

Underidentification of Autism Spectrum Disorder in Females: A Case Series Illustrating the Unique Presentation of this Disorder in Young Women

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Abstract

Background: Autism spectrum disorder (ASD) is diagnosed more often in males than females, with the male-to-female gender ratio reported to be around 4.3:1 to 5:1. It is possible that the underrecognition of ASD in females partially contributes to this uneven ratio. Recent attention has been placed on understanding the processes that give rise to this gender difference in ASD prevalence. Socialization may contribute to the unique presentation of ASD in females, which may underlie this condition's subsequent underidentification in this group.

Objective: The purpose of this case series is to demonstrate how symptoms of ASD may uniquely manifest in females without co-occurring intellectual impairment.

Method: An examination of three case examples of young women diagnosed with ASD will illustrate the processes that contribute to the atypical manifestation and underidentification of ASD in females.

Results: Across cases, the females in this study demonstrated shared symptom presentations within three domains: 1) unique core symptom manifestation (insistence on sameness, lack of social engagement, and social processing difficulties); 2) heightened psychiatric comorbidities with internalizing disorders (anxiety, depression, and borderline personality traits); and 3) emotional dysregulation. These three domains reflect specific processes that may help to explain the underidentification of ASD in females via diagnostic overshadowing.

Conclusions: Consideration of atypical symptom presentations, heightened comorbidities, and emotion regulation difficulties may help with the understanding of why ASD symptoms in females are commonly underidentified or identified later than they are in males. Social difficulties in combination with internalizing psychiatric disorders and emotional dysregulation may lead to the development of a specific symptom presentation in females that obscures the detection of ASD symptoms. Suggestions for clinical practice are made to promote the accurate identification of ASD and to inform case formulation and treatment planning.

Keywords: females, autism, autism spectrum disorder, comorbidity, diagnosis

Autism spectrum disorder (ASD) is a neurodevelopmental disorder that is characterized by social impairments and restricted and repetitive behaviors (1). Most recent estimates from the Centers for Disease Control and Prevention suggest that 1 in 88 children in the United States are affected by ASD (2). Although ASD affects both genders, estimates have long reflected that the disorder occurs more frequently in males. The male-to-female gender ratio has been reported to be between 4.3:1 and 5:1 (2-4), and the ratio is even larger (between 5.75:1

and 16:1) for individuals with average to above-average intelligence (3-6).

As a result of the higher prevalence of ASD in males, the majority of research into ASD, including research that addresses phenotypic characterization and measures development, has been conducted with predominantly male samples (7). However, a rapidly growing body of research has begun to explore gender differences with respect to core ASD deficits, cognitive endophenotypes, and genetic factors in both clinical and high-risk infant

sibling samples (8-11). A recent meta-analysis of the extant literature surrounding gender differences in core ASD deficits considered 22 peer-reviewed studies in this domain and identified an increased severity of stereotyped and repetitive behavior among males. However, no gender differences in social communication domains were apparent (12). Among researchers who have examined gender differences involving ASD, there has been growing concern with the underidentification of females (1;12-15), especially in those studies that have other methodological concerns (e.g., the inclusion of sample populations with a wide range of functioning or a large age range). As such, concerns have been raised regarding whether the current understanding of the ASD phenotype is representative for both male and female populations. Given the possibility of differential phenotypic presentations of ASD among females (16), concerns have been raised that females with ASD may be underidentified, especially if they do not have accompanying intellectual impairment (1;13-15). Indeed, females who are identified later in life as having ASD are less likely to have a documented diagnosis of ASD obtained during childhood (17,18).

A number of biogenetic explanations have been proposed to account for the gender discrepancy associated with ASD. Most suggest either a greater genetic vulnerability in males or, alternatively, greater protective mechanisms in females. The extreme male brain theory (19) posits that autism is an extreme form of the normal male profile. At the same time, epigenetic hypotheses, including the imprinted-X liability threshold model (20), propose that an X-linked protective gene affects the threshold for ASD phenotype expression. An increasing body of research has pointed toward differential and multifactorial genetic and hormonal influences that may lead to increased risk among males or attenuated risk among females (16;21).

In addition to the biogenetic theories that have been proposed to explain the differential occurrence of ASD among males and females, there are social and cultural mechanisms that suggest that ASD diagnoses in females are often delayed or missed (10). Differential societal expectations for males and females—particularly with regard to the social and communication domains (e.g., expectations of empathy and warmth) and the differential modeling and social experiences that are common to females (e.g., more emotion-focused conversations with mothers and in peer groups) (22-26)—may serve to strengthen some of the core deficits experienced by females with ASD. In an attempt to meet social expectations, females with ASD may closely emulate peers or adopt social scripts (e.g., memorized social responses) (27). However, as a result of the discre-

pancy between their core deficits and societal expectations, their difficulties may become increasingly apparent as social demands increase during development, which could contribute to an increased risk for peer-related difficulties and co-occurring internalizing difficulties.

The purpose of this article is to provide clinical examples of three primary processes that may lead to the underrecognition of ASD in young adult females without co-occurring intellectual disability: 1) females with ASD show unique core symptom manifestations related to rigidity, social engagement, and insight into social relationships; 2) they demonstrate heightened psychiatric comorbidities, particularly with internalizing disorders like anxiety and depression, which can mask the social difficulties that are characteristic of ASD; and 3) they exhibit emotion regulation difficulties with regard to both upregulation (e.g., lack of emotion expression) and downregulation (e.g., control of extreme emotion). These processes, which have been extracted from the extant research, have been theorized as the possible reasons for the underidentification of ASD in females (15;28,29).

We present three case examples of young adult females with ASD who were seen in a research clinic at a large university in the Southeastern United States.

Two of the females were seen in the context of individual therapy, and the third received a psychoeducational assessment in the clinic. They were the only three young adult females with ASD seen in the clinic for therapy or assessment within the 4-month period of time during which the present study was being conceptualized and developed. All three females were administered the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV), which is a comprehensive, semi-structured, clinical interview that assesses for the diagnostic criteria for anxiety disorders presented in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (30).

“Brigitte” is an 18-year-old college freshman who lives by herself in a dorm on campus. She was diagnosed with ASD during middle childhood. Before the study, her diagnosis was verified in the research clinic with the use of the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2), which is an empirically supported standardized assessment tool used for the diagnosis of ASD (31). Brigitte is in the process of earning her bachelor’s degree. “Carina” is a 20-year-old college junior who lives with a roommate in a dorm on campus. She was diagnosed with ASD during her late teenage years, and, like Brigitte, her diagnosis was verified before the study with the ADOS-2. Carina is earning her bachelor’s degree. “Jan” is a 26-year-old graduate

student who lives alone in an apartment off campus. She was diagnosed with ASD in the research clinic at the time of the study with the use of the ADOS-2. Jan is earning her master's.¹

All of these young women were first diagnosed when they were older than the average age of diagnosis. Although some children with ASD are diagnosed before the age of 3 years, the majority of children receive a diagnosis between the ages of 4 and 6 years, which coincides with their entrance into the school system (2). Diagnosis tends to be later for individuals who are less classically impaired and for those without intellectual disability (32). Within this segment of the population, as compared with their male peers, females with ASD are identified and diagnosed later (17,18). Brigitte was diagnosed with ASD when she was in fourth grade, Carina was diagnosed before her senior year in high school, and Jan did not receive a diagnosis until graduate school. The delayed identification of ASD in each of these cases illustrates an overarching problem with the current ability to detect and accurately assess ASD traits as they are manifested in females.

Unique Core Symptom Manifestation

Although research that examines gender differences with regard to core ASD deficits is limited, there has been consistent evidence of less atypical and less severe restricted and repetitive behaviors among females with ASD across various levels of functioning as compared with males with ASD (12). Findings have been less consistent with regard to gender differences involving social and communication challenges, although some evidence suggests that females experience less severe social difficulties during childhood (12;33-35) and worse peer-related difficulties during later childhood and adulthood (36,37). In the only study that investigated gender differences in an adult sample, females were found to have fewer observable social and communication difficulties and greater self-reported social difficulties as compared with males (38).

Rigidity and Insistence on Sameness

Although several studies have shown that females with ASD have fewer restrictive and repetitive behaviors as compared with males (34;39), females with ASD may express restrictive and repetitive behaviors in a unique manner. Although none of the females in this case series expressed repetitive behavior, all three demonstrated clear signs of the restricted and repetitive behaviors that are characteristic of ASD (e.g., cognitive and behavioral rigidity, insistence on sameness). Cognitive and behavior-

al rigidity emerged as the most impairing symptom within the restricted and repetitive behavior domain. For example, both Brigitte and Carina demonstrated a clear deficit with regard to perspective-taking across various situations. They were able to identify others' viewpoints when prompted, but they struggled to apply this knowledge outside of a structured setting.

Brigitte had difficulty understanding why someone would have been late to meet her; she was never late because she viewed herself as being considerate of other people's time. In a structured setting, she was able to recognize that occasionally people are late because of situational circumstances, like emergencies. However, when discussing her experiences with friends, she expressed that they were always late because they were inconsiderate of others and selfish. Brigitte attributed her friends' actions to their personalities despite awareness of the possibility that other situational factors may have contributed.

When attempting to understand others' perspectives about social interactions, Carina frequently rationalized that, because she would act in a specific manner, others should also act in the same manner. For instance, she demonstrated considerable difficulty understanding why a friend may not realize that she was feeling down, despite the fact that she did not communicate her feelings. She explained that she often asked friends about how they were feeling and could not understand why her friends would not do the same. Interestingly, when challenged to understand others' perspectives, Carina was able to generate alternative explanations for why others may have acted in certain ways that were not compatible with how she believed they should act. However, her rigidity was apparent when she was unable to accept others' behaviors, such as their failing to realize that she was feeling down. She also struggled to apply perspective-taking skills outside of a structured setting. Carina consistently demonstrated difficulty with thinking abstractly and with deviating from preconceived notions about certain topics.

Jan stated that she was "not good with change" and that she strongly preferred routine. Although she reported a number of generalized worries about academics, her finances, and her health, Jan expressed a separate worry about changes in her routine; which is not characteristic of traditional generalized anxiety disorder (GAD). She experienced anticipatory anxiety about changes in her routine, including both changes that she could control and those that she could not control. For instance, Jan indicated that she would be upset if a class she did not enjoy was cancelled with short notice because she had planned to attend. Jan's desire

¹ Pseudonyms are used for the case studies, and all identifying information has been removed.

for sameness caused her to experience worries above and beyond her traditional GAD worries about changing her routine and the discomfort that she would experience as a result. Jan also displayed a notable degree of cognitive rigidity when discussing topics that she found upsetting, such as driving. She asserted that “very few people obey the rules of the road,” which made her concerned for her safety. Although she was presented with several examples that challenged her belief, Jan maintained that she would be unsafe driving because all of the other drivers on the road were dangerous. She also struggled to recognize factors (i.e., difficulty coping with emotion, lack of time-management skills, reluctance to engage in social situations, disorganization) that may have contributed to her difficulties in multiple domains, such as with family relationships, academic progress, social challenges, and housework. Instead, she repeatedly explained that, because she had ASD, she simply could not do certain things. Despite being challenged regarding this belief and encouraged to identify other variables that may have affected her functioning across domains, Jan consistently reverted back to the notion that her diagnosis was the only cause of her difficulties.

Although insistence on sameness and cognitive inflexibility are often seen in males with ASD, the symptoms described here are the most prominent and impairing symptoms found within the restricted interests and repetitive behaviors domain seen among these females. These behavioral examples of cognitive rigidity and preference for routine were, for the most part, not apparent to individuals who were not familiar with these young women. In other words, these behavioral styles are not clearly atypical, obviously peculiar, or noticeable to most people. These symptoms also differ from the highly repetitive behaviors or unusual or intensely restricted interests that are more frequently seen among males, which tend to be more easily recognized as a result of the level of impairment that they cause (40). Gender differences that involve symptom manifestation within the restrictive and repetitive behaviors domain may contribute to the delayed assessment and diagnosis of ASD among young adult females.

Social Ambivalence

Foremost among the challenges experienced by individuals with ASD are social difficulties. Brigitte and Jan both reported experiences of social ambivalence or of a strong approach-avoidance conflict. They actively avoided situations that involved other people, especially when the activities were not task oriented or when they involved interacting with unfamiliar people. Both Brigitte and Jan

were motivated to have friends, and they expressed interest in social interaction; however, they reported experiencing difficulties during social situations, and they were more comfortable being alone.

Brigitte reported on several occasions that she had interest in spending time with other people. However, the few times she engaged in social interactions, such as going to see a movie with members of a club she was involved in, she lost interest almost immediately and wanted to return to her room and be alone. Brigitte also reported that it was “hard to connect with people [her] age” and that she felt “weird and [did] not want to scare people away.” In addition, she reported that, although she wanted to make new friends, she did not like approaching unfamiliar people; she was afraid she would forget what she was saying in the middle of a sentence and appear “stupid.” Feelings of apprehension and anxious thoughts (e.g., fear of what others thought of her) emerged as common contributors to Brigitte’s lack of social engagement. Brigitte also indicated that she wanted to sound more confident when speaking. Overall, she was much more comfortable talking with someone who initiated a conversation, and she tended to remain alone in social situations when she was not approached.

Jan refused to engage in situations with more than seven people present. Thus, she did not attend available ASD support groups, student groups at her church, or academic functions with other students. Because she did not report having the opportunity to socialize in a smaller group setting, Jan was virtually isolated from interacting with other people, with the exception of certain professors in her department. She attributed her refusal to engage in social situations to anxiety about interacting with others. Specifically, Jan expressed that she was unsure about how to discuss topics unrelated to her specific academic area of interest, and she was concerned that others would react negatively to other topics of conversation that she introduced. Instead of engaging in social situations, Jan reported that she spent the majority of her time focusing on her academics.

Although Carina demonstrated interest in engaging with others both individually and in group situations, her motivation to do so was driven in part by her perception of herself as being a leader and a good friend to others. In addition, Carina indicated that a main factor in her motivation for seeking and maintaining friendships was the desire for reciprocal cooperative relationships with others whom she could rely on for help. For instance, Carina stated that she wanted a friendship with her roommate in case she locked herself out of her dorm room and needed an extra key. She reported

that she was interested in establishing friendships with people in her academic department so that they could help her with homework if she was confused about something. Overall, Carina's interest in social engagement seemed to be related to her rigid self-perception that she was a leader and a friend as well as her desire to have social resources available in times of need.

Lack of Insight Regarding Friendships

Brigitte, Carina, and Jan demonstrated difficulty with social information processing. Although all three indicated that they had friends, they reported problems with their friendships, and they demonstrated a marked lack of insight into what a reciprocal friendship entails. Some of these difficulties stemmed from the rigidity discussed previously.

For example, Brigitte reported that she had been ignored by people whom she considered to be friends, and she reported that she believed her friends took advantage of her by only spending time with her when they needed something or when nobody else was around. She expressed that the primary reason that one of her friends spent time with her was because that friend "could not find anyone else that she could spend time with." Brigitte reported that most of her friendships were with older individuals (i.e., those who were 10 or more years her senior) because people her age did not understand her. Brigitte's attempt to understand others' behaviors led her to conclude that all people were "liars" or "selfish." For example, Brigitte reported an incident in which her friends did not show up to meet her for a get-together, despite telling her that they would. She felt rejected, and she said that her friends—like all people—were liars. Despite prompting, she could not provide alternative explanations for their behavior. In another instance, Brigitte concluded that people were all "selfish" when her friends were late to meet her for dinner. She indicated that, because they were late, the dinner took more time and prevented her from getting started on the things that she needed to accomplish. Brigitte had rigid beliefs about what constituted friendships, and she tended to attribute actions to personalities when people did not adhere to her established convictions.

Carina expressed similarly strict and specific rules about friendships. She used these rules as a gauge to evaluate the quality of her friendships. She applied these rules harshly and definitively as a way to "test" her friendships. For instance, Carina explained that an important indicator of friendship was whether or not a friend hugged her when she was feeling down. She also indicated that she measured friendships by counting how many times per month she interacted

with someone (e.g., texting, calling, e-mailing, instant messaging) and by noting how often the friend reciprocated her greeting when she passed them on campus. Carina explained that other indicators of true friendships were a person's willingness to notify her if she was bothering him or her by texting too often, as well as how often a person agreed to spend time with her when she asked.

Jan identified two friendships that she maintained with people who lived locally. Both friendships were with women who were 20 to 30 years older than she was, one of who was closely involved with the supervision of her academic training. According to Jan, she considered them friends because she had spoken with each of them several times on the phone and visited each of their homes on two to three occasions "in times of crisis." Jan also indicated that she considered several people whom she knew during her childhood as friends, even though she rarely interacted with them in person. She explained that she initiated contact with them via e-mail or Facebook on an occasional basis and then emphasized that they responded to her messages; this was done in an apparent attempt to illustrate the validity of her friendships.

Heightened Psychiatric Comorbidity with Internalizing Disorders

Several studies have found that females with ASD experience higher levels of internalizing problems as compared with both males with ASD and typically developing females (41,42). In a sample of children and adolescents with ASD, Solomon and colleagues found that females had significantly more internalizing symptoms (e.g., a combination of anxiety, depression, and somatic symptoms) as compared with age-matched males with ASD and age-matched typically functioning female peers (42). Furthermore, females with ASD in the sample were the only study participants to fall within the clinical range on a self-report measure of depression (26% met the cut point). In both clinical and population-derived samples of children with ASD, higher levels of externalizing behaviors and aggression have been found (via school documentation and teacher report) in males as compared with females (18;34;41). This is reflective of population-level gender differences in the incidence of psychiatric disorders (e.g., higher levels of externalizing problems among males, higher levels of internalizing disorders among females). This pattern of comorbidity may lead to the increased likelihood of referral for diagnostic assessment for males, whereas females may have a decreased likelihood of referral because their behaviors may not be as disruptive or as observable by third parties.

Brigitte, Carina, and Jan all experienced co-occurring symptoms of several different internalizing disorders. According to the adult version of the ADIS-IV (30), Brigitte met criteria for social anxiety disorder, GAD, and dysthymia. She reported that her anxiety began to cause distress during elementary school, when she was bullied by her peers. She expressed significant concern about dating, speaking in front of others, and saying the “wrong things.” Her symptoms of social anxiety fluctuated depending on the status and quality of her friendships at a given time. Brigitte also indicated that she experienced generalized worries related to her family, her school performance, and her friendships and these interfered with her daily functioning. For example, she reported that her fear of academic failure in school interfered with her health because she was not getting enough sleep. Brigitte also indicated a history of major depressive episodes. She also reported persistent cognitive symptoms of depression, including being down on herself, thoughts of hopelessness and pessimism about her future.

Results of the ADIS-IV indicated that Carina also experienced clinically significant symptoms of social anxiety disorder, GAD, and major depressive disorder. She reported that her symptoms of social anxiety began during middle school, when she became concerned that others would notice that she was “different.” Carina indicated that her two primary areas of general worry were related to being on time and losing friendships. She also experienced infrequent depressive episodes that were characterized by a lack of motivation, particularly related to the completion of academic assignments, and by a loss of interest in preferred activities, including spending time with friends. Carina’s bouts of depression tended to be related to perceiving that she did not have any friends.

According to the results of her diagnostic assessment, Jan met the criteria for major depressive disorder, social anxiety disorder, and GAD. Just as Carina had reported about her social anxiety, Jan reported that her symptoms of depression began during her middle childhood, while she was in middle school, where she initially perceived that she did not fit in with her peers. She indicated that her social anxiety was driven by concerns about how people would respond to her efforts to communicate (e.g., conveying her ideas) as well as apprehension about not connecting with unfamiliar people. Jan expressed that her symptoms of generalized anxiety centered on her ability to relate to others and particularly on her ability to experience success in her career.

Borderline Personality Disorder Traits

In addition to anxiety and depression, these three women exhibited a number of interpersonal behaviors in the context of peer relationships that are characteristic of individuals with borderline personality disorder (BPD). As observed by several researchers, the symptoms seen in females with ASD often resemble BPD traits. In a sample of treatment-seeking women with BPD ($n=41$), Rydén and colleagues found that 15% of the females had ASD and that an additional 32% had autistic traits (43). Studies exploring the overlap of features between BPD and ASD have identified problems with identity, intense anger, self-damaging behavior, and severe problems with interpersonal relationships (44;45). In the three current case examples, self-damaging behavior and problems with interpersonal relationships were unambiguously present. Also common were intense anger and problems with identity; these were less evident but still present.

For example, throughout the duration of her treatment, Brigitte reported problems with interpersonal relationships. She expressed that she felt that other people were the cause of her difficulties rather than anything that she herself was doing. She stated, “In my head I keep thinking, I’m not the problem. I think other people are the problem. Because I try to be nice to people but I’ve been taken advantage of.” Despite being challenged on her beliefs, Brigitte maintained that she was never the problem and that she did everything she could to avoid inconveniencing other people. In addition, Brigitte’s claims that “people are liars” and “all people are selfish” are similar to the extreme devaluation of others and anger seen in people with BPD.

Also consistent with the pattern of unstable interpersonal relationships that is characteristic of BPD was Carina’s report of using a “friendship test” to evaluate the quality of her friendships. Specifically, Carina indicated that she purposely did not communicate feelings of sadness to her friends because she was interested in seeing which of her friends would notice or intuit that she was feeling down and subsequently express concern. She reported that she always questioned the validity of her friendships with specific people if they did not pass her “friendship test.” In addition—and also consistent with one of the core symptoms of BPD—Carina seemed to struggle with finding her sense of identity. For example, she had difficulty adjusting when her older sister got married, because she was unsure about how she fit into her sister’s life and her new relationship. Without a coherent understanding of her personal self, Carina attempted to define herself in terms of specific roles; this may have left her vulnerable to experienc-

ing distress when she was no longer able to fulfill these specific roles. Although Carina was not a “natural leader,” she viewed herself as such and worked hard to seek leadership opportunities (e.g., seeking positions of leadership in multiple clubs). Despite experiencing considerable difficulty with study skills and time management, Carina expressed on a number of occasions that she enjoyed serving as an academic role model for other students.

Jan demonstrated several characteristics of BPD, including recurrent suicidal behavior and intense anger. She expressed significant resentment toward her parents because they did not seek an assessment or treatment for her social difficulties during her childhood. She also expressed intense frustration with regard to the services provided for students with ASD at the university; she claimed that they were too “undergraduate focused,” and she stated that this frustration was “hard to get out of [her] mind.” In addition, Jan reported that she had experienced suicidal ideation on several occasions. During one instance, Jan expressed threats of self-harm after she did not obtain the type of directive advice she was seeking from a clinician about how to manage a specific social interaction.

Although none of these three women had received prior BPD diagnoses, the heightened presence of psychiatric comorbidity in all of them represents an additional process through which ASD in females may be underrecognized. The comorbid internalizing disorders may mask the difficulties that are specific to ASD. In a series of case studies of 6- to 10-year-old girls, Kopp and Gillberg found that young girls were often identified as having social and developmental difficulties and seen by psychologists and other experts long before they received a diagnosis of ASD (46). In our three case examples, the symptoms related to anxiety and depressive disorders were often centered on relationships and friendships; they tended to begin during elementary or middle school, when female peer relationships become more intimate and complex (24;26). Interestingly, many of the thought processes and behaviors of the females in this case series were expressed as symptoms that were consistent with BPD. It may be that their anxiety and depressive symptoms, in combination with difficulty understanding social relationships, leads to what appear to be traits that are characteristic of BPD. The co-occurring internalizing disorders often associated with ASD in females and the dynamic interplay among their symptoms may lead to problems with differential diagnoses and subsequent delays in administration of appropriate treatments.

Emotion Regulation Difficulties

Many individuals with ASD struggle with emotion regulation (28,29). Emotion regulation is the ability to modify one’s emotions to respond to situational demands and to meet one’s goals (47). Problems with emotion regulation are expressed in several different ways, including recognition of emotion, expression of emotion (e.g., alexithymia), and management of emotion. Therefore, emotion regulation not only refers to control of extreme emotions, it also addresses the use of emotions productively. Emotions are often useful in situations when we need to attend to or change aspects of our lives or surroundings. Although some individuals with ASD show a significant lack of emotional expression, others have difficulty controlling strong emotions. Both of these aspects of emotion regulation can have undesirable consequences. In females with ASD, difficulties with emotion regulation could result in later diagnoses of ASD and misdiagnoses as a result of the possibility that elevated levels of distress mimic other disorders. The females in the present study demonstrated marked difficulty with emotion regulation in terms of needing to both upregulate their emotional expression and downregulate their emotions.

Brigitte and Carina each demonstrated the clear need to upregulate as a result of their lack of expressed emotion. Although both Brigitte and Carina reported feeling emotions such as happiness and sadness, they reported having difficulty with expressing their emotions, and they presented with flat affects. Brigitte reported that she was often stressed out but that she generally elected to hide her stress from others. She indicated that she did not know why she chose to hide her emotions, but she noted that she did not want others to recognize when she was feeling stressed. In addition, on the basis of feedback that she received from her peers, she expressed a desire to take acting classes so that she could increase the animation in her voice and “have a presence.” Brigitte also self-reported that one of her weaknesses was conveying interest when others were talking.

Although Carina indicated on several occasions that she felt sad from time to time, she consistently denied that she experienced emotion when she was asked directly about these situations. When challenged about this notion and asked to consider specific situations that she had encountered (e.g., almost falling while climbing a waterfall), Carina responded logically (e.g., asking for details about the height of the waterfall and how many people were present) and explained that she was a calm and rational person whose behavior was driven by logic rather than emotion. In addition to her difficulty with identifying emotions, Carina’s rigid self-

perception that she was calm and driven by logic precluded her from recognizing that she experienced emotion, which ultimately contributed to her flat affect.

Alternatively, Jan struggled to downregulate her emotions; this was evidenced by angry outbursts as well as by suicidal ideation, which exclusively occurred in situations when she had difficulty coping with emotions such as anxiety or frustration. In addition, when speaking about her generalized anxiety, she described feeling like she did not know “how to manage [her] worries”; this reportedly interfered with her daily functioning.

Clinical Implications

Knowledge of the unique difficulties experienced by young, high-functioning, adult women with ASD is essential to better understand their unique phenotypic presentation and, ultimately, to decrease the underidentification of ASD in this population. The majority of the research into ASD has focused on males. As such, we likely face a gender bias in our knowledge of this disorder. However, the recent increase in the number of studies of females with ASD represents the growing interest in understanding more about gender differences in this population. In particular, empiric findings have centered on exploring the neurologic phenotypes associated with ASD in females (8) and the differential genetic effects of ASD markers between the sexes (9). Although the literature has started to examine gender differences as they apply to social and communication difficulties (48), it is difficult to draw firm conclusions from the extant empiric literature that addresses the social and communication difficulties experienced by females with ASD. The majority of research into gender differences among individuals with ASD has been clouded by the inclusion of participants with diverse age ranges and levels of functioning. Although the heterogeneity of participant samples is useful for researchers’ abilities to generalize findings across samples, it can lead to difficulties with interpreting gender differences at specific stages of development. In addition, most epidemiologic research only includes children through the age of 8 or 10 years (2-4), which is a problem given the age of onset of comorbid problems (49,50) and the later diagnosis of ASD in individuals without co-occurring intellectual difficulties (17,18). Further research is needed to explore gender differences at various developmental and functioning levels. Our case examples highlight several processes that could affect the identification of ASD in young women and potentially in girls who do not have co-occurring intellectual impairment.

First, the reliance on unique core symptom manifestations (i.e., insistence on sameness, reluctance to engage in social interactions despite interest, and lack of social insight) is one process that results in ASD being underidentified in young adult females. The three women described in this article portrayed common symptoms related to stereotyped and repetitive behaviors, social withdrawal, and communication difficulties; these are distinct from the prototypic symptoms that most individuals associate with ASD. These females exhibited limited insight into friendship and had difficulty with perspective taking in the social and communication domains. However, these symptoms are distinguishable from the more severe social communication impairments listed in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*, such as a complete lack of eye contact and stereotyped gestures (2). There are several “red flags” for autism that are evident during early development, including the avoidance of eye contact, delayed speech and language skills, obsessive and sometimes unusual interests, and a lack of gestures (51). The subtler and more nuanced social impairments seen in females with ASD may not be apparent until middle childhood, when social demands increase. When these symptoms are recognized, many practitioners may not consider ASD as a likely diagnosis, particularly if the early signs of ASD were not present and there was no diagnosis of ASD during early childhood.

Second, the women in this study experienced significant psychiatric comorbidity, particularly involving internalizing disorders such as anxiety and depression. Although females with ASD share features of anxiety with neurotypical females, there are unique features of anxiety in this population that should be considered (52). The interaction between these symptoms and affected individuals’ social difficulties may ultimately resemble traits that are characteristic of BPD. Rydén and colleagues found that, although individuals with ASD and BPD share several characteristics, there are marked differences (e.g., the absence of substance abuse in ASD) that should be considered (43). The presence of psychiatric comorbidities serves as another process through which ASD identification may be delayed in young adult females, because ASD may be misdiagnosed in the presence of a comorbid disorder. The concept of diagnostic overshadowing is often seen in situations in which the presence of an intellectual disability minimizes the diagnostic significance of an accompanying problem (53). This can happen because the accompanying problem is seen as a consequence of the primary diagnosis or because, by comparison, the accompanying problem may appear less problematic. This phenomenon can

occur with the diagnosis of additional disorders in a person with ASD as well. The consequences of misdiagnoses are substantial, because treatment may be delayed or misapplied. Treatments may need to be modified to effectively treat such symptoms in individuals with ASD. Thus, when assessing young adult females for ASD, it is critical to be mindful of potential comorbid symptoms.

Third, it is possible that females with ASD experience greater difficulty with emotion regulation than males in terms of needing to both upregulate and downregulate their emotional expression. When individuals do not express their emotions, it can disguise their difficulties and their elevated levels of distress, thereby delaying the process of assessment and subsequent treatment.

There are several limitations that apply to the current case series. The specific ASD symptom manifestations and processes through which ASD identification may be delayed in females that are described in this paper are not exhaustive. Moreover, because ASD is a heterogeneous condition, not every young adult female with ASD will show deficits in all of these domains, and many will experience other difficulties that have not been described here. Another limitation of this study is the lack of a control group for a direct comparison. However, the current case series sought to use clinical observations to illustrate several common symptom presentations that are specifically seen in this population.

When assessing girls and young women for possible ASD, it is important to carefully consider the factors that may obscure symptoms that are characteristic of the condition. It is recommended that the assessor probe for tendencies toward sameness and rigidity, their understanding of intangible aspects of friendships, comorbid symptomatology and its possible interaction with social relationships, and difficulties related to emotion regulation. An awareness of such processes may reduce the underidentification and diagnostic overshadowing (misdiagnosis) of ASD in females. Furthermore, understanding how these processes affect the manifestation of ASD in females may inform treatment planning. The current case series of young adult females with ASD without co-occurring intellectual impairment sheds light on the complexity of these processes as well as on the importance of considering the degree to which they contribute to delays in the identification of ASD. Future research is needed to further illuminate the differences in symptom manifestation across genders and stages of development to inform the clinical assessment and treatment of individuals with ASD.

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