



Gender Differences in Symptom Presentations of ASRS-Based Probable Adult ADHD Among Patients Receiving Treatment for Substance Use Disorders in Nairobi, Kenya

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Abstract

Adult Attention-Deficit/Hyperactivity Disorder (ADHD) commonly co-occurs with Substance Use Disorders (SUDs), yet evidence regarding gender differences in ADHD symptom presentations among treatment-seeking populations in Sub-Saharan Africa remains limited. Understanding these differences is important for improving the identification and clinical assessment of co-occurring ADHD and SUDs. This study examined gender differences in ASRS-based probable Adult ADHD presentations among patients receiving treatment for SUDs in selected rehabilitation centres in Nairobi, Kenya. A quantitative cross-sectional analytical study was conducted among 322 adults receiving treatment for SUDs. Adult ADHD symptoms were assessed using the Adult ADHD Self-Report Scale (ASRS v1.1). Respondents who screened positive and met DSM-5-TR-aligned criteria, including symptom onset before 12 years of age, were classified into predominantly inattentive, predominantly hyperactive-impulsive, or combined presentations according to symptom domain thresholds. Of the 322 participants, 90 met the criteria for ASRS-based probable Adult ADHD and formed the screen-positive analytical sample. Descriptive statistics summarised ADHD presentations, while the chi-square test of independence examined the association between gender and ADHD presentation. Significant gender differences were observed, $\chi^2(2, N = 90) = 38.00, p < .001$, Cramer's $V = .65$. Among males, the combined presentation predominated (71.7%), whereas females were more frequently classified as having the inattentive presentation (59.5%). These findings demonstrate gender differences in ASRS-based probable ADHD presentations among screen-positive adults receiving treatment for SUDs and may inform ADHD screening and assessment practices in comparable rehabilitation settings.

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Introduction

Adult Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterised by persistent symptoms of inattention and/or hyperactivity-impulsivity that interfere with functioning. Although ADHD begins in childhood, symptoms and associated impairment may persist into adulthood. Epidemiological evidence from the World Health Organisation World Mental Health Surveys indicates that approximately 57% of individuals identified as having childhood ADHD continued to meet criteria for adult ADHD, with adult ADHD also associated with



impairments in cognitive, social, and role functioning (Fayyad et al., 2017). ADHD frequently co-occurs with Substance Use Disorders (SUDs), and individuals with ADHD have been reported to experience earlier onset of substance use, greater substance-related problems, and poorer treatment outcomes than those without ADHD (Kooij et al., 2019; van Emmerik-van Oortmerssen et al., 2012).

Gender differences in ADHD have increasingly attracted attention because symptom presentation frequently differs between males and females. Although ADHD has historically been viewed as a predominantly male condition, more recent evidence indicates that the gender gap narrows in adulthood, with the male-to-female ratio decreasing to approximately 1.6:1 (Willcutt, 2012). Women are more likely to present with predominantly inattentive symptoms, emotional dysregulation, and other internalising manifestations that are generally less disruptive and therefore more likely to remain unrecognised until adulthood (Young et al., 2020). In contrast, men more commonly exhibit hyperactive-impulsive or combined presentations accompanied by externalising characteristics such as impulsivity, aggression, and conduct problems (Mowlem et al., 2019). These differences have important clinical implications, particularly among individuals with co-occurring substance use disorders, where ADHD symptoms may overlap with those associated with intoxication, withdrawal, or early recovery. Furthermore, because women may be less likely to present with overt hyperactive or disruptive behaviours, screening instruments may differentially identify men and women, potentially influencing the composition of screen-positive samples. Consequently, gender differences observed among individuals classified as having ASRS-based probable ADHD should be interpreted with consideration of the potential influence of differential detection.

Among individuals receiving treatment for substance use disorders, co-occurring ADHD has been associated with greater psychiatric comorbidity than SUD alone (van Emmerik-van Oortmerssen et al., 2014). ADHD-SUD comorbidity has also been associated with earlier onset and a more severe course of substance use disorders, as well as reduced treatment effectiveness (Crunelle et al., 2018). Consequently, international consensus recommendations support routine screening for ADHD within addiction treatment settings, followed by comprehensive diagnostic assessment where indicated (Crunelle et al., 2018). However, much of the existing evidence originates from Europe and North America, with comparatively few studies examining ADHD symptom presentation in African rehabilitation settings. Within sub-Saharan Africa, the limited literature has largely focused on prevalence (Jenkins et al., 2015; Oigara, 2022), leaving gender-specific symptom presentations insufficiently explored.

Although evidence from Sub-Saharan Africa remains limited, one of the few studies examining gender-related differences among individuals with co-occurring Attention-Deficit/Hyperactivity Disorder (ADHD) and Substance Use Disorders (SUDs) was conducted by Coetzee et al. (2022) in South Africa. The study investigated differences in substance use patterns between adults with SUDs alone and those with co-occurring ADHD and SUD, while also examining the influence of gender. Participants comprised 180 post-detoxification inpatients recruited from seven rehabilitation facilities. ADHD symptoms were initially screened using the Adult ADHD Self-Report Scale (ASRS v1.1) and subsequently confirmed using the Diagnostic Interview for ADHD in Adults (DIVA 2.0). The authors reported that women with co-occurring ADHD and SUD initiated cannabis use at a significantly younger age than women with SUD alone, although no significant gender differences were observed in alcohol use patterns. These findings suggest that women with co-occurring ADHD and SUD may follow distinct substance use trajectories. However, because the study focused primarily on gender differences in substance use patterns rather than ADHD symptom presentations, evidence regarding gender-specific ADHD presentations among adults receiving treatment for SUDs in Sub-Saharan



Africa remains limited. This highlights the need for further research examining gender differences in ADHD symptom presentations within African rehabilitation settings.

In Kenya, substance use disorders continue to pose a significant public health challenge, particularly among young adults seeking rehabilitation services. Despite growing recognition of psychiatric comorbidities in addiction treatment, evidence on how Adult ADHD presents among male and female patients remains scarce. Understanding these gender differences in symptom presentation is essential for improving clinical assessment, reducing underdiagnosis, and informing gender-responsive screening and treatment strategies within rehabilitation programmes. This study therefore examined gender differences in Adult ADHD symptom presentation among patients with Substance Use Disorders attending selected rehabilitation centres in Nairobi, Kenya. The findings contribute empirical evidence that may inform the identification and management of co-occurring ADHD and SUDs in resource-constrained clinical settings.

Gender differences in ADHD symptom presentation appear to persist into adulthood, although symptom expression changes across the lifespan. Longitudinal evidence indicates that overt hyperactive and impulsive symptoms generally decline with age, whereas inattentive symptoms and associated executive functioning difficulties are more likely to persist into adulthood (Biederman et al., 2010). In addition, women are more likely to present with inattentive and internalising symptom profiles, whereas men more commonly exhibit hyperactive-impulsive symptoms and externalising characteristics, contributing to differences in clinical recognition and diagnosis (Mowlem et al., 2019; Young et al., 2020). These differences have important clinical implications for individuals with substance use disorders, as variations in symptom presentation may influence clinical assessment and the recognition of co-occurring ADHD.

Roncero et al. (2025) examined gender differences in ADHD symptoms and related psychological characteristics among 204 Spanish patients receiving treatment for Alcohol Use Disorder (AUD) or comorbid Alcohol and Cocaine Use Disorder (ACUD) comprising 153 men and 51 women aged 18 and above. Overall, 24.6% screened positive for ADHD, with a higher prevalence among those with ACUD (32.2%) than AUD (21.9%). Women reported greater ADHD symptoms, neuroticism, and anxiety than men, and ADHD symptoms were more strongly associated with impulsivity among women. These findings suggest gender-specific clinical expression of ADHD among individuals with substance use disorders and highlight the importance of gender-sensitive assessment and treatment.

Despite growing international interest in gender differences in ADHD symptom presentations, evidence from Africa remains limited. Most existing studies examining gender-specific patterns of ADHD have been conducted in North America and Europe (Wilens et al., 2009; Roncero et al., 2025), with relatively few investigations undertaken within African populations. Among the available African studies, research has primarily focused on the prevalence of Adult ADHD or its association with substance use disorders (Coetzee et al., 2022; Oigara, 2022; Umar et al., 2017), rather than examining how symptom presentations differ between males and females. Consequently, little is known about gender-related differences in ADHD presentations among adults with substance use disorders in African rehabilitation settings. To the best of the authors' knowledge, no published studies have specifically examined gender differences in Adult ADHD symptom presentations among individuals receiving treatment for substance use disorders in rehabilitation centres in Kenya. This evidence gap highlights the need for context-specific research to inform gender-sensitive screening, assessment, and management of co-occurring Adult ADHD and substance use disorders.



Method

This study employed a quantitative cross-sectional analytical design to examine gender differences in ASRS-based probable Adult Attention-Deficit/Hyperactivity Disorder (ADHD) presentations among adults receiving treatment for Substance Use Disorders (SUDs). The study was conducted in six National Authority for the Campaign Against Alcohol and Drug Abuse (NACADA)-accredited rehabilitation centres in Nairobi County, Kenya. The participating facilities comprised private and faith-based centres offering both inpatient and outpatient treatment services for adults with substance use disorders. Treatment services typically included medically supervised detoxification, psychological interventions, individual and group counselling, psychoeducation, relapse prevention, and aftercare programmes. Collectively, the participating centres served an accessible population of 390 eligible patients during the study period.

A total enumeration approach was employed, whereby all eligible patients receiving treatment during the data collection period were invited to participate. Eligible participants were adults aged 18–65 years with SUDs who were able to provide informed consent. Individuals with severe cognitive impairment or acute psychiatric conditions that precluded meaningful participation were excluded. Of the 390 eligible patients, 322 completed the study questionnaires, yielding a response rate of 82.6%. Of the 68 eligible individuals not included in the final analysis, 44 declined participation, comprising 32 males (72.7%) and 12 females (27.3%), while 24 returned incomplete questionnaires, comprising 15 males (62.5%) and 9 females (37.5%). Table 1 presents the distribution of participants recruited from each rehabilitation centre

Table 1: Eligible Population and Participant Recruitment Across the Participating Rehabilitation Centres

Rehabilitation Centre	Eligible Patients, n	Participants Recruited, n
Asumbi Treatment Centre	70	58
Dove Mental Health Hospital	120	94
Eden House Rehabilitation Centre	50	43
Nairobi Place Specialised Medical Centre	40	39
New Chapter Place Counselling and Rehabilitation Centre	50	37
The Optimum Centre for Specialised Treatment	60	51
Total	390	322

For the present analysis, only respondents meeting the study criteria for ASRS-based probable adult ADHD were included, resulting in a final analytical sample of 90 participants. Data were collected using a researcher-developed socio-demographic questionnaire and the Adult ADHD Self-Report Scale Version 1.1 (ASRS v1.1). The socio-demographic questionnaire collected information on age, sex, education, employment status, and substance-use history, including age at initiation of substance use and polysubstance use, defined as the concurrent or sequential use of multiple substances.

The ASRS v1.1 is an 18-item self-report screening instrument developed by the World Health Organisation in collaboration with researchers at Harvard Medical School to assess symptoms corresponding to the inattentive and hyperactive-impulsive domains of adult ADHD (Kessler et al., 2005). The instrument comprises six Part A items with the greatest utility for identifying probable ADHD and 12 additional Part B items that provide further information regarding ADHD symptoms (Kessler et al., 2007). Part A was used as the initial screening stage in the present study, with four or more positive responses among the six items indicating a positive screen.



For participants screening positive on Part A, responses to the full 18-item ASRS were subsequently used to derive symptom-domain counts. The domain structure followed the ASRS subscales described by Stanton et al. (2018) and the scoring framework reported by Hegarty et al. (2024). The Inattention domain comprised Items 1–4 and 7–11. The Hyperactivity–Impulsivity domain comprised motor Hyperactivity–Impulsivity Items 5, 6, and 12–14 and verbal Hyperactivity–Impulsivity Items 15–18. The motor and verbal components were combined for the present analysis to correspond with the DSM-5-TR Hyperactivity–Impulsivity symptom domain.

For calculation of domain symptom counts, responses to individual ASRS items were dichotomised as symptom endorsed (1) or not endorsed (0) using the original item-specific ASRS endorsement thresholds. Items 1, 2, 3, 9, 12, 16, and 18 were considered endorsed when participants responded *Sometimes*, *Often*, or *Very Often*, whereas Items 4, 5, 6, 7, 8, 10, 11, 13, 14, 15, and 17 were considered endorsed only when participants responded *Often* or *Very Often*. This dichotomous scoring procedure was used specifically to calculate the number of symptoms endorsed in each domain, not to derive an overall ASRS severity score.

Consistent with the DSM-5-TR adult symptom threshold, five or more endorsed symptoms within a nine-item domain were required to meet the study criterion for that domain. Participants endorsing five or more Inattention symptoms and fewer than five Hyperactivity–Impulsivity symptoms were classified as having a predominantly inattentive presentation. Those endorsing five or more Hyperactivity–Impulsivity symptoms and fewer than five Inattention symptoms were classified as having a predominantly hyperactive–impulsive presentation, while those endorsing five or more symptoms in both domains were classified as having a combined presentation. These categories represent study-derived ASRS-based probable ADHD symptom presentations and should not be interpreted as clinically confirmed DSM-5-TR ADHD diagnoses.

The version of the ASRS v1.1 Symptom Checklist administered in the study also contained an age-of-onset item immediately following the 18 symptom-frequency items, which asked, “How old were you when these problems first began to occur?” Responses were recorded as age in years. For the present analysis, retrospective age-of-onset was coded as before age 12 (<12 years) or age 12 years and older (≥12 years), consistent with the DSM-5-TR developmental-onset criterion. Missing or unknown age-of-onset information was coded as not meeting the onset criterion. The age-of-onset item was treated separately from the standard ASRS Part A screening algorithm and was applied as an additional study classification criterion.

Accordingly, ASRS-based probable adult ADHD classification was undertaken sequentially. Of the 322 participants who completed the ASRS, 115 met the initial Part A screening threshold of four or more positive responses. These participants were subsequently evaluated against the study's DSM-5-TR-aligned domain threshold of five or more endorsed symptoms in at least one of the two nine-item symptom domains. Five Part A-positive participants did not meet this additional criterion and were therefore not classified as meeting the study criteria for probable ADHD, leaving 110 participants who proceeded to evaluation of the age-of-onset criterion. Of these, 90 retrospectively reported symptom onset before age 12 and were retained in the final ASRS-based probable adult ADHD analytical sample. Nineteen participants reported onset at age 12 years or older, and one had unknown age-of-onset; these participants were not classified as meeting the study criteria for ASRS-based probable adult ADHD.

Internal consistency of the ASRS v1.1 was assessed in both the full study sample in which the instrument was administered (N = 322) and, for comparison, the final ASRS-based probable adult ADHD analytical sample (n = 90) (Table 2). In the full sample, the total ASRS and both symptom



domains demonstrated excellent internal consistency. Reliability estimates within the restricted probable-ADHD subgroup were lower for the total ASRS and Inattention domain but remained high for the Hyperactivity-Impulsivity domain. These coefficients should be interpreted in the context of the reduced variability in responses resulting from selection based on the ASRS symptom and classification criteria.

Table 2: Internal Consistency of the ASRS v1.1 in the Full Study Sample and Probable-ADHD Analytical Sample

ASRS scale/domain	No. of items	Full sample (N = 322), α	Probable-ADHD sample (n = 90), α
Full ASRS	18	.95	.74
Inattention	9	.93	.83
Hyperactivity-Impulsivity	9	.94	.94

Note. α = Cronbach's alpha. The probable-ADHD subgroup was restricted based on ASRS screening and symptom-domain criteria and retrospective symptom onset before age 12.

Data were entered, cleaned, and analysed using IBM SPSS Statistics Version 27. Descriptive statistics, including frequencies, percentages, and 95% confidence intervals where appropriate, were used to summarise ADHD presentations. A chi-square test of independence was used to examine the association between gender and ADHD presentation, with Cramer's V reported as the effect size. Following a statistically significant omnibus chi-square test, adjusted standardised residuals were examined to identify the presentation categories contributing to the association. Because gender comprised two categories, residuals for males and females within each ADHD presentation were equal in magnitude and opposite in direction; therefore, the three presentation-wise comparisons were treated as the relevant post-hoc comparisons. A Bonferroni-adjusted significance threshold of $p < .0167$ ($.05/3$) was applied to these comparisons. Statistical significance for the omnibus analysis was established at $p < .05$ (Field, 2018).

Ethical approval was obtained from the United States International University-Africa Institutional Scientific and Ethics Review Committee (ISERC; Approval No. USIU-A/ISERC/US1209-2025) before data collection commenced. Research authorisation was subsequently granted by the National Commission for Science, Technology and Innovation (NACOSTI; Research Permit No. 855839), and permission to conduct the study was obtained from the management of each participating rehabilitation centre. Data were collected between 10 January 2026 and 30 March 2026. Written informed consent was obtained from all participants before enrolment, and participant confidentiality and anonymity were maintained through unique identification codes and secure data storage. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki (World Medical Association, 2013).

Results

Participant Characteristics

The demographic and clinical characteristics of the 322 participants are presented in Table 3. The majority of respondents were aged 26–35 years, were male, and reported alcohol as the primary substance used. Most participants-initiated substance use between 16 and 20 years of age, while just under half reported previous treatment for substance use disorders (Table 2).



Table 3: Demographic and Clinical Characteristics of Participants (N = 322)

Characteristic	n	%
Age group (years)		
18–25	56	17.4
26–35	142	44.1
36–45	83	25.8
46–55	22	6.8
≥56	19	5.9
Sex		
Male	218	67.7%
Female	104	32.3%
Marital status		
Single	187	58%
Married	86	27%
Separated	27	8%
Divorced	18	6%
Widowed	4	1%
Highest level of education		
Postgraduate	54	16.8%
Undergraduate	111	34.5%
College Level	99	30.7%
Secondary	55	17.1%
Primary	2	0.6%
No Formal Education	1	0.3%
Employment status		
Employed Full Time	127	39%
Employed Part Time	15	5%
Self-employed	80	25%
Unemployed	69	21%
Student	30	9%
Other	1	1%
Previous treatment for SUD		
Yes	150	46.6
No	172	53.4
Age at first substance use (years)		
≤15	104	32.3
16–20	149	46.3
21–25	51	15.8
>25	18	5.6

Prevalence of ASRS-Based Probable ADHD Among Respondents

Overall, 28.0% (90/322; 95% CI: 23.1%–33.2%) of respondents met the criteria for ASRS-based probable Adult ADHD, whereas 72.0% (232/322) did not.

Distribution of ASRS-based probable Adult ADHD symptom presentations

Among the 90 respondents classified as having ASRS-based probable Adult ADHD, the combined symptom presentation was the most common, accounting for 58.9% (53/90; 95% CI: 48.0%–69.2%), followed by the predominantly inattentive presentation (26.7%, 24/90; 95% CI: 17.9%–37.0%) and the predominantly hyperactive-impulsive presentation (14.4%, 13/90; 95% CI: 7.9%–23.4%).



Table 4: Distribution of ADHD Presentations Among Respondents with ASRS-Based Probable Adult ADHD

ADHD Presentation	Frequency (n)	Percentage (%)	95% CI
Combined	53	58.9 %	48.0–69.2
Inattentive	24	26.7 %	17.9–37.0
Hyperactive-Impulsive	13	14.4 %	7.9–23.4
Total	90	100.0 %	—

Note. Percentages were calculated using the analytical sample of respondents classified as having ASRS-based probable Adult ADHD (N = 90). The 95% confidence intervals are exact (Clopper-Pearson) binomial confidence intervals. Symptom presentations were derived from responses to all 18 ASRS v1.1 items using the classification procedure described in the Methods and represent ASRS-based probable ADHD symptom presentations rather than clinically confirmed DSM-5-TR diagnoses.

Distribution of ASRS-based probable Adult ADHD symptom presentations by Gender

Before examining gender differences in ADHD symptom presentations within the ASRS-based probable adult ADHD subgroup, gender differences in probable-ADHD classification were examined in the full study sample (N = 322). Of the 218 male participants, 53 (24.3%) met the study criteria for ASRS-based probable adult ADHD, compared with 37 of the 104 female participants (35.6%). Female participants therefore had a higher proportion of ASRS-based probable ADHD classification than male participants. The association between gender and probable-ADHD classification was statistically significant, $\chi^2(1, N = 322) = 4.44, p = .035$. Fisher's exact test yielded a similar result ($p = .046$).

The subsequent analysis examined whether ADHD symptom presentations differed between male and female respondents within the 90 participants classified as having ASRS-based probable adult ADHD. Because entry into this analytical subgroup differed significantly by gender, with a greater proportion of female than male participants meeting the study criteria for probable ADHD, the subgroup's gender composition may partly reflect differential ASRS-based classification. Accordingly, the presentation distributions reported below should be interpreted as conditional distributions among respondents who meet the study criteria for probable ADHD, rather than as population-level gender differences in ADHD presentation.

Table 5: Distribution of ADHD Presentations by Gender Among Respondents with ASRS-Based Probable Adult ADHD (N=90)

ADHD Presentation	Male n (%)	Female n (%)	Total
Combined	38 (71.7%)	15 (40.5%)	53
Hyperactive-Impulsive	13 (24.5%)	0 (0.0%)	13
Inattentive	2 (3.8%)	22 (59.5%)	24
Total	53 (100%)	37 (100%)	90

Note. Percentages represent column percentages calculated within gender and therefore describe the distribution of ADHD presentations among respondents classified as ASRS-based probable Adult ADHD rather than population prevalence. $\chi^2(2, N = 90) = 38.00, p < .001$, Cramer's $V = .65$.

Among male respondents classified as having ASRS-based probable Adult ADHD, the combined presentation was the most common (71.7%, $n = 38$), followed by the predominantly hyperactive-impulsive presentation (24.5%, $n = 13$), whereas the predominantly inattentive presentation was relatively uncommon (3.8%, $n = 2$). Among female respondents classified as having ASRS-based probable Adult ADHD, the predominantly inattentive presentation was the most common (59.5%, $n = 22$), followed by the combined presentation (40.5%, $n = 15$). No female participants in the analytical sample were classified as having the predominantly hyperactive-impulsive presentation.



A chi-square test of independence revealed a statistically significant association between gender and ASRS-based probable Adult ADHD presentation, $\chi^2(2, N = 90) = 38.00, p < .001$, Cramer's $V = .65$, indicating a large association between the two variables. Expected cell frequencies ranged from 5.34 to 31.21, satisfying the assumption of adequate expected frequencies for the chi-square approximation. Post-hoc analyses using adjusted standardised residuals with Bonferroni correction ($p < .0083$) demonstrated that male respondents were significantly more likely to be classified as having the combined presentation ($z = 2.96$) and the predominantly hyperactive-impulsive presentation ($z = 3.26$), and significantly less likely to be classified as having the predominantly inattentive presentation ($z = -5.88$). Conversely, female respondents were significantly more likely to be classified as having the predominantly inattentive presentation ($z = 5.88$) and significantly less likely to be classified as having the combined ($z = -2.96$) and predominantly hyperactive-impulsive presentations ($z = -3.26$).

Although no female participant in the analytical sample was classified as having the predominantly hyperactive-impulsive presentation, the corresponding exact 95% confidence interval (0.00%–9.49%) indicates that a non-zero population proportion remains plausible. Furthermore, because ADHD presentations were classified using the Adult ADHD Self-Report Scale (ASRS v1.1) rather than a diagnostic interview, the findings represent ASRS-based probable Adult ADHD presentations rather than clinically confirmed ADHD diagnoses.

Discussion

Interpretation of the observed gender differences in ASRS-based probable adult ADHD presentations should first consider differential classification into the probable-ADHD subgroup. In the full sample, 35.6% of female participants met the study criteria for ASRS-based probable adult ADHD, compared with 24.3% of male participants; this difference was statistically significant, $\chi^2(1, N = 322) = 4.44, p = .035$. Thus, the subgroup in which symptom presentations were subsequently examined was itself derived through a screening and classification procedure that identified proportionally more women than men. Within this subgroup, gender differences in ASRS-based probable ADHD presentation were substantial, $\chi^2(2, N = 90) = 38.00, p < .001$, Cramer's $V = .65$. Male respondents were more frequently classified as having the combined and predominantly hyperactive-impulsive presentations, whereas female respondents were more frequently classified as having the predominantly inattentive presentation. These presentation differences should therefore be interpreted as conditional on ASRS-based classification rather than as population-level gender differences in ADHD presentation.

The observed presentation pattern is broadly consistent with some previously reported gender differences in the clinical expression of ADHD. Wilens et al. (2009), in a study of 107 clinically referred adults with ADHD in the United States using structured DSM-IV diagnostic interviews, found no substantial sex differences in the overall number of inattentive or hyperactive-impulsive symptoms. However, women were significantly more likely to endorse frequently losing things, an inattentive symptom, whereas men had higher rates of externalising comorbidities, including conduct disorder and alcohol abuse. The combined presentation was the most common overall, accounting for 62% of cases. Taken together, the present findings and previous evidence suggest that gender-related differences may be evident in patterns of symptom expression and associated clinical characteristics. However, because the present study used a self-report screening instrument rather than a diagnostic interview, the observed presentation in presentation may reflect both variation in symptom expression and the characteristics of ASRS-based identification within this treatment-seeking sample; the relative contribution of these explanations cannot be determined from the present data.

Similarly, Mestres et al. (2025) examined 900 adults with ADHD attending a specialist programme in Barcelona using comprehensive clinician-administered diagnostic assessments. Unlike the present



study, which classified ASRS-based probable ADHD presentations using self-report screening, Mestres et al. established presentations through clinical diagnostic assessment, a methodological difference that should be considered when comparing findings. They found no significant gender differences in ADHD presentation distribution; however, women exhibited greater ADHD severity, depression, anxiety, disability, and later diagnosis, while men reported greater substance use. The combined presentation was also associated with greater clinical severity and impairment. Thus, although the studies differed regarding gender and ADHD presentation, both suggest that gender influences the clinical expression and burden of ADHD, supporting gender-sensitive assessment and management.

The mechanisms underlying the observed gender differences in ASRS-based probable ADHD presentations cannot be determined from the present study because of its cross-sectional design and reliance on a screening instrument. However, several explanations have been proposed in the literature. First, differences in socialisation may contribute to variation in symptom expression, with girls and women often encouraged to suppress overt hyperactive and impulsive behaviours, resulting in less externally visible symptom profiles (Young et al., 2020). Second, compensatory strategies and symptom masking may enable females to manage or conceal ADHD symptoms more effectively, contributing to delayed recognition and under-identification, particularly among those with predominantly inattentive presentations (Mowlem et al., 2019; Young et al., 2020). Third, referral-filter effects may contribute to differential representation within treatment settings, as referral and diagnostic processes may preferentially identify individuals exhibiting more overt or disruptive externalising symptoms over those presenting primarily with inattentive symptoms. Although the present findings are consistent with these proposed mechanisms, the study was not designed to distinguish between them, and future longitudinal studies incorporating comprehensive diagnostic assessments are needed to examine these pathways directly.

Overall, the findings of the present study, together with evidence from international and African research, suggest that gender may influence the expression and associated clinical features of ADHD, although findings regarding the distribution of specific ADHD presentations are not uniform across studies. In the present study, female respondents were more frequently classified as having the predominantly inattentive presentation, whereas male respondents were more frequently classified as having combined and predominantly hyperactive-impulsive presentations. However, other research, including Mestres et al. (2025), has reported no significant gender differences in presentation distribution while still identifying gender-related differences in symptom severity, psychiatric comorbidity, functional impairment, and substance use. Taken together, the evidence suggests that gender differences may be expressed through presentation patterns in some populations and through associated clinical characteristics in others. These variations may reflect differences in study populations, assessment methods, and diagnostic procedures. These differences are likely to reflect a combination of biological, psychosocial, and methodological factors rather than a single underlying mechanism.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, ADHD classifications were based on the Adult ADHD Self-Report Scale Version 1.1 (ASRS v1.1), a validated screening instrument, rather than a comprehensive clinical diagnostic assessment. Consequently, the findings relate to ASRS-based probable Adult ADHD and should not be interpreted as clinically confirmed ADHD diagnoses. Although the study incorporated DSM-5-TR-aligned classification criteria, including symptom onset before 12 years of age, a structured diagnostic interview and a separate standardised measure of functional impairment were not undertaken.



Furthermore, because the ASRS v1.1 is a self-report instrument, responses may have been influenced by recall bias, particularly regarding retrospective childhood symptom onset. Second, although data collection was conducted after participants had completed the initial withdrawal phase of treatment (the first two weeks following admission), information on withdrawal severity, exact time since last substance use, and treatment stage beyond completion of the initial withdrawal period was not collected. Consequently, the potential influence of residual withdrawal symptoms, early recovery, or ongoing treatment on self-reported ADHD symptoms cannot be entirely excluded. Third, the cross-sectional design precludes conclusions regarding temporal or causal relationships between gender and ASRS-based probable ADHD presentations. Fourth, participants were recruited from six rehabilitation centres within Nairobi County and were analysed as a single sample because the study was not designed or powered to examine centre-level differences. Consequently, unmeasured variation across rehabilitation centres may have influenced participant characteristics and limited the generalisability of the findings. Finally, because the study was conducted among treatment-seeking adults receiving rehabilitation services in Nairobi County, the findings may not be generalisable to community populations or to individuals with substance use disorders who are not engaged in treatment. Despite these limitations, the study contributes novel evidence on gender differences in ASRS-based probable Adult ADHD presentations among adults receiving treatment for substance use disorders in Kenya, addressing an important gap in the regional literature.

Conclusion

The present study identified significant gender differences in the distribution of ASRS-based probable adult ADHD symptom presentations among adults receiving treatment for Substance Use Disorders. Among participants meeting the study criteria for probable ADHD, male respondents were more frequently classified as having the combined and predominantly hyperactive-impulsive presentations, whereas female respondents were more frequently classified as having the predominantly inattentive presentation. These findings demonstrate gender-based heterogeneity in ASRS-based symptom presentation within this treatment-seeking sample. Previous literature has proposed that less externally visible inattentive symptoms may contribute to delayed recognition or under-identification of ADHD among females; however, this remains a hypothesis in relation to the present findings because clinical recognition, previous diagnosis, referral pathways, and subsequent intervention were not assessed. The findings therefore support consideration of gender-related variation in ADHD symptom presentation during assessment of adults receiving treatment for SUDs, while further research using comprehensive diagnostic assessments and longitudinal designs is needed to determine whether such differences influence clinical recognition or treatment.

The observed gender differences suggest that clinicians assessing ADHD symptoms among adults receiving SUD treatment should be attentive to variation in symptom presentation, including less overt inattentive symptoms. However, the present findings are based on ASRS-derived screening classifications within a treatment-seeking sample from selected rehabilitation centres in Nairobi and do not establish the diagnostic accuracy or clinical benefit of gender-specific screening protocols. Accordingly, gender-sensitive ADHD assessment approaches may warrant further evaluation within SUD treatment settings rather than routine implementation on the basis of the present findings alone. Further multi-site research incorporating comprehensive diagnostic assessments is needed to determine whether the observed gender differences are replicated in other treatment populations and whether gender-sensitive screening approaches improve ADHD identification or subsequent clinical outcomes.



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