

# Assessment of Symptoms of Attention-Deficit Hyperactivity Disorder in Adults With Substance Use Disorders

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Identifying groups of individuals with characteristics that place them at high risk for substance abuse is increasingly emphasized. Only a few studies of adults with substance use disorders have examined comorbid attention-deficit hyperactivity disorder (ADHD).

A prevalence rate of approximately 25 percent has been found for ADHD among adults in substance abuse treatment (1-3). Familial alcoholism and childhood conduct disorder and hyperactivity have been found to be associated with subsequent alcoholism (3-5). Some investigators have concluded that the association of hyperactivity and alcoholism is not direct but can be attributed to the comorbidity of hyperactivity and conduct disorder as well as aggressivity and antisocial behaviors (4,6,7). Thus the significant risk for alcoholism would be conveyed by conduct disorder and antisocial personality disorder and not by hyperactivity per se. Longitudinal research has shown that

among most young adults with ADHD, the onset of conduct disorder preceded the substance abuse (8,9).

Previous work suggests a relationship between ADHD and cocaine abuse. In a sample of 298 adult cocaine abusers, Rounsaville and associates (2) found that 35 percent had a history of childhood ADHD that was not entirely accounted for by sociopathy; however, none of the adults were reported to have ADHD. Further analysis by Carroll and Rounsaville (10) found that cocaine abusers with a history of childhood ADHD, regardless of coexisting sociopathy, had a different pattern of cocaine use and poorer treatment outcome than cocaine abusers with no history of ADHD. The apparent overrepresentation of persons with ADHD among cocaine abusers supports the possibility that they may be self-medicating the disorder by drug abuse (10,11).

Studies of adults with ADHD have provided evidence that substance abuse is associated with ADHD and antisocial disorders (12). However, although the presence of other psychiatric illnesses among adults with ADHD increases the risk for substance abuse, preliminary findings also indicate that adult ADHD of childhood onset may be an independent risk factor for substance use disorders (13).

Because little research has been done on ADHD among adults dependent on alcohol and other drugs, this preliminary study examined the prevalence of symptoms of childhood and adult ADHD in a clinical sample of adults with substance use disorders

who were in addiction treatment. The evaluation was conducted within a larger study that examined differences in stimulus sensitivity.

## Methods

The 36 subjects for this study were recruited from the addiction program of the Royal Ottawa Hospital between November 1993 and July 1994. Participants were inpatients who were required to have a minimum of two weeks of abstinence from substance use. Those with evidence of any major current psychiatric disorder with the exception of a substance use disorder and ADHD were excluded from the sample. Of the 36 participants, 29 (81 percent) were male, and seven (19 percent) were female. The mean  $\pm$  SD age of the subjects was  $36.3 \pm 8.97$  years.

Patients completed the Michigan Alcoholism Screening Test (MAST), a self-report questionnaire used for the detection of alcoholism (14). The weighted answers to each of the 25 questions are summed to provide a total score ranging from 0 to 53. A score of 5 or more indicates a diagnosis of alcohol dependence (15).

Patients also completed the Drug Abuse Screening Test (DAST), a 20-item self-report questionnaire with good validity for assessing DSM criteria for psychoactive drug dependence (16). The total score can range from 0 to 20 and is computed by summing all items endorsed in the direction of increased drug use problems. DAST scores of 5 or greater indicate problems with drug use.

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The Wender-Utah Rating Scale (WURS) was also used. It is a newly developed scale for use with adults to assess childhood ADHD (17). It consists of 61 statements outlining behavior patterns that may have been evident in the respondent during childhood. Respondents indicate to what degree each statement reflects their behavior during childhood. The developers of the WURS found that a cutoff score of 46 correctly identified 99 percent of the individuals with ADHD and 99 percent of those without ADHD in a control group (17).

For this study, the Conners Abbreviated Teacher's Rating Scale (CTRS) (18) was modified to evaluate symptoms of ADHD in adults. The modified scale was designed by reviewing the CTRS as well as Wender's description (19) of adult ADHD criteria. The modified instrument is a self-report scale with 13 questions. (A copy is available from the authors.) Each item is scored on a scale from 0 to 3 points, with a maximum score of 39 points. For the 36 patients in this study, the mean  $\pm$  SD score was  $17 \pm 8.8$ ; thus scores of 17 or greater were used to indicate significant impairment from adult ADHD. Furthermore, the frequency distribution of scores was bimodal, supporting the use of 17 as the cutoff score for this scale.

Patients also completed the Personality Diagnostic Questionnaire—Revised (PDQ-R), a 152-item self-report questionnaire that ascertains the prevalence of symptoms of all *DSM-III-R* personality disorders (20). The PDQ-R yields specific personality disorder diagnoses. A score of 5 or greater for antisocial personality disorder indicates significant symptoms of that disorder. For conduct disorder, a score of 3 or greater indicates significant symptoms.

## Results

Twenty-one of the 36 subjects (58 percent) had significant drug abuse problems as indicated by DAST scores of 5 or greater (mean  $\pm$  SD score =  $13.2 \pm 4.3$ ). These 21 subjects also demonstrated alcohol abuse problems as indicated by a mean MAST score of  $33 \pm 16.7$ . However, for clarity these

**Table 1**

Prevalence of symptoms of childhood and adult attention-deficit hyperactivity disorder (ADHD) among 36 patients in treatment for alcohol or drug use disorders

Substance use group	Childhood ADHD symptoms only		Childhood and adult ADHD symptoms		Adult ADHD symptoms only		No ADHD symptoms	
	N	%	N	%	N	%	N	%
Both alcohol and drug use (N=36)	5	14	13	36	2	6	16	44
Alcohol use (N=15)	2	13	4	27	1	7	8	53
Drug use (N=21)	3	14	9	43	1	5	8	38

individuals are referred to here as the drug use group. They identified cocaine, cannabis, and LSD as their major drugs of choice.

Fifteen participants (42 percent) had significant problems with alcohol alone. They had a mean  $\pm$  SD MAST score of  $26.9 \pm 9$ , and DAST scores of less than 5 (mean =  $1.3 \pm 1.2$ ). They are referred to here as the alcohol use group. The drug use group had a significantly higher DAST score than the alcohol use group ( $t = 10.23$ ,  $df = 7$ ,  $p < .05$ ).

Prevalence rates of childhood and adult ADHD are presented in Table 1. Of the 36 subjects, 18 (50 percent) reported symptoms of ADHD during childhood or during both childhood and adulthood. Thirteen of the 18 individuals (72 percent) who had childhood ADHD symptoms also had symptoms of adult ADHD.

Six of the 15 subjects in the alcohol use group (40 percent) and 12 of the 21 subjects in the drug use group (57 per-

cent) reported symptoms of ADHD during childhood or during both childhood and adulthood. One individual in the drug use group had been diagnosed with ADHD in childhood. Furthermore, three individuals in the study who reported that they had symptoms of both childhood and adult ADHD were later confirmed to have current ADHD of childhood onset as assessed by the senior author, a child and adolescent psychiatrist certified in the subspecialty of addiction psychiatry.

Of the 36 subjects, 14 (39 percent) had significant symptoms of both antisocial personality disorder and conduct disorder as assessed by the PDQ-R. Three of the 15 subjects in the alcohol use group (20 percent) and 11 of the 21 subjects (52 percent) in the drug use group had symptoms of these disorders, a significant between-group difference ( $\chi^2 = 3.85$ ,  $df = 1$ ,  $p < .05$ ).

Table 2 shows the prevalence of an-

**Table 2**

Prevalence of symptoms of childhood and adult attention-deficit hyperactivity disorder (ADHD) among 36 patients in substance abuse treatment who did or did not report symptoms of antisocial personality disorder and conduct disorder

Symptom group	Childhood ADHD symptoms only		Childhood and adult ADHD symptoms		Adult ADHD symptoms only		No ADHD symptoms	
	N	%	N	%	N	%	N	%
Symptoms of both antisocial personality disorder and conduct disorder (N=14)	0	—	9	64	0	—	2	14
No symptoms of both antisocial personality disorder and conduct disorder (N=22)	5	23	4	18	2	9	14	64

tisocial personality disorder and conduct disorder among patients with and without ADHD. Nine of the 18 patients (50 percent) who reported symptoms of childhood ADHD, adult ADHD, or both also reported symptoms of antisocial personality disorder and conduct disorder. Furthermore, nine of the 13 subjects (69 percent) who reported symptoms of both childhood and adult ADHD also reported symptoms of antisocial personality disorder and conduct disorder. However, only two of the 16 patients (13 percent) who reported no symptoms of ADHD reported symptoms of both antisocial personality disorder and conduct disorder. Finally, 14 of the 16 patients (88 percent) who reported no symptoms of ADHD also did not report symptoms of antisocial personality disorder and conduct disorder.

### Discussion and conclusions

This study found a high prevalence of symptoms of childhood and adult ADHD in a group of adults with substance use disorders who had been abstinent from substance use for at least two weeks. ADHD symptoms tended to be more prevalent among patients with both alcohol and drug use disorders than among those with alcohol use disorders alone, even though ADHD symptoms were prevalent in both groups.

The results of this study are consistent with those of previous research that found symptoms of antisocial personality disorder to be more prevalent in substance abusers with high incidences of both childhood and adult ADHD (7–9,12). Furthermore, individuals with both childhood and adult ADHD symptoms reported more polysubstance use problems and more antisocial behaviors. However, a subgroup of individuals with symptoms of adult ADHD did not report symptoms of antisocial personality disorder. These findings support preliminary evidence that adult ADHD of childhood onset is an independent risk factor for substance use disorders (13). A few patients in the study reported here had symptoms of adult ADHD but did not have previous symptoms of ADHD in childhood. This finding may reflect possi-

ble organic effects related to prolonged withdrawal or direct toxic effects of the abused substances.

Our findings on ADHD and substance use disorders must be interpreted in the context of several methodological limitations. The retrospective assessment of ADHD requires accurate information and relies heavily on the subjective recall of adults. In this study an attempt was made to gather childhood histories of ADHD using the Parents Rating Scale (19) to corroborate self-reports of childhood ADHD symptoms; however, the majority of patients were unwilling or unable to comply. Furthermore, relying only on self-reports of ADHD symptoms without a clinical diagnosis of ADHD may have led to overrepresentation of ADHD in this sample.

A second concern reflects the fact that no guidelines exist for establishing the length of abstinence from substance use before a diagnosis of adult or residual ADHD can be made. Although this study used a criterion of a minimum of two weeks of abstinence, withdrawal symptoms or organic effects may have mimicked ADHD symptoms in some patients. It would have been helpful if self-reported abstinence was confirmed by urine toxicology screens.

A third concern is that no standardized scale is available to assess adult ADHD. The scale developed for this study, based on the modified CTRS, represents a preliminary scale for assessing ADHD in adults, and it is currently being revised and standardized by the authors. Finally, the small sample size and the possibility of selection bias due to nonconsecutive subject recruitment may limit the generalizability of our results.

The findings of this study have both theoretical and practical implications. Despite the limitations of the study, the results strongly suggest the need for greater evaluation of ADHD in populations of adults with substance use disorders and the development of more valid and reliable methods of assessment. The authors are currently studying the prevalence of ADHD in populations of substance abusers who seek treatment. The high prevalence of ADHD symptoms in adults with substance use disorders necessitates

further research to examine how addiction treatment can be modified to help patients with this comorbid psychiatric diagnosis. ♦

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