

**Improving Diagnostic Criteria for Autism Spectrum Disorder in Adult Women: A
Narrative Literature Review**

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Abstract

Objective: Autism spectrum disorder (ASD) often goes undiagnosed in adult women due to male-biased diagnostic criteria. This study explores the male bias and lack of information about the female presentation of autism, contributing to diagnostic delays in women.

Methods: A literature review was conducted using Google Scholar and Drexel Online Library Services, focusing on peer-reviewed articles from 2019 to 2024. Keywords included "female phenotype of autism," "autism spectrum disorder," "adult women," "camouflaging," and "misdiagnosis." Articles addressing the diagnosis of autism in adult women over 18 were selected, emphasizing autism presentation and diagnostic challenges in women.

Results: There is a disparity in the timing and accuracy of ASD diagnoses between males and females. Females are underserved by existing diagnostic criteria, based largely on male-centric data. The female phenotype, including camouflaging and differences in symptoms, contributes to misdiagnoses and late diagnoses, further complicated by comorbid conditions.

Conclusions: Current diagnostic criteria for ASD are biased towards male presentations, leading to delays and inaccuracies in diagnosing females. Camouflaging behaviors and comorbid conditions can obscure autistic traits. Addressing these gaps will improve support and outcomes for women with ASD.

Implications: Findings suggest re-evaluating diagnostic criteria to account for gender differences and enhancing diagnostic tools to better identify ASD in adult women to reduce misdiagnosis and delays. Increased awareness and research into the female presentation of autism are crucial for better mental health outcomes for women.

Keywords: female phenotype of autism, autism spectrum disorder, adult women, camouflaging, misdiagnosis

Improving Diagnostic Criteria for Autism Spectrum Disorder in Adult Women

Past research on autism primarily used male subjects and was based on the male presentation of autistic traits. This has led to the development of ASD diagnostic criteria and assessment tools that are unable to accurately identify autism in the female population. There is a sex-based difference in the way that autism is portrayed and how it affects the individual, further emphasizing the variations seen in symptoms along the spectrum of autism. When comparing data from males and females, it is apparent that there is an existing lack of awareness about the female presentation of autism that contributes to the underrepresentation of women in the autistic population. The purpose of this literature review is to understand why it is more difficult for females, specifically adult women, to receive an accurate and timely diagnosis of autism spectrum disorder compared to other populations.

The literature review was conducted using Google Scholar and Drexel Online Library Services. Keywords used in the search included “autism in adult women”, “autism spectrum disorder”, “diagnosing autism in adults”, and “diagnosing autism in females”. Research was limited to include English peer-reviewed articles containing data about adult women presenting autistic traits and/or that have been diagnosed with autism. Studies that did not primarily focus on the female experience of ASD were excluded from the review. To ensure the information was up to date, studies published between 2019 and 2024 were used, excluding any older information that may no longer be accurate or applicable. The resulting literature search yielded 17,579 articles: N = 16,900 from Google Scholar and N = 679 from Drexel Online Library Services. From the ten selected articles for this review, five were found using Google Scholar and five using Drexel Online Library Services.

The presentation of autism in females is commonly referred to as the “female phenotype of autism,” with traits more specific to how females experience ASD rather than the traditional phenotype described in diagnostic criteria. From the selected articles, six of them mentioned the presence of a female phenotype of autism (N = 6). Females have been shown to display more camouflaging behaviors (Lockwood Estrin et al., 2020) to hide their autism than autistic males (N= 10). A correlation was frequently found between camouflaging and increases in misdiagnosis and delayed diagnosis of ASD for women in particular. In addition to camouflaging, other factors that have been shown to contribute to the lack of recognition of ASD in women is the general lack of knowledge by clinicians about the female phenotype of autism and the internalization of symptoms seen frequently in females.

The mental strain that is put onto these individuals from their lack of diagnosis and development of potentially harmful coping mechanisms underlines the importance of properly understanding this disorder (Zener, 2019). The literature search, which specifically targeted autism in adult women, yielded a focused set of results. However, when searching for autism spectrum disorder without the word "female" within the 2019-2024 range, the databases yielded N = 115,990 results, predominantly male-based. Conversely, including the word "female" in the search criteria resulted in N = 26,667 entries. This highlights a prevalent research bias and suggests that the current body of research largely focuses on understanding autism in males, contributing to the underdiagnosis and misdiagnosis of autism in females due to the lack of gender-specific diagnostic criteria and information. These findings emphasize the need for this review to address the significant gap in knowledge and improve diagnostic criteria for females with ASD.

Results

There has been a noticeable disparity between the time and accuracy of ASD diagnoses between the sexes. Within the community of those diagnosed with autism spectrum disorder, it is believed that there is an approximate 4:1 ratio comparing males to females diagnosed with autism. However, recent research suggests that this ratio could possibly be closer to 3:1 due to the barriers many females face when seeking a diagnosis, leading to females being underrepresented in ASD research. There is reason to believe that females are underserved by the existing autism diagnostic criteria and assessment tools, as most research and data on autism were collected using primarily male subjects. Additionally, there appears to be a difference in the visible characteristics that autistic people exhibit between the sexes, contributing to increased reports of misdiagnoses or late diagnoses for women with ASD. The female presentation of autistic traits, widely referred to as the female phenotype of autism, is beginning to receive more attention from researchers due to the significant gap in knowledge about female autism.

It is commonly reported that autistic women engage in camouflaging behavior to conceal their autistic traits, contributing to delays in diagnosis. Although camouflaging is also reported in male populations, it appears to be more common in females. Further complications in diagnosing ASD in adult women arise from the presence of comorbid diagnoses, making it difficult to distinguish which symptoms are related to autism or other mental health disorders. Due to the lack of sufficient knowledge about the female presentation of ASD and the biological and social factors associated with the disorder, women are underrepresented in the diagnosed autistic population. More attention is needed to achieve a more accurate understanding of how ASD symptoms can vary. No inconsistencies were found among the studies.

Female Phenotype of ASD

Researchers commonly observe that females present autistic traits differently from males, complicating the diagnostic process due to an existing male bias in autism research and data. This observed variation in behavior is referred to as the female phenotype of autism. Although research on how autism specifically affects women is increasing, there is not nearly enough information compared to the overabundance of primarily male data, which forms the basis of current diagnostic criteria and assessment tools for autism. This male bias is a prominent factor contributing to the higher likelihood of females being misdiagnosed or diagnosed with ASD later in life (Belcher et al., 2022). This lack of information about the female phenotype of autism leads to insufficient awareness and understanding among clinicians and mental health professionals responsible for making diagnoses.

Diagnosed autistic women and their close family members frequently report that mental health professionals can be dismissive and unfamiliar with the female presentation of autism, which they attribute to their late-in-life diagnosis (Green et al., 2019). Camouflaging further complicates the diagnosis of ASD, particularly in females, who are more likely to engage in this behavior and other masking techniques to conceal their visible autistic traits. This can be a conscious or unconscious behavior, differing from typical social attempts to fit in due to the mental distress and emotional and physical toll it causes for the individual (Cumin et al., 2021; Green et al., 2019). Because clinicians typically lack a sufficient understanding of what autism looks like in women, women with co-existing language or cognitive impairments are more likely to be diagnosed with ASD at an appropriate time in their life, receive proper treatment, and have a better understanding of themselves (Milner et al., 2019). This aligns with findings that many autistic women felt their observable characteristics needed to be exaggerated during assessment

for mental health professionals to believe them and provide a diagnosis (Milner et al., 2023).

There is a consensus among studies that autistic females are at higher risk of delayed diagnosis, diagnostic overshadowing, and depression leading to suicidal thoughts. This often results in a myriad of conflicting mental health diagnoses, such as personality disorders, mood disorders, or anxiety disorders.

Women have also been observed to have higher social motivation and possibly better social communication, which may be promoted by societal gender roles and the expectation for women to be socially intelligent. Social motivation can refer to an interest in social relationships or improving conversation skills through actions like learning 'stock' phrases or studying the appropriate amount of time to maintain eye contact (Belcher et al., 2022; Milner et al., 2019). However, camouflaging may prevent the manifestation of overt functional impairments in social communication, possibly leading to late diagnoses or misdiagnoses (Kentrou et al., 2024). These factors complicate the accurate diagnosis of autism, especially with the likelihood of a comorbid diagnosis and lack of visible impairments.

ASD Comorbidity with Personality and Mood Disorders

Similarities in characteristics between borderline personality disorder (BPD) and autism spectrum disorder (ASD) can make it exceedingly difficult to recognize autism in females without any language or intellectual disability. This is particularly true for women, as BPD is often seen as a more typical diagnosis for females, especially if they are suffering from self-harm or difficulties in interpersonal relationships (Cumin et al., 2021). Individuals with autism have a nuanced relationship with other mental health disorders, as they are likely to have a comorbid diagnosis but are susceptible to misdiagnoses due to commonalities in displayed symptoms. Borderline personality disorder creates recurring complications for females exhibiting autistic

traits and women trying to receive an autism diagnosis, as the similarities can increase the possibility of diagnostic overshadowing, where "autistic traits are either missed or misattributed to different psychiatric diagnoses" (Kentrou et al., 2024). Common shared aspects of ASD and BPD can include difficulties with relationships, trouble regulating emotions, impulsivity, and stress-related paranoid ideation (Belcher et al., 2022). Difficulty with relationships is a hallmark trait of BPD but can also be prominent in autism. The differentiating factor between them is the source of the behavior and the feelings behind it. For example, difficulties within relationships may arise for different reasons: an autistic woman might end a friendship because the social demands are becoming too high, while a woman with BPD may experience difficulties due to an internalized fear of abandonment (Cumin et al., 2021).

Other aggravating factors for delayed diagnosis of autism include the presence of a mood or anxiety disorder, as they can alter autism assessment scores and skew results (Kentrou et al., 2024). These variables are further complicated by the increased likelihood of females internalizing disorders and attempting to hide their distress and symptoms (Green et al., 2019). ASD and personality and mood disorders are entangled in a way that makes it hard for mental health professionals to distinguish the origins of the symptoms. One group of researchers suggested that "ASD might both share a common etiopathological root with other disorders and be itself the ground where other disorders flourish" (Gesi et al., 2021). This study was the only one observed to propose such a correlation between ASD and comorbid disorders. Other research noted that symptoms of autism could create personal stressors contributing to the development of comorbid diagnoses, such as anxiety and depression.

Increased Camouflaging in Women with ASD

It is commonly reported that autistic individuals engage in camouflaging behavior, where they try to hide certain aspects of their autism during social situations to appear neurotypical. This can be both a conscious and unconscious effort, however, it is likely that camouflaging techniques can have negative consequences for the person using them (Belcher et al., 2022). These consequences can include mental distress or loss of energy due to the increased amount of effort being put into socializing (Green et al., 2019). As more research is conducted on the female presentation of autistic symptoms, it is becoming more apparent that females are more likely to engage in camouflaging behaviors than males diagnosed with autism. Because the nature of camouflaging is to conceal autistic symptoms, there is a strong possibility that it contributes to the later diagnosis of autism in women or their misdiagnosis with another psychiatric disorder at their first evaluation (Taylor et al., 2022). One study found that not only are women more likely to engage in camouflaging, but "the direction of the relationship between camouflaging and age at diagnosis was positive for females (increased camouflaging was related to later diagnosis) and negative for males (increased camouflaging related to earlier diagnosis)" (Milner et al., 2023). These findings further highlight the existing gap in the diagnosis and treatment of ASD between the sexes, emphasizing the need for more research into the diagnosis and its presentation across different individuals, not just women.

Camouflaging or 'masking' behaviors could also be more prominent in females due to their social environments and associated social motivation. It has been observed that autistic women generally have higher social motivation than their male counterparts, showing more interest in interpersonal relationships, conversations, and generally fitting in through more narrow special interests that often relate to the female experience, appearing less unusual or atypical to others (Milner et al., 2019). It is possible that, in addition to having a greater capacity

for social responsibilities, men are not as pressured to engage in social relationships in the same way as females, leading them to lack a strong drive for interpersonal relationships if it was not already pre-existing within them (Milner et al., 2019). This could explain why camouflaging is more commonly reported in females.

Despite many autistic females using camouflaging, not all of them do, and it is not exclusive to females. Furthermore, camouflaging behaviors are not a direct indicator of autism, as neurotypical individuals might also engage in camouflaging (Cumin et al., 2021). The difference lies in the cognitive and executive functions required to perform these behaviors and the extent of the individual's distress during interactions. One study reported that not all females diagnosed with autism felt the need to or were able to camouflage, compared to other studies broadly stating it is an expected behavior in women (Milner et al., 2019). The general lack of awareness of the female presentation of autism exacerbates the issue of camouflaging preventing an accurate and timely diagnosis of autism in females. With clinicians already not understanding the nuances of the female phenotype, camouflaging further complicates the recognition of autism in females without language or intellectual disabilities. It is likely that the more exaggerated symptoms of the classic autism phenotype shown by females, the more likely they are to receive an autism diagnosis compared to females who may not display the same range or intensity of symptoms.

Misdiagnosis and Underdiagnosis in Women with Autistic Traits

Existing demographic data on autism reports a higher male population diagnosed with ASD than females, leading to the perception of autism as a male disorder. This is likely due to the fact that existing diagnostic procedures and criteria do not sufficiently account for autistic traits in individuals who do not portray the classic male-centric phenotype of autism. Several

studies noted that because of the general lack of knowledge surrounding the female autism presentation, females without co-existing intellectual or language disabilities are less likely to be diagnosed with autism before adulthood (Cumin et al., 2021; Gesi et al., 2021; Zener, 2019). These disabilities fall into the same area as exaggerated autistic symptoms due to insufficient diagnostic criteria and preconceived ideas that autism appears only as the male-centered ideal, creating biases in psychological assessments. Assessment tools need to properly test for the full spectrum of autism and its different symptoms and presentations to better serve the autistic community by providing accurate diagnoses and access to treatment and support before adulthood. Diagnosis before adulthood is imperative to improve clinical outcomes for individuals exhibiting high autistic traits, as autistic individuals without a diagnosis “reported challenges for gaining appropriate support and considerable stress from living so long with an unknown condition” (Belcher et al., 2022).

Many traits experienced by females are geared towards hiding their symptoms and appearing neurotypical. Females are often observed to engage in camouflaging behaviors, especially when compared to males diagnosed with autism. Additionally, women are more likely to exhibit internalizing behaviors of emotional difficulties, including symptoms related to any comorbidities (Belcher et al., 2022). With efforts to conceal their distress, females are prolonging their time before receiving a proper diagnosis. Autistic females are more likely to internalize feelings than neurotypical females and males diagnosed with ASD (Green et al., 2019). An accurate and timely diagnosis of autism is crucial for the individual's outcome, as it helps them understand themselves better and cope with their symptoms in a healthy way that does not lead to distress and mental strain. An additional benefit of receiving a correct diagnosis is obtaining a

sense of community and understanding that others are aware of their struggles due to their atypical brain.

Conclusion

The literature review reveals significant challenges faced by adult women in receiving timely and accurate diagnoses of autism spectrum disorder (ASD). Current diagnostic criteria, heavily based on male-centric research, fail to account for the female presentation of autism, known as the "female phenotype." This phenotype, as observed by Lockwood Estrin et al. (2020) and emphasized by Gesi et al. (2021), includes unique traits such as camouflaging behaviors, which are more common in females and contribute to diagnostic delays and misdiagnoses. Moreover, Milner et al. (2019) and Green et al. (2019) identifies the presence of comorbid conditions like personality and mood disorders, which further complicate the diagnosis process for women. A critical disparity in ASD diagnosis exists between males and females, with women being underrepresented in diagnostic statistics due to biased criteria and a lack of clinician awareness about the female presentation of autism. As highlighted by Cumin et al. (2021) and Milner et al. (2023), studies consistently show that females are at higher risk for delayed diagnosis, diagnostic overshadowing, and misdiagnosis with other mental health conditions.

Women with ASD often present differently from men, displaying traits such as heightened social motivation and specific camouflaging behaviors that mask autistic traits. This discrepancy between sexes, noted by Belcher et al. (2022) and Milner et al. (2019), is not adequately captured by current diagnostic criteria, leading to diagnostic challenges for women. Moreover, as emphasized by Kentrou et al. (2024), the overlap in symptoms between ASD and comorbid conditions like borderline personality disorder complicates the diagnostic process. Women are more likely to engage in camouflaging behaviors to conceal their autistic traits. This

adaptive strategy, while socially beneficial in the short term, often results in significant mental distress and delays in receiving an accurate ASD diagnosis. Camouflaging behaviors can mislead clinicians, who may fail to recognize the underlying autism.

Due to the male bias in diagnostic tools and the lack of awareness about the female presentation of autism, many women are misdiagnosed or underdiagnosed. They are often mistakenly diagnosed with other mental health conditions, such as personality or mood disorders, instead of ASD. This misdiagnosis leads to inappropriate treatments and a lack of necessary support. This literature review underscores the urgent need to address gaps in current ASD diagnostic criteria and practices. The male bias in diagnostic tools and the lack of clinician awareness about the female phenotype of autism contribute to significant delays and inaccuracies in diagnosing adult women. These findings highlight the necessity for further research to develop more inclusive and accurate diagnostic criteria that account for gender differences.

Researchers recommend conducting further studies to explore the female phenotype of autism and develop diagnostic criteria that include gender-specific traits, as well as investigating the impact of camouflaging behaviors on the diagnosis and mental health of autistic women to develop strategies for early and accurate detection. Integrating findings on the female phenotype of autism into medical and psychology curricula, as suggested by Zener (2019), would ensure future practitioners are better equipped to recognize and diagnose ASD in women. Overall, existing diagnostic tools need to be revised to include criteria that accurately account for the female presentation of autism. By addressing these recommendations, the field of mental health can move towards more accurate diagnoses of autism in women, ultimately leading to improved support and outcomes for this underserved population.

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