Trends
in Psychiatry and Psychotherapy

# JOURNAL ARTICLE PRE-PROOF
# (as accepted)

Original Article

## Co-occurring mental health disorders in a Brazilian sample of adults with autism spectrum disorder: A focus on gender disparities

João Victor Betti Paiva, Helena de Souza Beserra Silva, Rosane Lowenthal, Tatiana Pontrelli Mecca

http://doi.org/10.47626/2237-6089-2025-1229

Original submitted Date: 17-Oct-2025

Accepted Date: 15-Jan-2026

# Co-occurring mental health disorders in a Brazilian sample of adults with autism spectrum disorder: A focus on gender disparities

**Short title:** Co-occurring disorders in ASD Brazilian adults

**João Victor Betti Paiva[1], Helena de Souza Beserra Silva[1], Rosane Lowenthal[2], Tatiana Pontrelli Mecca[1]**

[1] Faculdade de Ciências Médicas da Santa Casa de São Paulo, Departamento de Saúde Mental, São Paulo, SP, Brasil.
[2] Faculdade de Ciências Médicas da Santa Casa de São Paulo, São Paulo, SP, Brasil.

**Corresponding Author:**
Tatiana Pontrelli Mecca
Faculdade de Ciências Médicas da Santa Casa de São Paulo
Departamento de Saúde Mental
Rua Dona Veridiana, 55, Vila Buarque
CEP: 01238-010
São Paulo, SP, Brasil
E-mail: tati.mecca@gmail.com or tatiana.mecca@fcmsantacasasp.edu.br
Telefone: +55 (11) 96389-0909

**Abstract**

**Objective:** Adults with Autism Spectrum Disorder (ASD) often present with core symptoms and co-occurring conditions that require multidisciplinary support. The objective of this study is to describe the sociodemographic and clinical profile of a sample of Brazilian adults with ASD, with a focus on the prevalence of co-occurring mental health disorders and the investigation of gender-related disparities.

**Methods:** A total of 117 adults with a previous diagnosis of ASD (60.7% female; mean age = 31.84, SD = 10.03; age range: 18–61 years) were recruited by convenience sampling. Participants completed a sociodemographic and

clinical history questionnaire. We analyzed associations between co-occurring mental health disorders and biological sex.

**Results:** Most participants had completed at least high school (95.7%). Co-occurring neurodevelopmental disorders were present in 35.9% of the sample. ADHD was the most common (30.8%). Co-occurring mental health disorders were reported by 75.2% of participants, with anxiety disorders being the most frequent (71.8%). A statistically significant gender disparity was observed, showing that women had a significantly higher prevalence of at least one mental health disorder (85.9% vs. 58.7%), anxiety (83.1% vs. 54.3%), and depression (62% vs. 37%) compared to men.

**Conclusion:** While not generalizable due to the convenience sampling method, these results contribute to a growing body of evidence on the high rates of co-occurring mental health disorders in adults with ASD, especially in women. This study supports the call for an expanded research agenda in Brazil to better understand the clinical reality and guide future support strategies for this population.

**Keywords:** Autism Spectrum Disorder, Adult, Mental Disorders, Sex Factors.

## Introduction

According to the revised text of the fifth edition of the diagnostic and statistical manual of mental disorders (DSM-5-TR),[1] autism spectrum disorder (ASD) is characterized by “persistent deficits in communication and social interaction”, accompanied by “restricted and repetitive patterns of behavior, interests, or activities”. Approximately 61.8 million people worldwide were living with ASD in 2021, corresponding to an age-standardized prevalence of 0.79% of the total population, 0.5% of the women and 1% of the men. Furthermore, in Southern Latin America, the prevalence rates were 1% of the total population, 0.66% of the women and 1.45% of the men.[2] Finally, according to recent data presented by the “Instituto Brasileiro de Geografia e Estatística” (IBGE), 2.4 million people in Brazil reported an ASD diagnosis (based on self-reported census data). A gender disparity was evident: prevalence was higher in men (1.5%) than in women (0.9%), accounting for 1.4 million men and 1 million women,[3] a finding that aligns with international prevalence trends.[2]

Co-occurring mental health disorders, such as depression and anxiety, are highly prevalent in individuals with ASD across the lifespan. The umbrella review by Hossain et al.[4] found studies that estimate the prevalence of at least one mental health disorder at 55–94%. More specifically, Lai et al.[5] describe an aggregate prevalence of 20% for anxiety disorders, and 11% for depressive disorders. These data contrast with those from the general population, where prevalence rates are considerably lower for the same disorders. According to data from Global Burden of Disease (GBD) 2021 study, the global age-standardized prevalence for anxiety disorders was approximately 4.4%, while for depressive disorders it was 4.0%.[6]

Furthermore, specifically regarding autistic adults, age must be taken into consideration when assessing the prevalence of other mental disorders in autism. Recent reviews advocate for the need for more comprehensive studies due to a certain heterogeneity found in the literature.[7,8] However, some specific prevalence estimates are available for the adult population. Hollocks et al.[8] estimate the current and lifetime prevalence at 27% and 42% for any anxiety disorder and 23% and 37% for depressive disorders. There are also studies showing how these comorbidities evolve over the course of life, with depression showing a significant increase in prevalence with aging, which may reflect difficulties in maintaining continuity of care or an increase in stressors over the course of life.[9]

Another important factor is the influence of biological sex on the presentation of autism and co-occurring mental disorders. For example, autistic women tend to engage in more “camouflaging” than men.[10,11] This effort to fit into a neurotypical world is frequently associated with exhaustion and mental suffering,[12] factors that may contribute to the higher prevalence of mental health conditions observed in this group.[11,13–16]

This pattern is also reflected in sex-related differences in the prevalence of mood and anxiety disorders. As in the study conducted by Vadukapuram et al.,[17] which found, in a sample of adolescents with ASD, a prevalence of 44.1% in women vs. 37.4% in men for mood disorders and a prevalence of 37.0% in women vs. 29.4% in men for anxiety disorders. Fombonne et al.,[18] in a study conducted with the “SPARK cohort” in the United States, found 51.6% in

women vs. 38.3% in men for any anxiety disorder and 35.9% in women vs. 25.3% in men for any affective disorder.

Within the context of Latin American countries, it is essential to consider the challenges inherent to living in a developing nation, including barriers to healthcare access and socioeconomic inequalities. Several studies have recently been conducted to quantify these problems and their possible implications for the diagnosis and management of ASD. Barriers identified included long waiting lists, high costs, lack of specialized services, and a decline in care as people age. These barriers may contribute to higher comorbidity rates and diagnostic delays.[19–22]

Given the high prevalence of co-occurring mental health disorders in this population, especially among women, and the growing interest and need to estimate these rates in Latin American samples, this study describes sociodemographic aspects and clinical characteristics in a Brazilian sample of autistic adults collected by convenience. This study aims to characterize the prevalence of co-occurring mental and neurodevelopmental disorders in a Brazilian sample of autistic adults and to examine associations with sex. With these data, this study adds to the growing literature on comorbid mental health disorders in the Latin American autistic population.

## Method

### Study design

A cross-sectional, correlational, and descriptive study with a non-probabilistic sample selected by convenience.

### Ethical aspects

The research project was approved by the authors' institutional review board, CAAE: XXXXXXXX.X.XXXX.XXXX (protocol number redacted for blind review). All participants provided informed consent prior to inclusion.

### Sample

A total of 117 individuals diagnosed with ASD participated in the study. Participants were selected by convenience and ranged in age from 18 to 61

years (M = 31.84, SD = 10.03). The sample included 71 women (60.7%) and 46 men (39.3%). Inclusion criteria were a prior medical diagnosis of ASD, with or without comorbid conditions, regardless of language ability, intellectual disability, or treatment history. Only individuals capable of understanding and responding to the questionnaires were included considering the educational level. Although inclusion criteria were broad regarding clinical profiles, the practical requirement of a self-report format limited participation to individuals with sufficient reading comprehension to complete the questionnaires.

**Instruments**

**Sociodemographic and clinical questionnaire:** This instrument is a self-report questionnaire developed specifically for the present study by our research team. The instrument consisted of structured multiple-choice questionnaire. Since this questionnaire was designed to collect sociodemographic data and clinical history rather than to measure psychometric constructs, formal validity and reliability studies were not conducted. It aimed to gather general information on participants' identification, medical and family history, educational background, employment, interpersonal relationships, and daily activities. For the medical history, it contained questions about current and lifetime prevalence of co-occurring mental health disorders. The development process involved a review of the literature and the collaboration of a young adult with ASD to assist in adapting the questionnaire's language for better comprehension. The autistic collaborator contributed by reviewing item wording, adjusting the response format, and testing usability, ensuring the instrument was clear and respectful. This participatory approach aligns with the principle of "Nothing about us without us,"[23] widely endorsed in inclusive autism research.[24] Engaging autistic individuals in the review and adaptation of the questionnaire helped to enhance its accessibility and validity for the target population. The research group comprises undergraduate students in Medicine and Speech Therapy, graduate students (Master's and PhD), Psychiatry residents, and faculty members.

## Procedure

Participants were recruited online through a convenience sampling method. The study was disseminated via informational posts on social media platforms and within online groups and communities for autistic adults in Brazil. Interested individuals were directed to a secure link on the RedCap platform, where the data collection was managed.

Data collection was conducted online between August 2021 and July 2022. Diagnosis verification was based on confirmation via a formal medical report uploaded to REDCap, which was accepted regardless of the issuance date. Only participants who submitted a medical report confirming the diagnosis and completed the full questionnaire regarding comorbidity variables were included in the data analysis. A total of 155 responses were initially received; 121 participants provided a formal medical diagnosis (34 individuals with self-reported diagnosis were excluded), and of these, 117 completed all required variables (excluding 4 forms with incomplete data).

The initial page of the link presented the full Informed Consent Form (ICF). After providing electronic consent to indicate their voluntary participation, individuals gained access to the self-report sociodemographic and clinical questionnaire. A PDF copy of the ICF was also made available for participants to download for their personal records. The average time to complete the questionnaire was approximately 20 minutes (estimated based on the autistic collaborator's pilot).

Data were collected on participants' biological sex. In the discussion section, the term 'gender' is used when interpreting findings within a sociocultural context.

## Language and AI-assisted Writing

This manuscript was reviewed and edited for English language, style, and clarity with assistance from Google's Gemini language model. The authors assume full responsibility for the final content of the publication.

## Data analysis

Data were analyzed using descriptive statistics to characterize the sample in terms of sociodemographic and clinical variables. Frequencies and percentages were calculated for categorical variables. Associations between biological sex and co-occurring mental health and neurodevelopmental disorders were examined using chi-square tests. The odds ratio (OR) was calculated using cross-tabulation of presence/absence of diagnosis by biological sex. For 2x2 contingency tables containing a cell with a zero count, the Haldane-Anscombe continuity correction (which involves adding 0.5 to each cell) was applied prior to the calculation of the OR and its CI. The significance level was set at $p < .05$. All statistical analyses were conducted using SPSS version 21.0 (IBM Corp, Armonk, NY, USA).

## Results

The final sample consisted of 117 participants aged between 18 and 61 years (M = 31.84; SD = 10.03), including 71 females (60.7%) and 46 males (39.3%). The female-to-male ratio was approximately 1.54:1. There was no statistically significant difference in age between men and women in the sample ($t(113) = 1.551$; $p= 0.124$). The diagnoses of ASD in this sample were made by different medical professionals. ASD diagnoses were made by psychiatrists (67.5%), neurologists (22.2%), or other specialists (10.3%), reflecting the multidisciplinary nature of the diagnostic process.

As shown in Table 1, the distribution of participants according to educational level indicated that the majority had completed high school or college education, while a smaller proportion had only completed elementary or middle school. This pattern was similar across biological sexes, with no substantial differences between men and women. A Pearson's chi-square test was conducted to assess the association between biological sex and educational level. The results indicated no statistically significant association between the variables ($\chi^2(3) = 6.832$, $p = 0.077$).

**Table 1 -** Distribution of participants by educational level and biological sex in the sample

| **Educational level** | **Male (N=46)** | **Female (N=71)** | **Total (n=117)** |
|---|---|---|---|
| Elementary School complete / Middle School incomplete (Level 1) | 2 (4.3%) | 0 (0.0%) | 2 (1.7%) |
| Middle School / High School incomplete (Level 2) | 2 (4.3%) | 1 (1.4%) | 3 (2.6%) |
| High school complete / College education incomplete (Level 3) | 21 (45.7%) | 24 (33.8%) | 45 (38.5%) |
| College education complete (Level 4) | 21 (45.7%) | 46 (64.8%) | 67 (57.3%) |

Table 2 illustrates that 75.2% of the sample presented at least one mental health disorder and 35.9% presented a neurodevelopmental disorder, with 28.2% having co-occurring conditions. These findings highlight the high prevalence and co-occurrence of such disorders in the sample. An analysis of the association between mental health disorders and biological sex indicated that a greater proportion of women were affected compared to men. Due to the small number of participants reporting tic disorders, dyslexia, intellectual disability, motor disorders, or language disorders, sex-based prevalence for these comorbidities were not calculated (fewer than 6 cases per group).

**Table 2 -** Prevalence of mental and neurodevelopmental disorders in the sample, and a sex-based comparison

**The correlation is significant at the p < 0.05 level*

| Diagnoses | Overall Sample (N=117) | Women (N=71) | Men (N=46) | $\chi^2$ (p) |
|---|---|---|---|---|
| **Mental health disorders** | | | | |
| Any mental health disorder | 88 (75.2%) | 61 (85.9%) | 27 (58.7%) | 11.094 (**0.001**) * |
| Anxiety | 84 (71.8%) | 59 (83.1%) | 25 (54.3%) | 11.395 (**0.001**) * |
| Depression | 61 (52.1%) | 44 (62%) | 17 (37%) | 7.00 (**0.008**) * |
| OCD (obsessive-compulsive disorder) | 15 (12.8%) | 10 (14.1%) | 5 (10.9%) | 0.258 (0.611) |
| BD (bipolar disorder) | 9 (7.7%) | 6 (8.5%) | 3 (6.5%) | 0.146 (0.702) |
| Tic disorder | 2 (1.7%) | — | — | — |
| **Neurodevelopmental disorders** | | | | |
| Any neurodevelopmental disorder | 42 (35.9%) | 28 (39.4%) | 14 (30.4%) | 0.983 (0.321) |
| ADHD (attention-deficit/hyperactivity disorder) | 36 (30.8%) | 26 (36.6%) | 10 (21.7%) | 2.902 (0.880) |
| Dyslexia | 6 (5.1%) | — | — | — |
| Motor disorders | 3 (2.6%) | — | — | — |
| Language disorders | 2 (1.7%) | — | — | — |
| Intellectual disability | 2 (1.7%) | — | — | — |

This data reveals significant differences between sexes in the prevalence of certain mental health disorders within the sample. Having any mental disorder (defined as the presence of Anxiety, depression, OCD, BD and tic disorder), anxiety or depression were notably more common among women, with statistically significant differences observed. In contrast, no significant sex differences were found for OCD, BD, tic disorders, or ADHD. Although ADHD was more prevalent in women compared to men, this difference did not reach statistical significance.

Furthermore, as shown in Table 3, odds of women having any mental disorder were 4.29 (95% CI: 1.76 – 10.45) times higher than those of men. Specifically, women were 4.13 (95% CI: 1.77 – 9.66) times more likely to suffer

from anxiety, and 2.78 (95% CI: 1.29 – 5.99) times more likely to experience depression compared to their male counterparts. These three findings are the statistically significant associations with female sex, as their confidence intervals did not include 1. Thus, statistically significant associations were observed between biological sex and the prevalence of anxiety, depression, and any mental disorder, with women showing higher odds of being diagnosed in this sample.

**Table 3 -** Odds ratio according to biological sex for co-occurring mental health and neurodevelopmental disorders

| Diagnoses | Odds Ratio | Confidence Interval (CI) 95% |
|---|---|---|
| **Mental health disorders** | | |
| Any mental health disorder | 4.29 | 1.76 – 10.45 |
| Anxiety | 4.13 | 1.77 – 9.66 |
| Depression | 2.78 | 1.29 – 5.99 |
| OCD (obsessive-compulsive disorder) | 1.34 | 0.43 – 4.22 |
| BD (bipolar disorder) | 1.32 | 0.31 – 5.58 |
| Tic disorder | 3.35 | 0.16 – 71.28 |
| **Neurodevelopmental disorders** | | |
| Any neurodevelopmental disorder | 1.49 | 0.68 – 3.27 |
| ADHD (attention-deficit/hyperactivity disorder) | 2.08 | 0.89 – 4.87 |



## Discussion

The present study aimed to describe sociodemographic characteristics and clinical history from a convenience sample of 117 autistic adults. It was motivated by the lack of research focused on co-occurring mental health disorders in autistic adults in Brazil.

The high proportion of participants in the sample with a high level of education, with 112 (95.7%) of the sample having completed at least high school, implies a specific profile for this sample. Given this high educational attainment, it is likely that the sample consists of individuals without intellectual disability, although this was not empirically tested. While educational level is typically considered a protective factor in the general population,[25,26] in autistic adults this relationship is more nuanced. Previous research indicates that higher cognitive and adaptive functioning levels are often associated with increased severity of internalizing symptoms, such as anxiety and depression.[27–29] Therefore, although we cannot directly infer IQ from our data, it is plausible that similar mechanisms—such as greater insight into social difficulties—may also be relevant to our highly educated sample.

This sample was composed mostly of women (60.7%), which contrasts with epidemiological literature, estimating a ratio of 3-4 men for every woman with ASD.[30] However, it must be considered that this is a convenience sample, using mainly social media as a means of disseminating the research. This is relevant because previous studies indicate that online recruitment strategies in autism research consistently yield higher female-to-male ratios compared to traditional clinical or community-based samples.[31]

The prevalence findings of this study are consistent with those found in the literature. In this sample, 75.2% of participants had at least one co-occurring mental disorder. This result falls within the range found in the studies included in the umbrella review by Hossain et al.[4] (55-94%) and close to the result found in the study by Fombonne et al.[18] with autistic adults from the “SPARK” cohort in the United States (67.2%). Notably, the prevalence rates for depression (52.1%) and anxiety (71.8%) in our sample exceed even the higher estimates reported in the literature. For example, studies included in the Hossain et al.[4] umbrella review reported prevalence rates as high as 47.1% for depression and 54% for anxiety.

To address this discrepancy, it must be considered the high prevalence of women in this sample (60.7%), which may explain why the prevalence rates were higher than in the literature. It is well known that in the general population, women have a higher prevalence of mental disorders than men (GBD 2021 data shows a prevalence of depression in the 20–24 age group of approximately 5.7% in

females vs. 3.7% in males),[6] which also occurs in the autistic population. The literature shows that autistic women not only have a higher prevalence of these disorders, especially anxiety and depression, but also express them differently.[17,18,32] This also highlights the relevance of sex-related differences in the prevalence of mental health disorders among autistic adults.

In fact, the findings of this study corroborate these data, showing that women in this sample have 4.29 times higher odds of having at least one mental disorder, 4.13 times higher odds of having anxiety, and 2.78 times higher odds of having depression. In the literature, these numbers are not as significant, but they remain high with some variation. In a retrospective cohort study with children and adolescents in Florida, adjusted ORs of 1.18 for anxiety and 1.13 for mood disorders were found.[33] A Danish study analyzing lifetime diagnoses using the "Danish National Patient Registry" found an OR of 2.2 for anxiety.[34] Finally, a study with a Swedish cohort analyzing previous diagnoses prior to ASD diagnosis found an adjusted OR of 1.18 for any mental disorder, 2.48 for anxiety, and 1.76 for depression.[35] These findings contribute to a better characterization of how mental health conditions are distributed across sexes in autistic adults.

Considering the high prevalence rates found in this study, it is crucial to address the biases inherent in our sampling method, which are common limitations in this field of research.[7] Firstly, a selection bias may be present, as individuals with a higher burden of symptoms tend to be more engaged with mental health topics online, increasing their likelihood of being recruited. Secondly, an access bias is also a limitation; internet-based recruitment often favors participants with higher educational and income levels, which can alter the sample's sociodemographic composition, as reflected in the high educational level of our participants. Finally, a diagnostic bias must be considered, as clinical or self-selected samples frequently report higher comorbidity rates than population-based samples. Therefore, the prevalence rates observed may reflect a sample with greater psychological distress rather than the true prevalence in the autistic population in Brazil.

This higher prevalence of mental disorders in autistic individuals can be explained by several factors, including biological, environmental, and clinical ones. From a biological point of view, we can mention some common risk factors

such as genetics and perinatal issues that can result in dysregulation of neural circuits responsible for executive functions, emotional processing, and social cognition.[36–38] Regarding environmental factors, one hypothesis for these findings is that camouflaging behaviors and the challenges described by minority stress theory (e.g., meeting social and gender expectations), especially for women, act as chronic stressors associated with mental disorders.[11,13–15] In addition, the core characteristics of ASD themselves, such as difficulty in social interaction and communication, act as stressors on mental health.[14,15,39,40]

Considering these risk factors, the findings should also be interpreted in the context of the socioeconomic background in which the sample was collected. While our sample was recruited online (implying digital access), the systemic barriers in Brazil likely contribute to the high overall symptom burden and the late diagnosis observed in adulthood across the cohort.[19–22] Recent studies conducted with autistic children in Latin America have begun to take these difficulties into account, such as long waiting lists, high costs, and the lack of specialized services, which hinder the adequate longitudinal follow-up necessary for ASD and its comorbidities.[19–22]

The limitations of this study also highlight important recommendations for future studies. First, the results found in a convenience sample cannot be generalized to the general population, but the high prevalence rates found point to the need for analyses with more representative samples. Likewise, the cross-sectional design of the study precludes causal inference, another point that longitudinal studies can explore for a better understanding of the factors involved in mental health in ASD in Latin America. Furthermore, the limited sample size precluded subgroup analyses, such as comparisons between men and women stratified by age or educational level. Additionally, information on the geographic region of residence (state or city) was not collected. This limitation prevented the assessment of regional disparities regarding diagnostic access and service availability. Finally, all data collected were self-reported, and variables such as IQ were not controlled, factors that may have influenced the results and should be considered in future research.

## Conclusion

However, despite these limitations, convenience samples provide valuable initial data. They are useful for characterizing the clinical profile of a specific group, generating hypotheses, and helping to identify local service needs, especially in low-and middle-income countries (LMIC) where specialized data remains scarce, such as Brazil. Crucially, considering the profound socioeconomic disparities in the region, these initial findings raise pivotal questions to be refined in future research: specifically, to what extent educational level predicts better access to services or functions as a protective factor, mitigating mental health risks in in a landscape of limited resources. Furthermore, they allow for subgroup comparisons (such as the gender disparities found in our study), which can yield initial and preliminary findings even in non-representative samples when reported transparently.

In conclusion, this study addressed its objectives to characterize the prevalence of co-occurring mental and neurodevelopmental disorders in a Brazilian sample of autistic adults and to examine associations with sex. By delineating this specific profile, the study contributes to the growing literature on the prevalence of mental disorders in autistic adults, focusing on a Brazilian sample. The key finding of this study is the significantly higher odds found in autistic women of presenting depression and anxiety when compared to men. These findings support the call for an expanded research agenda in Latin America, to better understand the factors associated with mental health conditions in this population.

## Acknowledgments

The authors thank the “Conselho Nacional de Desenvolvimento Científico e Tecnológico” (CNPq) for the scientific initiation scholarships granted to two of the authors.

## Source of Support:

This research was supported by scientific initiation scholarships from the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brazil, granted to João Victor Betti Paiva and Helena de Souza Beserra Silva.

**Conflict of Interest Declaration:**

The authors have no conflicts of interest to declare.

**Author Contributions:**

- **João Victor Betti Paiva**: Conceptualization (Equal); Data curation (Equal); Formal analysis (Equal); Funding acquisition (Equal); Investigation (Equal); Methodology (Equal); Software (Equal); Validation (Equal); Visualization (Equal); Writing - original draft (Lead).
- **Helena de Souza Beserra Silva**: Data curation (Equal); Formal analysis; (Supporting); Funding acquisition (Equal); Investigation (Equal)
- **Rosane Lowenthal:** Conceptualization (Equal); Data curation (Equal); Investigation (Supporting); Methodology (Equal); Project administration (Equal); Supervision (Supporting); Writing - review & editing (Supporting)
- **Tatiana Pontrelli Mecca**: Conceptualization (Lead); Data curation (Lead); Formal analysis (Lead); Investigation (Lead); Methodology (Lead); Project administration (Lead); Software (Lead); Supervision (Lead); Validation (Lead); Visualization (Lead); Writing - original draft (Lead); Writing - review & editing (Lead).

**Ethics Committee Approval:** The research project was submitted to the scientific committee of the Department of Mental Health at the “Faculdade de Ciências Médicas da Santa Casa de São Paulo” (FCMSCSP) and approved by the Ethics and Research Committee (CAAE: 46117621.5.0000.5479).

**Handling Editor:** Dr. Carmem Gottfried

**References**

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed., text rev. Washington, DC: American Psychiatric Publishing; 2022.
2. Santomauro DF, Erskine HE, Herrera AMM, Miller PA, Shadid J, Hagins H, et al. The global epidemiology and health burden of the autism spectrum:

Findings from the global burden of disease study 2021. Lancet Psychiatry. 2025 Feb 1;12(2):111–21.

3. Instituto Brasileiro de Geografia e Estatística. Censo demográfico 2022: pessoas com deficiência e pessoas diagnosticadas com transtorno do espectro autista: Resultados preliminares da amostra [Internet]. Rio de Janeiro: IBGE; 2025 [cited 2025 Sept 26]. Available from: https://biblioteca.ibge.gov.br/index.php/biblioteca-catalogo?view=detalhes&id=2102178
4. Hossain MM, Khan N, Sultana A, Ma P, McKyer ELJ, Ahmed HU, et al. Prevalence of comorbid psychiatric disorders among people with autism spectrum disorder: An umbrella review of systematic reviews and meta-analyses. Psychiatry Res. 2020 May;287:112922.
5. Lai MC, Kassee C, Besney R, Bonato S, Hull L, Mandy W, et al. Prevalence of co-occurring mental health diagnoses in the autism population: A systematic review and meta-analysis. Lancet Psychiatry. 2019 Oct;6(10):819–29.
6. Zhang Z, Chen X, Wu S, Chen X, Wang X, Liu C, et al. Global, regional and national burden of anxiety and depression disorders from 1990 to 2021, and forecasts up to 2040. J Affect Disord. 2025 Sept 19;393:120299.
7. Curnow E, Rutherford M, Maciver D, Johnston L, Prior S, Boilson M, et al. Mental health in autistic adults: A rapid review of prevalence of psychiatric disorders and umbrella review of the effectiveness of interventions within a neurodiversity informed perspective. PLOS ONE. 2023 July 13;18(7):e0288275.
8. Hollocks MJ, Lerh JW, Magiati I, Meiser-Stedman R, Brugha TS. Anxiety and depression in adults with autism spectrum disorder: A systematic review and meta-analysis. Psychol Med. 2019 Mar;49(4):559–72.
9. McCauley JB, Elias R, Lord C. Trajectories of co-occurring psychopathology symptoms in autism from late childhood to adulthood. Dev Psychopathol. 2020 Oct;32(4):1287–302.
10. Hull L, Petrides KV, Mandy W. The female autism phenotype and camouflaging: A narrative review. Rev J Autism Dev Disord. 2020 Dec 1;7(4):306–17.

11. Cook J, Hull L, Crane L, Mandy W. Camouflaging in autism: A systematic review. Clin Psychol Rev. 2021 Nov 1;89:102080.
12. Ai W, Cunningham WA, Lai MC. Reconsidering autistic 'camouflaging' as transactional impression management. Trends Cogn Sci. 2022 Aug 1;26(8):631–45.
13. Grzeszak A, Pisula E. Experiences of females on the autism spectrum through the perspective of minority stress theory: A review. Front Psychiatry. 2025 July 18;16:1578963.
14. Khudiakova V, Russell E, Sowden-Carvalho S, Surtees ADR. A systematic review and meta-analysis of mental health outcomes associated with camouflaging in autistic people. Res Autism Spectr Disord. 2024 Oct;118:102492.
15. Pérez Arqueros M, Jamett Cuevas V, Pulgar Vera V, Santander Gonzalez R, Pemau Gurumeta A, Alvarez Cabrera P. Camouflaging and suicide behavior in adults with autism spectrum condition: A mixed methods systematic review. 2025 Feb 28 [cited 2025 Sept 22]; Available from: https://hdl.handle.net/20.500.14352/119917
16. Tubío-Fungueiriño M, Cruz S, Sampaio A, Carracedo A, Fernández-Prieto M. Social camouflaging in females with autism spectrum disorder: A systematic review. J Autism Dev Disord. 2021 July 1;51(7):2190–9.
17. Vadukapuram R, Elshokiry AB, Trivedi C, Abouelnasr A, Bataineh A, Usmani S, et al. Sex differences in psychiatric comorbidities in adolescents with autism spectrum disorder: A national inpatient sample analysis. Prim Care Companion CNS Disord. 2022 Sept 27;24(5):21m03189.
18. Fombonne E, Green Snyder L, Daniels A, Feliciano P, Chung W, Abbeduto L, et al. Psychiatric and medical profiles of autistic adults in the SPARK cohort. J Autism Dev Disord. 2020 Oct 1;50(10):3679–98.
19. Montiel-Nava C, Cukier S, Garrido G, Valdez D, Paula CS, García R, et al. Service encounters across the lifespan in individuals with autism spectrum disorders: Results from a multisite study in Latin America. Res Autism Spectr Disord. 2020 Nov;79:101670.
20. Paula CS, Cukier S, Cunha GR, Irarrázaval M, Montiel-Nava C, Garcia R, et al. Challenges, priorities, barriers to care, and stigma in families of

people with autism: Similarities and differences among six Latin American countries. Autism. 2020 Nov;24(8):2228–42.

21. Torres A, Lecusay D, Valdez D, Rosoli A, Garrido G, Cukier S, et al. Use of allied-health services and medication among adults with ASD in Latin America. Autism Res. 2021;14(10):2200–11.
22. Araripe B, Montiel-Nava C, Bordini D, Cunha GR, Garrido G, Cukier S, et al. Profile of service use and barriers to access to care among Brazilian children and adolescents with autism spectrum disorders. Brain Sci. 2022 Oct 21;12(10):1421.
23. Charlton JI. Nothing About Us Without Us: Disability Oppression and Empowerment [Internet]. University of California Press; 1998 [cited 2025 Dec 11]. Available from: https://www.degruyter.com/document/doi/10.1525/9780520925441/html
24. Kaplan-Kahn EA, Caplan R. Combating stigma in autism research through centering autistic voices: A co-interview guide for qualitative research. Front Psychiatry. 2023 Aug 15;14:1248247.
25. Baranova A, Cao H, Zhang F. Exploring the influences of education, intelligence and income on mental disorders. Gen Psychiatry. 2024 Feb;37(1):e101080.
26. Williams CM, Peyre H, Labouret G, Fassaya J, Guzmán García A, Gauvrit N, et al. High intelligence is not associated with a greater propensity for mental health disorders. Eur Psychiatry. 2023;66(1):e3.
27. Edirisooriya M, Dykiert D, Auyeung B. IQ and internalising symptoms in adolescents with ASD. J Autism Dev Disord. 2021 Nov;51(11):3887–907.
28. Kraper CK, Kenworthy L, Popal H, Martin A, Wallace GL. The gap between adaptive behavior and intelligence in autism persists into young adulthood and is linked to psychiatric co-morbidities. J Autism Dev Disord. 2017 Oct;47(10):3007–17.
29. Tillmann J, San José Cáceres A, Chatham CH, Crawley D, Holt R, Oakley B, et al. Investigating the factors underlying adaptive functioning in autism in the EU-AIMS longitudinal European autism project. Autism Res. 2019 Apr;12(4):645–57.

30. Loomes R, Hull L, Mandy WPL. What is the male-to-female ratio in autism spectrum disorder? A systematic review and meta-analysis. J Am Acad Child Adolesc Psychiatry. 2017 June;56(6):466–74.
31. Rødgaard E, Jensen K, Miskowiak KW, Mottron L. Representativeness of autistic samples in studies recruiting through social media. Autism Res. 2022 Aug;15(8):1447–56.
32. Rynkiewicz A, Janas-Kozik M, Słopień A. Girls and women with autism. Psychiatr Pol. 2019 Aug 31;53(4):737–52.
33. Angell AM, Deavenport-Saman A, Yin L, Zou B, Bai C, Varma D, et al. Sex differences in co-occurring conditions among autistic children and youth in Florida: A retrospective cohort study (2012–2019). J Autism Dev Disord. 2021 Oct 1;51(10):3759–65.
34. Rødgaard EM, Jensen K, Miskowiak KW, Mottron L. Autism comorbidities show elevated female-to-male odds ratios and are associated with the age of first autism diagnosis. Acta Psychiatr Scand. 2021;144(5):475–86.
35. Martini MI, Kuja-Halkola R, Butwicka A, Du Rietz E, Kanina A, Brikell I, et al. Sex differences in psychiatric diagnoses preceding autism diagnosis and their stability post autism diagnosis. J Child Psychol Psychiatry. 2025;66(8):1170–81.
36. Cross-Disorder Group of the Psychiatric Genomics Consortium. Genomic relationships, novel loci, and pleiotropic mechanisms across eight psychiatric disorders. Cell. 2019 Dec 12;179(7):1469-1482.e11.
37. Khachadourian V, Mahjani B, Sandin S, Kolevzon A, Buxbaum JD, Reichenberg A, et al. Comorbidities in autism spectrum disorder and their etiologies. Transl Psychiatry. 2023 Feb 25;13:71.
38. Ma SL, Chen LH, Lee CC, Lai KYC, Hung SF, Tang CP, et al. Genetic overlap between attention deficit/hyperactivity disorder and autism spectrum disorder in SHANK2 gene. Front Neurosci. 2021 Apr 27;15:649588.
39. Maddox BB, White SW. Comorbid social anxiety disorder in adults with autism spectrum disorder. J Autism Dev Disord. 2015 Dec;45(12):3949–60.

40. Spain D, Sin J, Linder KB, McMahon J, Happé F. Social anxiety in autism spectrum disorder: A systematic review. Res Autism Spectr Disord. 2018 Aug;52:51–68.