Association Between Self-Reported and Clinician-Rated Anxiety in Adults with Autism Spectrum Disorder and Adults with Schizophrenia Spectrum Disorders

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Background

- There has been recent recognition of the importance of accurately assessing and understanding comorbidities, such as anxiety disorders, in adults with Autism Spectrum Disorder (ASD; Trembath et al., 2012).

- The assessment and conceptualization of comorbid anxiety in individuals with ASD and individuals with Schizophrenia Spectrum Disorders (SSD) can be complex due to different anxiety symptomology.

- Multiple assessment modalities are used to capture specific symptomology when assessing anxiety in both populations (Seedat et al., 2007).

- There is limited research examining self-report vs. clinician ratings of anxiety transdiagnostically in adults with ASD and with SSD.

Rationale:
- More research into self- vs. clinician-ratings is needed because there may be factors that differentially impact these ratings, such as clinician bias or limited insight in making self-ratings.

Objectives:
- The current study investigated demographic factors and clinical features as predictors of clinician-assigned anxiety diagnoses in ASD and SSD.

- It was hypothesized that self-report ratings of anxiety in both ASD and SSD groups would be associated with increased probability of meeting diagnostic criteria for a comorbid anxiety disorder on a clinician-rated measure.

Method

Participant Demographics:

	N (Female)	Age (SD)	Full Scale IQ (SD) *
ASD	27 (9)	25.06 (5.25)	105.10 (15.51)
SSD	22 (14)	23.29 (3.59)	95.96 (11.43)

Note: Groups were matched by age; *Full Scale IQ was significantly different, p=.01

Characterization:
- Demographics for both groups including gender and age were collected.

- The *Autism Diagnostic Observation Schedule, Second Edition (ADOS-2)*, a diagnostic assessment, was administered by research-reliable clinicians with expertise in ASD.

- The *Structured Clinical Interview for DSM-IV (SCID-IV)* was utilized to confirm diagnoses for the participants with SSD.

- Cognitive ability was measured with the *Wechsler Abbreviated Scale of Intelligence – Second Edition (WASI-II)*.

Clinician-Reported Measures:
- Clinician-rated anxiety was assessed using the *Mini International Neuropsychiatric Interview (MINI)*.

- ASD symptomology was measured by the *ADOS-2 Severity Score (DSM-5 ADOS-2 Module-4 algorithm; Hus & Lord, 2014)*.

- SSD symptomology was measured by the *Scale for the Assessment of Positive Symptoms (SAPS)* and the *Scale for the Assessment of Negative Symptoms (SANS)*.

Self-Reported Measures:
- Anxious symptomology was measured using the self-report *Beck Anxiety Inventory (BAI)*.

- ASD related symptomology was measured utilizing the *Social Responsiveness Scale, Second Edition (SRS-2)*.

Method

Procedure:
- Missing data (<4.0% of the total sample) were found to be missing at random (i.e., unrelated to the dependent variables in the analyses); therefore, deletion was list-wise for the given statistical technique utilized.

- The average score was calculated for each of the *SAPS/SANS* subscales. These scores were then summed to create a total average score that was combined for the two measures.

- A dichotomous (yes/no) variable was created to indicate the presence (ANX)/absence (N-ANX) of an anxiety disorder based on the *MINI*.

Statistical Analyses:
- Point biserial correlations were examined to look at the associations between self and clinician ratings of anxiety for the ASD and SSD participants.

- An independent-samples t-test was conducted to investigate differences in self-report ratings between the ANX group and N-ANX group.

- To further explore this relationship, a binomial logistic regression was performed to ascertain the effects of age, gender, IQ, level of autism and SSD symptomology, and self-report ratings of anxiety on the likelihood of receiving an anxiety diagnosis on the *MINI*.

Results
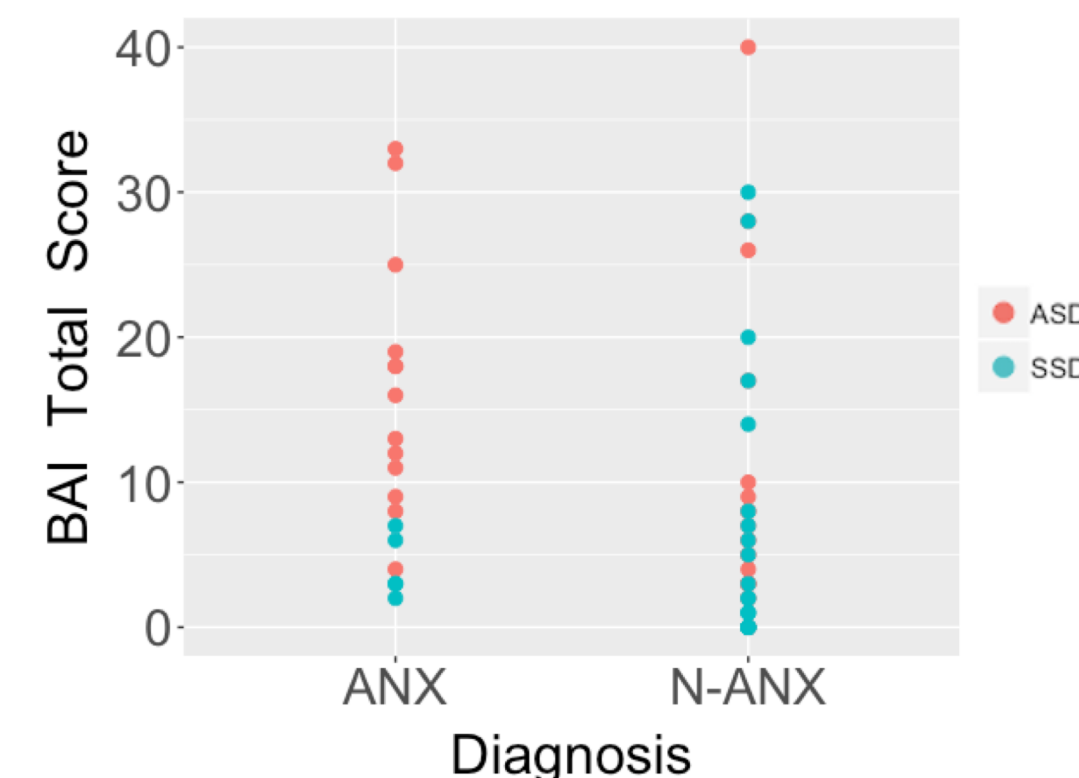
Note: On the *BAI*, a total raw score below 21 indicates low anxiety, 22-35 indicates moderate anxiety, and a total raw score above 36 indicates high anxiety

Figure 1. Self-Reported Anxiety Group Differences

Group Anxiety Differences:
- In the ASD group, 13 participants were diagnosed with anxiety and 23 were not, while in the SSD group, 5 participants received anxiety diagnoses and 31 did not (see Figure 1).

- The ASD (M=11.47, SD=10.35) and the SSD (M=6.15, SD=8.43) groups differed significantly on self-report ratings of anxiety on the *BAI*; t(61)=2.18, p=.03.

- The ANX (M=13.28, SD=9.49) and the N-ANX (M=7.56, SD=9.63) groups differed significantly on self-report ratings of anxiety on the *BAI*; t(61)=2.14, p=.04.

- In the ASD group, there was a statistically significant point biserial correlation between clinician diagnostic ratings and BAI ratings, $r_{pb}(36)=-.39$, p=.02, with clinician's ratings of "Yes" anxiety reflecting higher self-report ratings of anxiety.

- In contrast, in the SSD group, there was no statistically significant point biserial correlation between clinician diagnostic ratings and BAI ratings, $r_{pb}(27)=.11$, p=.58.

Results

General Model:
- The binomial logistic regression model was statistically significant, $\chi^2(7)=44.55$, p<.001.

- The Hosmer and Lemeshow test is used to determine goodness of fit; nonsignficance indicates the model adequately fits the data, $\chi^2(8)=4.92$, p=.77.

- The model explained 75.8% (Nagelkerke R^2) of the variance in clinician ratings.

- The model produced both high sensitivity (82.4%) and high specificity (92.9%). (see Table 1).

- Approximately 89.9% of cases were correctly classified

- The positive predictive value was 82.4% while the negative predictive value was 92.8%.

Table 1. Classification Table of Anxiety Diagnoses

Observed		Predicted		Percentage Correct
		MINI-ANX DX		
		ANX	N-ANX	
MINI-ANX DX	ANX	14	3	82.4%
	N-ANX	3	39	92.9%

Note: DX= Diagnoses

Specific Variables (OR= odds ratio):
- Of the seven predictors, three were statistically significant:
    - Gender (B=5.27, $Wald\chi^2$ =4.90, OR=194.08, p=.03).
    - *ADOS-2* Severity Score (B=.60, $Wald\chi^2$=6.23, OR=1.81 p=.01).
    - *SRS-2* Total Score (B=-.39, $Wald\chi^2$ =9.28, OR=.68, p<.001).
    - Age was trending towards significance; (B=.28, $Wald\chi^2$ =3.54, OR=1.32, p=.06).

- Increasing *ADOS-2* severity scores were associated with an increased likelihood of clinician-rated diagnosis but increasing *SRS-2* scores were associated with a reduced likelihood.

Conclusions

- Results demonstrate an association between self-report and clinician ratings of anxiety. Counter to our predictions, self-report of anxiety was not predictive of an anxiety diagnosis.

- The *ADOS-2* and the *SRS-2* scores predicted in opposite directions which may indicate that clinicians are capturing symptomology that the participant is not self-reporting (*BAI* ratings did not significantly predict the *MINI* diagnosis).

- The odds of being diagnosed with anxiety by a clinician is 194 times greater for males than females.

- Limitations included a lack of individuals with ASD or SSD with only comorbid anxiety and no other additional diagnoses and group differences on IQ, though both groups did have IQ in the average range.

- Future research should continue to examine the relationship between self-report and clinician-rated levels of anxiety to further elucidate the level of insight individuals with ASD and SSD have regarding their own anxiety.

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