In adults with tic disorders (TD)...

- 86% lifetime prevalence of psychiatric comorbidity
- OCD 50%; ADHD 54%; anxiety 36%; MDD 26%
- Psychiatric comorbidity = worse quality of life, higher suicide than the general population
- No validated psychiatric screening instruments in TD → cut-points recommended for general population may not be optimal in tic disorders

36 adults with a TD diagnosis completed these instruments and a diagnostic psychiatric interview.

Measures of diagnostic accuracy calculated (area under the Receiver-Operating Characteristic curve [AUC], sensitivity, specificity, positive predictive value, negative-predictive value, positive likelihood ratio, negative likelihood ratio) for each instrument at various cut-points.

Optimal instrument cut-point was suggested based off the lowest value derived by $\sqrt{|1-Specificity|^2 + |1-Sensitivity|^2}$ (Euclidean distance method).

Prevalence of comorbidities based on the psychiatric interview:

<table>
<thead>
<tr>
<th></th>
<th>Anxiety</th>
<th>MDD</th>
<th>OCD</th>
<th>ADHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAD-7</td>
<td>≥13</td>
<td>66.7%</td>
<td>47.2%</td>
<td>61.1%</td>
</tr>
<tr>
<td>PHQ-9</td>
<td>≥10</td>
<td>44.4%</td>
<td>47.2%</td>
<td>61.1%</td>
</tr>
<tr>
<td>OCI</td>
<td>≥40</td>
<td>44.4%</td>
<td>47.2%</td>
<td>61.1%</td>
</tr>
<tr>
<td>ASRS</td>
<td>≥14</td>
<td>33.3%</td>
<td>27.8%</td>
<td>61.1%</td>
</tr>
</tbody>
</table>

Optimal cut-points in our sample:

- GAD-7 ≥13
- PHQ-9 ≥15
- ASRS ≥14
- OCI ≥63

Optimal cut-points in the general population:

- GAD-7 ≥10
- PHQ-9 ≥10
- ASRS ≥14
- OCI ≥40

Prevalence of comorbidities based on diagnostic interview (reference):

- Anxiety 41.7%
- MDD 16.7%
- OCD 27.8%
- ADHD 63.9%

Do disease specific cut-points outperform generally recommended cut-points on four commonly used screening instruments (GAD-7 [anxiety], PHQ-9 [MDD], OCI [OCD] and ASRS v1.1 [ADHD]) in adults with TD?

Methods:

- 36 adults with a TD diagnosis completed these instruments and a diagnostic psychiatric interview.
- Measures of diagnostic accuracy calculated (area under the Receiver-Operating Characteristic curve [AUC], sensitivity, specificity, positive predictive value, negative-predictive value, positive likelihood ratio, negative likelihood ratio) for each instrument at various cut-points.
- Optimal instrument cut-point was suggested based off the lowest value derived by $\sqrt{|1-Specificity|^2 + |1-Sensitivity|^2}$ (Euclidean distance method).

Key findings:

- 3 of 4 (GAD-7, PHQ-9, OCI) had higher optimal cut-points than general population recommendation
- Reasons for discrepancy:
  - High comorbidity + shared symptoms: Ex. PHQ-9 has questions that screen positive in both MDD + ADHD
  - Unique phenotype of comorbidities in TD: Ex. OCD in TD v. “pure” OCD
  - Sub-syndromal symptoms: Ex. TD have high prevalence of obsessions/compulsions with no impairment
- Should we adapt cut-points for this population? Develop new instruments?
- May avoid over-identification of comorbidities
- Previous research has also found over-identification (particularly of MDD) in special populations using general population cut-points.

Abbreviations: OCD = obsessive-compulsive disorder; ADHD = attention-deficit and hyperactivity disorder; MDD = major depressive disorder; GAD = General Anxiety Disorder-7; PHQ-9 = Patient Health Questionnaire-9; OCI = Obsessive-Compulsive Inventory; ASRS v1.1 = ADHD Self-Report Scale version 1.1.

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