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Original Research Article

PREVALENCE OF ADULT ADHD IN PATIENTS WITH SUBSTANCE USE DISORDERS

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ABSTRACT

Background: Attention-deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder that frequently persists into adulthood and is associated with significant functional impairment. Emerging evidence highlights a strong association between adult ADHD and substance use disorders (SUD), with ADHD contributing to early initiation, rapid progression, and greater severity of substance use. Despite its clinical importance, adult ADHD often remains underdiagnosed in patients with SUD, particularly in the Indian context where data are limited.

Materials and Methods: This cross-sectional observational study was conducted in a tertiary care psychiatry department over six months. A total of 70 adult patients (18–65 years) diagnosed with SUD based on DSM-5 criteria were included. Socio-demographic and clinical data were collected using a semi-structured proforma.

Result: The prevalence of adult ADHD among patients with SUD was 32.9%. Higher rates were observed in younger individuals (18–40 years) and unmarried patients. ADHD prevalence was notably higher among cannabis users and those with polysubstance use, although not statistically significant across substance categories. No significant association was found with education, employment, or socioeconomic status.

Conclusion: Adult ADHD is highly prevalent among individuals with substance use disorders, particularly in younger and unmarried populations. Routine screening for ADHD in SUD settings is essential for early identification and integrated management, which may improve treatment outcomes and reduce relapse rates.

INTRODUCTION

Attention-deficit hyperactivity disorder (ADHD), challenging neurodevelopmental syndrome that is characterised by developmentally inappropriate inattentiveness, hyperactivity and increased impulsivity. Though it is considered to be the most common psychiatric disorder beginning in childhood, impairing multiple aspects of life, leading to educational underachievement, unemployment, unsuccessful marriage and criminality, its persistence into adulthood and consequences are often not well studied.[1] ADHD is now recognized to often persist into adulthood in 40-50% 0f population. The global prevalence of adult ADHD is around 2–3%, although estimates vary by definition and population.[1] Notably, ADHD has been implicated as a significant risk factor for developing substance use disorders (SUDs). Individuals with ADHD are more prone to early initiation of substance use and faster progression to dependence, likely due to impulsivity and associated behavioral disinhibition.[2] Conversely, effective early treatment of ADHD has been shown to reduce the risk of subsequent SUD, highlighting the importance of addressing ADHD symptoms.[3]

Comorbidity between ADHD and SUD is a matter of growing clinical concern. Studies suggest that ADHD not only predisposes individuals to substance misuse but can also complicate the course and treatment outcomes of SUD. For instance, ADHD has been linked to an earlier onset of alcohol or drug use and greater severity of substance dependence in adulthood.[4] Screening for adult ADHD in SUD populations is therefore crucial.In most of the studies conducted prevalence of ADHD is found to be highly variable ranging 2% in a study in Iceland to 54% in a study in japan. The many factors that influence the variability are factors like clinical biases, primary drug of abuse, and the scales used and perhaps the most important factor is the

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locality- the country specific variation.[5] The dearth of such studies in this part of the country, along with its importance in the management and prognosis of substance use is a clear need for this study. The World Health Organization's Adult ADHD Self-Report Scale (ASRS v1.1) is a brief and validated screening tool commonly used to identify ADHD symptoms in adults.[6] Using such standardized instruments can help detect previously unrecognized ADHD in clinical settings.

Research over the past few decades has documented a high co-occurrence of ADHD and substance use disorders. In clinical samples of adults with SUD, the proportion meeting criteria for ADHD has ranged from roughly one-quarter to nearly half of patients in various studies. For example, Schubiner et al. reported that about 24% of treatment-seeking substance abusers had adult ADHD[5]. In another study of recreational polysubstance users, nearly 45% showed significant ADHD symptoms.[7] Such variability in prevalence can depend on the substance of abuse; some reports found around one-third of patients on opioid substitution (methadone) treatment met ADHD criteria, and about a third of cocaine-dependent individuals had childhood-onset ADHD symptoms in remission or persisting.[8] A comprehensive meta-analysis by van Emmerik-van Oortmerssen and colleagues (2012) quantified the pooled prevalence of ADHD in SUD populations at approximately 23%, underscoring that about one in four individuals with SUD have co-occurring ADHD.[9] These international findings establish that comorbid ADHD in substance-abusing populations is common across diverse settings (North America, Europe, etc.), and highlight the need for routine screening and integrated intervention.

In India, literature on adult ADHD in SUD populations is relatively sparse but growing. One of the earliest studies from India on this topic by Ganesh et al. (2017) examined adults with substance use disorders in a southern Indian tertiary center; using the ASRS screener, they found that over half (56.25%) of the patients screened positive for likely ADHD.[10] This included a subset (~22%) that scored in the "highly likely ADHD" range, suggesting a considerable burden of previously undiagnosed ADHD symptoms. Another notable Indian study by Kumar et al. (2017) focused on individuals with alcohol dependence in a coastal fishing community and observed that those with adult ADHD had significantly earlier onset of alcohol use and more severe alcohol-use disorders compared to those without ADHD.[4] Similarly, Bhat et al. (2019) studied opioid-dependent patients in a de-addiction center in North India and found that ADHD was the most common psychiatric comorbidity; about 24% of those patients were identified as having adult ADHD.[11] Most recently, Samal et al. (2022) conducted a study in Eastern India (spanning Odisha and Manipur in the North East region) and reported an adult ADHD prevalence of roughly 24–25% in a hospital-based SUD cohort.[12] Taken together, these Indian studies, despite differing locales and primary substances, consistently indicate that roughly one-fourth or more of patients with substance use disorders have co-occurring ADHD. They also echo international findings that ADHD in SUD populations may contribute to more complex clinical profiles and potentially worse outcomes if left unaddressed.

Aim of the study: To estimate the prevalence of adult ADHD among patients with substance use disorders and to examine the clinical and demographic factors associated with ADHD in this population.

MATERIALS AND METHODS

Study Design and Setting: The present study was a cross-sectional, observational study carried out at the Department of Psychiatry of a tertiary care hospital. The study was conducted over a period of 6 months (from 02/2025 to 07/2025) and focused on adult patients with substance use disorders admitted under the department of psychiatry.

Sample and Inclusion Criteria:

A total of 80 adult patients (aged 18–65 years) diagnosed with a substance use disorder (alcohol or other drugs) were recruited consecutively. Diagnosis of SUD was established according to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) criteria[12]. All participants were in a stable condition (not acutely intoxicated or in active withdrawal at the time of assessment). Patients with severe psychiatric comorbidities (other than ADHD) or medical/neurodevelopmental conditions that could confound cognitive assessment were excluded. Each participant provided informed consent, and the study protocol was approved by the institutional ethics committee.

Measures and Instruments: A semi-structured proforma was used to collect socio-demographic data (age, sex, education, marital status, occupation, etc.) and clinical details (primary substance of abuse, duration of use, age of initiation, family history, etc.). Socioeconomic status was categorized using the Revised Kuppuswamy Scale (updated for 2016).[13] The Adult ADHD Self-Report Scale v1.1 (ASRS v1.1) Symptom Checklist[4] was employed to screen for adult ADHD symptoms. The ASRS is an 18-item self-report instrument developed by the World Health Organization, which has been widely validated for identifying probable ADHD in adults. Part A of the ASRS (the first 6 items) is used as a screener; per standard scoring, having four or more responses in the symptomatic range in Part A is considered a positive screen for ADHD. In this study, participants completed the ASRS (with assistance if they had difficulty understanding any item). The ASRS was provided in English (and a translated version in the local language was available for those not proficient in English, back-translated and verified by mental health professionals to ensure clarity). The internal

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consistency of the ASRS in our sample was high (Cronbach's alpha = 0.92), comparable to prior studies that reported reliability coefficients around 0.93 for this scale[14]. Those who screened positive on the ASRS were further evaluated clinically to confirm if they met ADHD diagnostic criteria (DSM-5) in childhood and persisted into adulthood, taking collateral history when available.

Statistical Analysis: All data were analyzed using SPSS version 20 or equivalent statistical software. Descriptive statistics were used to summarize the sample's characteristics. Continuous variables (e.g. age) are presented as mean ± standard deviation, and categorical variables (e.g. gender, substance type, ASRS status) are presented as frequencies and percentages. The prevalence of adult ADHD (ASRS-positive screening) in the sample was calculated as a proportion with 95% confidence interval. Bivariate analyses were conducted to examine associations between ADHD status (screen positive vs. negative) and various demographic or clinical variables. For categorical comparisons, chi-square tests (or Fisher's exact test, where appropriate) were used. A p-value < 0.05 was considered statistically significant.

RESULTS

Sample Characteristics: The study sample consisted of 70 patients with substance use disorders, of whom 68 were male (97%) and 2 were female (3%). The mean age of participants was 34.8 years (SD ≈ 9.5, range 19–62 years). A majority of patients were in the young adult to mid-life range: 29% were aged 18–30 years, 42% were 31–40 years, 19% were 41–60 years, and 10% were above 60 years old. Regarding marital status, 49% of the sample was unmarried/single, 49% married, and 2% separated/divorced; none of the participants were widowed. Just over half (53%) had at least high school level education or higher, while the rest had middle school or primary education. Most patients were employed in some capacity (daily wage labor, private jobs, or self-employed), with 26% unemployed at the time of evaluation.

Table 1: Substance users vs substance non-users

Substance	Users	Non-users
Alcohol	45	5
Tobacco	20	30
Cannabis	10	40
Opioids	10	40
Others	1	49

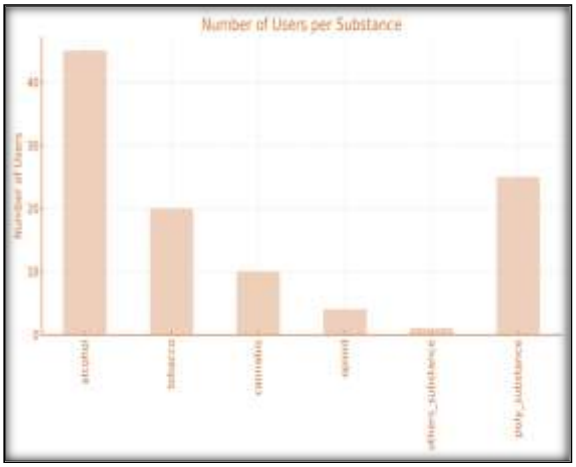

Figure 1: Percentage of substance use

Substance Use Profile: The primary substances of abuse identified were alcohol and opioids, along with polysubstance use in many cases. Alcohol use disorder was the most common SUD diagnosis in this cohort: 63 out of 70 patients (90%) were alcohol users (either alone or in combination with other substances). Tobacco use (primarily smoking) was reported by 34 patients (49%). Cannabis use was present in 18 patients (26%), often alongside other substances. Opioid use (mostly tapentadol or prescription opioid dependence) was identified in 5 patients (7%). Additionally, 5 patients (7%) reported significant use of other substances (such as benzodiazepines or stimulants), classified here as "other substances." Notably, polysubstance use was common: 60% of the sample had a history of using two or more substance categories. The most frequent combination was alcohol with tobacco (seen in about 45% of all patients), followed by alcohol with cannabis. A smaller subset (around 10%) were poly-substance users involving three or more substances (e.g., alcohol, cannabis, and other stimulants used concurrently).

Prevalence of Adult ADHD: Out of the 70 patients assessed, 23 individuals screened positive for adult ADHD on the ASRS v1.1, yielding a prevalence of 32.9% (23/70). In other words, about one-third of patients with substance use disorders in this sample exhibited significant ADHD symptoms consistent with a probable diagnosis of adult ADHD. In contrast, the remaining 47 patients (67.1%) did not screen positive for adult ADHD.

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Figure 2: ASR Status

Comparative Analyses: We examined the distribution of ADHD-positive cases across different demographic and substance-related categories:

Age: The prevalence of ADHD was markedly higher in younger patients. Among those aged 18–30 years, 45% screened positive for ADHD, and in the 31–40 age group, 38% were positive. By contrast, in patients over 40 years old, the ADHD positive rate was much lower (approximately 15% in ages 41–60, and 14% in those above 60). This trend was statistically significant (χ^2 test for trend, $p < 0.05$), indicating that younger individuals with SUD had greater likelihood of co-occurring ADHD.

Gender: Due to the small number of female participants, a formal comparison by sex is limited. Both of the two female patients in the sample screened positive for ADHD, but given the low N, this may not be representative. Overall, with 98% of the sample being male, the data did not suggest any meaningful gender difference in ADHD prevalence; essentially, our findings pertain chiefly to a male SUD population.

Marital Status: Unmarried patients had a higher rate of ADHD compared to married patients. Among those who were single (never married), 15 out of 34 (44.1%) were ADHD positive, whereas among married individuals, 8 out of 34 (23.5%) screened positive. The single divorced/separated participant did not have ADHD. Statistically, being unmarried was associated with greater odds of ADHD ($p = 0.03$, Fisher's exact test), suggesting a significant relationship between marital status and ADHD occurrence.

Primary Substance Used: There were observable differences in ADHD prevalence by primary substance of abuse, though the small numbers in some categories limit definitive conclusions. Patients with polysubstance use or cannabis use had the highest proportions of ADHD. For instance, among those who used cannabis (with or without other substances), 11 of 18 (61%) were ADHD positive. Similarly, 4 of the 5 patients classified as using "other" substances (such as stimulants or multiple recreational drugs) had ADHD (80%). In the opioid-using subgroup (n=5), 2 patients (40%) were ADHD positive. By comparison, among patients whose substance use was primarily alcohol (and perhaps tobacco) without other illicit drugs ($n \approx 40$), the ADHD prevalence was around 30%. These patterns imply that patients engaged in illicit drug use (especially cannabis or multiple substances) were more likely to have underlying ADHD than those with alcohol as the sole substance. However, a chi-square analysis did not reach statistical significance ($p = 0.07$) when comparing ADHD rates across substance categories (possibly due to small cell sizes), indicating a trend but not a conclusive difference.

Other Factors: No significant associations were found between ADHD status and education level, employment status, or socioeconomic class in this sample. While a slightly higher proportion of unemployed individuals were ADHD positive (36%) compared to employed individuals (30%), this difference was not statistically significant ($p = 0.5$).

DISCUSSION

In this study of 70 adults with substance use disorders at a tertiary care center, we found that about one-third (33%) had co-occurring adult ADHD. This prevalence is in line with, albeit somewhat higher than, rates reported in several other studies worldwide. Our finding underscores that ADHD is a frequent comorbidity in treatment-seeking SUD populations. Prior international research has documented ADHD prevalence in SUD samples generally in the 15–25% range, though with considerable variability depending on the sample characteristics.[9] For example, a meta-analysis in 2012 reported a pooled prevalence of 23% for ADHD among individuals with SUD,[9] and studies in clinical settings have ranged from 5% on the lower end (in certain outpatient alcohol-dependent samples) up to nearly half in some groups of polysubstance users.[8] The 33% prevalence in our sample is towards the higher end of this spectrum. One possible reason is the composition of our sample: a significant portion were polysubstance users (and included cannabis use), which tends to be associated with higher ADHD rates, whereas studies focused purely on alcohol use disorder (without other drugs) often find lower ADHD comorbidity (around 10–15%). Additionally, methodological factors like using a sensitive screening instrument (ASRS) and conducting thorough clinical evaluations may have improved detection of ADHD cases in our study.[6,13] It is also noteworthy that our sample size was relatively modest; with a smaller sample, the inclusion of a few severe cases can raise the observed prevalence. Nonetheless, our results closely mirror the recent findings from an Eastern Indian study (Samal et al. 2022) which also found approximately 24%–28% adult ADHD prevalence in SUD patients in that region.[12] They similarly used the ASRS screener and had a mix of alcohol

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and opioid users, lending support to the robustness of these estimates in the Indian context.

The association of ADHD with patient demographics and substance-related factors observed in our study provides insight into the profile of individuals most at risk. We found that younger patients (those in their 20s and early 30s) were significantly more likely to have ADHD than older patients. This age effect has been reported previously. It may reflect, in part, a cohort effect or referral bias (younger adults with more pronounced ADHD may engage in substance use earlier and present for treatment earlier). It might also be due to the natural course of ADHD symptoms, which can attenuate with age for some individuals; those whose ADHD remitted might be overrepresented among older recovering adults, whereas those whose ADHD persists are seen more in younger cohorts. Another interpretation is that ADHD could contribute to early onset substance use (as supported by Kumar et al.'s findings in an Indian alcohol-dependent sample),[4] leading those individuals to enter the treatment system at younger ages. In any case, our data emphasize the importance of screening young adults in addiction treatment for underlying ADHD, as this group had the highest comorbidity rate.

We also observed a strong link between marital status and ADHD, with unmarried individuals showing nearly double the prevalence of ADHD compared to married individuals. This finding aligns with existing literature on the psychosocial impact of ADHD. Adults with ADHD often struggle with interpersonal relationships and marital stability; higher rates of separation and divorce have been documented among those with ADHD.[14] It is plausible that the impulsivity and inattentiveness of ADHD can lead to conflicts, instability in relationships, or delay in entering marriages, which could explain why our unmarried SUD patients had higher ADHD incidence. Another contributing factor might be that having a supportive spouse could help some individuals manage or seek treatment for ADHD symptoms, whereas those without such support might remain untreated and therefore overrepresented in our sample of ADHD-positive cases. Regardless of causality, this association highlights an area for holistic intervention – addressing ADHD may improve not just substance outcomes but also social and family outcomes for these patients.

In terms of substance use patterns, while not statistically conclusive, our results suggest that certain substances (and multiple substance use) are associated with higher ADHD rates. We found particularly high ADHD prevalence among cannabis users and those with poly-substance abuse. One explanation could be self-medication: individuals with ADHD might use cannabis or a combination of substances in an attempt to alleviate restlessness or improve mood, albeit maladaptively. However, this often exacerbates overall prognosis. The high rate of ADHD in opioid users (40% in our small opioid subgroup) is consistent with some prior reports that stimulant-use and opioid-use populations have elevated ADHD comorbidity.[5] It is also consistent with Carpentier et al. (2011), who noted that opioid-dependent patients with co-occurring ADHD had a more severe dependence course than those without ADHD.[15] Samal et al. also reported similar trends.[12] Although our opioid sample was too small to draw firm conclusions, the pattern aligns with the idea that when ADHD and substance dependence coexist, patients often have a more challenging clinical picture (e.g., earlier onset, rapid progression, polydrug use, and more psychiatric comorbidities).[5,15]

Our findings reinforce the clinical message that routine screening for adult ADHD in SUD patients is warranted. Importantly, identifying ADHD in this population has treatment implications. Psychostimulant medication and other ADHD-targeted therapies, when used judiciously, can significantly improve attention and impulse control, which may help patients engage better in addiction treatment and potentially reduce relapse frequency. Indeed, longitudinal studies have suggested that effective treatment of ADHD can mitigate the risk of developing SUD or improve SUD outcomes.[3] Conversely, untreated ADHD in adults has been linked to poorer addiction treatment outcomes, including more frequent relapses, difficulty adhering to therapy, and higher dropout rates from rehabilitation programs. Thus, integrated treatment approaches addressing both ADHD and SUD are likely to yield better overall recovery. For example, incorporating cognitive-behavioral strategies for ADHD (time management, organizational skills) into addiction counseling, or carefully introducing ADHD medications once the patient is stabilized in recovery, could be beneficial. Each patient should be evaluated individually to weigh the benefits and risks (such as stimulant abuse potential), but the high prevalence observed indicates many patients could potentially benefit from such interventions.

Limitations: This study has a few limitations. The sample size (N=80) is relatively small and drawn from a single tertiary care center, which may limit the generalizability of the results to other settings or regions. The cross-sectional design also means we cannot establish causal relationships (e.g., whether ADHD predisposes to SUD or prolonged SUD exacerbates ADHD symptoms – likely both). We relied on a screening instrument (ASRS) for identifying ADHD; although all screen-positive cases were evaluated in detail, it is possible some cases of ADHD were missed among those who screened negative (i.e., false negatives), or that some positive screens might not meet full diagnostic criteria on rigorous assessment (though in our study they generally did). The ASRS, while convenient, is not a substitute for a comprehensive diagnostic evaluation. Another limitation is the low number of female participants, reflecting the male-dominant

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attendance in our clinic; the findings may not fully apply to female SUD patients. Despite these caveats, the study provides valuable preliminary data on the burden of adult ADHD in an Indian SUD treatment sample.

Strengths: Notwithstanding the limitations, strengths of this study include the use of a standardized ADHD screening tool and follow-up clinical verification, which adds reliability to the prevalence estimate. The study also considered a broad range of substances and collected detailed background information, allowing exploration of associations and risk factors. To our knowledge, this is among the few studies in India examining adult ADHD in a mixed SUD population (most earlier studies focused on a specific substance like alcohol or opioids). Thus, our work contributes to an emerging evidence base and can inform future larger studies or intervention trials.

CONCLUSION

In conclusion, our study found a high prevalence of adult ADHD (approximately one in every three patients) among individuals with substance use disorders. Younger age, unmarried status, and use of multiple substances (including cannabis) were associated with higher rates of ADHD in this population. These findings highlight the importance of routinely screening for ADHD in adults presenting with alcohol or drug problems. The overlap of ADHD and SUD poses a clinical challenge, but also an opportunity: effective management of ADHD (behavioral therapy, medication, or a combination) in this group has the potential to reduce relapse rates and support long-term recovery.

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