

# Investigating gender dysphoria in autism spectrum disorder: clinical challenges and future perspectives

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## SUMMARY

*An increased prevalence of gender dysphoria (GD) within individuals with autism spectrum disorder (ASD) has been recently highlighted. Notwithstanding, both conditions (ASD and GD) could share some common clinical features, such as socio-emotional impairment, ineffective relational strategies, atypical patterns of interests and behaviors, thus making the detection of GD in ASD particularly challenging, even for expert clinicians. As a consequence, research aiming to better explore the overlap between ASD and GD has progressively grown during recent years. Specific aim of the present overview is to briefly summarize the available literature on the topic, highlighting four symptom categories that should be deeply assessed in order to evaluate and characterize the presence of GD in ASD.*

**Key words:** autism, gender variance, gender identity, gender expression, co-occurrence

## Introduction

Autism spectrum disorder (ASD) is an early onset lifelong condition characterized by social and communicative skills difficulties and by the presence of a set of restricted and repetitive patterns of behaviors<sup>1</sup>. As a matter of fact, the autistic spectrum is characterized by a wide expression of symptoms' severity, ranging from mild to severe<sup>2</sup>. Within this framework, fragmenting the autistic phenotype into a dimensional condition result in the recognition of the so-called "autistic traits" (ATs), meant as subthreshold autistic symptoms that do not meet the diagnostic criteria for ASD.

Due to socio-affective impairment, difficulties in personal identity development have been often described within the autistic phenotype<sup>3</sup>. Specifically, it has been historically questioned whether children with ASD are able to develop a gender identity, meant as the internal sense of one's own gender. Indeed, while most people have a gender identity of a boy or a man, or a girl or a woman, the development of gender identity in ASD individuals could be a more complex experience. Available data in the field reported that although children with ASD have the potential to develop a gender identity, it could be that this merely reflects a cognitive understanding of gender itself, rather than a core feeling of being a boy or a girl<sup>4</sup>. Consequently, gender variance (GV) – meant as gender expression by an individual that does not match masculine or feminine gender norms – could be an expected outcome in this population.

The distress caused by GV is recognized as Gender Dysphoria (GD). According to the DSM-5, GD is defined by the presence of marked incongruence between one's experienced/expressed gender and assigned

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gender, of at least six months' duration<sup>1</sup>. GD is often characterized by the strong desire of being considered as a member of a different gender compared to the assigned one. As a matter of fact, the clinical presentation of GD in children and adolescents could be less focused on the anatomical features and mainly characterized by specific interest for toys, activities or accessorizing considered as typical for a specific gender.

During recent years, a growing body of evidence reported that not only individuals with ASD present higher prevalence of GD<sup>5,6</sup> but that, similarly, individuals with GD can exhibit greater ATs<sup>7-12</sup>, highlighting a possible association between ASD/ATs and GD<sup>13-15</sup>.

Indeed, it is ascertained that both conditions (ASD and GD) could share some common clinical features, such as socio-emotional impairment, ineffective relational strategies, atypical patterns of interests<sup>16-18</sup>. As a consequence, to date, it is still debated whether GD in ASD could be considered as a concomitant condition or, controversially, as a phenotypical continuum of shared overlapping features. In this context, research aiming to better explore the overlap between ASD/ATs and GD are progressively growing.

Therefore, specific aims of the present overview were to briefly summarize the available literature on the topic, discussing possible strategies for the characterization of GD symptoms within the autistic phenotype, highlighting suggestions for further lines of research on the topic. Indeed, research aiming to better explore the overlap between ASD/ATs and GD could help researchers and clinicians in better characterize the co-occurrence of GD and ASD in terms of differential diagnosis, clinical prognosis and therapeutic strategies.

## ASD and GD: what do we know until now

### GD in ASD

An increased rate for GD in ASD has been reported. Specifically, a recent case-cohort study<sup>5</sup> showed that in a total of 48,762 ASD children, 0.02% presented GD, thus highlighting that children with ASD are 4 times more likely to meet GD criteria in comparison to TD peers.

Furthermore, in ASD individuals, not only has been described an increased incidence for GD, but also of GV. Within this framework, Strang et al.<sup>19</sup> recently investigated GV in a sample of n = 147 ASD individuals (24 females and 123 males; age range = 6-18 years) through the administration of a single item of the caregiver' questionnaire *Child Behavior Checklist* (CBCL) (specifically item n. 110) showing that the 5.4% of ASD individuals presented GV. Accordingly, Janssen et al.<sup>20</sup>, analyzing parental responses to the same CBCL item in a sample of n = 492 ASD (age range 6-18 years), reported GV in the 5.1%.

To note, a similar co-occurrence rate came out not only from studies investigating GV in ASD from a parent' perception, but also through the administration of self-report questionnaires designed for both, youth (the Youth Self Report – YSR- 11–18-year-old)<sup>21,22</sup> and adults (the Adult Self Report- ASR- 18–59-year-olds)<sup>23</sup>. Specifically, Van Der Miesen et al.<sup>24</sup> revealed that the 6.5% of adolescents and the 11.4% of adults with ASD presented GV, thus leading to increased rates when compared to the general population (3-5%).

Nonetheless, specifically focusing on the adult population, it is important to highlight that, to date, there are only few available data, mainly derived from studies conducted on a retrospective methodology, thus not permitting an accurate snapshot of the co-occurrence of GD/GV in ASD during the lifespan.

### ASD/ATs in GD

Similarly, an increased rate of ASD symptoms has been reported among individuals with GD, and recent studies in the field reported a prevalence rate for ASD in GD ranging from 5% to 26%<sup>10-15,25</sup>. Specifically, available data highlighted that not only social withdrawal is an extremely common condition among individuals referring to gender identity services, but that it may precede the onset of GD<sup>17,25,26</sup>, thus highlighting a social skills impairment in this population.

Within this framework, Skagerberg et al.<sup>27</sup> recently investigated the presence of ASD related symptoms in a sample of n = 166 youth (mean age 14 years) with GD by the administration of the Social Responsiveness Scale – SRS<sup>28</sup>, a parent's questionnaires widely used in clinical and research practices for the detection of ASD symptoms in individuals from 30 months to 89 years old. Overall, data coming from the study performed by Skagerberg et al. revealed that 54.2% of individuals with GD presented mild/moderate to severe levels of ASD symptoms, as assessed by the SRS. Interestingly so, no statistically significant differences came out between native males and females<sup>24</sup>.

Nonetheless, it is important to highlight that, to the best of our knowledge, to date no prior study has included an objective evaluation of ASD symptoms performed by clinicians in addition to data coming from parent's perception, thus leading to a possible under/misdiagnosis of ASD symptoms within this population. Indeed, as previously reported, social skills impairment, particularly referred to poor social motivation and tendency to withdrawal<sup>17,25,26</sup> have been often described in individuals with GD, thus leading to a possible confounding factor in the assessment of ASD symptoms in this population<sup>27</sup>. Consequently, further research aimed to investigate the presence of ASD symptoms through the administration of standardized tools performed by expert clinicians in the field of autism is urgently needed. Findings

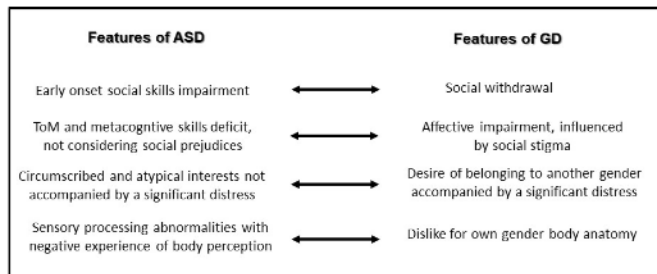
emerging from these studies might lead to a better understanding of the ASD symptoms presentation in GD/GV, with subsequent possible important implications in terms of differential diagnosis, clinical prognosis and therapeutic strategies.

### Detecting GD in ASD: a clinical challenge

There is growing evidence for overlapping clinical features within ASD and GD. Indeed, core ASD features such as social skills and theory of mind impairment, repetitive and specific patterns of interests and behaviors, cognitive inflexibility as well as atypical sensory processing could mask or, at least, overlap with GD symptoms in this population. Furthermore, to date there is still limited evidence on the ways features of ASD and GD are related to each other.

As a consequence, the detection and characterization of GD symptoms within ASD individuals has proven to be particularly challenging, even for expert clinicians in the field of both, GD and ASD.

We therefore focus on four specific symptoms categories that should be deeply assessed in order to evaluate and characterize the presence of GD in ASD (Fig. 1).



**FIGURE 1.** Illustrated in Figure 1 the four main symptoms' domains shared between ASD and GD.

### Social behavior and theory of mind impairment

Social skills impairment and theory of mind (ToM) deficit are universally recognized as core features of the autistic phenotype<sup>2</sup>. Specifically concerning the social behavior, it has been described that ASD individuals could show impairment in building satisfactory social relationships with peers belonging to the same gender, mainly due to difficulties in sharing common interests<sup>29</sup>. In this context, ASD individuals, not considering social prejudices, could be more incline to freely express their atypical interests in comparison to neurotypical peers often influenced by the social stigma<sup>14</sup>. As a consequence, ASD youth could experience a long-standing feeling of being different from peers, then contributing

to the development of the idea of having characteristics that make them inappropriate for their birth-assigned gender<sup>14,22</sup>. Being in line, deficits in ToM could lead to people missing social cues about a child's gender presentation which, in turn, might influence the development of gender identity<sup>19,29,30</sup>. Therefore, it has been hypothesized that the social skills and ToM impairments could support the onset of difficulties in the gender identity development process within ASD individuals. Accordingly, social skills and ToM deficit could be features experienced even by individuals with GD<sup>18</sup>. Nonetheless, it is important to highlight that the socio-affective impairment experienced among individuals presenting GD need to be considered more as an epiphenomenon and a consequence related to the condition' distress rather than as autistic traits, thus advocating caution when evaluating these clinical features in this population. In this context, it is therefore extremely important to well characterize the social skills impairment in terms of time of onset (early onset in ASD; later on for GD) and level of distress in order to better differentiate between GD symptoms and ASD core features.

### Repetitive thoughts/obsessions

Circumscribed interests and repetitive behaviors have been considered as overlapping symptoms between GD and ASD<sup>31</sup>.

Indeed, it is known that ASD individuals could often be focused on atypical patterns of interests, including clothes, accessories or toys considered as usual for the opposite gender. These features could partially contribute to the idea of belonging to another gender in ASD individuals, thus supporting the development of GD symptoms. Nonetheless, in ASD individuals these features could overlap with a specific content of repetitive thought, thus assuming more the phenomenology of an obsession rather than of GD symptoms<sup>26</sup>. Accordingly, it has been noted that in ASD individuals the idea of belonging to another gender is usually not accompanied by a significant distress for their body characteristics or their sexuality<sup>32,33</sup>, thus confirming the hypothesis for a more prominent association between repetitive/obsessive content of thought rather than a "true" GD in this population<sup>31,34</sup>. Accordingly, based on the evidence of the persistency of cross-gender behavior even after specific treatment for GD, available data yet supported the hypothesis of a link between GD and unusual/obsessive interests in ASD<sup>35</sup>.

To note, it is extremely important to point out that the autistic condition and its related neurocognitive mechanisms could impact on the presentation of GD symptoms in this population, thus not being so comparable to the ones presented by the general population. Being in line, youth with ASD reported how their gender identity discomfort has been often obfuscated by the autistic

condition, mainly due to the common beliefs of what autism is (e.g., expectations that autistic individuals, being characterized by impairment in socio-affective skills are not interested at all on sex/gender). As a matter of fact, the support of GD in ASD represents, to date, an unmet goal, highlighting the idea that supporting gender needs equal attention given to the autistic features in ASD individuals<sup>36</sup>.

Based on the knowledge of how complex these aspects are, it is therefore crucial to plan the construction of services specifically designed for individuals presenting GD and ASD. Specifically, as suggested by previous studies, the assessment of the co-occurrence between ASD and GD should be done by a team of expert clinicians, specifically trained for both ASD and GD<sup>37</sup>, and performed in comfortable and suitable settings<sup>34</sup>, in order to best support ASD individuals in the process of self-awareness and decision making about their gender identity.

### Cognitive inflexibility

Cognitive inflexibility, as a core feature of the autistic phenotype, may represent a crucial obstacle in the gender identity formation process, thus representing a challenge in the assessment of GD symptoms within ASD individuals<sup>29,38</sup>.

Indeed, it has been hypothesized that cognitive rigidity may be extended to a lack of flexibility around gender identity development process, thus resulting in difficulties in the management of GV feelings in ASD individuals which, in turn, could increase the incidence of GD in this population<sup>29</sup>. What is known is that the presence of cognitive inflexibility could contribute to experiencing greater distress when a clear gender binary categorization (as "male" or "female") is not adopted, with subsequent increased risk for distress when gender identity difficulties occurs. Furthermore, it has been reported whether cognitive inflexibility could play a critical role in the psychopathology of repetitive thought<sup>39</sup>, thus supporting the perpetuation of obsessive idea related to gender avriance in this population.

As a consequence, the detection of cognitive inflexibility within individuals seeking help for GD needs to be well characterized as a possible *allmark* of autistic features in these individuals. Similarly, the recognition of cognitive rigidity as core neurocognitive features of ASD could have an important role in the assessment process of GD as well as in the choice of the most appropriate therapeutic strategies in ASD individuals.

### Sensory processing aspects

Finally, an association between sensory processing atypicalities and gender dysphoria has been reported in ASD<sup>29,40</sup>. The presence of an altered sensory processing could contribute to a negative experience of

body perception which in turn could contribute to an increased risk for GD symptoms in this population. To note, puberty, being a time of complex body changes, could even more emphasize the experiences of this 'sensory dysphoria' and, in turn, the experience of GD in this population.

Furthermore, it has been often described the presence of cross-gender related interests related to preferences for specific sensory stimuli<sup>38,41</sup> (e.g. long and soft hair, silky materials, bright and shiny objects), which in turn could overlap with GD symptoms in this population. Being in line, an increased association between sensory hyper-reactivity and gender variance has been reported even in the general population, thus supporting the hypothesis that an altered sensory process in specific sensory input (e.g. tactile sensations) could play a role in gender variance expression<sup>40</sup>.

Nonetheless, to the best of our knowledge, to date no prior studies yet investigated the presence of sensory processing abnormalities within individuals with GD, presenting or not concomitant ASD, through the administration of standardized tools, such as the Short Sensory Profile (SSP)<sup>42</sup>, a caregiver report questionnaire widely used in research and clinical settings to measure sensory processing abnormalities in children with and without ASD. Data coming from these studies could indeed contribute to a better characterization of common and different characteristics of sensory processing abnormalities within individuals referring for GD, with subsequent possible important implication in terms of differential diagnosis and therapeutic strategies.

### Investigating GD in ASD and ASD/ATs in GD: which tools are currently available

As previously discussed, the detection of GD in ASD individuals has proven to be particularly challenging. In this context, it is important to highlight that, to date, the assessment of GD symptoms within ASD individuals has been mainly performed through the administration of nonspecific tools.

Indeed, to the best of our knowledge, only in few studies<sup>43</sup> a specified tools for the assessment of GD/GV – such as the Gender Identity Questionnaire for Children and Gender Diversity Screening Questionnaire (GDSQ)<sup>44</sup> – have been used. Controversially, the majority of available research in the field investigated the presence of GD symptoms in ASD individuals through the administration of parent or self-report questionnaires not specifically validated for the assessment of GD and not specifically designed for ASD population, such as the CBCL<sup>20,45,46</sup> and the YSR<sup>22</sup>. Specifically concerning the CBCL parent' questionnaire, a single item - namely n. 110 "*Wishes to be of opposite sex*" - has been widely

used, based on the evidence of a strong correlation between GD diagnosis and an affirmative answer to item  $n = 110$  in the general population<sup>47</sup>. Nonetheless, it is important to highlight that in ASD individuals answering to binary questions (yes/no) or filling out questionnaire using a 3 points Likert scale ( $0 = \text{not true}$ ,  $2 = \text{somewhat or sometimes true}$ , or  $3 = \text{very true or often true}$ ) could be particularly confusing, due to the well-known difficulties in terms of cognitive inflexibility and tendency to concrete thought<sup>48</sup>. Therefore, further studies are urgently needed in order to design and validate specific tools aimed to better investigate the presence of GD in ASD.

Similarly, to investigate the presence of autistic symptoms within individuals presenting GD, to date, mainly screening tools such as the Social Responsiveness Scale (SRS)<sup>28</sup> and the Autism Spectrum Quotient (AQ)<sup>49</sup>, have been used. Notwithstanding, it is important to note that, as previously reported, social skills impairment, tendency to withdraw and reduced affectivity typically experienced by individuals with GD could be easily distinguished as ASD symptoms. As a consequence, the evaluation of ASD symptoms performed by data coming from a parent's perception could lead to a possible under/misdiagnosis of ASD symptoms within this population. By contrast, to the best of our knowledge, no prior study has included an objective evaluation of ASD symptoms performed by clinicians, including the ADOS-2, the *gold standard* tool for the assessment of autistic symptoms. These aspects are needed to be taken into account for further investigations on the topic.

## Conclusions

Overall, available data yet reported an increased incidence for GD in ASD and, similarly, for autistic features in individuals presenting GD. Nonetheless, to date, it is still not deeply understood whether GD could be considered as concomitant conditions in ASD or, whether autistic traits may represent an epiphenomenon of GD due to social deficits that people with GD can experience.

What is known is that GD/GV are often reported in ASD individuals and that the clinical phenotype of autistic individuals can mask other concomitant conditions, such as GD, resulting in possible unrecognized distress in

relation to their assigned birth gender. Similarly, it is necessary to understand the possible role of ATs in individuals presenting GD and how they can vary over time, thus masking even deeper dimensions of discomfort in this population.

Accordingly, the presence of concomitant GD/GV in ASD individuals has been reported as a negative prognostic outcome on later mental health outcome<sup>50,51</sup>. Consequently, the investigation of GD/GV symptoms within ASD youth should be regularly performed by clinicians, with subsequent possible important implications in terms of differential diagnosis, prognostic features and therapeutic strategies. Similarly, the investigation of autistic symptoms within individuals with GD should be performed when symptoms such as social atypicality's, obsessive thought, sensory processing abnormalities and cognitive inflexibility are noted.

In this context, as previously highlighted, further investigation on the topic, based on a rigorous methodology exploring gender assessment approaches must be developed in order to manage ASD adolescents evaluated for GD. Innovative approaches to therapeutic support should be created and tested, incorporating therapeutic techniques that may address both, gender and autistic features, in order to manage and address self and social awareness and communication challenges that autistic people may encounter when discerning about gender identity.

## Conflict of interest statement

Authors declare no conflict of interest.

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## Authors' contributions

AR and VD wrote the first draft of the manuscript. VD, EC, LA and MV conducted the bibliography research. LM and MS substantially revised the manuscript. All authors reviewed and approved the final version of the manuscript.

## Ethical consideration

No ethical approval was needed for the present manuscript.

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