

Assortative mating for autistic traits, systemizing, and theory of mind

Gareth Richards^{1,2}, Simon Baron-Cohen², Holly Stokes³, Varun Warri², Shanhong Luo⁴, Robin Dunbar⁵, Emily Jackson¹, Hannah Proctor¹, Eva Lee¹, Ben Mellor¹, Jessica Davies³, Laura Gee³, & John Galvin³

AFFILIATIONS:

¹ School of Psychology, Newcastle University, Newcastle upon Tyne, Tyne and Wear, UK

² Autism Research Centre, University of Cambridge, Cambridge, Cambridgeshire, UK

³ School of Psychology, Birmingham City University, Birmingham, West Midlands UK

⁴ Department of Psychology, University of North Carolina Wilmington, Wilmington, North Carolina, USA

⁵ Department of Experimental Psychology, University of Oxford, Oxford, Oxfordshire, UK

KEYWORDS: Assortative mating; Autism; Autistic traits; Systemizing; Theory of Mind

We aimed to test the hypothesis that quantitative traits associated with autism spectrum conditions are subject to assortative mating. Study 1 examined self-reported autistic traits (Autism Spectrum Quotient [AQ]), systemizing (Systemizing Quotient-Revised [SQ-R]) and empathizing (Empathy Quotient [EQ]), as well as behavioral measures related to socio-perceptual Theory of Mind (Reading the Mind in the Eyes Test [RMET]) and systemizing (Embedded Figures Task [EFT]). Variable-centered analyses revealed positive intra-couple correlations for AQ ($r[102]=0.305$, $p=0.002$), SQ-R ($r[101]=0.263$, $p=0.007$), RMET ($r[53]=0.438$, $p<0.001$) and EFT ($r[56]=0.423$, $p<0.001$), but not EQ ($r[100]=-0.018$, $p=0.860$). Further analysis suggested people pair with others more similar than chance (initial assortment) rather than become alike during a relationship (convergence), and that they seek out similar partners (active assortment) rather than pair with similar people due to social stratification (social homogamy). We next used couple-centered analyses to compare similarity scores between actual couples and the average of all other possible male/female pairings. Actual couples were again more similar for AQ ($d=0.250$, $p=0.002$), SQ-R ($d=0.211$, $p=0.007$), RMET ($d=0.393$, $p=0.007$) and EFT ($d=0.365$, $p=0.006$), but not EQ ($d=-0.002$, $p=0.980$). In Study 2, we replicated the intra-couple correlation ($r[94]=0.284$, $p=0.005$) and similarity ($d=0.253$, $p=0.032$) for socio-perceptual Theory of Mind (RMET). However, there was no assortment for socio-cognitive Theory of Mind (Stiller-Dunbar Stories Task) in either variable-centered ($r[98]=0.048$, $p=0.635$) or couple-centered ($d=0.012$, $p=0.917$) analyses. Random-effects meta-analysis ($k=16$, $n=5,892$) confirmed a significant intra-couple correlation for quantitative autistic traits, $r=0.186$, $p<0.0001$. These findings support the assortative mating theory of autism and should be considered when estimating heritability.