Investigating (non-)autistic success at identifying (non-)autistic people in videos and pictures

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Background

- The DSM V describes autism as characterised by "persistent deficits" in social communication[1]. However, communication between autistic people is both enjoyable[2] and effective at transferring information[3].
- Autistic people rate their rapport as higher with other autistic people than with non-autistic people [4]. Independent observers rate autistic dyads' rapport as equivalent to non-autistic dyads[5].
- This suggests that (a) autistic social communication difficulties are dependent on the diagnostic status of an autistic person's social partner, and (b) it may be more difficult to identify autistic people as autistic when in autistic dyads.

Research Questions

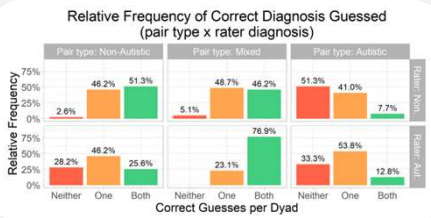
1. Is it possible to identify people's diagnostic status from a video clip/photograph of an interaction?
2. Are people more accurate at identifying people of their own autism diagnostic status?
3. Are people more accurate at identifying autistic people in mixed dyads vs. autistic dyads?

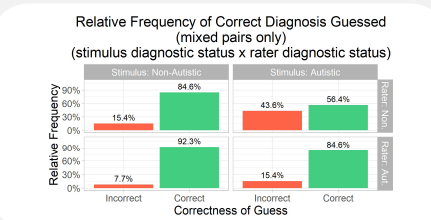
Method

Clips were taken from videos showing autistic, non-autistic, and mixed dyads in conversation. 78 raters (39 autistic) watched one clip from each condition. They were asked to identify whether each member of the dyad was autistic or not.

A subset of 54 participants (27 autistic) repeated this procedure with photographs from the videos, seeing two photographs from each condition.

Study 1:Video Clips





*p≤0.05 **p≤0.01 ***p≤0.001 (FDR-corrected)

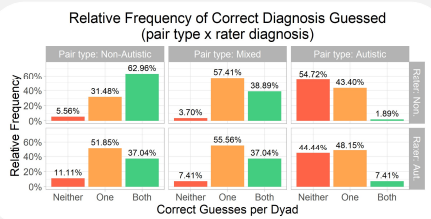
NB: Cells show mean, 95% CI range.. Reference value of 0.5 (performance at chance). Orange=below chance, yellow=at chance, green=above chance.

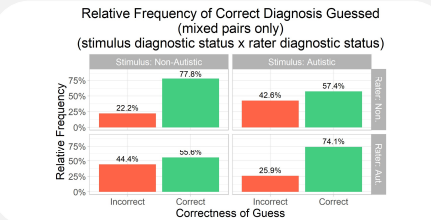
		Rater Diagnostic Status: Non-Autistic	Rater Diagnostic Status: Autistic
Pair Condition	Non-Autistic	**0.74** *** (0.64 – 0.84)	**0.49** (0.37 – 0.60)
	Mixed	**0.71** *** (0.60 – 0.81)	**0.88** *** (0.81 – 0.96)
	Autistic	**0.28** *** (0.18 – 0.38)	**0.40** (0.29 – 0.51)

Visualisations and one-tailed t-tests of rater performance showed:

- Autistic raters performed worse than non-autistic raters with non-autistic pairs; autistic raters often assumed both were autistic.
- Autistic raters performed better than non-autistic raters with mixed pairs; non-autistic raters often failed to notice autistic people.
- All raters performed poorly with autistic pairs; non-autistic raters at below chance, often assuming both were non-autistic.

Study 2: Photos





*p≤0.05 **p≤0.01 ***p≤0.001 (FDR-corrected)

NB: Cells show mean, 95% CI range.. Reference value of 0.5 (performance at chance). Orange=below chance, yellow=at chance, green=above chance.

		Rater Diagnostic Status: Non-Autistic	Rater Diagnostic Status: Autistic
Pair Condition	Non-Autistic	**0.79** *** (0.71–0.87)	**0.63** ** (0.54-0.72)
	Mixed	**0.68** *** (0.59–0.77)	**0.65** ** (0.56–0.74)
	Autistic	**0.24** *** (0.15–0.32)	**0.31** ** (0.23–0.40)

Visualisations and one-tailed t-tests of rater performance showed:

- Autistic and non-autistic raters display a similar prediction pattern, which resembled non-autistic raters' predictions in Study 1.
- All raters more likely to assume people were non-autistic than in the Study 1.
- Still evidence of autistic raters 'over-guessing' autism and non-autistic raters 'under-guessing' autism.
- Performance on autistic pairs still very poor.

Participants (Raters)

Study 1:Video Clips

	Autistic (*n*=39)	Non-Autistic (*n*=39)
Age	34.3 ± 13.2	33.7 ± 13.3
Gender	M=14, NB=2, W=23	M=14, W=25
Y/education	17.4 ± 3.1	17.2 ± 2.3

Study 2: Photographs

	Autistic (*n*=27)	Non-Autistic (*n*=27)
Age	34.0 ± 13.7	33.0 ± 13.0
Gender	M=13, W=14	M=12, W=15
Y/education	17.5 ± 3.3	16.9 ± 2.4

N.B.:Age and years in education are in years ± SD. M=man, NB=non-binary, W=woman.

Conclusion

- Both autistic and non-autistic observers can often guess whether someone is autistic, from both videos and photos of social interaction
- Autistic pairs make it very difficult to guess that someone is autistic.
- Raters display an own-diagnosis bias when guessing (i.e. autistic raters guess autistic more often; non-autistic raters guess non-autistic).
- Autistic and non-autistic observers may use different cues to determine autistic status for a video modality, but similar ones for a photo modality.
- Replication with a larger sample size and more robust statistical analyses is needed.

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References

[1] American Psychiatric Association. (2013). Autistic Spectrum Disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed.).
[2] Crompton, C. J., Hallett, S., Ropar, D., Flynn, E., & Fletcher-Watson, S. (2020). 'I never realised everybody felt as happy as I do when I am around autistic people': A thematic analysis of autistic adults' relationships with autistic and neurotypical friends and family. *Autism*, *24*(6), 1438-1448.
[3] Crompton, C. J., Ropar, D., Evans-Williams, C. V., Flynn, E. G., & Fletcher-Watson, S. (2020). Autistic peer-to-peer information transfer is highly effective. *Autism*, *24*(7), 1704-1712.
[4] Rifai, O. M., Fletcher-Watson, S., Jiménez-Sánchez, L., & Crompton, C. J. (2022). Investigating markers of rapport in autistic and nonautistic interactions. *Autism in Adulthood*, *4*(1), 3-11.
[5] Crompton, C. J., Sharp, M., Axbey, H., Fletcher-Watson, S., Flynn, E. G., & Ropar, D. (2020). Neurotype-matching, but not being autistic, influences self and observer ratings of interpersonal rapport. *Frontiers in psychology*, 2961.

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