capacity to measure DSM-5

Diagnosing DSM-5 ASD: The DISCO

- Non-verbal communication
- Developing and maintaining relationships

(A) Impaired Social Communication (3/3)

(B) Repetitive/restricted patterns of behaviours (2/4)

- Excessive adherence to routines
- Restricted and fixated interests
- Hyper or hypo-reactivity to sensory input

- Good sensitivity and specificity
- Across age and ability

In search of essential items…

Samples

- **Sample 1: Development** (n=67, age range=34-140 months)
  - 36 ASD: 18 higher ability (Hi-ASD), 18 lower ability (Lo-ASD)
  - 31 clinical controls (14 language impairment (LI), 17 intellectual disability (ID))

- **Sample 2: Validation** (n=78, age range=34-137 months)
  - 52 ASD: 17 Hi-ASD, 35 Lo-ASD
  - 26 clinical controls (ID)

- **Sample 3** (n=190)
  - 112 children (68 Hi-ASD, 44, Lo-ASD)
  - 33 adolescents (19 Hi-ASD, 14 Lo-ASD)
  - 45 adults (33 Hi-ASD, 12 Lo-ASD)

**Essential items:**
Social-communication and sensory items

Which items best discriminate ASD and clinical controls?

- **Stringent threshold (p<.001)**
  - 14 items: 11/14 = social communication

- **More inclusive threshold (p < .05)**
  - 48 items: 4-9 items per subdomain
  - Most items retained in **sensory** subdomain of RRB

**Can essential items form an abbreviated algorithm?**

- Thresholds set for each subdomain (ROC curve statistics)
- DSM-5 rules: 3/3 social communication and 2/4 RRB subdomains
Abbreviated algorithm:
Good sensitivity and specificity

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<th>Sample 1 (n=67)</th>
<th>Sample 2 (n=78)</th>
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<td>Specificity</td>
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<td>AUC</td>
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Abbreviated algorithm: Results comparable to full algorithm

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- No significant effect of abbreviation on either sensitivity or specificity
Sample 3: No effect of age

- Good sensitivity for all age groups
- No significant variation across age group ($\chi^2$, $p>.05$)
This effect was NOT seen in the full algorithm

BUT abbreviation may reduce sensitivity for higher ability ASD
Sensitivity across the spectrum depends on inclusion of a range of behaviours

- 9 behaviours significantly more frequent for Hi-ASD than Lo-ASD (Kent, Carrington et al., 2013)
  - E.g. talking about repetitive themes and long-winded/pedantic speech

- When all 9 were included:
  - total number of items = 54
  - Improved sensitivity for Hi-ASD
  - No impact on specificity
  - Results statistically comparable to the full algorithm
Summary

- Abbreviated DISCO DSM-5 algorithm (54 items) has good sensitivity and specificity
  - Social communication and sensory items
- Results highlight the importance of including a range of items
  - Higher ability ASD
- Potential for more efficient and focused ASD diagnostic process
The DISCO Abbreviated

- Approximately one hour to administer
The DISCO Abbreviated

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DISCO Abbreviated (68 items)

DSM-IV-TR/ICD-10 Childhood Autism (59 items)

DSM-5 ASD (54 items)
The DISCO Abbreviated

- Approximately one hour to administer

- DISCO Abbreviated (68 items)
  - DSM-IV-TR/ICD-10 Childhood Autism (59 items)
  - Kanner & Eisenberg's Early Infantile Autism (8 items)
  - DSM-5 ASD (54 items)
  - Wing & Gould’s ASD (5 items)
  - Gillberg’s Asperger Syndrome (23 items)
DISCO Abbreviated

- Implemented in NHS Wales
  - All Wales ASD Diagnostic and Pre- and Post-Diagnostic Counselling Network for Adults
  - Part of the ‘DISCO family’
- 50 NHS clinicians (adult services) trained 2013-2014
- 2-8mths post-training evaluation positive – improved skills, knowledge, confidence
Thank you!

Download DISCO papers from:
http://www.autismrpphub.org/articles-resources
DISCO references

