

### Background

- Autism (ASD) prevalence has increased, with the CDC reporting 1 in 31 children diagnosed.<sup>1</sup>
- Despite improved diagnostic reliability, concerns for over- and under-diagnosis remain.<sup>2</sup>
- Increased demand for diagnosis may lead to false positives, which could be reduced through gold-standard assessments.<sup>3,4</sup>
- Duvall et al. (2024) found that 47% of children with community-based ASD diagnoses did not meet rigorous research diagnostic criteria.<sup>5</sup>

### Aim

- Evaluate the findings of Duvall et al. (2024) in an independent sample from the Autism Biomarker Consortium for Clinical Trials (ABC-CT).<sup>5</sup>
- Investigate characteristics associated with research-confirmed diagnosis of ASD.

### Methods

#### Participants

- 317 participants were grouped into ASD- and ASD+ groups.
  - ASD+ : children recruited in the ASD stream of the study who **met** research diagnostic criteria.
  - ASD- : children recruited into the ASD stream of the study who **did not meet** research diagnostic criteria.
- Research diagnostic criteria for ASD: meeting diagnostic cutoff on the Autism Diagnostic Observation Schedule 2<sup>nd</sup> edition (ADOS-2), Autism Diagnostic Interview-Revised (ADI-R), and expert clinician judgement of Diagnostic and Statistical Manual of Mental Disorders (DSM-5).

Group	N	Sex	Age range (years) (mean, SD)	FSIQ range (mean, SD)
ASD+	280	65 female, 215 male	6-11 (8.54, 1.64)	60-150 (96.6, 18.1)
ASD-	37	11 female, 26 male	6-10 (8.52, 1.35)	62-137 (103, 15.6)

#### Data Collection

- All participants were recruited in the ASD stream of the study.
- Participants completed the ADOS-2, ADI-R, Differential Ability Scales-2 School-Age Battery (DAS-2) and the Child & Adolescent Symptom Inventory-5 (CASI-5).
- Full-scale IQ (FSIQ), verbal IQ, non-verbal IQ, and internalizing and externalizing symptoms (CASI-5 subdomain t-scores) were extracted for analysis.

#### Hypotheses

- Children in the ASD- group will have higher levels of internalizing and externalizing symptoms reported on the CASI-5 than children in the ASD+ group, consistent with Duvall et al. (2024).<sup>5</sup>
- Children in the ASD- group will have higher FSIQ scores than children in the ASD+ group, consistent with Duvall et al. (2024).<sup>5</sup>

### Methods

#### Analysis

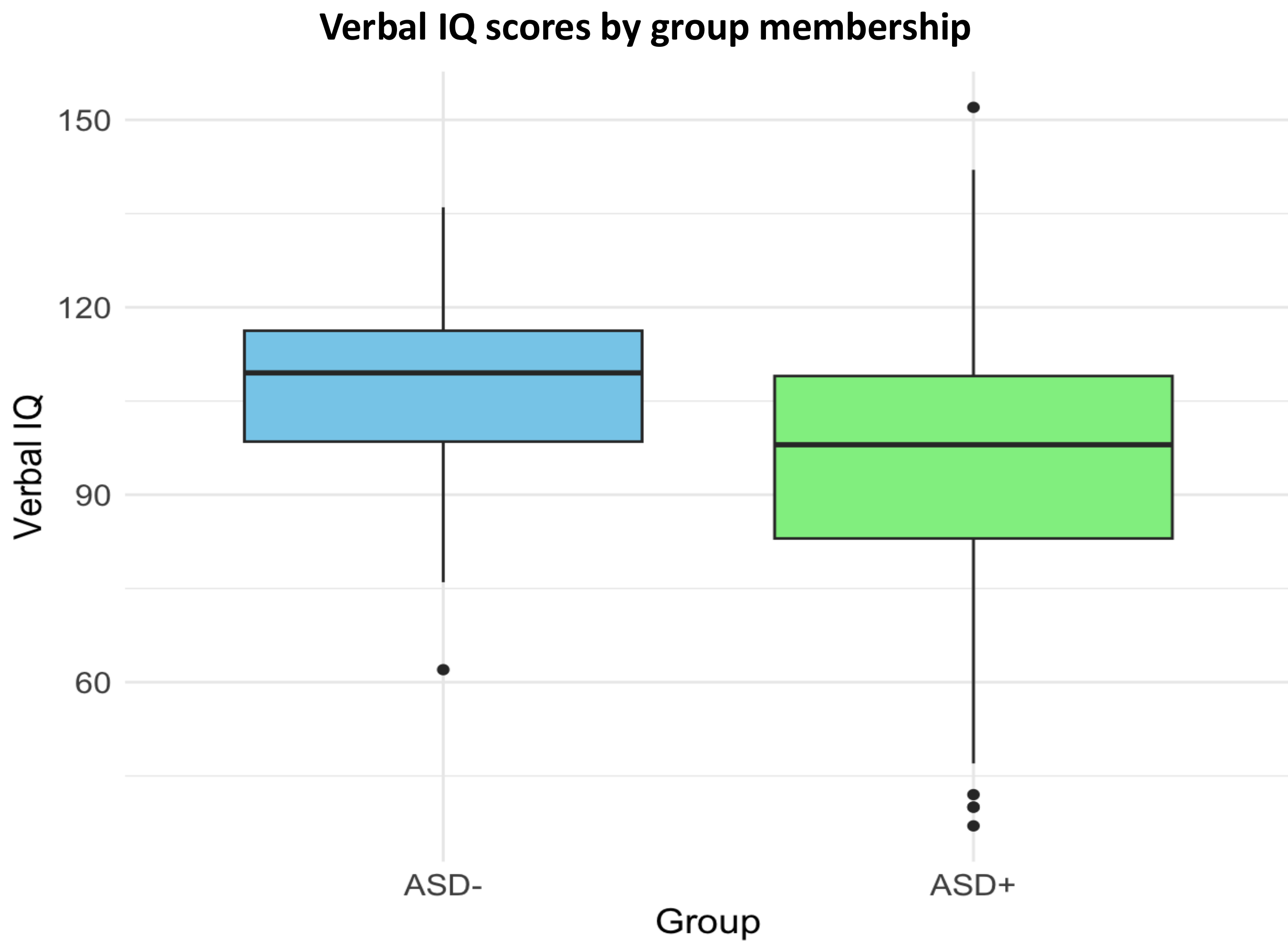
- Independent samples t-tests were run to compare FSIQ, verbal IQ, non-verbal IQ, age, and internalizing and externalizing symptoms (CASI-5 subdomain t-scores) in the ASD+ and ASD- groups.
- Sex distribution was compared between the two groups using chi-square tests.

### Results

**Table 1.** T-tests comparing ASD- and ASD+ groups on clinical measures.

Variable	ASD- Mean	ASD+ Mean	Cohen's d	p	t	df
FSIQ	103.04	95.58	0.36	0.09	1.69	304
Verbal IQ	105.71	95.95	0.48	0.02	2.24	305
Nonverbal IQ	101.17	97.52	0.22	0.31	1.03	302
Age	8.52	8.54	-0.01	0.95	-0.06	315
CASI-5 T-Scores						
Inattentive	68.62	72.66	-0.32	0.13	-1.50	298
Hyperactive-Impulsive	65.82	69.27	-0.24	0.26	-1.13	298
Combined	69.55	73.69	-0.31	0.14	-1.15	298
Separation Anxiety	55.21	56.16	-0.06	0.76	-0.29	298
General Anxiety	64.92	68.45	-0.04	0.31	-1.02	298
Social Anxiety	60.27	61.10	-0.21	0.82	-0.22	297

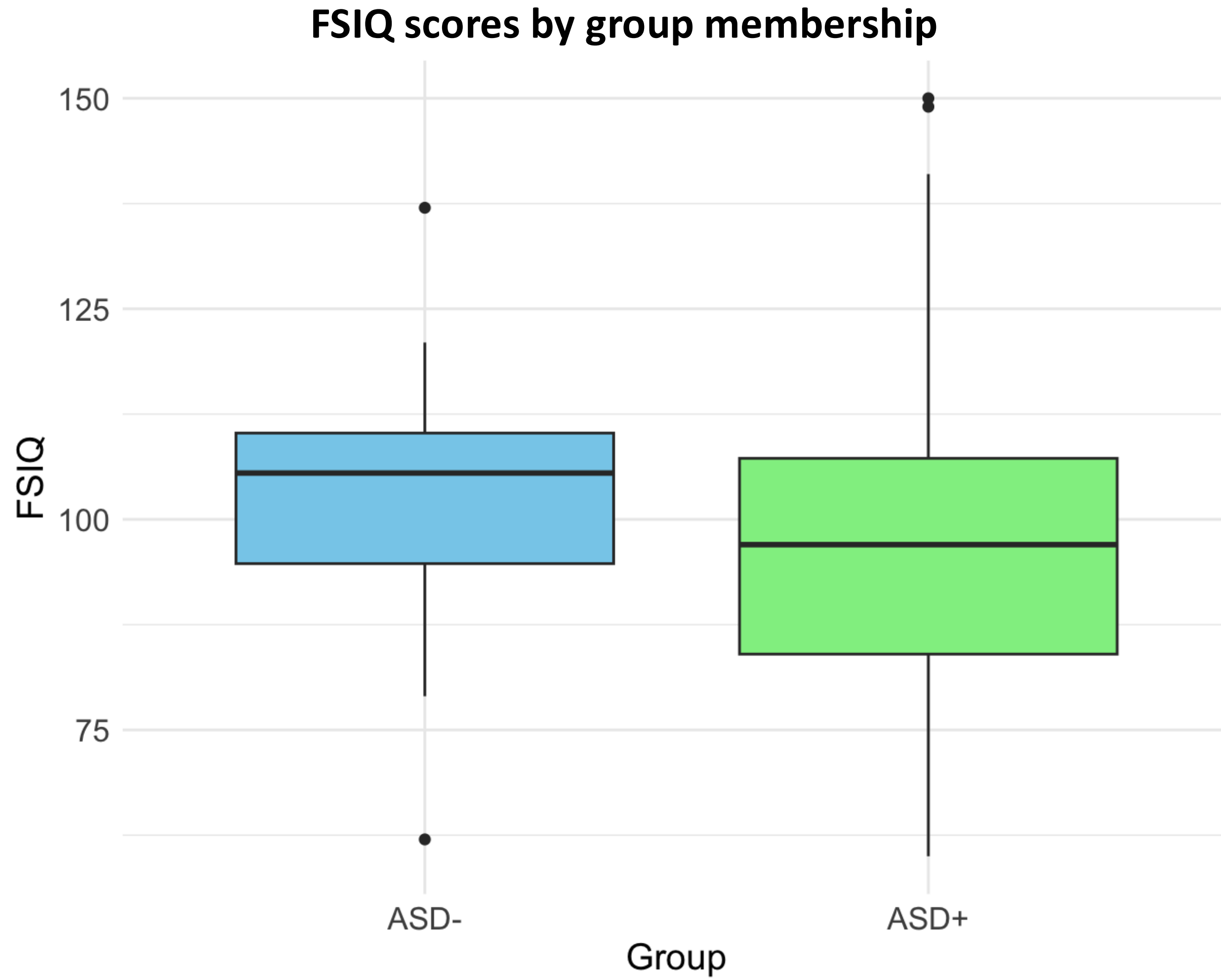
- A significant difference in verbal IQ indicated higher scores in the ASD- group ( $t(305) = 2.23$ ,  $p = 0.02$ ,  $d = 0.48$ ).



**Figure 1.** Verbal IQ scores for ASD- and ASD+ groups.

### Results

- A trend in FSIQ suggested higher scores in the ASD- group ( $t(304) = 1.69$ ,  $p = 0.09$ ,  $d = 0.36$ ).



**Figure 2.** FSIQ scores for ASD- and ASD+ groups.

- No significant differences were found in nonverbal IQ, CASI-5 subdomain t-scores, age, and sex between groups (all  $ps > 0.1$ ).

### Conclusions

- Consistent with our hypothesis, children in the ASD- group had higher verbal IQ scores than those in the ASD+ group which contributed to a trending difference in FSIQ.
- Children who had higher verbal reasoning ability were more likely to be excluded based on strict research criteria. This is opposite of diagnostic findings in the community where increased awareness of autism has contributed to overdiagnosis of children with higher IQs.<sup>5</sup>
- In contrast to prior research, children in the two groups did not differ in their levels of internalizing or externalizing symptoms or by demographic characteristics (age and sex).<sup>5</sup>
- This study was limited by the small sample size of the ASD- group.
- Future studies would benefit from using multiple data sources, including self-report and clinical assessment, to compare psychiatric symptoms across groups.

### References

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