

Adult Attention Deficit Hyperactivity Disorder in Patients with Substance Use Disorders: A Study from Southern India

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ABSTRACT

Context: Externalizing disorders of childhood characterized by attention deficit hyperactivity disorder (ADHD), conduct disorder and oppositional defiant disorder are well known to predispose an individual to experiment with substances at an early age and the later lead to the development of substance use disorders (SUD). ADHD, a developmental disorder, persists into adulthood in about two-thirds of the cases. **Aims:** In the present study, we aimed to explore the prevalence of ADHD and its subtypes in treatment-seeking patients with SUD in an outpatient setting. Secondly, we also aimed to compare the ADHD scores in the early onset and late onset subtypes of SUD. **Subjects and Methods:** Adult ADHD self-report scale symptom checklist was administered in 240 patients with SUD. The prevalence of ADHD and the difference in scores in early onset and late onset dependent groups of SUD patients were calculated. **Statistical Analysis:** Independent sample *t*-test was used to calculate the mean differences, and Chi-square test was used to calculate the difference in the proportion of cases screening positive across subgroups. **Results:** Among the 240 patients with SUD, 135 (56.25%) screened positive for “likely ADHD” and 52 (21.7%) for “highly likely ADHD.” The scores on the inattention domain and the prevalence of “likely ADHD” were significantly higher among the early onset group. **Conclusions:** The results are in agreement with similar studies of larger samples performed worldwide. Routine screening for ADHD in the treatment-seeking patients with SUD will enable the early detection and management of this highly comorbid condition.

Key words: Addiction, attention deficit hyperactivity disorder, substance use disorder, vulnerability

INTRODUCTION

One of the exciting areas of progress in the field of addiction research over the past two decades has been our insights into the vulnerability and risk factors for

substance use and dependence. The two broad domains of temperamental vulnerabilities to substance use disorder (SUD) can be classified as externalizing and

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internalizing syndromes.^[1] Externalizing syndrome includes clinically defined developmental disorders of attention deficit hyperactivity disorder (ADHD), conduct disorder, oppositional defiant disorder, and antisocial personality disorder where there is a general tendency of expression of distress outward.^[2] The internalizing syndrome includes depressive and anxiety spectrum disorders where the general tendency is to experience distress inward.^[2] Researchers over the past two decades have established a strong comorbidity of externalizing disorders and SUDs. ADHD and other externalizing disorders predispose to the early onset of substance use and specifically, the development of a dependence syndrome.^[3] Understanding the relationship between these disorders provides not only new insights into the etiology of SUDs but also open up new avenues for the comprehensive treatment of patients with SUDs.

Compared to the other disorders in externalizing syndrome, the relationship of ADHD with SUD appears more complex.^[4] The conceptualization of ADHD along the externalizing spectrum itself is much debated as only the hyperactivity/impulsivity domain shares the underlying trait of behavioral disinhibition.^[5] This relationship is further complicated when examining ADHD among adults as the inattention and hyperactivity/impulsivity domains undergo a selective transformation during the course of evolution from childhood ADHD to its adult counterpart.^[6-8] Although much of the available literature suggests childhood ADHD as vulnerability to develop SUD during adolescence and adulthood, the evaluation of this syndrome in adults with SUD is of merit because treatment of ADHD comorbidity improves the outcome of SUD.^[9]

The studies on the prevalence of ADHD in patients with SUD, across the globe, report a wide range varying from 2% to 83%.^[10] A meta-analysis on this subject which included 14 studies of the prevalence of adult ADHD in SUD population with a sample size of 2635 arrived at a prevalence rate of 21% among adults.^[11] A multicenter study across ten countries in Europe with a total of 3558 patients of SUD reported a prevalence ranging from 5.4% to 31.3%.^[10] Thus, there is a need to explore the prevalence of ADHD in patients with SUD in India.

In this study, we aimed to assess the prevalence of ADHD and its subtypes among patients seeking treatment for SUDs. Secondly, we also aimed to measure the difference in the ADHD scores in the early onset (age of onset of dependence before 25 years) and late onset (age of onset of dependence after 25 years) dependent groups of patients with SUD.

SUBJECTS AND METHODS

Subjects

The study was conducted at the outpatient services of a tertiary care center for addiction medicine in Southern India. Among the patients seeking treatment for substance use problems, 240 English-speaking patients were recruited for this study. After an initial screening and establishing the diagnosis of SUD by a clinician, patients were approached for the informed consent to participate in the study. Consenting patients were provided with “Adult ADHD self-report scale (ASRS) symptom checklist”^[12] for self-rating by an independent interviewer. After the patient filled the symptom checklist, the interviewer explored individual rated symptoms to confirm the presence of ADHD. Based on the age at onset of dependence syndrome, those patients who developed dependence on or before 25 years of age were defined as early onset SUD and the rest as late onset SUD. The study was approved by the Institute’s Ethics Committee.

Adult attention deficit hyperactivity disorder self-reporting scale^[12]

ASRS symptom checklist is a semi-structured instrument for the assessment of ADHD in adults. The older version of ASRS symptom checklist was utilized for this study as it distinguishes inattention (Part A) and hyperactivity/impulsivity (Part B) domains with nine items each and provides a total score for each domain. Each item is scored on a five-point scale from 0 to 4 with responses scored never, rarely, sometimes, often and very often. For a positive diagnosis of ADHD, we considered a broad criteria as “likely to have ADHD” on either domain of ASRS symptom checklist or a narrow criteria as “highly likely to have ADHD” on either domain. A person scoring 17–23 is “likely to have ADHD” and 24 or greater on either domain is “highly likely to have ADHD.”

Statistical analysis

Statistical analysis was carried out using the R: Program for statistical computing package Stata.^[13] Mean and standard deviation (SD) scores were calculated for both subdomain scores. After determining normality, the scores were compared between early onset and late onset dependence subgroups using independent sample *t*-test. Chi-square test was used for analyzing the subgroup differences in the proportion of cases having likely/highly likely ADHD of either subtype.

RESULTS

Among the 240 patients recruited for this study, 209 (87.08%) were found to have early onset of any substance dependence, and 31 (12.92%) were noted

to have late onset dependence. One hundred and thirty-eight (138) (57.5%) had alcohol, 36 (15%) had cannabis, 23 (9.6%) had opioid, and 36 (15%) had polysubstance dependence syndrome.

Overall, 135 cases of 240 screened positive for a broad definition “likely to have ADHD” accounting for a point prevalence of 56.25%. By the narrow definition of “highly likely to have ADHD”, the rate decreased to 21.7% with 52 cases screening positive. On categorical analysis of likely presence of any ADHD 124 (59.3%) of the early onset group and 11 (35.5%) of the late onset group screened positive with the former group having significantly higher proportion for any likely ADHD ($P = 0.013$). By the narrow definition, 48 (23%) of early onset group as compared to 4 (12.9%) of late-onset group had highly likely ADHD, but this statistic was not significantly different between the groups.

On comparing early and late onset dependence subgroups, inattention scores were higher among the early onset group mean (SD) - 15.84 (6.54) as compared to the late onset group mean (SD) 13.26 (5.6) and the difference was statistically significant. On hyperactivity/impulsivity domain and total scores, though the early onset group had higher scores than the late onset group the difference did not reach statistical significance [Table 1]. On examining the subtype of ADHD, both early and late onset subgroups had higher proportion of cases screening positive in both domains than either inattention and hyperactivity/impulsivity domains individually [Table 2].

Table 1: Clinical demographic details and prevalence of attention deficit hyperactivity disorder in early onset and late onset subgroups

	Early onset group	Late onset group	P
n, n (%)	209 (87.08)	31 (12.98)	
Age, mean (SD)	32.75 (11.14)	46.68 (10.61)	<0.001
Age at onset, mean (SD)	19.32 (3.81)	35.19 (7.64)	<0.001
Likely ADHD, n (%)	124 (59.3)	11 (35.5)	0.013*
Highly likely ADHD, n (%)	48 (23)	4 (12.9)	0.204

*P Value less than 0.05 is significant; SD – Standard deviation; ADHD – Attention deficit hyperactivity disorder

Table 2: Attention deficit hyperactivity disorder scores and subtypes in early onset and late onset groups

	Early onset n=209	Late onset n=31	P
Inattention score, mean (SD)	15.84 (6.54)	13.26 (5.6)	0.038*
Hyper/impulse score, mean (SD)	15.15 (6.57)	13.9 (6.22)	0.321
Total score, mean (SD)	30.99 (11.74)	27.16 (10.86)	0.088
Inattention only n (%)	28 (13.4)	2 (6.5)	0.278
Hyperactivity impulsivity only, n (%)	30 (14.4)	4 (12.9)	0.823
Both inattention-hyperactivity/ impulsivity, n (%)	66 (31)	5 (16.1)	0.088

*P Value less than 0.05 is significant; SD – Standard deviation

DISCUSSION

Although the higher prevalence of ADHD in patients with SUD has been well established elsewhere, the literature on the same from India is scarce. Our results are in agreement with the larger studies done in other parts of the world.^[10,11]

Comparing our results to the studies conducted in India in non-SUD population; the prevalence rate reported in our study is tangibly higher. In a general psychiatric outpatient setting assessing 283, adult patients 25 (8.83%) were noted to have ADHD, and a majority of them were also noted to have SUD.^[14] A study recruiting 237 college students in Chandigarh reported an even lower rate of with 13 (5.48%) qualifying for the diagnosis of adult ADHD.^[15] The authors note that there is a paucity of studies in larger community samples across wider age groups in India.

Our results also make a clear distinction of a higher prevalence of adult ADHD among the early onset SUD population as compared to late onset. It has been established with compelling evidence that childhood ADHD plays an important role in pathogenesis and maintenance of SUD.^[3,16] Although the historical diagnosis of childhood ADHD was not established among the patients in this study, the identified adult ADHD can be assumed to be the continuation of childhood psychopathology. A study in seventy alcohol-dependent patients which looked at the prevalence of childhood ADHD and residual type Attention deficit disorder between early and late onset dependant groups reported a significantly higher prevalence of both the conditions in the early onset group.^[17] One study which explored the effects of treatment with atomoxetine for SUD patients with ADHD found significant benefits in terms of longer periods of abstinence, shorter turnaround time, and better quality of life.^[18] This again reiterates the need to screen the treatment-seeking patients with SUD for ADHD.

The authors acknowledge the limitations of this study for an absence of age-matched control arm and selection of only English-speaking male patients which could contribute to potential bias. The diagnosis of ADHD was also based on the empirically defined narrow and broad definitions based on the scores obtained from ASRS symptom checklist. However, the high rates of both “likely ADHD” and “highly likely ADHD” noted in the present study make a strong case for high comorbidity of this syndrome in SUD population.

CONCLUSIONS

Adult ADHD is a highly comorbid condition among patients with SUDs. Regular screening with scales such as ASRS symptom checklist enables detection of this condition. Available evidence suggests improved substance use outcomes and quality of life if this comorbid condition is identified and treated appropriately.

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Conflicts of interest

There are no conflicts of interest.

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