Clinical Neuropsychiatry (2025) 22, 6, 507-516

RESEARCH PAPER

GENDER DYSPHORIA AND NEURODEVELOPMENTAL DISORDERS: PREVALENCE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) AMONG ADULTS WITH GENDER DYSPHORIA AND THEIR CLINICAL PHENOTYPE

Chiara Cecchelli, Corinna Moradei, Carlotta Cocchetti, Giacomo Grassi

Abstract

Objective: despite the increasing amount of data showing the presence of high association between gender dysphoria (GD) and autism spectrum disorders, less is known on the association between GD and other neurodevelopmental disorders such as attention deficit hyperactivity disorder (ADHD). The aim of this study was to examine the prevalence and clinical features of ADHD in a group of adults with a primary diagnosis of GD.

Method: a sample of 81 consecutive adults newly diagnosed with GD were assessed using standardized self-report measures evaluating GD severity, mood and anxiety symptoms, and ADHD. GD participants with associated ADHD were compared to participants without ADHD regarding gender dysphoria symptoms, mood and anxiety symptoms, and functional impairment.

Results: we found a 33.3% prevalence of ADHD among GD individuals. Those with GD and ADHD had a significantly higher lifetime prevalence of psychiatric co-occurrence—particularly borderline personality disorder and cannabis use disorder—along with greater mood ($U = 3.805$, $p < .001$) and anxiety symptoms ($U = 3.717$, $p < .001$), and more severe functional impairment ($U = -3.233$, $p = .001$) compared with GD individuals without ADHD. No group differences emerged in GD symptom severity.

Conclusions: findings indicate that GD individuals show high prevalence of ADHD and that individuals with both GD and ADHD appear to represent a more complex subpopulation with heightened depressive and anxiety symptoms and increased functional impairment. These results underscore that the presence of ADHD is frequent and appears to exert an important clinical impact on individuals with GD; therefore, ADHD should be routinely screened for in this population.

Key words: gender dysphoria, gender incongruence, adhd, neurodevelopmental disorders

Chiara Cecchelli[1], MD, Psychiatrist, PhD; Corinna Moradei[1], PsyD; Carlotta Cocchetti[1], MD, Endocrinologist; Giacomo Grassi[1], MD, Psychiatrist, PhD
[1] Brain Center Firenze, Florence, Italy
Viale Belfiore 36, 50144, Firenze

OPEN ACCESS

Citation: Cecchelli, C., Moradei, C., Cocchetti, C., & Grassi, G. (2025). Gender dysphoria and neurodevelopmental disorders: prevalence of attention deficit hyperactivity disorder (ADHD) among adults with gender dysphoria and their clinical phenotype. *Clinical Neuropsychiatry, 22*(6), 507-516.

doi.org/10.36131/cnfioritieditore20250608

Funding: None.

Competing interests: None.

Acknowledgment: we thank Dr. Anna Rapicavoli for her help in data collecting and managing, and Dr. Edoardo Scillitani for his help in linguistic revision.

Supplementary material: in the article page.

Corresponding author
Chiara Cecchelli
E-mail: chiara.cecchelli@braincenterfirenze.it

Introduction

Gender dysphoria (GD) is psychological distress caused by a mismatch between one's sex assigned at birth and one's gender identity (American Psychiatric Association [APA], 2013). Gender Dysphoria is classified in a stand-alone category in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; [APA], 2013). GD population estimates has been reported to be up to 0,5%-4.5% in the general population (Arcelus et al., 2015; Kranz et al., 2020; Meerwijk & Sevelius, 2017; Steensma et al., 2018). However, estimating the size of GD is complex due to several factors such as change in diagnostic criteria over the years, period and country where the study took place and recruitment process and settings used to collect epidemiological data (Arcelus et al., 2015). A wide range of social, legal, medical and surgical interventions have been proposed and are used in order to relief psychological distress of people suffering from gender dysphoria (Gender Affirming Treatments) (Almazan & Keuroghlian, 2021; Durwood et al., 2017; Hembree et al., 2017; Scheim et al., 2020). Mental health interventions can facilitate successful outcomes of transition-related care and improve quality of life during gender transition (Nobili et al., 2018b). Most studies of mental health in transgender population focus on depressive symptoms, anxiety symptoms, self-harm and suicidal behaviour (Dhejne et al., 2016; Heylens et al., 2014; Marshall et al., 2016; Millet et al., 2017; Terada et al., 2011), showing that psychiatric disorders and suicidality are more common in individuals seeking treatment for gender dysphoria than in the general population. Regarding neurodevelopmental disorders, there is an increasing amount of data on the existence of an association between gender dysphoria and autism spectrum disorders (Nobili et al., 2018a). Much less data is available on the presence of another neurodevelopmental disorder such as attention deficit hyperactivity disorder (ADHD) and the available

studies have important limitations (Cheung et al., 2018; Dawson et al., 2017; Ignatova et al., 2024; Kristensen et al., 2023). Indeed, retrospective studies conducted on large cohorts of children with a primary diagnosis of ADHD assessed gender identity with a single Child Behavior Checklist item (CBCL item 110: "desire to be of the opposite sex") (Ignatova et al., 2024; Strang et al., 2014;). Moreover, studies on subjects referred to gender transition centers conducted only a retrospective analysis of electronic medical records for determining the presence of an ADHD diagnosis (Cheung et al., 2018). Finally, the other available studies were surveys conducted online with information pertaining to both gender identity and ADHD diagnosis (Dawson et al., 2017). None of these studies was a direct clinical assessment conducted on either condition. ADHD, particularly if undiagnosed, can have a significant impact on health and well-being. Gender dysphoria assessment, understanding of health information and engagement in clinical care can be significantly affected by symptoms such as attention difficulties, communication deficits and social skills deficits (Cheung et al., 2018). Therefore, it is important to investigate the presence of ADHD and its association in this specific population. Thus, this study aimed to assess the prevalence and clinical correlates of ADHD in a sample of adults with a primary diagnosis of gender dysphoria.

Method

Participants

Participants were recruited at a specialized clinic for the assessment and treatment of both gender dysphoria and neurodevelopment disorders, particularly adult ADHD. A total of 81 consecutive adult participants with a primary diagnosis of Gender Dysphoria were included. The diagnosis was made according to DSM-5 criteria by two psychiatrists specialized in this field and was further confirmed through psychometric assessments (described below).

All participants included in the study were referred to the clinic for an evaluation of gender dysphoria and received a new diagnosis of GD at the time of the study. None of the participants had initiated hormone therapy. A comprehensive evaluation was conducted for all participants, which included a clinical interview and a battery of psychometric tests (see below).

The presence of ADHD was assessed using the Barkley Adult ADHD Rating Scale-IV (BAARS-IV) as part of the clinic's routine screening for individuals referred for a GD assessment. Participants were classified as having GD and ADHD (hereafter referred to as GD+ADHD) if they scored above the clinical cut-off for both current and childhood ADHD symptoms. Those who did not meet the cut-off for both were classified as GD without ADHD (hereafter referred to as GD−ADHD).

Clinical assessment

All participants underwent a clinical interview in which demographic and other relevant clinical characteristics (psychiatric co-occurence, pharmacological treatment, psychotherapy - see **table 1**) were assessed. **Table 1** shows the participants' demographic characteristics.

Gender dysphoria symptoms assessment

Gender congruence and life satisfaction in gender dysphoria

The Gender Congruence and Life Satisfaction Scale (GCLS) (Jones et al., 2018) was used to assess the transgender individual's perceived quality of life prior to transition. The test is made up of 38 items forming seven subscales (psychological functioning; genitalia; social gender role recognition; physical and emotional intimacy; chest; other secondary sex characteristics; and life satisfaction). The test uses a 5-point Likert scale from 5 to 1 (never (5), rarely, sometimes, often, or always (1)) and refers to experiences in the last 6 months. Higher scores indicate better outcomes (higher gender congruence, quality of life and overall satisfaction). As there is no validated version of the questionnaire in the Italian language, we have used our own translation of the questionnaire.

Gender identity in gender dysphoria

Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults (GIDYQ_AA) is used in clinical settings to assess the intensity of Gender Dysphoria. (Deogracias et al., 2007). Through the 27 items, to which assigned males and or females at birth respond in two parallel forms, the instrument can capture indicators of Gender Dysphoria concerning four areas of functioning: subjective (13 items), social (9 items), somatic (3 items) and socio-legal (2 items). For each item, people are asked to respond thinking about their experience in the past 12 months and using a 5-point Likert scale (Ever, Often, Sometimes, Rarely and Never). The validated Italian version of this scale was used in this study. (Prunas et al., 2013).

Body uneasiness

Body-related psychopathology was assessed using the Body Uneasiness Test (BUT) (Cuzzolaro et al., 2006) a 71-item self-report questionnaire consisting of two sections: the first part (BUT A) measuring weight phobia, body image concerns, avoidance, compulsive self-monitoring, and feelings of detachment and alienation from one's own body (depersonalization); and BUT B investigating the presence of discomfort with respect to different parts of one's body

ADHD symptoms assessment

Symptoms of ADHD were assessed using the Barkley Adult ADHD Rating Scale-IV (BAARS-IV), which is a widely recognised tool for the screening of ADHD in adults. The BAARS-IV is a self-administered, DSM-IV-TR criteria-based questionnaire designed to screen adults for both current and childhood ADHD symptoms (Barkley, 2011). The current symptoms component comprises 30 items across four subscales —attention, impulsivity, hyperactivity, and sluggish cognitive tempo (SCT). It is composed of twenty-seven items that are scored on a 4-point Likert scale: (1) never or rarely, (2) sometimes, (3) often, and (4) very often, with three additional questions for each subscale evaluating the functional impairment associated with ADHD symptoms. The SCT subscale includes symptoms such as daydreaming, staring, mental fogginess, confusion, hypoactivity, sluggishness, slow movement, lethargy, apathy, and drowsiness (Barkley, 2012). In addition, the Childhood Symptoms component, referring to the age range 5-12 years, consists of 18 items scored on

Table 1. *Demographic and clinical characteristics of the entire GD sample and GD individuals with and without ADHD*

	GD (n = 81)	***GD+ADHD (n = 27)***	***GD-ADHD (n = 54)***	***U/χ²***	***p***
Age (years)	22 (20;24)	24 (22;25)	22 (20;23)	2.44	.015*
Gender % *(M:F)*	17.82% (59:22)	44.4% (15:12)	18.5% (44:10)	6.11	.013*
Years of Educations	13 (13;13)	13 (13;13)	13 (13;13)	-0.757	.449
Psychiatric Diagnosis (lifetime)	50/81 (61.7%)	23/27 (85.2%)	27/54 (50%)	9.433	.002*
Neurodevelopmental Disorders					
ADHD	27/81 (33.3%)	-	-	-	-
Mood Disorders	37/81 (45.7%)	15/27 (55.6%)	22/54 (40.74%)	0.79	.374
Major Depressive Disorder	35/81 (43.2%)	14/27 (51.9%)	21/54 (38.8%)	0.567	.451
Bipolar Spectrum Disorder	2/81 (2.5%)	1/27 (3.7%)	1/54 (1.85%)	0.188	.665
Anxiety Disorders	11/81 (13.6%)	4/27 (14.8%)	7/54 (12.9%)	0.004	.950
Specific Phobia Disorder	2/81 (2.5%)	1/27 (3.7%)	1/54 (1.85%)	0.188	.665
Panic Disorder	3/81 (3.7%)	1/27 (3.7%)	2/54 (3.7%)	0.00	1.000
Separation Anxiety Disorder	0/81 (0%)	0/27 (0%)	0/54 (0%)	-	-
Generalized Anxiety Disorder	4/81 (4.9%)	1/27 (3.7%)	3/54 (5.55%)	0.204	.651
Social Anxiety Disorder	3/81 (3.7%)	1/27 (3.7%)	2/54 (3.7%)	0.00	1.000
Health Anxiety Disorder	0/81 (0%)	0/27 (0%)	0/54 (0%)	-	-
Obsessive-Compulsive and related disorders	0/81 (0%)	0/27 (%)	0/54 (%)	-	-
Eating Disorders	5/81 (6.2%)	3/27 (11.1%)	2/54 (3.7%)	1.400	.237
Anorexia Nervosa	1/81 (1.2%)	1/27 (3.7%)	0/54 (0%)	1.839	.175
Bulimia Nervosa	0/81 (0%)	0/27 (0%)	0/54 (0%)	-	-
Binge Eating Disorder	4/81 (4.9%)	2/27 (7.4%)	2/54 (3.7%)	0.386	.534
Substance Use Disorders	9/81 (11.1%)	6/27 (22.2%)	3/54 (5.55%)	5.063	.024*
Cannabis Use Disorder	7/81 (8.6%)	5/27 (18.5%)	2/54 (3.7%)	5.004	.025*
Cocaine Use Disorder	0/81 (0%)	0/27 (0%)	0/54 (0%)	-	-
Stimulants Use Disorder	0/81 (0%)	0/27 (0%)	0/54 (0%)	-	-
Opioid Use Disorder	1/81 1.2(%)	1/27 (3.7%)	0/54 (0%)	1.876	.171
Psychedelic Use Disorder	0/81 (0%)	0/27 (0%)	0/54 (0%)	-	-
Alcohol Use Disorder	2/81 (2.5%)	1/27 (3.7%)	1/54 (1.85%)	0.201	0.654
Patients taking concurrent medications	14/81 (18.4%)	9/27 (33.3%)	5/54 (9.26%)	6.197	.013*
SSRI	4/81 (5.3%)	3/27 (11.5%)	1/54 (1.85%)	3.035	.081
SNRI	0/81 (0%)	0/27 (0%)	0/54 (0%)	-	-
Miscellaneous Anti-depressant	1/81 (1.3%)	1/27 (3.8%)	0/54 (0%)	1.910	.167
Anti-Anxiety	0/81 (0%)	0/27 (0%)	0/54 (0%)	-	-
Anti-psychotic	1/81 (1.3%)	1/27 (3.8%)	0/54 (0%)	1.910	.167
Mood Stabilizers	4/81 (5.3%)	2/27 (7.7%)	2/54 (4.1%)	0.439	.508
Benzodiazepine	1/81 (1.3%)	1/27 (3.8%)	0/54 (0%)	1.910	.167
CBT	22/81 (29.3%)	10/27 (38.5%)	12/54 (22.22%)	1.600	.206

***Note**:* Data are expressed as percentage or median (interquartile range) for all variables. *p < .05. **p < .001. GD = Gender Dysphoria; ADHD = Attention-Deficit Hyperactivity Disorder; SSRI = Selective Serotonin Reuptake Inhibitor; SNRI = Serotonin and Norepinephrine Reuptake Inhibitor; CBT= Cognitive Behavior Therapy.

a similar 4-point Likert scale and is divided into two subscales: inattention and impulsivity/hyperactivity.

Mood and anxiety symptoms assessment

The Symptoms of Depression Questionnaire (SDQ) was used to evaluate mood and anxiety symptoms; this is a 44-item self-report measure of depressive symptom severity across various subscales. A 6-point Likert scale is used for each item, with responses reflecting the participant's subjective comparison to their perceived norm: a score of 2 indicates symptoms as usual, a score of 1 reflects improvement, and scores from 3 to 6 indicate increasing severity. The SDQ includes five subscales: depressive mood; anxiety; desire for death; sleep disturbances; and appetite and weight changes (Pedrelli et al., 2014). In this study, the validated Italian adaptation of the scale was used. (Salerno et al., 2017).

Personality disorders assessment

The SCID-5 (First et al., 2017) is a semi-structured

clinical interview that has been developed for the assessment of personality disorders according to the DSM-5 criteria, including the interview and the handy self-report screening questionnaire for patients, the Structured Clinical Interview for DSM-5 Screening Personality Questionnaire (SCID-5-SPQ). Before administering SCID 5 PD, the SCID-5 SPQ questionnaire is sent to the participant. This questionnaire is designed as a screening tool for the SCID-5 PD and consists of 106 yes/no dichotomous questions. With the SCID-5 PD, we further explore those questions with "yes" answers by requesting a sufficient and consistent number of examples. The disorder is considered present if the required criteria are met; otherwise, it may be subthreshold or entirely absent.

Statistical analysis

The Shapiro-Wilk test was used to assess the normality of all variables. Normally distributed variables were the BAARS-IV total score (current symptoms) and the two subscale scores for inattention and sluggish cognitive tempo subscale scores, the BAARS-IV total score (childhood symptoms), the GCLS subscales (physical and emotional intimacy, chest), the GIGDQ and the BUT-A subscales. All the other variables were not normally distributed. Non-parametric tests were used as most of the variables studied were not normally distributed. Cronbach's alpha was used to test the internal consistency of the self-reported measures. (BAARS-IV Adulthood, BAARS-IV Childhood, SDQ, GCLS, BUT, SCID-5). Cronbach's alpha revealed from questionable to good/excellent internal consistency for self-report measures (BAARS-IV Adulthood: a = 0.86 Good; BAARSIV Childhood: a = 0.89 Good/Excellent; SDQ: a = 0.79 Acceptable/Good; GCLS: a = 0.65 Questionable; BUT: a = 0.74 Acceptable; SCID-5: a = 0.85 Acceptable). For categorical variables (percentage of subjects with psychiatric comorbidity, taking medication, and with personality disorder), the chi-square test was used. A Mann-Whitney U test was conducted to compare clinical scales scores (BAARS-IV total and subscale scores, SDQ total and subscale scores, GCLS total and subscale scores, GIGDQ score, and BUT subscale scores) between GD individuals with and without ADHD. To account for multiple comparisons, we applied a False Discovery Rate (FDR) adjustment using the Benjamini–Hochberg procedure, with a predefined threshold of q = .05. This approach was chosen as the primary correction method because it offers a balanced compromise between controlling Type I error and preserving statistical power—particularly advantageous in exploratory research involving numerous comparisons and variables with heterogeneous distributions. Moreover, its distribution-free properties make it appropriate for datasets with mixed statistical characteristics (Keselman et al., 1999; Pastore et al., 2005). Implementation involved ranking all p-values and comparing each to its corresponding critical value (i/m) × q, where i denotes the rank, m the total number of tests, and q the set threshold. All p-values less than or equal to the largest one meeting this condition were considered statistically significant. This correction was applied to all the run analysis. For comparison, we also re-analyzed the results using more conservative correction methods—Holm–Bonferroni and Bonferroni procedures (Bonferroni, 1936; Holm, 1979) (see **table S1** in Supplementary Materials). Linear regression analyses were performed to examine the contributions of age and gender to ADHD symptoms, as well as to mood and anxiety symptoms. Level of significance was set at p = 0.05. The Statistical Package for the Social Sciences v25 (SPSS) (IBM Corp., 2017) was used for all analyses.

Results

The whole GD sample had a median age of 22 years (IQR: 20;24) and a median duration of education of 13 years (IQR: 13;13). Of the sample, 17.82% (22/81) were assigned female at birth (AFAB). Lifetime psychiatric co-occurrence was present in 61.7% (50/81) of the sample. The most prevalent lifetime co-occurring conditions were mood disorders (45.7%), followed by anxiety disorders (13.6%), substance use disorders (11.1%), and eating disorders (6.2%) (see **table 1**). Currently, 18.4% (14/81) of participants were receiving medication (5.3% on SSRIs, 5.3% on mood stabilizers, 1.3% on miscellaneous anti-depressants, 1.3% on antipsychotics, and 1.3% on benzodiazepines) (see **table 1**). Additionally, 29.3% (22/81) of the participants had undergone psychotherapy. Additionally, 23.45% of the whole dysphoric sample exhibited at least one personality disorder. The most prevalent personality disorder was borderline personality disorder (12.3%), followed by avoidant personality disorder (7.4%), obsessivecompulsive personality disorder (7.4%), narcissistic personality disorder (4.9%), paranoid personality disorder (3.7%), schizotypal personality disorder (3.7%), dependent personality disorder (2.5%), and histrionic personality disorder (2.5%).

Comparisons between gender dysphoria participants with and without ADHD

A total of 33.3% of adults with gender dysphoria were found to have ADHD according to the childhood and adulthood BAARS-IV. The demographic and clinical characteristics of adults with GD with and without ADHD are summarized in **table 1**, **2**, and **3**. The GD+ADHD and GD-ADHD groups differed in age (median: 24(IQR: 22;25) vs. median 22(IQR: 20;23), respectively; U = 2.44; p = .015) and sex assigned at birth (44.4% female in the GD+ADHD group vs. 18.5% in the GD-ADHD group; $\chi^2 = 6.11$; p = .013). No differences were observed between groups in years of education (median: 13(IQR: 13;13) in both groups; U = -0.757; p = .449) (see **table 1**). Significant differences were found in the prevalence of lifetime psychiatric co-occurrences (85.2% in the GD+ADHD group vs. 50% in the GD-ADHD group; $\chi^2 = 9.433$; p = .002). Notably, the GD+ADHD group had a significantly higher prevalence of substance use disorders (22.2% in the GD+ADHD group vs. 5.55% in the GD-ADHD group; $\chi^2 = 5.063$; p = .024), particularly cannabis use disorder (18.5% vs. 3.7%, respectively; $\chi^2 = 5.004$; p = .025) (see **table 1**). Additionally, the GD+ADHD group had a significantly higher proportion of participants under current medication (33.3% vs. 9.26%, respectively; $\chi^2 = 6.197$; p = .013); however, there were no statistically significant differences across specific medication classes (see **table 1**). Furthermore, the prevalence of participants undergoing psychotherapy did not differ significantly between groups, though it was higher in the GD+ADHD group (38.5% vs. 22.22%; $\chi^2 = 1.600$; p = .206). The GD+ADHD group exhibited significantly higher prevalence of personality disorders compared to the GD-ADHD (40.7% vs. 14.8%, respectively; $\chi^2 = 6.739$; p = .009, respectively). Specifically,

Table 2. *Clinical characteristics of the entire GD sample and GD patients with and without ADHD*

	GD (n = 81)	GD+ADHD (n = 27)	GD-ADHD (n = 54)	U/2	p
ADHD Current symptoms (BAARS-IV Total)	35 (25;48)	52 (46;56)	27.5 (23;35.25)	6.762	**<.001****
Inattention (BAARS-IV Adult)	20 (20; 27)	28 (25;30)	14 (12;20)	6.457	**<.001****
Hyperactivity (BAARS-IV Adult)	8 (6;12)	13 (10;15)	7 (5;9)	5.703	**<.001****
Impulsivity (BAARS-IV Adult)	7 (5;12)	12 (8;13)	6 (4.75;9.25)	4.701	**<.001****
Sluggish Cognitive Time (BAARS-IV Adult)	17 (13;24)	27 (27;31)	14.5 (12;20)	5.443	**<.001****
ADHD childhood symptoms (BAARS-IV Total)	33 (26;46.5)	50 (46;61)	27.5 (24;33)	7.088	**<.001****
Inattention (BAARS-IV Childhood)	19 (13;28)	30 (28;33)	14 (12;19)	6.713	**<.001****
Hyperactivity/Impulsivity (BAARS-IV Childhood)	15 (12;20.5)	24 (18;28)	13 (11;15.25)	5.844	**<.001****
Mood and Anxiety symptoms (SDQ Total)	108 (92;132.5)	131 (110;151)	101 (90;116.5)	4.189	**<.001****
Mood (SDQ)	42 (37;55.5)	54 (41;66)	39.5 (35.75;47.25)	3.805	**<.001****
Anxiety (SDQ)	35 (35;43.5)	42 (35;52)	32 (28;39.25)	3.717	**<.001****
Suicidal Ideation (SDQ)	13 (11;17)	14 (13;24)	12 (11;14.25)	3.134	**.002***
Sleep Quality (SDQ)	6 (6;9)	9 (6;11)	6 (6;7)	3.972	**<.001****
Appetite and Weight (SDQ)	9 (8;10)	10 (8;13)	8 (8;9)	3.530	**<.001****
SCID-5	19/81 (23.45%)	11/27 (40.7%)	8/54 (14.8%)	6.739	**.009***
Avoidant Personality Disorder	6/81 (7.4%)	4/27 (14.8%)	2/54 (3.7%)	3.240	.072
Dependent Personality Disorder	2/81 (2.5%)	2/27 (7.4%)	0/54 (0%)	4.101	.043*
Obsessive-Compulsive Personality Disorder	6/81 (7.4%)	4/27 (14.8%)	2/54 (3.7%)	3.240	.072
Paranoid Personality Disorder	3/81 (3.7%)	2/27 (7.4%)	1/54 (1.9%)	1.558	.212
Schizotypal Personality Disorder	3/81 (3.7%)	2/27 (7.4%)	1/54 (3.7%)	1.558	.212
Schizoid Personality Disorder	0/81 (0%)	0/27 (%)	0/54 (%)	-	-
Histrionic Personality Disorder	2/81 (2.5%)	1/27 (3.7%)	1/54 (1.9%)	.256	.613
Narcissistic Personality Disorder	4/81 (4.9%)	2/27 (7.4%)	2/54 (3.7%)	0.526	.468
Borderline Personality Disorder	10/81 (12.3%)	7/27 (25.9%)	3/54 (5.55%)	6.902	**.009***
Antisocial Personality Disorder	0/81 (0%)	0/27 (%)	0/54 (%)	-	-

Note. Data are expressed as median (interquartile range) for all variables. *p < .05. **p < .001. Variables whose significance survives the statistical correction are highlighted in bold. GD = Gender Dysphoria; ADHD = Attention-Deficit Hyperactivity Disorder; BAARS-IV = Barkley Adult ADHD Rating Scale - IV; SDQ = Symptoms of Depression Questionnaire; SCID-5 = Structured Clinical Interview for DSM-5.

Variables that remained significant after correction for multiple comparisons using the Benjamini–Hochberg procedure were: current ADHD symptoms assessed with the BAARS-IV total score and its subscales (inattention, hyperactivity, impulsivity, sluggish cognitive tempo); childhood ADHD symptoms assessed with the BAARS-IV total score and its subscales (inattention, hyperactivity/impulsivity); mood and anxiety symptoms assessed with the SDQ total score and its subscales (mood, anxiety, suicidal ideation, sleep quality, appetite/weight); and SCID-5.

the GD+ADHD group showed significantly higher prevalence for borderline personality disorder (25.9% vs. 5.55%, respectively; $\chi^2 = 6.902$; p = .009, respectively), followed by dependent personality disorder (7.4% vs. 0%, respectively; $\chi^2 = 4.101$; p = .043, respectively). In addition, there was a trend toward a higher prevalence of avoidant personality disorder (14.8% vs. 3.7%, respectively; $\chi^2 = 3.240$; p = .072, respectively) and obsessive-compulsive personality disorder (14.8% vs. 3.7%, respectively; $\chi^2 = 3.240$; p = .072, respectively). Borderline Personality Disorder significance was maintained after Benjamini-Hochberg's procedure (see **table S1** in Supplementary Materials).

Adults with GD and ADHD, as expected, exhibited significantly higher scores for both current and childhood ADHD symptoms on the BAARS-IV total scores compared to those without ADHD (BAARS-IV adulthood: median: 52(IQR: 46;56) vs. median: 27.5(IRQ: 23;35.25) respectively; U = 6.762; p < .001; BAARS-IV childhood: median: 50(IQR: 46;61) vs. median: 27.5(IRQ: 24;33) respectively; U = 7.088; p < .001) (see **figure 1**). Across all BAARS-IV subscales for both current and childhood symptoms, the GD+ADHD group also showed significantly higher scores than the GD-ADHD group (see **table 2**). Additionally, the GD+ADHD group revealed significantly higher SDQ total score than the GD-ADHD group (median: 131(IQR: 110;151) vs. median: 101(IRQ: 90; 116.5) respectively; U = 4.189; p < .001). Furthermore, adults with GD and ADHD scored significantly higher scores across all SDQ subscales compared to those without ADHD (see **table 2 figure 2**). All the significances observed in the analysis for BAARS-IV total and subscales for both current and childhood symptoms were maintained after Benjamini-Hochberg's procedure, and survived even to the more conservative correction procedures (see **table**

Table 3. *Clinical characteristics about Gender Dysphoria of the entire GD sample and GD patients with and without ADHD*

	GD (n = 81)	GD+ADHD (n = 27)	GD-ADHD (n = 54)	U	p
GCLS Total	112 (104;121)	107 (96;119)	115 (108;122)	-2.196	.028*
Psychosocial functioning (GCLS)	30 (23.5;35)	24 (21;30)	30.5 (26.75;35)	-3.233	**.001***
Genitalia (GCLS)	17 (15;18)	16 (15:18)	17 (14.75;18)	-0.010	.992
Social gender role recognition (GCLS)	11 (9;13)	12 (10;13)	10.5 (9;12)	1.236	.217
Physical and emotional intimacy (GCLS)	13 (11;16)	13 (11;14)	13.5 (11;16)	-1.140	.254
Chest (GCLS)	8 (7;10)	9 (8;10)	8 (7;10)	1.668	.095
Other secondary sex characteristics (GCLS)	10 (7;11)	10 (8;11)	9 (7;11)	1.014	.311
Life satisfaction (GCLS)	22 (19;24)	21 (18;23)	23 (19.75;24)	-1.773	.076
GIGDQ	2.23 (2.07;2.48)	2.29 (2;2.6)	2.2 (2.07;2.46)	0.341	.733
GSI (BUT-A)	2.62 (2;3.24)	2.65 (1.74;3.32)	2.59 (2,04;3.21)	0.406	.685
WP (BUT-A)	2.75 (1.93;3.19)	2.63 (1.75;3.25)	2.75 (2;3.16)	-0.281	.779
BIC (BUT-A)	3.44 (2.44;4.11)	3.44 (2.22;3.89)	3.5 (2.53;4.11)	-0.642	.521
A (BUT-A)	2.17 (1.17;3.17)	1.83 (1;3.5)	2.18 (1.17;3.04)	0.181	.857
CSM (BUT-A)	2 (1.11;2.8)	2 (1;3)	1.9 (1.15;2.8)	0.105	.916
D (BUT-A)	2.33 (1.67;3.08)	2.67 (1.83;3.5)	2.07 (1.67;2.87)	1.812	.070
PST (BUT-B)	24 (18;29.5)	20 (14;27)	25.5 (20;31.25)	-2.066	.039*
PSDI (BUT-B)	2.86 (2.51;3.58)	2.78 (2.38;3.37)	2.98 (2.57;3.65)	-1.162	.245
Mouth (BUT-B)	1.17 (0.5;2.12)	1.17 (0.5;2.33)	1.17 (0.5;2)	0.449	.654
Face Shape (BUT-B)	1.83 (1;2.67)	1.17 (1;2.67)	2 (1;2.67)	-0.678	.498
Thighs (BUT-B)	1.8 (0.6;2.95)	1.6 (0.2;3.8)	2 (0.8;2.7)	-0.749	.454
Legs (BUT-B)	1.4 (0.6;2.2)	0.8 (0.4;1.8)	1.6 (0.8;2.5)	-2.061	.039*
Moustache (BUT-B)	5 (2;5)	3.33 (0.00;5)	5 (4.33;5)	-2.934	**.003***
Skin (BUT-B)	2 (0.5;3)	1.5 (0.00;2.5)	2 (0.5;3)	-1.032	.302
Blushing (BUT-B)	1.5 (0.6;2.4)	2 (0.6;2.6)	1.4 (0.7;2.2)	0.932	.351

Note. Data are expressed as median (interquartile range) for all variables. *p < .05. **p < .001. Variables whose significance survives the statistical correction are highlighted in **bold**. GD = Gender Dysphoria; ADHD = Attention-Deficit Hyperactivity Disorder; GCLS = Gender Congruence and Life Satisfaction Scale; GIGDQ = Gender Identity/Gender Dysphoria Questionnaire; BUT-A = Body Uneasiness Test – part A; GSI = Global Severity Index; WP = Weight Phobia; BIC = Body Image Concerns; A = Avoidance; CSM = Compulsive Self-Monitoring; D = Depersonalization; BUT-B = Body Uneasiness Test – part B; PST = Positive Symptom Total; PSDI = Positive Symptom Distress Index.
Variables that remained significant after correction for multiple comparisons using the Benjamini–Hochberg procedure were psychosocial functioning as measured by the GCLS, and body image concerns related to moustache as assessed with the BUT-B.

S1 in Supplementary Materials).

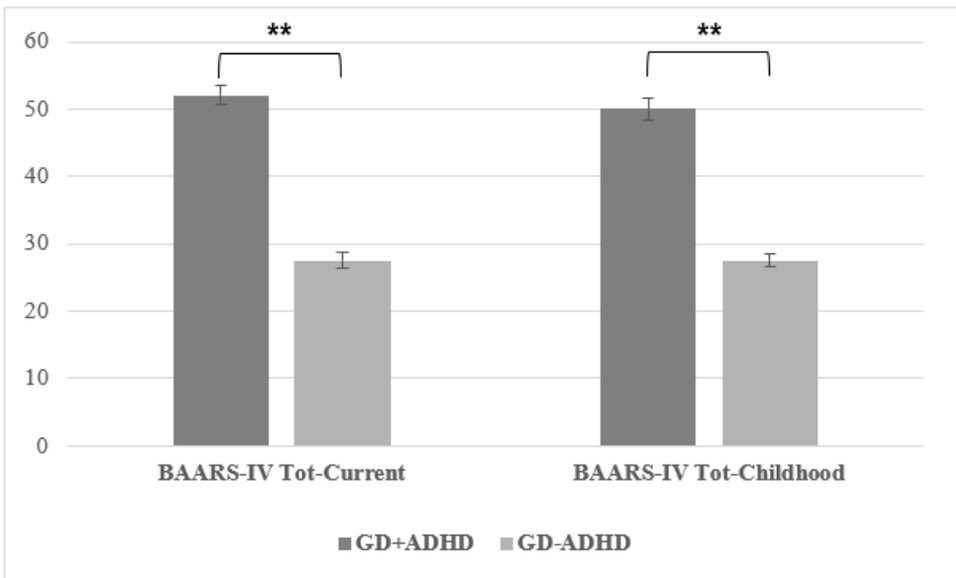
All SDQ total and subscale significances persisted after Benjamini–Hochberg correction and under more conservative procedures, except suicidal ideation, which remained significant only with the Benjamini–Hochberg's procedure (see **table S1**, Supplementary Materials).

Moreover, adults with GD ADHD reported greater difficulties in quality of life, with significantly greater scores on the GCLS total score (median: 107(IQR: 96;119) vs. median: 115(IRQ: 108; 122) respectively; U = -2.196; p = .028) and on the GSLC subscale for psychosocial functioning compared to adults with GD without ADHD (median: 24(IQR: 21;30) vs. median: 30.5 (IRQ: 26.75; 35) respectively; U = -3.233; p = .001) (see **table 2**). Regarding the body uneasiness, the GD+ADHD group experienced lower discomfort than the GD-ADHD group, showing significantly lower scores on the PST (BUT-B) scale (median: 20 (IQR: 14;27) vs. median: 25.5 (IRQ: 20; 31.25) respectively; U = -2.066; p = .039). Specifically, GD adults with ADHD reported significantly lower scores on the BUT-B subscale regarding for both "legs discomfort" (median: 0.8 (IQR: 0.4;1.8) vs. median: 1.6 (IRQ: 0.8; 2.5) respectively; U = -2.061; p = .039) and "moustache discomfort" (median: 3.33 (IQR: 0.00;5) vs. median: 5 (IRQ: 4.33;5) respectively; U = -2.934; p = .003) compared to those without ADHD. Conversely, no significant differences were found between GD+ADHD and GD-ADHD groups on the BUT-A and GIGDQ scales (see **table 1**). Concerning the analysis across Gender Dysphoria Symptoms Assessment, GCLS's subscale psychosocial functioning survived after both Benjamini-Hochberg's procedure and Holm-Bonferroni correction (see **table S1** in Supplementary Materials).

Linear regression analyses

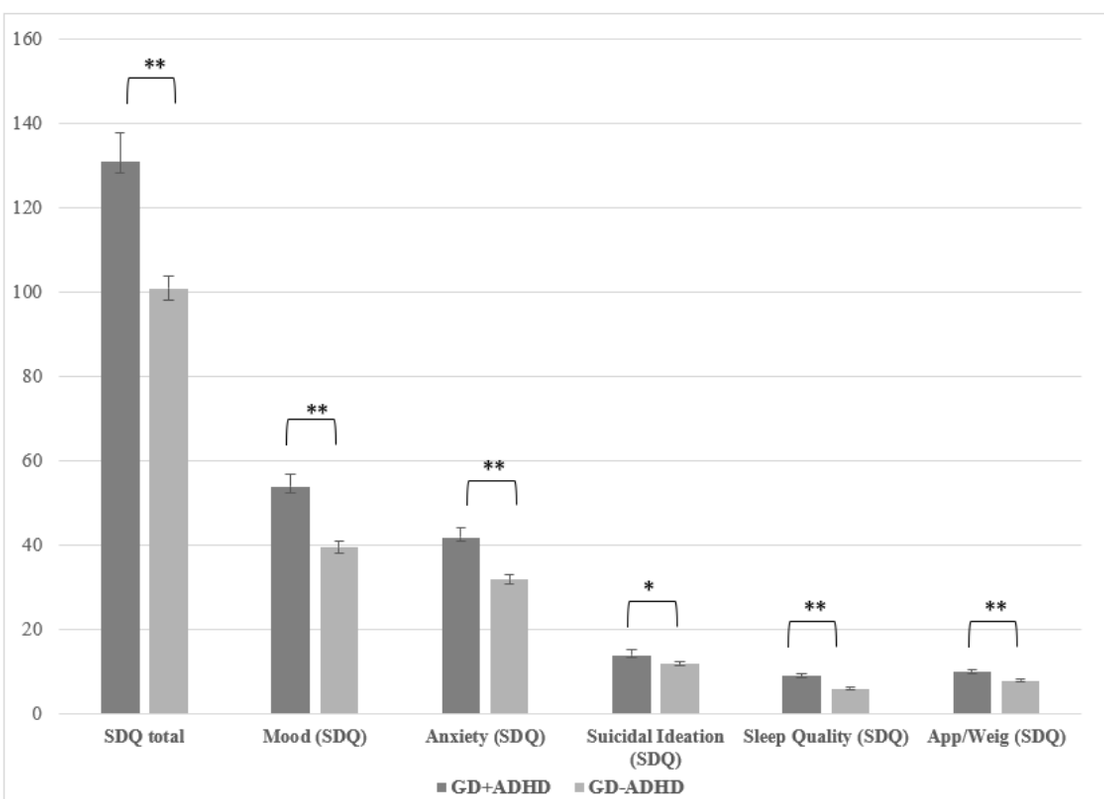
The gender dysphoria groups, with and without comorbid ADHD, differed significantly in gender assigned at birth and age. Therefore, linear regression analyses were conducted to evaluate the impact of these variables on ADHD, mood, and anxiety symptoms. Results indicated that gender assigned at birth was a significant predictor of BAARS-IV current total scores, as well as the BAARS-IV current inattentiveness and impulsivity subscale scores. Specifically, being assigned male at birth (AMAB) was associated with reductions of 2 to 10 points across these BAARS-IV measures.

Figure 1. *BAARS-IV total score and sub-scores mea between the two groups of GD individuals*



Note. **p < .001. Data are expressed as median for all variables (see **table 2** for interquartile ranges) with standard-error; BAARS-IV = Barkley Adult ADHD Rating Scale – IV; GD = Gender Dysphoria; ADHD = Attention-Deficit Hyperactivity Disorder.

Figure 2. *SDQ total score and sub-scores mean between the two groups of GD individuals*



Note. *p < .05; **p < .001. Data are expressed as mean for all variables. SDQ = Symptoms of Depression Questionnaire; GD = Gender Dysphoria; ADHD = Attention-Deficit Hyperactivity Disorder.

Additionally, gender assigned at birth was a significant predictor of the SDQ mood subscale score, with AMAB individuals showing an 8.8-point decrease. Both gender assigned at birth and age were significant predictors of the BAARS-IV current hyperactivity subscale score and the BAARS-IV childhood total score, with AMAB linked to reductions of 2 to 7 points and each additional year of age associated with increases of 0.2 to 0.8 points. Moreover, gender assigned at birth and age significantly predicted the SDQ total score and SDQ anxiety subscale score, with AMAB associated with reductions of 7 to 20 points and each additional

year of age associated with increases of 0.7 to 2 points. Lastly, age was a significant predictor of the BAARS-IV childhood inattentiveness subscale score, with each additional year of age contributing to a 0.56-point increase.

Discussion

To our knowledge, this is the first study to directly assess the presence of ADHD symptoms using validated tools in adult subjects with Gender Dysphoria in a clinical setting. We observed a high prevalence of ADHD association in this population. Indeed, one third (33.3%) of adults with GD showed the presence of significant ADHD symptoms in both childhood and adulthood. Also, the GD+ADHD group appeared to present a more complex clinical phenotype compared to the GD-ADHD. They showed significantly higher prevalence of other comorbidities, especially cannabis use disorder, dependent and borderline personality disorders, and a greater proportion of them were under pharmacological treatment. Additionally, individuals with GD+ADHD showed more depressive and anxiety symptoms, and greater difficulties in psychosocial functioning compared to subjects with Gender Dysphoria without ADHD. Finally, despite GD individuals with and without ADHD did not seem to differ on most of GD symptoms severity scores, GD participants without ADHD compared to those with ADHD showed significantly greater body uneasiness related to discomfort with mustaches and legs. However, these findings may be influenced by the higher prevalence of individuals being AMAB in the GD without ADHD group. Thus, in summary, the presence of ADHD appears to have an important clinical impact in individuals with gender dysphoria.

The ADHD prevalence in our sample is higher compared to that reported in two surveys available in the current literature. In a large survey on more than six thousand US residents recruited online through Amazon's Mechanical Turk, 0,8% identified themselves as transgender and among them 20% had past diagnosis of ADHD (Dawson et al., 2017). In a retrospective analysis of 540 individuals referred to a gender clinic in Melbourne between 2011 and 2016, 4.3% of the participants had been diagnosed with ADHD (Cheung et al., 2018). The prevalence of ADHD has increased worldwide in recent decades (Giacobini et al., 2018; Xu et al., 2018). Our results may reflect this trend. In fact, the data from the two studies cited were collected almost ten years prior to ours. Furthermore, the diagnosis of ADHD was based on medical reports predating the study period.

Our results showed a slightly higher prevalence compared with the current literature on gender dysphoria and with epidemiological studies in the healthy population. Concerning the GD group, AMAB people outnumbered AFAB people (being Assigned Female At Birth) in our sample, and this is in line with current literature on the population seeking gender affirming treatments (Arcelus et al., 2015). Further studies on larger and more gender-balanced samples may clarify whether a transgender subject's cognitive functioning correlates more with the gender he or she identifies with, or the gender assigned at birth.

Given that the GD sample is not balanced for gender and age, we evaluated the effects of these factors on ADHD, mood, and anxiety symptoms. A lower severity of these symptoms appears to be predicted by being AMAB, which is an unexpected finding based on existing literature. However, this aligns with more recent findings on the brain gender hypothesis, which suggests a gender-identity-associated-brain-organization, namely in a transgender brain more like the experienced gender even before hormone therapy (Altinay & Anand, 2020). Furthermore, younger age appears to predict lower symptom severity, as the GD group with ADHD was significantly older.

In our sample, 12% of participants met the diagnostic criteria for borderline personality disorder (BPD). BPD is known to be highlyassociated with both gender dysphoria (GD) and attention-deficit/hyperactivity disorder (ADHD). Indeed, there is considerable symptom overlap between BPD and GD—including emotional dysregulation, identity instability, and self-harming behaviors or suicide attempts—as well as between BPD and ADHD, particularly with regard to emotional dysregulation and impulsivity. These overlaps can make differential diagnosis particularly challenging and may increase the risk of misdiagnosis. To minimize this risk, we employed the Structured Clinical Interview for DSM-5 (SCID-5) to assess personality disorders, including BPD, and we used validated instruments to evaluate symptoms of ADHD and gender dysphoria. Therefore, it is plausible that the co-occurence observed with BPD in our sample reflects a genuine overlap rather than a diagnostic artifact. Moreover, the rate of BPD in our GD sample falls at the lower end of what has been reported in the current literature, further supporting the validity of the observed comorbidity (Meybodi & Jolfaei, 2022).

The elevated prevalence of ADHD observed in our sample aligns with the frequent co-occurrence of neurodevelopmental disorders and the well-established association between autism spectrum disorders and gender dysphoria (GD). Nonetheless, hypotheses regarding the relationship between ADHD and GD remain difficult to substantiate, given the limited and heterogeneous nature of the existing literature and the cross-sectional design of our study. A possible contributing factor is the high incidence of childhood trauma reported among individuals with either or both conditions (Biedermann et al., 2021; Peleikis et al., 2022), suggesting that early adverse experiences may play a role in the development of both ADHD and GD. Supporting this hypothesis, several studies have shown that childhood trauma can increase the risk of ADHD symptoms (Capusan et al., 2016). It is therefore plausible that the elevated prevalence of ADHD in our GD sample may, at least in part, reflect a high underlying burden of traumatic experiences. However, as trauma history was not assessed using validated instruments in our study, further research employing structured and standardized measures is warranted to clarify the mechanisms by which early trauma may contribute to these potentially interconnected psychopathological trajectories.

Several limitations can be identified in our study. The ADHD prevalence was determined on the basis of BAARS-IV total scores above the cut-offs for both current and childhood, rather than on the basis of clinical diagnosis. The use of a self-report instrument such as the BAARS-IV could potentially lead to both overdiagnosis (excessive self-report of ADHD symptoms) and underdiagnosis (e.g. patients with poor insight into their ADHD symptoms). However, across validation data, the BAARS-IV scales demonstrated a good internal consistency, with Cronbach's alpha values ranging from 0.776 to 0.914 for the BAARS-IV adulthood rating scale and from 0.912 to 0.914 for the BAARS-IV childhood rating scale. Moreover, these

results also indicate a good reliability in measuring ADHD symptoms, supported by three primary factors. First, the items included in the BAARS-IV scales align directly with the diagnostic criteria for ADHD in the DSM-5. Second, multiple clinical scales used to assess ADHD symptoms show high inter-correlation (Barkley, 2011). Furthermore, the BAARS-IV showed a very high concordance with clinical interviews in adults in a recent study (Robinson et al., 2024). Additionally, research has demonstrated adequate sensitivity and specificity for this rating scale, and it appeared sufficiently valid and predictive of ADHD, supporting its utility in clinical practice (Caterino et al., 2009; Magnússon et al., 2006; McGough & Barkley, 2004; Murphy & Gordon, 2006). The decision to use a screening tool rather than a full diagnostic interview for ADHD was based on the fact that individuals were referred to the clinic primarily for a gender dysphoria (GD) assessment. However, given that the clinic is also specialized in neurodevelopment disorders, ADHD was screened using a well-validated and reliable assessment instrument. Moreover, of the 27 GD individuals identified with ADHD using the BAARS-IV scale, 16 proceeded with further ADHD assessment, which confirmed the diagnosis. Consequently, the prevalence of ADHD—based on 16 out of 81 participants—remains considerably higher than expected, at approximately 19.75%. Although none of the participants were referred to the clinic for an ADHD assessment, we cannot rule out the hypothesis that the clinic's specialization in both GD and ADHD may have preferentially attracted individuals presenting with both conditions.

Conclusions

In conclusion, adult transgender individuals showed a high prevalence of ADHD and those with ADHD constitute a more complex subgroup (with more co-occurring conditions, depressive and anxiety symptoms, more suicidal ideation, and more difficulties in psychosocial functioning). It is therefore important to investigate ADHD symptoms in transgender individuals, and to include this condition in the global treatment.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

Almazan, A. N., & Keuroghlian, A. S. (2021). Association between gender-affirming surgeries and mental health outcomes. *JAMA Surgery*, *156*(7), 611–618. https://doi.org/10.1001/jamasurg.2021.0952

Altinay, M., & Anand, A. (2020). Neuroimaging gender dysphoria: A novel psychobiological model. *Brain Imaging and Behavior*, *14*(4), 1281–1297. https://doi.org/10.1007/s11682-019-00121-8

Arcelus, J., Bouman, W. P., Van Den Noortgate, W., Claes, L., Witcomb, G., & Fernandez-Aranda, F. (2015). Systematic review and meta-analysis of prevalence studies in transsexualism. *European Psychiatry*, *30*(6), 807–815. https://doi.org/10.1016/j.eurpsy.2015.04.005

Barkley, R. A. (2011). *Barkley Adult ADHD Rating Scale-IV (BAARS-IV)*. Guilford Press.

Barkley, R. A. (2012). Distinguishing sluggish cognitive tempo from attention-deficit/hyperactivity disorder in adults. *Journal of Abnormal Psychology*, *121*(4), 978–990. https://doi.org/10.1037/a0023961

Biedermann, S. V., Asmuth, J., Schröder, J., Briken, P., Auer, M. K., & Fuss, J. (2021). Childhood adversities are common among trans people and associated with adult depression and suicidality. *Journal of Psychiatric Research*, *141*, 318–324. https://doi.org/10.1016/j.jpsychires.2021.07.016

Bonferroni, C. (1936). *Teoria statistica delle classi e calcolo delle probabilità* (Vol. 8). Pubblicazioni del R. Istituto Superiore di Scienze Economiche e Commerciali di Firenze.

Capusan, A. J., Kuja-Halkola, R., Bendtsen, P., Viding, E., McCrory, E., Marteinsdottir, I., & Larsson, H. (2016). Childhood maltreatment and attention deficit hyperactivity disorder symptoms in adults: A large twin study. *Psychological Medicine*, *46*(12), 2637–2646. https://doi.org/10.1017/S0033291716000819

Caterino, L. C., Gómez-Benito, J., Balluerka, N., Amador-Campos, J. A., & Stock, W. A. (2009). Development and validation of a scale to assess symptoms of attention-deficit/hyperactivity disorder in young adults. *Psychological Assessment*, *21*(2), 152–161. https://doi.org/10.1037/a0015577

Cuzzolaro, M., Vetrone, G., Marano, G., & Garfinkel, P. E. (2006). The Body Uneasiness Test (BUT): Development and validation of a new body image assessment scale. *Eating and Weight Disorders*, *11*(1), 1–13. https://doi.org/10.1007/BF03327738

Cheung, A. S., Ooi, O., Leemaqz, S., Cundill, P., Silberstein, N., Bretherton, I., ... Zajac, J. D. (2018). Sociodemographic and clinical characteristics of transgender adults in Australia. *Transgender Health*, *3*(1), 229–238. https://doi.org/10.1089/trgh.2018.0019

Dawson, A. E., Wymbs, B. T., Gidycz, C. A., Pride, M., & Figueroa, W. (2017). Exploring rates of transgender individuals and mental health concerns in an online sample. *International Journal of Transgenderism*, *18*(3), 295–304. https://doi.org/10.1080/15532739.2017.1314797

Deogracias, J. J., Johnson, L. L., Meyer-Bahlburg, H. F., Kessler, S. J., Schober, J. M., & Zucker, K. J. (2007). The Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults. *Journal of Sex Research*, *44*(4), 370–379. https://doi.org/10.1080/00224490701586730

Dhejne, C., Van Vlerken, R., Heylens, G., & Arcelus, J. (2016). Mental health and gender dysphoria: A review of the literature. *International Review of Psychiatry*, *28*(1), 44–57. https://doi.org/10.3109/09540261.2015.1115753

Durwood, L., McLaughlin, K. A., & Olson, K. R. (2017). Mental health and self-worth in socially transitioned transgender youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 56*(2), 116–123.e2. https://doi.org/10.1016/j.jaac.2016.10.016

First, M. B., Skodol, A. E., Bender, D. S., & Oldham, J. M. (2017). User's guide for the *Structured Clinical Interview for the DSM-5 Alternative Model for Personality Disorders* (SCID-5-AMPD). American Psychiatric Publishing.

Giacobini, M., Medin, E., Ahnemark, E., Russo, L. J., & Carlqvist, P. (2018). Prevalence, patient characteristics, and pharmacological treatment of children, adolescents, and adults diagnosed with ADHD in Sweden. *Journal of Attention Disorders*, *22*(1), 3–13. https://doi.org/10.1177/1087054714554617

Hembree, W. C., Cohen-Kettenis, P. T., Gooren, L., Hannema, S. E., Meyer, W. J., Murad, M. H., Rosenthal, S. M., Safer, J. D., Tangpricha, V., & T'Sjoen, G. G. (2017). Endocrine treatment of gender-dysphoric/gender-incongruent persons. *Journal of Clinical Endocrinology & Metabolism, 102*(11), 3869–3903. https://doi.org/10.1210/jc.2017-01658

Heylens, G., Elaut, E., Kreukels, B. P., Paap, M. C., Cerwenka, S., Richter-Appelt, H., Cohen-Kettenis, P. T., Haraldsen, I. R., & De Cuypere, G. (2014). Psychiatric characteristics in transsexual individuals. *British Journal of Psychiatry, 204*(2), 151–156. https://doi.org/10.1192/bjp.bp.112.121954

Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian Journal of Statistics, 6*, 65–70.

IBM Corp. (2017). IBM SPSS Statistics (Version 25)

[Software].
Ignatova, E., Balasubramaniam, P., Nagata, J. M., Ganson, K. T., & Testa, A. (2024). Associations between gender identity, depression, obsessive-compulsive disorder, and ADHD symptoms. *Journal of Adolescent Health, 74*(3), S52–S53.
Jones, B. A., Bouman, W. P., Haycraft, E., & Arcelus, J. (2018). The Gender Congruence and Life Satisfaction Scale (GCLS). *International Journal of Transgenderism, 20*(1), 63–80. https://doi.org/10.1080/15532739.2018.1453425
Keselman, H. J., Cribbie, R., & Holland, B. (1999). The pairwise multiple comparison multiplicity problem. *Psychological Methods, 4*(1), 58–69.
Kranz, G. S., Zhang, B. B., Handschuh, P., Ritter, V., & Lanzenberger, R. (2020). Gender-affirming hormone treatment. *Cortex, 129*, 68–79. https://doi.org/10.1016/j.cortex.2020.04.005
Kristensen, Z., Drinkwater, C., Johnson, R., & Menkes, D. B. (2023). Considerations in the assessment and management of ADHD within the TGDNB population. *The New Zealand Medical Journal, 136*(1587), 46–51.
Magnússon, P., Smári, J., Sigurdardóttir, D., Baldursson, G., Sigmundsson, J., Kristjánsson, K., Sigurdardóttir, S., Hreidarsson, S., Sigurbjörnsdóttir, S., & Gudmundsson, O. O. (2006). Validity of self-report and informant rating scales of adult ADHD. *Journal of Attention Disorders, 9*(3), 494–503. https://doi.org/10.1177/1087054705283650
Marshall, E., Claes, L., Bouman, W. P., Witcomb, G. L., & Arcelus, J. (2016). Non-suicidal self-injury and suicidality in trans people. *International Review of Psychiatry, 28*(1), 58–69. https://doi.org/10.3109/09540261.2015.1073143
McGough, J. J., & Barkley, R. A. (2004). Diagnostic controversies in adult ADHD. *American Journal of Psychiatry, 161*(11), 1948–1956. https://doi.org/10.1176/appi.ajp.161.11.1948
Meerwijk, E. L., & Sevelius, J. M. (2017). Transgender population size in the United States. *American Journal of Public Health, 107*(2), e1–e8. https://doi.org/10.2105/AJPH.2016.303578
Meybodi, A. M., & Jolfaei, A. G. (2022). Evaluation of personality disorders in patients with gender identity disorder. *Journal of Family Medicine and Primary Care, 11*(6), 3196–3202. https://doi.org/10.4103/jfmpc.jfmpc_1931_21
Millet, N., Longworth, J., & Arcelus, J. (2017). Prevalence of anxiety symptoms in the transgender population. *International Journal of Transgenderism, 18*(1), 27–38.
Murphy, K. R., & Gordon, M. (2006). *Assessment of adults with ADHD. In Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (pp. 425–450).
Nobili, A., Glazebrook, C., Bouman, W. P., Glidden, D., Baron-Cohen, S., Allison, C., Smith, P., & Arcelus, J. (2018a). Autistic traits in treatment-seeking transgender adults. *Journal of Autism & Developmental Disorders, 48*(12), 3984–3994. https://doi.org/10.1007/s10803-018-3557-2
Nobili, A., Glazebrook, C., & Arcelus, J. (2018b). Quality of life of treatment-seeking transgender adults. *Reviews in Endocrine & Metabolic Disorders, 19*(3), 199–220. https://doi.org/10.1007/s11154-018-9459-y
Pastore, M., Nucci, M., & Galfano, E. G. (2005). False discovery rate: Applicazione di un metodo alternativo per i confronti multipli. *Giornale Italiano di Psicologia, 32*(3), 639–651.
Pedrelli, P., Blais, M. A., Alpert, J. E., Shelton, R. C., Walker, R. S., & Fava, M. (2014). Reliability and validity of the SDQ. *CNS Spectrums, 19*(6), 535–546. https://doi.org/10.1017/S1092852914000406
Peleikis, D. E., Fredriksen, M., & Faraone, S. V. (2022). Childhood trauma in adults with ADHD. *Nordic Journal of Psychiatry, 76*(4), 272–279. https://doi.org/10.1080/08039488.2021.1962973
Prunas, A., Mognetti, M., Hartmann, D., & Bini, M. (2013). La valutazione della disforia di genere. *Rivista di Sessuologia Clinica, 20*(1), 35-51.
Robinson, A. D., Finley, J. C. A., Phillips, M. S., Ulrich, D. M., Cerny, B. M., Ovsiew, G. P., Pliskin, N. H., & Soble, J. R. (2024). Examining concordance between the BAARS-IV and clinical assessment. *Journal of Psychopathology & Behavioral Assessment, 46*(4), 626–633.
Salerno, L., Burian, I., & Pallanti, S. (2017). SDQ Italian validation. *Journal of Psychopathology, 23*(4), 160–171.
Scheim, A. I., Perez-Brumer, A. G., & Bauer, G. R. (2020). Gender-concordant identity documents and mental health. *The Lancet Public Health, 5*(4), e196–e203.
Steensma, T. D., Cohen-Kettenis, P. T., & Zucker, K. J. (2018). Sex ratio change in children referred for gender dysphoria. *Journal of Sex & Marital Therapy, 44*(7), 713–715.
Strang, J. F., Kenworthy, L., Dominska, A., Sokoloff, J., Kenealy, L. E., Berl, M., Walsh, K., Menvielle, E., Slesaransky-Poe, G., Kim, K. E., Luong-Tran, C., Meagher, H., & Wallace, G. L. (2014). Gender variance in autism and ADHD. *Archives of Sexual Behavior, 43*(8), 1525–1533.
Terada, S., Matsumoto, Y., Sato, T., Okabe, N., Kishimoto, Y., & Uchitomi, Y. (2011). Suicidal ideation among patients with gender identity disorder. *Psychiatry Research, 190*(1), 159–162.
Xu, G., Strathearn, L., Liu, B., Yang, B., & Bao, W. (2018). Twenty-year trends in ADHD. *JAMA Network Open, 1*(4), e181471.