Measuring the spectrum: Comparing dichotomous and continuous scoring of the AQ in autistic and non-autistic adults

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Background

- AQ = widely used ASD self-report questionnaire

In AQ research
- Large clinical research samples are scarce
- Sex differences are understudied
- Dichotomous vs. continuous scoring is rarely compared

Objective

Compare AQ scores (total + subscales)
in autistic vs non-autistic adults
- by sex
- using dichotomous + continuous scoring
- assess diagnostic accuracy

Methods

Design: retrospective diagnostic data

Sample
- N = 3194 adults referred for suspected ASD
- ASD: n = 1884
  (904 men, 980 women; M age = 33.34, SD = 12.14)
- Non-ASD: n = 1310
  (632 men, 678 women; M age = 33.96, SD = 12.14)

Analyses

- t-tests: AQ total + subscales
- Bonferroni correction
- ROC analyses for discriminative ability

Results

Scoring comparison
- No differences between scoring methods
- Same significance patterns
- Same effect size classification

ASD vs. non-ASD

Autistic group scored higher (all $p < .0001$) on
- AQ total: d = .88
- All AQ subscales: d = .25–1.00
  Largest effects: Social skills & Communication
  Smallest effects: Attention to detail

Sex differences (all $p < .0001$)
- In non-ASD: no sex differences, except for Imagination: men > women, d = .422
- In ASD: women > men, d = .162-.370 for all scales, except for Imagination: men > women, d = .370

Note: all effects are negligible to small

Table 1

AQ scores M (SD): ASD / non-ASD

AQ scales	Dichotomous scoring Total group	Men	Women	Continuous scoring Total group	Men	Women
Total	28.87 (7.64) 22.18 (7.49)	28.14 (7.62) 22.34 (7.47)	29.53 (7.61) 22.04 (7.52)	133.27 (18.36) 117.21 (17.58)	131.51 (17.94) 117.92 (17.15)	134.90 (18.60) 116.55 (17.95)
Social skills	6.17 (2.50) 4.31 (2.57)	5.90 (2.52) 4.26 (2.58)	6.42 (2.46) 4.35 (2.56)	27.90 (5.62) 23.58 (5.61)	27.30 (5.60) 23.55 (5.54)	28.46 (5.60) 23.62 (5.67)
Attention switching	7.24 (2.19) 5.78 (2.42)	6.90 (2.31) 5.64 (2.38)	7.55 (2.03) 5.91 (2.45)	30.12 (5.17) 26.51 (5.46)	29.23 (5.26) 26.16 (5.25)	30.95 (4.95) 26.83 (5.64)
Attention to detail	5.56 (2.29) 4.78 (2.27)	5.23 (2.33) 4.65 (2.34)	5.86 (2.21) 4.90 (2.20)	25.57 (5.60) 23.63 (5.44)	24.77 (5.50) 23.28 (5.42)	26.30 (5.59) 23.96 (5.45)
Communication	5.22 (2.26) 3.60 (2.11)	5.05 (2.19) 3.70 (2.12)	5.38 (2.31) 3.50 (2.10)	25.52 (5.20) 21.53 (4.77)	25.08 (4.97) 21.94 (4.70)	25.92 (5.38) 21.15 (4.80)
Imagination	4.62 (2.17) 3.66 (2.00)	4.97 (2.13) 4.03 (2.00)	4.30 (2.15) 3.32 (1.94)	24.17 (5.12) 21.96 (4.85)	25.13 (4.97) 22.99 (4.69)	23.27 (5.09) 20.99 (4.80)

ROC analyses on AQ total
- Dichotomous: AUC = .736, sensitivity 69%, specificity 69%, optimal cut-off 25.5 (men 25.5, women 26.5)
- Continuous: AUC = .739, sensitivity 63%, specificity 74%, optimal cut-off 127.25 (men 127.5, women 127.25)

Sex differences are minimal in AQ
Dichotomous vs continuous scoring makes little difference

Conclusion

- AQ discriminates between ASD and non-ASD reasonably well
- Minimal sex differences in AQ scores and optimal cut-offs
- Dichotomous and continuous scoring yield similar results
- AQ mainly captures observable traits
  - Internal traits (e.g., camouflaging) are possibly underrepresented

Sidenote

Poster Bezemer et al., 2026 (N = 715, ASD: 125, non–ASD = 590): AQ sex differences were also minimal, though higher AQ cut-off in women

Poster Bezemer et al., 2026; N = 1260): M-ASD, an instrument which also captures camouflaging and internal traits, did find sex differences