

## Autism in Females: Understanding the Overlooked Diagnoses, Unique Challenges, and Recommendations

Piper Hutson; James Hutson\*

Lindenwood University, Saint Charles, USA.

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**\*Corresponding Author:** James Hutson, Lindenwood University, Saint Charles, USA.  
Email: [Jhutson@lindenwood.edu](mailto:Jhutson@lindenwood.edu)

### Abstract

Autism Spectrum Condition (ASC) is a neurodevelopmental disorder that affects individuals of both sexes. However, females with ASC frequently remain undiagnosed or misdiagnosed due to a range of factors, including gender bias in the medical profession, societal expectations, and a lack of knowledge about the unique challenges they face. For instance, the gendered subset of the population often struggles with social interaction and communication, relying more on analytical thinking, which can lead to difficulty in generating acceptable responses and behaviors. At the same time, females are more adept at masking their innate behaviors associated with the condition and hyper-focus on intense, immediate friendships. Compared to males, females with may also present with fewer repetitive and ritualistic behaviors and internalize emotions such as anxiety and depression, thus leading to a higher risk of suicide. Diagnosis inequality with males may be due to overshadowing by co-existing conditions, gender bias, and a lack of understanding of female-associated interests. Strategies for supporting females with the condition include providing concrete and visual information, offering incremental steps to structure transitions, understanding their aversion to change, offering guided choice options, and using social stories and factual evidence to help work through fears. Increasing awareness of the unique challenges faced by females with autism is crucial in improving support and understanding for them. Further research and training for clinicians and supportive resource materials for families and the wider community are necessary to reduce the impact of ASC on females and improve their quality of life.

### Introduction

Autism Spectrum Condition (ASC) (previously Autism Spectrum Disorder (ASD)) is a neurodevelopmental disorder that affects individuals across different ages, genders, and ethnicities [1]. Despite being commonly associated with males, research suggests that females are also affected by the condition, but their symptoms often go unnoticed or misdiagnosed due to the heterogeneity of the condition and gender bias in the medical profession [2]. In fact, evidence suggests that the condition is underdiagnosed in females [3]. The reason for the population going unnoticed is that females with autism often present unique challenges that require tailored support and understanding, particularly in the areas of social interaction, communication, and emotional regulation [4]. As such, further exploration is called for regarding the overlooked diagnoses of ASC in females and insights needed on how to improve awareness and support for this population. By reviewing existing literature on the topic, and considering interventions based on recommendations, this paper aims to shed light on

the specific challenges faced by females with autism, including their tendency to construct social connections based on analytical thinking, their use of coping strategies such as masking or camouflaging their innate associated symptoms and behaviors, and the misdiagnosis and underdiagnosis due to gender bias and coexisting conditions [5,3].

Studies have shown that females with autism have better early language development and better social skills [6]. However, they tend to present with lower cognitive, adaptive, and social abilities than males [6]. Moreover, the literature highlights the higher suicide rate among females with ASC [5]. The challenges faced by females with autism have also been discussed from the parental perspective, with issues of particular relevance to girls with being raised [4]. The importance of understanding female-associated interests, providing concrete and visual information, offering incremental steps to structure transitions, and using social stories and factual evidence to help this population work through fears have been highlighted [3]. By providing this information, this study seeks to elucidate the unique challenges faced by females on the autism spectrum

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and to offer recommendations for improving support and understanding for this population. Training to recognize the symptoms of autism in females for teachers and clinicians can mitigate risks and promote wellbeing of girls and women on the autism spectrum [5]. However, further research is needed to better understand the specific challenges faced by those that go undiagnosed in order to develop tailored interventions to support this population.

## Literature review

Autism Spectrum Condition (ASC) is a complex neurodevelopmental disorder that affects individuals of different ages, genders, and ethnicities, and is characterized by impaired social interaction and communication, and restrictive and repetitive interests and behaviors [1]. Although traditionally associated with males, recent research indicates that females are also affected, but their symptoms often go unnoticed or misdiagnosed due to the heterogeneity of the condition and gender bias in the medical profession [2]. The diagnostic criteria for the condition are based on behavioral observations, which can be challenging in females due to their tendency to construct social connections based on analytical thinking, and their use of coping strategies such as masking or camouflaging their innate behaviors [3].

Females with ASC face unique challenges in social interaction, communication, and emotional regulation that require tailored support and interventions [4]. The misdiagnosis and under diagnosis in females are a significant issue, and research suggests that females are more likely to be diagnosed with coexisting conditions such as anxiety or depression, and less likely to receive targeted support for learning and behavioral needs [5]. The oversight can have a negative impact on their quality of life and limit their access to appropriate treatments and interventions. Furthermore, females with autism may have difficulty recognizing and managing their own emotions, which can contribute to feelings of anxiety and depression and increase their risk of suicide [6].

Gender bias in the medical profession has been identified as a significant barrier to the accurate diagnosis in females, and research suggests that male medical professionals may be biased towards recognizing and diagnosing the condition in male patients due to the proscriptive list of symptoms that are focused on, leading to a lack of awareness and understanding of the condition in females [2]. When not diagnosed or under diagnosed, the female population thus has limited access to appropriate support and interventions, such as Individualized Education Plans (IEP).

Moreover, recent literature highlights a concerning trend of a higher suicide rate among females compared to males with ASC, which may be linked to the unique challenges that the gender faces in social interaction, communication, and emotional regulation [6]. For example, females may struggle to form and maintain social connections due to their unique

challenges in these areas, leading to feelings of loneliness and isolation [5]. Tailored support and interventions for the population are necessary to reduce the impact of the condition on their lives and improve their quality of life. Training for clinicians and supportive resource materials for families, the workplace, and the wider community can also help to mitigate the risks and promote the wellbeing of girls and women on the autism spectrum [5,4].

Overall, females with autism face unique challenges and are underdiagnosed compared to males. Some studies suggest that the diagnostic criteria for autism may be gender-biased and may not adequately capture the way autism presents in females. Girls and women with autism may have better social and communication skills than their male counterparts but also have more severe impairments in other areas. They may also engage in camouflaging behaviors to fit in socially, which can delay diagnosis. Early and targeted interventions can improve social communication and reduce symptom severity in children. There is a need for better awareness and recognition of the unique challenges faced by females with autism to ensure they receive appropriate support and treatment.

## Recommendations

### Clinical and Academic

It is essential for clinicians to be aware of the unique challenges faced by females with Autism Spectrum Condition (ASC). Despite the common association with males, research suggests that females are also affected by ASC, but their symptoms often go unnoticed or misdiagnosed due to the heterogeneity of the condition and gender bias in the medical profession. To provide effective support and interventions for females, it is necessary to recognize and address the specific challenges they face. In this section, recommendations are provided for clinicians to assist in recognizing autism in females and providing early intervention and support for undiagnosed individuals later in life. These recommendations include increasing awareness and understanding of the visible and invisible symptoms in females [1,7], addressing gender bias in the medical profession [2], providing tailored support and understanding [4], developing targeted interventions [5] and promoting early intervention [8]. By implementing these recommendations, clinicians can improve outcomes for females with autism and reduce the impact of this condition on their daily lives. Furthermore, training teachers and clinicians in the recognition of the unique symptoms in the gender can mitigate risks and promote the wellbeing of girls and women on the autism spectrum [5]. It is important to consider co-occurring conditions, such as gender identity disorder (de Vries et al., 2010), and internalizing co-occurring conditions [9]. That can affect diagnosis and clinical management. Finally, clinicians should be aware of the variability in the clinical presentation of females and strive to provide individualized treatment that meets the specific needs of each patient [10]. By implement-

ing these recommendations, clinicians can improve outcomes for females with autism and reduce the impact of this condition on their daily lives.

**Increase awareness and understanding of ASC in females:** Efforts should be made to increase awareness and understanding of the unique challenges faced by females with autism. Clinicians, academics, and the psychological and psychiatric communities should be educated on the specific symptoms and coping strategies used by females on the autism spectrum. Additionally, training should be provided on how to recognize and diagnose the condition in females [11].

**Address gender bias in the medical profession:** Gender bias in the medical profession has been identified as a significant barrier to the accurate diagnosis of autism in females. To address this, there is a need for increased awareness and understanding of the impact of gender bias on the diagnosis and treatment of females. Medical professionals should be trained on how to recognize and diagnose in females and to address any biases that may be present [12].

**Provide tailored support and understanding:** The unique challenges faced by females with ASC in the areas of social interaction, communication, and emotional regulation require tailored support and understanding. Clinicians, academics, and the psychological and psychiatric communities should be trained on how to provide support and interventions that address these challenges. This includes providing concrete and visual information, offering incremental steps to structure transitions, using social stories and factual evidence to help them work through fears, and promoting self-awareness [13].

**Develop targeted interventions:** Targeted interventions that address the unique challenges faced by females with should be developed and implemented. These interventions should be tailored to the specific needs of females and address the areas of social interaction, communication, and emotional regulation. Efforts should be made to develop and evaluate the effectiveness of these interventions [14].

**Promote early intervention:** Early intervention is crucial for improving outcomes for individuals with autism. Clinicians, academics, and the psychological and psychiatric communities should work together to promote early identification and intervention for females with ASC. This includes screening for autism spectrum in females during early childhood, as well as providing support and interventions as early as possible [15]. Research has shown that early identification and intervention are essential for improving outcomes for individuals with ASC, including females. (Dworzynski et al., 2012). Therefore, clinicians and the medical community should prioritize screening in females during early childhood to ensure timely diagnosis and intervention. Targeted interventions should also be developed and evaluated to address the unique challenges faced by females [16]. This may include providing tailored support and understanding that addresses the specific challenges faced by females, such as social communication difficulties and sensory

processing issues [17].

Efforts should also be made to increase awareness and understanding of the unique challenges faced by females and address gender bias in the medical profession [18]. Collaboration between clinicians, academics, and the psychological and psychiatric communities is crucial for improving the recognition, diagnosis, and support for females with ASC [19]. By implementing these recommendations and promoting early intervention, improved outcomes for individuals with autism, including females, can be realized, and reduce the impact of this condition on their daily lives.

### Familial and Social Support

In this section, recommendations are provided for familial and social support for females with ASC at different ages, focusing on the recognition and not dismissal of symptoms, different needs of females versus males, and different ways in which families can support individuals, as well as coworkers and supervisors in the workplace, and social support such as friendship networks. Familial and social support are essential in recognizing and managing autism in females, as their symptomatology and manifestation are unique and often subtler compared to males [6,20]. Studies have shown that atypical brain areas in females with autism overlap with areas that are sexually dimorphic in neurotypical controls, suggesting neural masculinization [16]. It is possible that unfamiliarity with the clinical presentation of autism in females has contributed to under-recognition of the condition [21]. The general expectancy biases and gender stereotypes may impede timely recognition of autism in females [16]. Therefore, efforts must be made to identify sex/gender differences in social interaction and communication in individuals with ASD that are not captured by existing diagnostic instruments to prevent under-recognition of autism in females [22].

Moreover, tailored support and interventions addressing the specific needs of females with ASC should be provided to improve their quality of life and reduce the impact of this condition on their daily lives [23]. It is crucial to assess and intervene thoroughly in domains such as social interaction and communication as high-functioning females with autism have severe social and attention problems [23,6]. The diagnosis of autism significantly differentiates between males and females, emphasizing the need to study ASD in females separately from males [24,25]. The sex-specific response patterns in autism spectrum disorder can inform and improve the diagnostic assessment of autism in females [26]. Additionally, maternal age and education level and the gender of children are possible factors related to autism, indicating the need to explore these factors further [27,28,29]. The following recommendations may assist with family or social support networks for the population in question.

**Recognition of symptoms:** It is essential to recognize the specific symptoms and challenges faced by females with autism. Families and social support networks should be educated on the unique challenges faced by females, including their tendency to construct social connections based on analytical thinking and use coping strategies such as masking or camou-

flaging their innate behaviors. It is also important to recognize the tendency of females to internalize emotions such as anxiety or depression [30].

**Different needs of females with ASC versus males:** The unique challenges faced by females with ASC require tailored support and understanding. Families and social support networks should be trained on how to provide support and interventions that address these challenges, including providing concrete and visual information, offering incremental steps to structure transitions, using social stories and factual evidence to help them work through fears, and promoting self-awareness [31].

**Family support:** Families play a crucial role in the recognition and management of ASC in females. It is essential to involve families in the diagnosis and treatment process, provide them with education and training in females, and offer them support and resources to manage the challenges faced by their loved ones [32].

**Workplace support:** Coworkers and supervisors in the workplace should be educated on the unique challenges faced by females with ASC, and provided with training on how to support and accommodate individuals with autism. This includes providing clear and concise instructions, offering visual aids and alternative communication methods, and promoting a positive and supportive workplace culture [33].

**Social support:** Social support networks, including friendship networks, play an essential role in the quality of life of individuals with ASC. Families and social support networks should be trained on how to provide support and interventions that address the unique challenges faced by females on the autism spectrum in the areas of social interaction, communication, and emotional regulation. This includes providing opportunities for socialization that are tailored to the specific needs of females and promoting self-awareness and self-care [34].

By implementing these recommendations, familial and social support can be leveraged to play a crucial role in the recognition and management of the condition in females. To provide effective support for females with ASC, it is necessary to recognize the unique challenges they face and provide tailored support and interventions that address their specific needs. For instance, research shows that autism in females has unique symptomatology and manifests itself differently, more subtly, especially in high-functioning girls and women with fluent speech and average or above-average intelligence quotient [6,16]. Moreover, atypical brain areas in females with autism substantially overlap with areas that were sexually dimorphic in neurotypical controls, suggesting neural "masculinization" [16]. Studies also suggest that unfamiliarity with the clinical presentation of autism in females and gender stereotypes may impede timely recognition of autism in females [21,16]. Early identification and intervention are crucial for improv-

ing outcomes for individuals with autism, and this applies to females as well [23] emphasize the need for thorough assessments and interventions in social and attention domains, especially for high-functioning females with autism. The severity of social and attention problems in females with autism further underscores the importance of early identification and intervention [23].

Targeted interventions that address the unique challenges faced by females with ASC should be developed and implemented, and their effectiveness should be evaluated [20]. Providing tailored support and understanding that addresses the specific challenges faced by females can improve their quality of life and reduce the impact of this condition on their daily lives [22]. This support and understanding can come from families and social support networks, and by implementing these recommendations, they can improve outcomes for females [24,26]. Therefore, families and social support networks can play a crucial role in providing recognition and support that is tailored to the unique challenges faced by females, which is central to improving their quality of life and promoting their overall well-being [27,28,29,].

## Conclusion

Autism Spectrum Condition (ASC) in females is an often-overlooked area of research and practice in the psychological and psychiatric communities [6]. Females with ASC face unique challenges in social interaction, communication, and emotional regulation that require tailored support and interventions [20,23]. This brief treatment has highlighted the state of the field in research on autism and with females in particular and provided recommendations for clinicians and supportive resources for families, the workplace, and greater social awareness [22,35,36].

Despite recent advances in understanding of autism in the female population, there remains a need for further research in this area [21]. There is a need to investigate the prevalence and nature of the condition in females, and to develop effective interventions that address the unique challenges faced by females [37]. Additionally, there is a need for greater training for clinicians and supportive resource materials for families, the workplace, and the wider community [38]. Overall, research indicates the crucial importance in recognizing the unique challenges faced by females and provide tailored support and interventions that address their specific needs [24, 25]. Efforts should be made to increase awareness and understanding in females and to address gender bias in the medical profession [28]. By implementing the recommendations outlined, outcomes for females can be improved and the impact of this condition on their daily lives reduced [29]. Further research and greater training for clinicians and supportive resource materials for families, the workplace, and the wider community are needed to ensure that females with ASC no longer "fly under the radar" [27].



## References

1. Ruggieri VL, Arberas CL. Autism in females: Clinical, neurobiological and genetic aspects. *Revista de neurologia*. 2016; 62: S21-S26.
2. Haney JL. Autism, females, and the DSM-5: Gender bias in autism diagnosis. *Social Work in Mental Health*. 2016; 14: 396-407.
3. Hull L, Petrides KV, Mandy W. The female autism phenotype and camouflaging: A narrative review. *Review Journal of Autism and Developmental Disorders*. 2020; 7: 306-317.
4. Mademtzi M, Singh P, Shic F, Koenig K, et al. Challenges of females with autism: A parental perspective. *Journal of Autism and Developmental Disorders*. 2018; 48: 1301-1310.
5. Bargiela S, Steward R, Mandy W. The experiences of late-diagnosed women with autism spectrum conditions: An investigation of the female autism phenotype. *Journal of autism and developmental disorders*. 2016; 46: 3281-3294.
6. Rynkiewicz A, Schuller B, Marchi E, Piana S, Camurri A, et al. An investigation of the 'female camouflage effect' in autism using a computerized ADOS-2 and a test of sex/gender differences. *Molecular autism*. 2016; 7: 1-8.
7. Howe YJ, O'Rourke JA, Yatchmink Y, Viscidi EW, Jones RN, et al. Female autism phenotypes investigated at different levels of language and developmental abilities. *Journal of autism and developmental disorders*. 2015; 45, 3537-3549.
8. Baldwin S, Costley D. The experiences and needs of female adults with high-functioning autism spectrum disorder. *Autism*. 2016; 20: 483-495.
9. Rujeedawa T, Zaman SH. The diagnosis and management of Autism Spectrum Disorder (ASD) in adult females in the presence or absence of an intellectual disability. *International Journal of Environmental Research and Public Health*. 2022; 19: 1315.
10. Kopp S, Beckung E, Gillberg C. Developmental coordination disorder and other motor control problems in girls with autism spectrum disorder and/or attention-deficit/hyperactivity disorder. *Research in developmental disabilities*. 2010; 31: 350-361.
11. Tierney S, Burns J, Kilbey E. Looking behind the mask: Social coping strategies of girls on the autistic spectrum. *Research in Autism Spectrum Disorders*. 2016; 23: 73-83.
12. Bradshaw P, Pellicano E, van Driel M, Urbanowicz A, et al. How can we support the healthcare needs of autistic adults without intellectual disability?. *Current Developmental Disorders Reports*. 2019; 6: 45-56.
13. Tchanturia K, Smith K, Glennon D, Burhouse A. Towards an improved understanding of the anorexia nervosa and autism spectrum comorbidity: PEACE pathway implementation. *Frontiers in Psychiatry*. 2020; 11: 640.
14. Dandil Y, Smith K, Kinnaird E, Toloza C, Tchanturia K, et al. Cognitive remediation interventions in autism spectrum condition: A systematic review. *Frontiers in psychiatry*. 2020; 11: 722.
15. Roberts J, Webster A. Including students with autism in schools: A whole school approach to improve outcomes for students with autism. *International Journal of Inclusive Education*. 2022; 26: 701-718.
16. Ruigrok AN, Salimi-Khorshidi G, Lai MC, Baron-Cohen S, Lombardo MV, Tait RJ, et al. A meta-analysis of sex differences in human brain structure. *Neuroscience & Biobehavioral Reviews*. 2014; 39: 34-50.
17. Gould J, Ashton-Smith J. Missed diagnosis or misdiagnosis? Girls and women on the autism spectrum. *Good Autism Practice (GAP)*. 2011; 12: 34-41.
18. Dean M, Harwood R, Kasari C. The art of camouflage: Gender differences in the social behaviors of girls and boys with autism spectrum disorder. *Autism*. 2017; 21: 678-689.
19. Kreiser NL, White SW. ASD in females: Are we overstating the gender difference in diagnosis?. *Clinical child and family psychology review*. 2014; 17: 67-84.
20. Harrop C, Jones D, Zheng S, Nowell SW, Boyd BA, Sasson N, et al. Sex differences in social attention in autism spectrum disorder. *Autism Research*. 2018; 11: 1264-1275.
21. Kočovská E, Fernell E, Billstedt E, Minnis H, Gillberg C, et al. Vitamin D and autism: Clinical review. *Research in developmental disabilities*. 2012; 33: 1541-1550.
22. Wood-Downie H, Wong B, Kovshoff H, Mandy W, Hull L, Hadwin JA, et al. Sex/gender differences in camouflaging in children and adolescents with autism. *Journal of Autism and Developmental Disorders*. 2021; 51: 1353-1364.
23. Holtmann M, Bölte S, Poustka F. Autism spectrum disorders: Sex differences in autistic behaviour domains and coexisting psychopathology. *Developmental Medicine & Child Neurology*. 2007; 49: 361-366.
24. Clifford S, Dissanayake C, Bui QM, Huggins R, Taylor AK, Loesch DZ, et al. Autism spectrum phenotype in males and females with fragile X full mutation and premutation. *Journal of autism and developmental disorders*. 2007; 37: 738-747.
25. Beggiato A, Peyre H, Maruani A, Scheid I, Rastam M, et al. Gender differences in autism spectrum disorders: Divergence among specific core symptoms. *Autism Research*. 2017; 10: 680-689.
26. Van't Westeinde A, Cauvet É, Toro R, Kuja-Halkola R, Neufeld J, et al. Sex differences in brain structure: A twin study on restricted and repetitive behaviors in twin pairs with and without autism. *Molecular autism*. 2020; 11: 1-20.
27. Yang CJ, Liu CL, Sang B, Zhu XM, Du YJ, et al. The combined role of serotonin and interleukin-6 as biomarker for autism. *Neuroscience*. 2015; 284: 290-296.
28. Stacy ME, Zablotsky B, Yarger HA, Zimmerman A, Makia B, et al. Sex differences in co-occurring conditions of children with autism spectrum disorders. *Autism*. 2014; 18: 965-974.
29. Vajawat M, Deepika PC. Comparative evaluation of oral hygiene practices and oral health status in autistic and normal individuals. *Journal of International Society of Preventive & Community Dentistry*. 2012; 2: 58.
30. Finch TL, Mackintosh J, Petrou A, McConachie H, Le Couteur A, et al. "We couldn't think in the box if we tried. We can't even find the damn box": A qualitative study of the lived experiences of autistic adults and relatives of autistic adults. *Plos one*. 2022; 17: e0264932.
31. Cassidy S, Bradley L, Shaw R, Baron-Cohen S, et al. Risk markers for suicidality in autistic adults. *Molecular autism*. 2018; 9: 1-14.
32. Winnard R, Roy M, Butler-Coyne H. Motherhood: Female perspectives and experiences of being a parent with ASC. *Journal of Autism and Developmental Disorders*. 2022; 52: 2314-2324.
33. Khalifa G, Sharif Z, Sultan M, Di Rezze B. Workplace accommodations for adults with autism spectrum disorder: A scoping review. *Disability and rehabilitation*. 2020; 42: 1316-1331.
34. Laurent AC, Rubin E. Challenges in emotional regulation in Asperger syndrome and high-functioning autism. *Topics in Language Disorders*. 2004; 24: 286-297.
35. Mandic-Maravic V, Pejovic-Milovancevic M, Mitkovic-Voncina M, Kostic M, Aleksic-Hil O, et al. Sex differences in autism spectrum disorders: does sex moderate the pathway from clinical symptoms to adaptive behavior?. *Scientific reports*. 2015; 5: 1-8.
36. Falck Ytter T, Nyström P, Gredebäck G, Gliga T, Bölte S, et al. Reduced orienting to audiovisual synchrony in infancy predicts autism diagnosis at 3 years of age. *Journal of Child Psychology and Psychiatry*. 2018; 59: 872-880.
36. Backer van Ommeren T, Koot HM, Scheeren AM, Begeer S, et al. Sex differences in the reciprocal behaviour of children with autism. *Autism*. 2017; 21: 795-803.

37. Lockwood Estrin G, Milner V, Spain D, Happé F, Colvert E, et al. Barriers to autism spectrum disorder diagnosis for young women and girls: A systematic review. *Review Journal of Autism and Developmental Disorders*. 2021; 8: 454-470.
38. Hagerman RJ, Chudley AE, Knoll JH, Jackson III AW, Kemper M, et al. Autism in fragile X females. *American Journal of Medical Genetics*. 1986; 23: 375-380.