



DIAGNOSIS OF ASD FOR GIRLS

- On average, girls are diagnosed with ASD at age 5.4 years
 (Office of Autism Research Coordination National Institutes of Health, 2019)
 - Girls diagnosed an average of 1.5 years later than boys (McCormick et al., 2020).
 There is a longer time between first symptoms and diagnosis of ASD for girls.
 On average, ASD diagnosis in girls occurs 2 years after care givers express concerns (Begeer et al., 2012).
- Male-to-Female Ratio of Diagnosis in ASD: 3:1 (Loomes et al., 2017)
- Many researchers believe girls are underdiagnosed with ASD
 - Difficulties especially overlooked in early and middle childhood (Dean et al., 2014, Mandy et al., 2012)

WHY ARE GIRLS WITH ASD UNDERDIAGNOSED?

- Criteria for diagnosing ASD based on data driven almost entirely from studies of boys
- Screening instruments not designed to assess for specific ways that ASD presents in girls (Constantino & Charman, 2012)
- Females express characteristics of ASD differently than males.
 For example, autistic females often demonstrate:
 - Higher social motivation (Hiller et al 2014, Head et al., 2014)
 - More typical, and gender-stereotyped, interests (Hiller et al., 2014)
 - Less apparent repetitive behaviours (Hiller et αl., 2014)
 - Tend to internalize their emotions (in contrast to boys' tendency to externalize behaviours) (Solomon *et al.*, 2012)
 - Greater capacity to "camouflage" autistic difficulties (Lai et al., 2011)

Referral bias

- Families and professionals often attribute girls' challenges to shyness, anxiety, or other factors
- Autistic girls may get the following diagnoses instead of ASD (Szalavitz, 2016):
 - Anxiety, Depression, or other mental health disorders
 - Anorexia or other eating disorders
 - ADHD
 - Obsessive Compulsive Disorder
- This can lead to fewer referrals and misdiagnosis (Holtmann, Bölte, & Poustka, 2007)

Hints that Autism May be the Correct Diagnosis (Dr. Alisa Lipson, 2019 – Pediatrician in Vancouver, BC) – https://thischangedmypractice.com/autistic-spectru m-disorder-in-girls/



WHAT IS CAMOUFLAGING?

- Definition: use of conscious or unconscious strategies, which may be explicitly learned or implicitly developed, to minimize appearance of autistic characteristics in a social setting (Hull, 2020)
- Girls with ASD camouflage more than boys with ASD (Lai et al., 2017; Ratto et al., 2017; Parish-Morris et al., 2017; Rynkiewicz et al., 2016; Dean et al., 2016)

TYPES OF CAMOUFLAGING

COMPENSATION

Finding ways around things that are naturally difficult

Examples:



Forcing yourself to make eye contact with someone



Copying the facial expressions of a character in a TV show when you don't know which facial expressions to make

MASKING

Hiding parts of your autism

Examples:



Not talking about something you are really interested in



Pretending to join in a game even if you do not understand the rules

ASSIMILATION

Trying to fit in with everyone else so people don't notice you are different

Examples:



Always sitting next to the same person in class



Talking to a stranger in a shop even if you don't want to

https://kids.frontiersin.org/articles/10.3389/frym.2019.00129

WHY DO PEOPLE CAMOUFLAGE?

- To be perceived as a functioning member of society
- Opportunity to connect
- To reduce stress

CONSEQUENCES OF CAMOUFLAGING

- Increased risk for mental health difficulties
 - Autistic people who camouflage report higher rates of anxiety and depression (Bergiela *et al.*, 2016; Cage & Troxell-Whitman, 2019; Livingston, *et al.*, 2019)
- O Decreased access to supports (Mandy, 2018)
- Energy depletion (Hull et al., 2017)
 - Constant energy to avoid "getting it wrong"
 - Holding it together in one situation, while falling apart in others
- O Diminished sense of identity (Hull et al., 2017)
 - Feelings of inauthenticity, not knowing oneself, or betrayal of self and others



REFERENCES

- Bargiela, S., Steward, R., Mandy, W. (2016). The experiences of late-diagnosed women with autism spectrum conditions: An investigation of the female autism phenotype. *Journal of Autism and Developmental Disorders*. 46(10), 3281–3294.
- Baron-Cohen, S. (2008). *Autism and Asperger syndrome: The facts.* Oxford, UK: Oxford University Press.
- Begeer, S., Mandell, D., Wijnker-Holmes, B., Venderbosch, S., Rem, D., Stekelenburg, F., & Koot, H. (2012). Sex differences in the timing of identification among children and adults with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*. 43(5), 1151-1156.
- Cage, E., Troxell-Whitman, Z. (2019). Understanding the reasons, contexts and costs of camouflaging for autistic adults. *Journal of Autism and Developmental Disorder*. 49, 1899–1911.
- Constantino, J. & Charman, T. (2012). Gender bias, female resilience, and the sex ratio in autism. Journal of the American Academy of Child and Adolescent Psychiatry. 51, 756-810.
- Dean, M., Harwood, R., & Kasari, C. (2017). The art of camouflage: Gender differences in the social behaviors of girls and boys with autism spectrum disorder. *Autism.* 21(6), 678–689.
- Dean, M., Kasari, C., Shih, W. (2014). The peer relationships of girls with ASD at school: Comparison to boys and girls with and without ASD. *Journal of Child Psychology and Psychiatry*. 55(11), 1218–1225.
- Dewinter, J., De Graaf, H. & Begeer, S. (2017). Sexual orientation, gender identity, and romantic relationships in adolescents and adults with *Autism* Spectrum Disorder. *Journal of Autism and Developmental Disorders*. 47, 2927–2934.
- Head, A.M., McGillivray, J.A. & Stokes, M.A. (2014). Gender differences in emotionality and sociability in children with autism spectrum disorders. *Molecular Autism*. 5,19.
- Hiller, R. M., Young, R. L. & Weber, N. (2014). Sex differences in autism spectrum disorder based on DSM-5 criteria: Evidence from clinician and teacher reporting. *Journal of Abnormal Child Psychology.* 42, 1381-1393.
- Holtmann, M., Bölte, S., Poustka, F. (2007). Autism spectrum disorders: sex differences in autistic behaviour domains and coexisting psychopathology. *Developmental Medicine & Child Neurology*. 49(5), 361-6.
- Hull, L., Petrides, K. V., Allison, C., Smith, P., Baron-Cohen, S., Lai, M., & Mandy, W. (2017). "Putting on my best normal": Social camouflaging in adults with autism Spectrum conditions. *Journal of Autism and Developmental Disorders.* 47(8), 2519–2534.
- Hull, L., Petrides, K.V. & Mandy, W. (2020). The female autism phenotype and camouflaging: A narrative review. *Review Journal of Autism and Developmental Disorders.* 7, 306–317.
- Lai, M.C., Lombardo, M.V., Pasco, G., Ruigrok, A.N.V., Wheelwright, SJ, Sadek SA, Chakrabarti, B., & Baron-Cohen, S., (2011). A behavioral comparison of male and female adults with high functioning autism spectrum conditions. *Public Library of Science*. 6(6).

- Lai, M. C., Lombardo, M. V., Ruigrok, A. N., Chakrabarti, B., Auyeung, B., Szatmari, P., Happé, F., Baron-Cohen, S., & MRC AIMS Consortium (2017). Quantifying and exploring camouflaging in men and women with autism. *Autism: The International Journal of Research and Practice*. 21(6), 690–702.
- Livingston, L. A., Colvert, E., Social Relationships Study Team, Bolton, P., Happé, F. (2019). Good social skills despite poor theory of mind: Exploring compensation in autism spectrum disorder. *Journal of Child Psychology and Psychiatry*. 60, 102–110.
- Loomes, R., Hull, L., Mandy, W.P.L., (2017). What is the male-to-female ratio in Autism Spectrum Disorder? A systematic review and meta-analysis. *Journal of the American Academy of Child & adolescent Psychiatry.* 56(6), 466-474.
- Mandy, W. (2018, April 4). *Improving the Recognition of Women and Girls on the Autism Spectrum* [Webinar]. Autism Community Training. https://www.actcommunity.ca/education/videos/improving-the-recognition-of-women-and-girls-on-the-autism-spectrum
- Mandy W. (2018, April 4). *Understanding the Needs of Girls and Women on the Autism Spectrum* [Webinar]. Autism Community Training. https://www.actcommunity.ca/education/videos/understanding-the-needs-of-girls-and-women-on-the-autism-spectrum
- Mandy, W., Chilvers, R., Chowdhury, U., Salter, G., Seigal, A., Skuse, D. (2012). Sex differences in autism spectrum disorder: evidence from a large sample of children and adolescents. *Journal of Autism and Developmental Disorders*. 42, 1304–1313.
- McCormick, C., Kavanaugh, B. C., Sipsock, D., Righi, G., Oberman, L. M., Moreno De Luca, D., Gamsiz Uzun, E. D., Best, C. R., Jerskey, B. A., Quinn, J. G., Jewel, S. B., Wu, P. C., McLean, R. L., Levine, T. P., Tokadjian, H., Perkins, K. A., Clarke, E. B., Dunn, B., Gerber, A. H., Tenenbaum, E. J., ... Morrow, E. M. (2020). Autism Heterogeneity in a Densely Sampled U.S. Population: Results From the First 1,000 Participants in the RI-CART Study. Autism Research: Official journal of the International Society for Autism Research.13(3), 474–488.
- Office of Autism Research Coordination National Institutes of Health. (2019). Report to Congress on Activities Related to Autism Spectrum Disorder and Other Developmental Disabilities. Autism Collaboration, Accountability, Research, Education and Support Act (Autism CARES Act).

 Retrieved from the U.S. Department of Health and Human Services Interagency Autism Coordinating Committee website: https://iacc.hhs.gov/publications/report-to-congress/2018/.
- Parish-Morris, J., Liberman, M. Y., Cieri, C., Herrington, J. D., Yerys, B. E., Bateman, L., et al. (2017). Linguistic camouflage in girls with autism spectrum disorder. *Molecular Autism*. 8(1), 48.
- Ratto, A. B., Kenworthy, L., Yerys, B. E., Bascom, J., Trubanova, A., White, S. W., *et al.* (2018). What about the girls? Sex-based differences in autistic traits and adaptive skills. *Journal of Autism and Devel opmental Disorders*. 48(5), 1698–1711.
- Rynkiewicz, A., Schuller, B., Marchi, E., Piana, S., Camurri, A., Lassalle, A., & Baron-Cohen, S. (2016). An investigation of the 'female camouflage effect' in autism using a computerized ADOS-2 and a test of sex/gender differences. *Molecular Autism*. 7(10), 1.
- Solomon, M., Miller, M., Taylor, S. L., Hinshaw, S. P., & Carter, C. S. (2012). Autism symptoms and internalizing psychopathology in girls and boys with autism spectrum disorders. *Journal of Autism and Developmental Disorders*. 42(1), 48–59.
- Szalavitz, M. (2016). The invisible girls. Scientific American Mind. 27(2), 48-55.
- Zener, D. (2018, November 8). INVESTing in Women and Girls with Autism [Webinar]. Act Community Training.https://www.actcommunity.ca/education/videos investing-in-women-and-girls-with-autism.