

# PSYCHIATRIC COMORBIDITIES IN ADULT TIC DISORDERS: ARE CURRENT SCREENING INSTRUMENTS SUITABLE?

Rachael Nicholls<sup>1</sup>, Tamara Pringsheim<sup>2</sup>, Davide Martino<sup>2</sup>, Chenhui Hao<sup>1</sup>, Natalia Szejko<sup>2</sup>

1. Department of Psychiatry 2. Department of Clinical Neurosciences  
University of Calgary, Calgary, Alberta, Canada

## BACKGROUND

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

## OBJECTIVES

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?

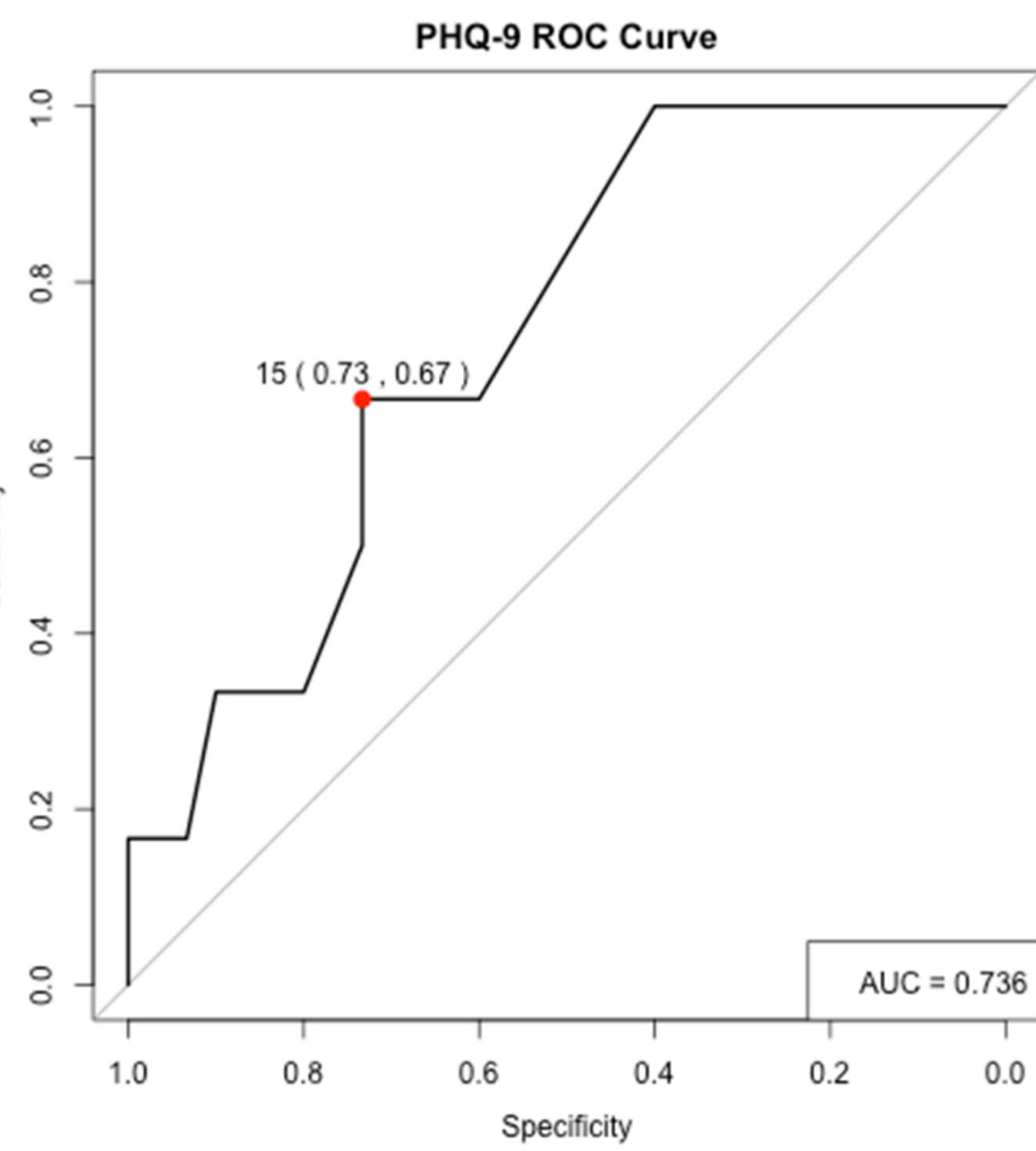
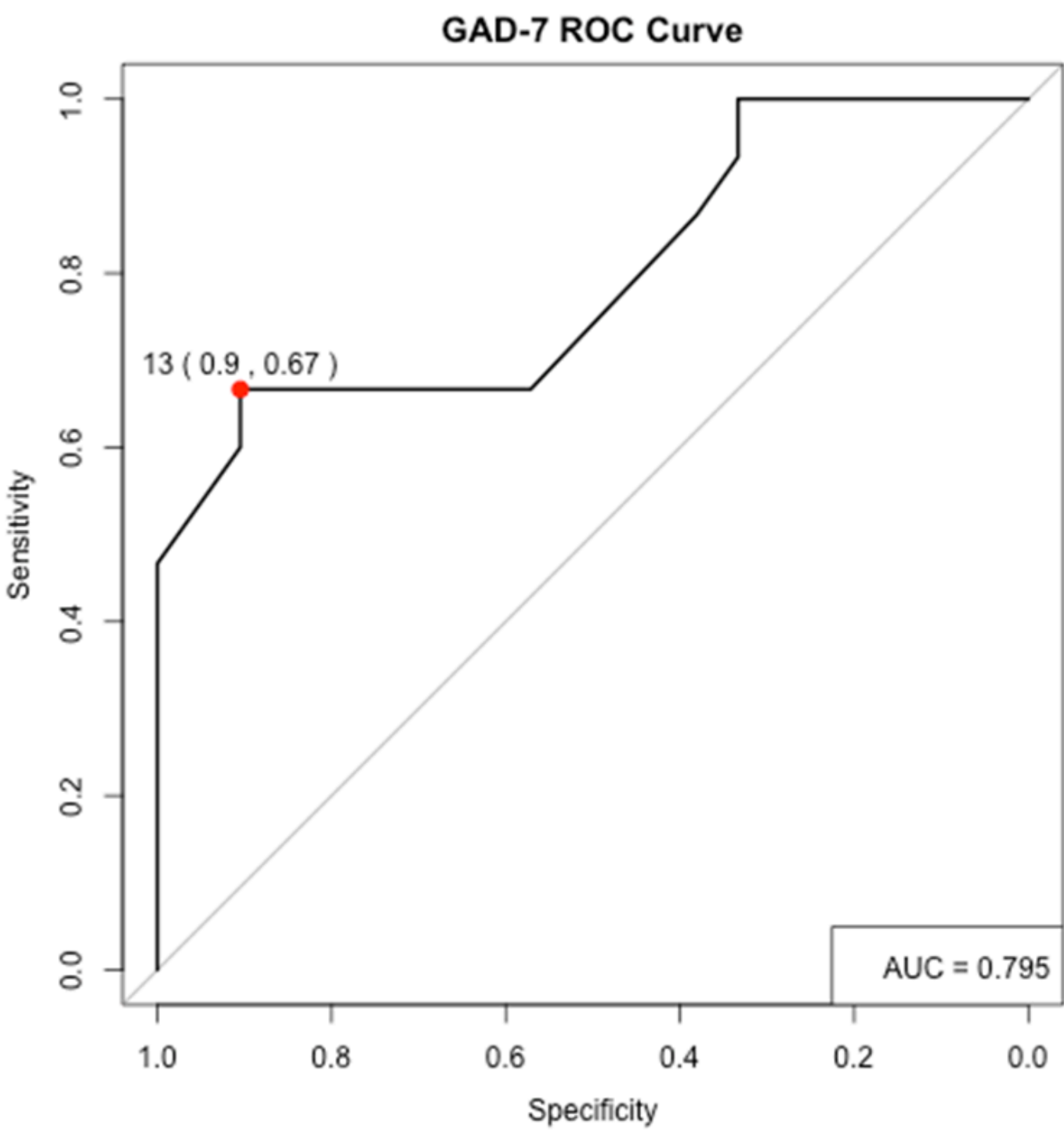
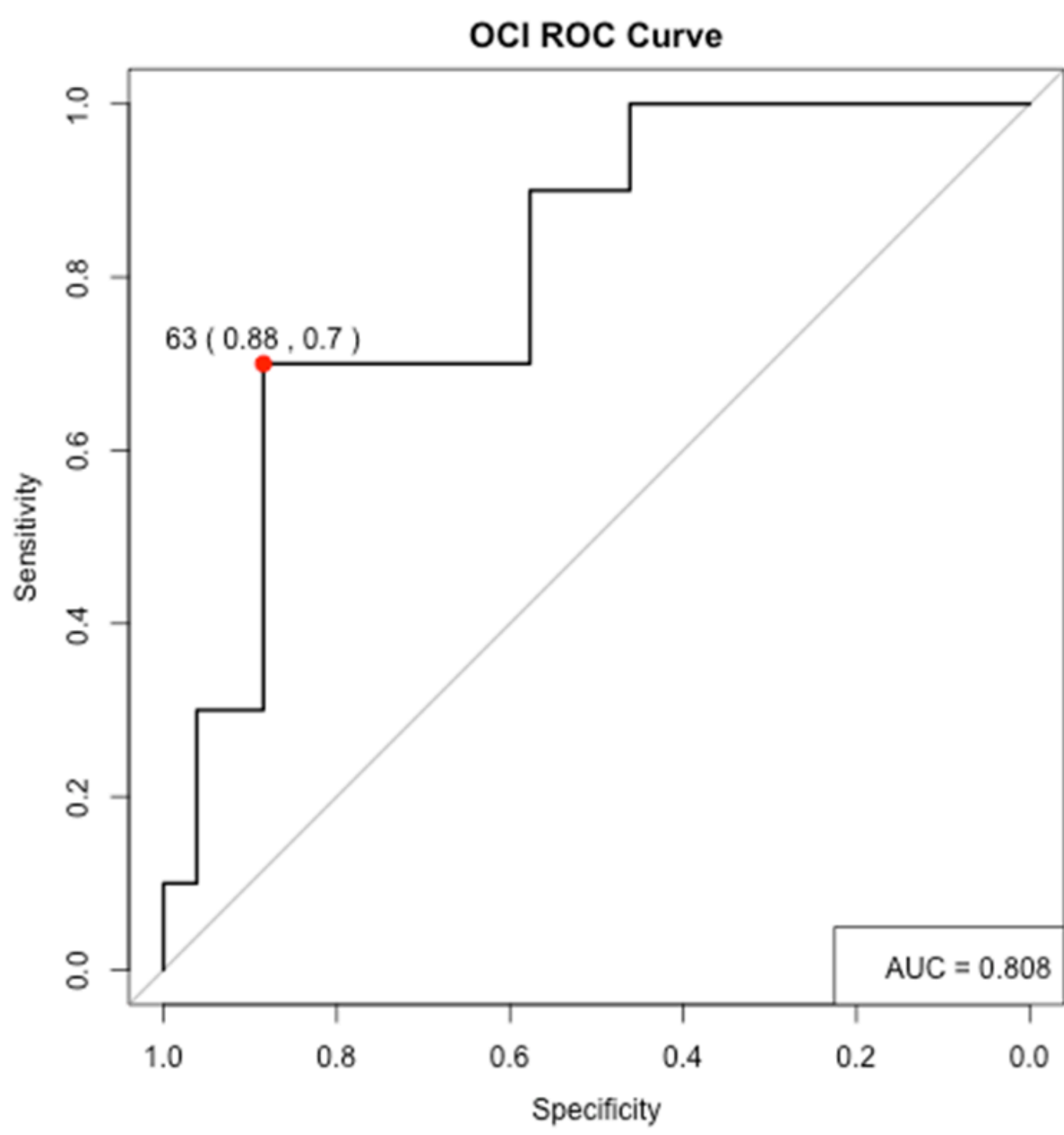
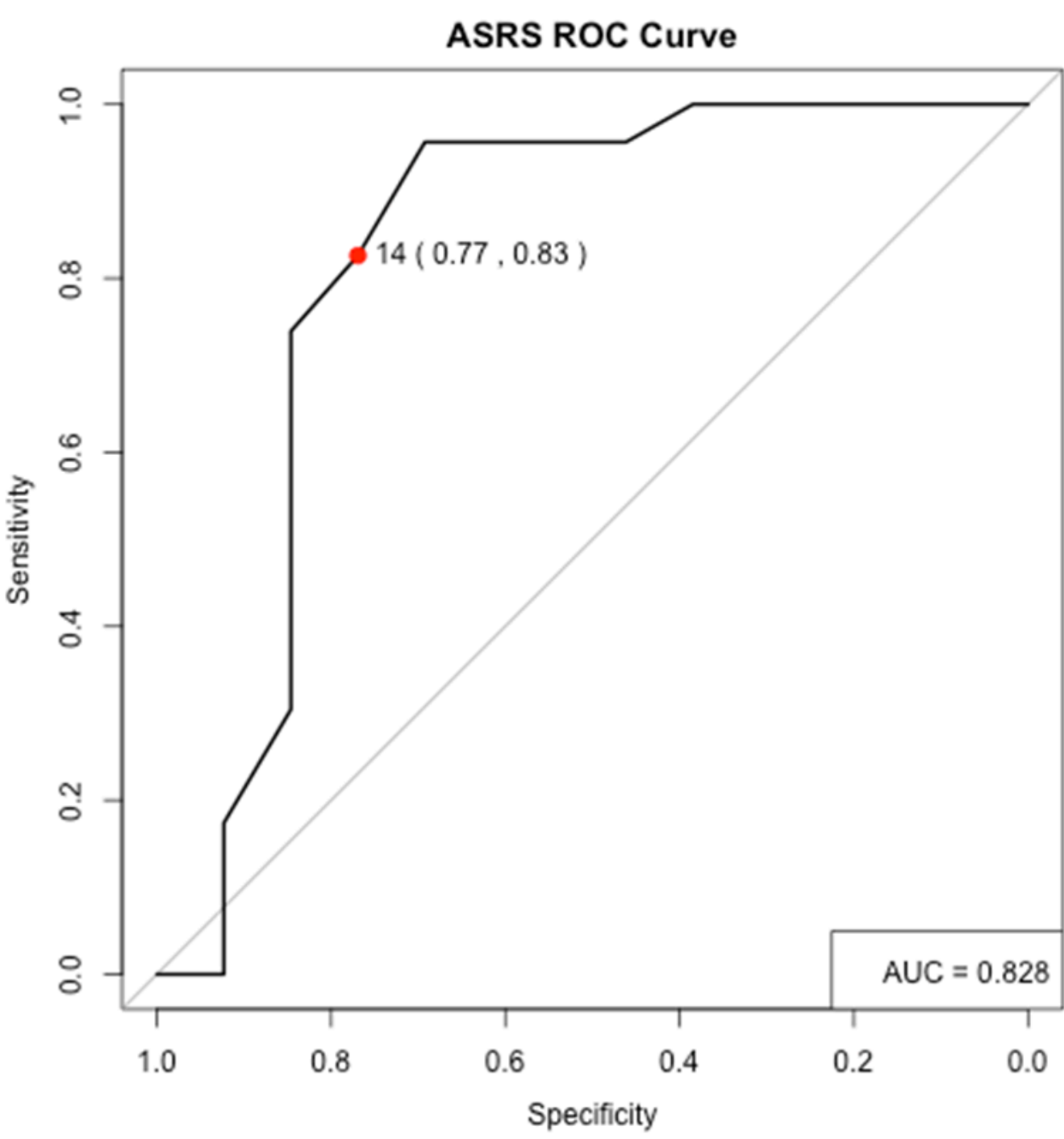
## METHODS

- 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  $\sqrt{|1-\text{Specificity}|^2 + |1-\text{Sensitivity}|^2}$  (Euclidean distance method).

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

## RESULTS.....

Anxiety	MDD	OCD	ADHD
Comorbidity prevalence based on <b>general population</b> cut-point:			
44.4% (GAD-7 = 10)	66.7% (PHQ-9 = 10)	47.2% (OCI = 40)	61.1% (ASRS = 14)
Comorbidity prevalence based on <b>optimal</b> cut-point:			
33.3% (GAD-7 = 13)	33.3% (PHQ-9 = 15)	27.8% (OCI = 63)	61.1% (ASRS = 14)
Comorbidity prevalence based on <b>diagnostic interview</b> (reference):			
41.7%	16.7%	27.8%	63.9%



## .....KEY FINDINGS

### Optimal cut-points in our sample

- GAD-7  $\geq 13$
- PHQ-9  $\geq 15$
- ASRS  $\geq 14$
- OCI  $\geq 63$

### Cut-points in the general population

- GAD-7  $\geq 10$
- PHQ-9  $\geq 10$
- ASRS  $\geq 14$
- OCI  $\geq 40$

### Prevalence of comorbidities based on the psychiatric interview

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

## CONCLUSIONS

- ASRS performed well.
- GAD-7 cut-points not substantially different.
- OCI and PHQ-9 likely not optimal instruments at current cut-points.

## DISCUSSION

- 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