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Attention-Deficit Hyperactivity Disorder and Substance Use Disorders: Prevalence and Treatment Outcomes

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Attention-Deficit Hyperactivity Disorder and Substance Use Disorders:

Prevalence and Treatment Outcomes

Carole J. Huddleston

Wright State University
Abstract

Attempts to improve substance use disorder (SUDs) treatment outcomes have been made by identifying subgroups of clients with psychoactive comorbidities and tailoring treatment approaches accordingly. This study sought to determine the prevalence of Attention-deficit Hyperactivity Disorder (ADHD) among admittees to a 28-day, residential program. It was hypothesized that ADHD screening and assessment would result in a higher prevalence rate when compared to the clinical record. It was further hypothesized that clients with ADHD would have higher, earlier unsuccessful terminations and higher overall unsuccessful terminations than non-ADHD clients. The differences in the prevalence rates (3.44% clinical record and 43.68% study psychologist) were statistically significant ($p<.001$). Analysis of treatment outcomes for the two groups was not statistically significant.
Attention-Deficit Hyperactivity Disorder and Substance Use Disorders:

Prevalence and Treatment Outcomes

Substance use disorders (SUD) is a major health problem in the United States. Traditional substance abuse/dependence treatment modalities have high failure rates. During the 1980s, with the goal of improving treatment outcomes, attempts were made to identify subgroups of patients with psychiatric co-morbidities and to tailor treatment approaches to increase positive treatment outcomes (Gordis, 1987). During this period, the impact of Attention-deficit Hyperactivity Disorder (ADHD) on addictions treatment was not broadly studied as it was a generally held belief that ADHD symptoms were resolved by adulthood. As recently as 1996, Hill & Schoener in their study concluded that the symptoms of ADHD essentially disappear in adulthood. In a 1989 report, the Institute of Medicine of the U.S. National Academy of Sciences strongly encouraged researchers to analyze the outcomes of client-treatment interventions.

During the 1990s, researchers began focusing on the prevalence of the comorbidity of ADHD and SUD in an attempt to link specific treatment modalities to client attributes and to better understand treatment outcomes.

There is a body of research that supports the validity of adult ADHD. In fact, clinical correlates of ADHD are similar for children and adults. Downy, Stelson, Pomerleau, & Giodani, (1997) documented the presence in adults of inattention, impulsivity, and hyperactivity which are the defining features of ADHD. In a family study of children with ADHD, of the non-referred adult relatives more than two thirds reported levels of ADHD symptoms within the severe range (Biederman, Faraone, Keenan, Knee, & Tsuang, 1990). Treatment studies document that the medications effective in the treatment of pediatric ADHD are equally effective in treating adult symptoms (Faraone, Biederman, Spencer, Michelson, Adler, et al. 2005; Kelsey, Sumner, Casat,

The prevalence of ADHD in children has been reported at 5% to 10% (Biederman, 1998; Lambert, Sandoval, & Sassone, 1978; Wender, 1997) with studies reporting persistence of ADHD into adulthood ranging from 10% to 70% (Barkley, 1990; Levin et al. 1998; Weiss, 1993; Wender, 1997). Studies of prevalence of adult ADHD also vary in their outcomes. Murphy & Barkley (1996) reported a 4.7% prevalence rate while Heiligenstein et al. (1998) reported a 4% rate. Both of these studies had limited generalizability due to study design limitations. Two rather well-designed studies provided similar results. Faraone, Sergeant, Gillberg, & Biederman (2003) reported a 3.2% prevalence rate for adults presenting with a full diagnostic picture and 6.6% with a partial symptom picture. Faraone & Biederman (2005) in a study of 966 randomly selected adults reported a 3% rate for narrowly defined ADHD and 16.4% for a broadly defined diagnosis. Kessler, Adler, Barkley, Biederman, Conners, et al. (2005) through the National Comorbidity Survey surveyed 3,199 individuals and used a probability sampling to assure generalizability. The result was an estimated adult ADHD prevalence rate of 4.4%. It was reported in this study that adult ADHD was highly associated with other DSM-IV Disorders. Faraone & Biederman (2005) conclude that “ADHD is one of the common psychiatric disorders of adulthood.”

Carroll & Rounsaville (1993) reported a 35% prevalence rate of ADHD among adult cocaine abusers seeking treatment. Approximately 50% of adults with ADHD have a history of
SUD and it was concluded that ADHD was a significant risk factor for the development of a SUD (Biederman, Wilens, Mick, Milberger, Spencer, et al. 1995). A history of childhood ADHD has been found in 22% to 71% of substance abusing adults (Wilens, Biederman, & Spencer, 1996). In a study of 201 adults seeking drug treatment, Schubener, Tzelepis, Milberger, Lockhart, Kruger, et al. (2000) observed that nearly one quarter of the individuals entering inpatient treatment met the DSM-IV criteria for ADHD diagnosis. Studies of adult alcohol abusers yielded rates of between 35% and 71% of adult alcoholics with childhood-onset and persistent ADHD (Goodwin, Schulsinger, & Hermansen, 1975; Wilens, Spencer, & Biederman, 1995). Clure, Brady, Saladin, Johnson, Waid, et al. (1999) found that in the 136 subjects who were in residential treatment for SUD 32% had a diagnosis of ADHD. Johann, Bobbe, Pritzhammer, & Wodarz, (2003) reported a prevalence rate of 21.3% of ADHD in a sample of 134 adult, alcohol-dependent German subjects. There is a higher rate of ADHD among substance abusers than the estimated rate in the general population. These and many other studies support ADHD as a risk factor for the development of SUD. In fact, Giedd (2003) observed, “a plethora of epidemiologic data indicating that the diagnoses of ADHD and substance abuse occur together more frequently than expected by chance alone.”

Attempts to explain the vulnerability of individuals diagnosed with ADHD to SUD have been made. Khantzian (1985), as well as Carroll & Rounsaville (1993) suggest that cocaine-abusing clients’ abuse patterns are consistent with clinical descriptions of self-medication. Untreated ADHD is a significant risk factor for SUD (Biederman, Wilens, Mick, Spencer, & Faraone, 1999). It is acknowledged in the addictions field that low self-worth and poor executive functioning are associated with alcohol and other drug abuse. Individuals with ADHD, especially when it is undiagnosed and/or untreated, are vulnerable to drug use and abuse.
Katusic, Barbaresi, Colligan, Weaver, Leibson, et al. (2005) concluded that psychostimulant treatment of childhood ADHD was associated with a reduced risk for later substance abuse among boys with ADHD.

Research supports the need for accurate assessment and treatment of ADHD early in SUD treatment. Carroll & Rounsaville (1993) found that cocaine abusers with ADHD diagnosed in childhood did worse in treatment than cocaine users with no history of ADHD even though they had more treatment exposures. Wise, Cuffe and Fischer (2001) found that adolescents in drug treatment with comorbid ADHD did significantly worse than those without ADHD. Levin, Evans, Vosburg, Horton, Brooks, et al. (2004) found that patients with adult ADHD had the highest early drop-out rates (35%) in a long-term, therapeutic community program. They also had lower completion rates. In fact, no one with ADHD in this study graduated from treatment. Wilens, Biederman, & Mick (1998) reported that participants with adult ADHD in SUD treatment had slower remission rates and longer duration of SUD when compared with non-ADHD participants with SUD.

It was observed by the treatment staff at the Center for Alcoholism and Drug Addiction Services (CADAS), Dayton, OH that a significant number of clients presented for residential treatment with pronounced symptoms of ADHD without diagnosis. These clients were observed to be inattentive, impulsive, agitated and restless-to-hyperactive. In small group therapy sessions, they were observed sub-grouping, playing with objects, involved in a number of distracting physical behaviors and interrupting/blurtting out comments. They often went to lectures unprepared despite prompts. Staff frequently complained about them impulsively violating boundaries and rules. When these symptoms were observed, the clients were referred
to the consultant psychologist and, if a diagnosis of ADHD was made, those clients were referred to a psychiatrist to determine if they could benefit from a medical treatment.

To explore the observation that a significant number of clients were admitted to treatment with ADHD, but without a diagnosis, a retrospective review of all charts of all the 2004 clients assigned to this investigator at CADAS was made. This review revealed that, of the 97 clients assigned to this investigator, only one had a clinical diagnosis of ADHD at the time of admission. Thirteen additional clients were observed to have pronounced symptoms of ADHD and were referred to the consultant psychologist. Prior to assessment for ADHD, eight received an unsuccessful termination from treatment. The other five were assessed and were diagnosed with adult ADHD. The prevalence rate of all clients with pronounced symptoms of ADHD was 14%. The unsuccessful discharge rate for those not observed to have pronounced symptoms of ADHD was 19% while the unsuccessful discharge rate for those with pronounced symptoms was 57%

The goal of this study was to determine the prevalence of ADHD among admittees to The Center for Alcoholism and Drug Addiction Services (CADAS) a 28 day residential treatment program and to explore treatment outcomes. It was hypothesized that the screening and subsequent assessment of clients for ADHD would result in a higher prevalence rate when compared to the prevalence rate of the documented clinical record. In addition, it was hypothesized that clients diagnosed with ADHD would have higher early unsuccessful terminations and higher overall unsuccessful terminations than clients who are not diagnosed with ADHD.

METHOD
Subjects were adults admitted to CADAS. In order to be eligible for residential treatment, all admittees had to have, at least, one Axis I SUD diagnosis. All admittees were assessed and diagnosed at CrisisCare prior to admission. CrisisCare provides all mental health and substance abuse assessments for Montgomery County, OH residents who do not have insurance or financial resources to cover a private assessment. All admittees between June 21, 2006 and September 13, 2006 were invited by the study interviewer to participate until the proposed number of ninety subjects was met. The program was visited twice weekly by the interviewer. The Monday and Tuesday admittees were interviewed on Wednesdays and the Wednesday and Thursday admittees were interviewed on Sundays. In addition, admittees were interviewed by gender in either small groups or individually based upon the number of admissions.

The Participant Consent Form was read to the potential subjects and some background information about comorbid SUD and ADHD was provided by the interviewer. After receiving written agreement to participate, all subjects completed the Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist (Kessler, Adler, Ames, Demler, Faraone, et al. 2005). Adler, Spencer, Faraone, Kessler, Biederman, et al. (2006) studied the pilot ASRS and its internal consistency symptom scores was assessed by Cronbach’s Alpha and the result was 0.88. Adler et al. (2006) concluded that this scale was reliable and valid. The subjects were instructed to focus on periods of abstinence or their behaviors prior to the development of the SUD and not on their substance abuse related behaviors when responding to the ASRS. The subjects subsequently were interviewed individually to determine whether or not they had been diagnosed with and/or treated for ADHD as children. The clinical records were reviewed for Axis I and Axis II diagnoses and to obtain specific demographic information. The subjects whose scores were 17-
23 (likely to have ADHD) or 24 or greater (highly likely to have ADHD) for either Part A (Inattentive) or Part B (Hyperactive/Impulsive) were referred to the CADAS consultant psychologist for an ADHD assessment.

The consultant psychologist was given a list of subjects to be assessed, but not their scores. Also, he was not given information as to whether or not the subjects had been diagnosed with ADHD as children. The psychologist knew the subjects were either likely or highly likely to have ADHD in order to be referred. The consultant psychologist determined that in order to be diagnosed with ADHD for this study, the participants had to meet the criteria set forth in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; American Psychiatric Association, 1994). Because symptoms of SUD mimic the ADHD symptoms of impulsivity, hyperactivity and inattention, the psychologist, during assessment, confirmed that the clients experienced ADHD symptoms prior to the development of the SUD in order to make a diagnosis of ADHD. It was decided by the psychologist and this investigator that those clients who had certain psychiatric conditions (e.g. anxiety disorders and Bipolar Disorder with either manic or hypomanic features) as diagnosed either by the psychologist or CrisisCare, would not be diagnosed ADHD due to the potential confounding variables and symptoms-overlap associated with those conditions. The psychologist assessed the Monday/Tuesday admittees their first weekend in treatment and the Wednesday/Thursday admittees were assessed their second weekend in treatment.

All subjects’ treatment outcomes were documented as either successful or unsuccessful. Successful discharges included those individuals who completed the 28-day program and graduated. Unsuccessful discharges for the purposes of this study included Administrative (rule infraction) or Against Staff Advice discharges. One participant had a miscarriage and received a
Medical discharge on day 26 of treatment and another client’s medical problems resulted in a medical discharge on day six. These unsuccessful discharges were treated separately from the other unsuccessful discharges in this study as they did not appear to be related to having or not having a diagnosis of ADHD. Three admittees refused to participate, three left treatment prior to being approached to participate and one admittee agreed to participate, but was not included because of the special challenge to diagnostic accuracy posed by the presence of a severe hearing impairment. Three subjects were interviewed, screened and determined appropriate for referral to the psychologist, but had an unsuccessful discharge before they could be assessed. One subject was referred to the psychologist even though he did not meet the criteria (likely or highly likely) for referral because he had been diagnosed and treated as a child for ADHD. Inter-rater reliability was not an issue as there was one interviewer and one psychologist involved in this study. The interviewer had a Masters in Rehabilitation Counseling. The psychologist was licensed by the State of Ohio. Prior to initiating this study, human subjects approval was sought and granted by the Wright State University (WSU) Institutional Review Board (IRB).

RESULTS

In the study proposal, it was determined that the investigator would approach new admissions until an N=90 was reached. Subsequent to being granted approval by the IRB of WSU and before reaching N=90, 97 clients were admitted to residential treatment. Three admittees left before being approached by the investigator, three refused to participate and one was not included because of a hearing impairment. Three admittees left treatment after agreeing to participate, being screened and receiving a referral to the psychologist, but before being assessed. This resulted in an N=87. Two participants were screened, referred, assessed, not diagnosed with ADHD and received medical discharges (one client had a miscarriage and one
needed gallbladder surgery). Neither of these medical discharges appeared to be related to ADHD so to avoid any potential confounding, they were excluded from the data used to evaluate the second hypothesis. As a result, N=85 for the second hypothesis. Because of time limitations inherent in this study, the investigator could not approach additional admittees for inclusion.

To determine if the “convenience” sample demographics (Table I) was representative of the CADAS residential population, the demographic data collected were compared with the same demographic information from the 2005 population of CADAS residential clients (Table II). This “convenience” sample demographics when compared with the “population” of CADAS residential clients do not appear to be significantly different. Even though there was no random assignment of participants, this sample appears to be representative of the CADAS population.

Among the 87 participants, three (3) were admitted with a diagnosis of ADHD in the clinical record. The prevalence rate from the clinical records was 3%. The prevalence rate from the psychologist’s assessments was 44% (Table III). Because the three participants admitted with a diagnosis of ADHD were re-assessed and subsequently re-diagnosed with ADHD a McNemar’s test (Fleiss, 1981) was utilized to obtain a chi-square value of \(33 \ p<.001\). The differences in the two prevalence rates were statistically significant. In the McNemar’s test only the pairs in which the numbers differ in the antecedent factor contribute to the test statistic.

The second hypothesis was that the participants with ADHD would have higher, early unsuccessful terminations and higher overall, unsuccessful terminations than clients not diagnosed with ADHD. The ADHD group had a slightly lower mean number of days in treatment (24.92 days) than the non-ADHD group (26.11 days). An analysis of variance revealed that the difference between groups was not significant \(p=.325\). In addition, an analysis of treatment success for the two groups was not statistically significant.
Although not included in this study as a formal hypothesis, an analysis was applied to the ASRS scores to examine its ability to predict the diagnosis of ADHD in this study. Since the ASRS scores are continuous and the diagnosis (yes/no) is not, a point bi-serial correlation statistic was used. The ASRS was a good predictor of an ADHD diagnosis. ASRS Part A and ADHD diagnosis, $r = 0.656$, $N = 87$, $p < 0.05$ and ASRS Part B and ADHD diagnosis, $r = 0.615$, $N = 87$, $p < 0.05$. In terms of prediction for either part, higher scores tend to predict an ADHD diagnosis. Part A was only slightly better at predicting ADHD.

**DISCUSSION**

Knowledge of the prevalence of adult ADHD plays an important role for clinical practice. If a disorder is thought to be rare, clinicians may be reluctant to make a diagnosis. Conversely, if a disorder is viewed as common, clinicians will screen for it and be more attentive to the symptoms when assessing clients/patients’ complaints. In children, screening for ADHD is relatively routine as it has been viewed as a common childhood disorder. In adults, screening for ADHD is relatively uncommon. Kessler, et al. (2006) reported that in the 12 months prior to being interviewed for their survey 53.1% of the women and 36.5% of the men with adult ADHD had received either mental health or substance-related treatment. Only 10.9% of these participants had received treatment for adult ADHD. This is a major concern as adult ADHD alone produces serious impairments in a wide-range of major life areas.

In this study, the psychologist diagnosed 44% of the 87 participants with adult ADHD. Although this prevalence rate falls on the high end, this prevalence rate falls within the range reported by other studies. Of note, prior to implementing the study design, the psychologist and this investigator discussed taking a “conservative” approach to the diagnosis of ADHD. Some clinical researchers have suggested that the symptoms of adult ADHD are more varied and less
severe in adults and need to be taken into account during assessment (Faraone & Biederman, 2005) or have suggested a reduction in the DSM-IV requirement for six of nine symptoms (Ratey, Greenberg, Bemporad, & Lindem, 1992). Neither of these suggestions was implemented in this study.

Previous studies, as noted, indicated that the prognosis of subjects with SUD is negatively affected by the comorbid presence of ADHD. As reported above, a retrospective review of 97 CADAS client charts revealed that clients with pronounced traits of ADHD had a 57% unsuccessful discharge rate while those clients who did not have pronounced symptoms had a 19% unsuccessful discharge rate. This outcome was the basis of the second hypothesis.

Although not related to either study hypotheses, valuable information was gained from the study interviews. During the interviews, all subjects who had a Cocaine Abuse or Cocaine Dependence diagnosis were asked questions about how cocaine affected them. None of the subjects who scored below 17 (the referral score cut-off score) reported paradoxical effects of cocaine. Of the 31 with a history of cocaine use who were referred to the psychologist, 22 reported paradoxical effects. Subjects, when making comments about their experience using cocaine, made statements like, “I think better and I am more organized” or “I’m mellow. I’m just more relaxed. It is kind of weird.” In fact, one subject stated, “I call crack my medicine.” Subjects, who reported this effect, clearly recognized that they were different from other crack-cocaine users, yet seemed somewhat surprised to look at this effect in the context of ADHD. It seemed to this investigator that almost immediately they were making sense of an experience that they had not previously examined. Although this study (Table IV) and other research studies do not find a difference between ADHD and non-ADHD patterns of specific drug use (Biederman, et al. 1995; Clure, et al. 1999; Levin, et al. 1998; Schubiner, et al. 2000), this study
outcome does offer some support to Carroll & Rounsaville (1993) and Khantzian (1985) self-medication hypothesis.

Of the 38 subjects who were referred to the psychologist, only 7 reported a childhood diagnosis of ADHD. Even though ADHD is regularly screened in childhood, it is evident that it is still being missed. The clients of CADAS residential often come from homes that are chaotic as many come from situations where either one or both of their parents suffer from SUD. As previously noted in this paper, untreated ADHD is a risk factor for SUD and treated ADHD reduces the risk.

When treatment for comorbid ADHD is incorporated into SUD treatment, it has been found that treatment outcomes improve for these clients (Cocores, et al. 1987; Wender, 1998). This supports my clinical observations. In this study, the prevalence rate of comorbid ADHD in the clinical record was 3% and the prevalence rate from the psychologist’s assessments was 44%. The diagnosis of ADHD may have been missed at the initial assessment for a number of reasons. The inattentiveness or restlessness of the clients during the assessment may have been confused with withdrawal symptoms. Adults, who have better executive functioning than children, may be better able to manage the ADHD symptoms in a one to two hour assessment where the client is the single focus of attention. Until recently, ADHD has been considered a childhood disorder and may be routinely overlooked by those completing the assessments. In this study, the Adult ADHD Self-Report Scale (ASRS) was a good predictor of an ADHD diagnosis; it is easily administered and scored. To minimize under-diagnosis, it could be incorporated into the assessment processes.

Clinical Observations and Concerns. The symptoms of comorbid ADHD and SUD overlap and those symptoms are observed as egregious when a client is admitted into residential
ADHD & SUD

Often during the first individual session, I recognized that the observed impulsivity, agitation and inattention were beyond what I would normally encounter in a client with only a SUD. Research supports that adults in SUD treatment with comorbid ADHD have a greater treatment failure rate and higher relapse rate than clients without ADHD (Carroll & Rounsaville, 1993; Cocores, Davies, Mueller, & Gold, 1987; Levin, Evans, & Kleber, 1999). When clients were quickly able to be diagnosed by the psychologist and subsequently seen by a psychiatrist who prescribed a medication (typically Bupropion or Atomoxetine), significant positive changes in behaviors were observed especially when cognitive-behavioral treatment (CBT) interventions were also applied. Since that was not always possible because the program is only 28 days long, I found that alerting the staff to the diagnosis and providing appropriate CBT was helpful.

In addictions treatment, a promise is made that with continued abstinence the clients will experience manageable lifestyles. Of course, if ADHD is not diagnosed or not treated that promise, in effect, dooms the clients to failure. Clients with untreated ADHD do not easily create manageable lifestyles. Consequently, I emphasized this concern to my ADHD diagnosed clients and made referrals to mental health centers either to start receiving or to continue receiving medication treatment, as well as individual counseling for ADHD. Of note, I found clients who were prescribed medication for ADHD repeatedly complained of not liking the way it made them “feel” and, in exploring this complaint, I found that the clients were uncomfortable with the physical changes they experienced. Initially, it seemed, they missed the “energy” level they experienced with the untreated ADHD and wanted to discontinue treatment. I found it productive to suggest to my clients that this need not be interpreted as problematic, just different and that they would, with continued use, develop a new comfort level. Bemporad (1998) refers to this phenomenon and suggests that, in addition to the problems accommodating to the physical
changes, once the ADHD clients slow down and are able to reflect upon their lives, that they are faced with an inability to deny their painful pasts.

In addition to the cognitive-behavioral and medication treatment interventions, SUD clients with comorbid ADHD may benefit from the research that is being conducted in the field of traumatic brain injuries (TBI). Bates, Bowden, & Barry (2002) suggest that traditional SUD treatment providers make a shift in their theoretical perspectives by incorporating cognitive rehabilitation practices developed for individuals with TBI. Damage caused by drug abuse affects brain centers associated with memory, planning, goal setting and use of environmental feedback. These executive functions deficits are similar to those experienced by individuals with ADHD and may offer an explanation as to why the symptoms of comorbid ADHD and SUD are so egregious. Methods that promote neurocognitive recovery could be of special assistance to those diagnosed with comorbid ADHD and SUD and need to be explored.

LIMITATIONS

The sample size was a limitation in this study. Figure I shows that while the treatment outcomes were not significantly different between the ADHD and non-ADHD groups, it is evident that the negative treatment outcomes for the ADHD group were greater and with a larger sample size the difference would have most likely been significant. With the length of treatment at CADAS being 28 days, it was unlikely that the earlier drop-out rate reported by Levin, et al. (2004) would be supported. Nevertheless, the retrospective review of the 2004 clinical files did indicate this as a possible study outcome.

The treatment design may have had an impact on the outcomes. All participants when approached to participate in the study were informed of the previous unsuccessful outcomes of
those clients who had the pronounced symptoms of ADHD and they were informed of the outcome of their assessment (diagnosed with ADHD or not). It is reasonable to conclude that armed with this information, the participants may have been more focused on self-management than otherwise expected. This investigator was repeatedly seen by those participants who had been screened and assessed when presenting on the unit to approach subsequent admittees. Frequently, those diagnosed with ADHD would approach this investigator and discuss what they were learning about managing both of their disorders. In fact, when this investigator walked on to the residential unit, she was greeted with the announcement of "here comes the ADHD lady."

Not only the participants were affected by the study design, it is possible that the counselors and technicians were, too. The assessment information and diagnosis was subsequently included in the participants' clinical records. It is possible that awareness of this comorbid disorder affected the treatment of the clients diagnosed with ADHD by the CADAS staff. It is likely that, with this knowledge, behaviors that might otherwise have been labeled as oppositional, defiant or noncompliant were now viewed as symptomatic of ADHD and handled differently. If these assumptions are accurate, this underscores the need for accurate assessment of ADHD early in treatment.

Acknowledgements

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References


Table I Demographic data (N = 85)

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<th></th>
<th>ADHD (n=38)</th>
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<tr>
<td>Mean Age (σ)</td>
<td>30.50 (9.937)</td>
<td>39.68 (9.087)</td>
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<tr>
<td>Mean Yrs of Ed. (σ)</td>
<td>10.71 (1.972)</td>
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<td>Gender: Male</td>
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<td>64%</td>
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<td>White</td>
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Table II Demographic data from 2005 and 2006 samples

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<th>2005 Sample (N=444)</th>
<th>2006 Study Sample (n=87)</th>
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<td>Mean Age</td>
<td>36.23</td>
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<tr>
<td>Mean Yrs of Ed.</td>
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<td>Gender: Male</td>
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<td>Race: African-American</td>
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<tr>
<td>Other</td>
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Table III Prevalence rates of ADHD (N=87)

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<th>Diagnosis from Clinical Records</th>
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<tr>
<td>No ADHD</td>
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<td>49</td>
<td>84</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>49</td>
<td>87</td>
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Note. The prevalence rates were 3.44% and 43.68% from clinical records and by the study psychologist, respectively. Chi square = 33.0, \( p < .001 \).
Table IV Reported substances of use (N = 85)

<table>
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<tr>
<th>Substance</th>
<th>ADHD (n=38)</th>
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<tbody>
<tr>
<td>Alcohol</td>
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<tr>
<td>Amphetamine</td>
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<tr>
<td>Cannabis</td>
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