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Short communication

Impact of attention-deficit hyperactivity disorder and other psychopathology on treatment retention among cocaine abusers in a therapeutic community

Frances Rudnick Levin[a,*], Suzette M. Evans[a], Suzanne K. Vosburg[a], Terry Horton[b], Daniel Brooks[a], Jennifer Ng[a]

[a]*Division on Substance Abuse, New York State Psychiatric Institute and Department of Psychiatry, College of Physicians and Surgeons of Columbia University, 1051 Riverside Drive Unit 66, New York City, NY 10032, USA*
[b]*Phoenix House Foundation, USA*

Abstract

Although there are some data suggesting that individuals with depressive disorders may be more likely to remain in treatment than those without depressive disorders, it is less clear how well other psychiatric subgroups compare to those without psychiatric comorbidity. This sample is a follow-up study of 135 individuals who were admitted into a therapeutic community. Individuals with attention-deficit hyperactivity disorder (ADHD), other Axis I disorders (no ADHD), and no Axis I disorders were compared. Although individuals with other Axis I disorders had a strikingly low early drop-out rate, after a prolonged time in treatment, the drop-out rate increased substantially, such that these individuals were found to complete treatment at a lower rate (17%) than those with no Axis I disorders (29%). Furthermore, individuals with ADHD were less likely to graduate treatment than those with other Axis I or no Axis I disorders (0%, 9%, and 19%, respectively). Future investigations may be useful to determine whether pharmacologic or nonpharmacologic interventions might improve treatment outcome.

1. Introduction

Why certain patients succeed in substance abuse treatment and others do not has been a long-standing clinical issue. Despite the common belief that psychopathology impacts on

* Corresponding author. Tel.: +1-212-543-5896; fax: +1-212-543-6018.
E-mail address: FRL2@columbia.edu (F.R. Levin).

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treatment, the nature of this impact is not entirely clear. There are limited data on whether attention-deficit hyperactivity disorder (ADHD) negatively affects treatment outcome (Carroll & Rounsaville, 1993; King, Brooner, Kidorf, Stoller, & Mirsky, 1999). One retrospective chart review carried out in adolescents in residential treatment found that those with ADHD did substantially worse in treatment than those without ADHD (Wise, Cuffe, & Fischer, 2001). However, neither depression nor conduct disorder were predictive of worse outcome.

In a previous study, 158 cocaine-dependent individuals were assessed at a therapeutic community using a structured clinical interview for *DSM-IV* (Levin, Evans, & Kleber, 1998). For this study, additional follow-up treatment retention data were obtained on 135 of these individuals. It was hypothesized that individuals who are impulsive (such as those with ADHD) would have higher initial drop-out rates than other individuals entering treatment, but those remaining would do well with the highly structured setting and have similar retention rates and success with treatment. We also hypothesized that individuals with depressive and/or anxiety disorders would *initially* engage more in treatment and have lower drop-out rates than those without these disorders, but would not progress as well in treatment.

2. Methods

The data were a subset of data collected for a previous study that examined the prevalence of ADHD among cocaine abusers seeking treatment (Levin et al., 1998). For this follow-up, further approval was obtained from the New York State Psychiatric Institute Institutional Review Board and Phoenix House Institutional Review Board to obtain the following information: patient's admission status (i.e., legal involvement), length of stay, and reason for discharge. Outcome data were collected on 135 of the 158 patients initially evaluated. A Phoenix House staff member obtained the necessary information from the clinic database using Phoenix House identification numbers such that confidentiality of each participant could be maintained.

Phoenix House provides long-term residential treatment ranging from 15 to 22 months, for adults who are 20 years of age or older, using a therapeutic community model approach. Description of the essential elements of the therapeutic community treatment model is explained in an excellent review (De Leon, 1999). The treatment process at Phoenix House New York is divided into three separate phases: (1) *Induction* or *Orientation* that lasts 1–2 months; (2) *Primary Treatment* that lasts from 9 to 12 months, depending on the individual's progress through the program; and (3) *Reentry* that typically lasts from 6 to 8 months and encompasses job training, career counseling, social skills, and other preparation for the client's gradual return to society. Graduation requires that individuals establish social networks with their communities' 12-step fellowships, attend 12 bimonthly aftercare sessions, and maintain sobriety and employment after moving out of the reentry facility.

Prevalence rates of psychiatric disorders were assessed using the Structured Clinical Interview for *DSM-IV* for Axis I and II disorders (SCID I and II; First, Spitzer, Gibbon,

& William, 1995; First, Spitzer, Gibbon, William, & Benjamin, 1994). A SCID-like module, the KID-SCID (Hien, Matzner, First, Spitzer, Williams et al., unpublished instrument) was used for childhood ADHD and was modified for adult ADHD. The training of the interviewers was extensive and is described in depth elsewhere (Levin et al., 1998).

At the point of discharge, each participant was placed into one of three groups: (1) early drop-outs, (2) late drop-outs, and (3) completers or graduates. Early drop-outs were classified as those individuals who left treatment within 60 days of treatment entry. Late drop-outs were defined as those who completed at least 60 days of the program but did not complete the primary treatment phase. Individuals who successfully completed their primary treatment were considered treatment completers. Treatment graduates were defined as those who also met the requirements of the reentry phase.

3. Results

Table 1 shows the demographics of the sample of cocaine-dependent individuals and their pattern of cocaine use. The sample of 135 was predominantly male (88%), African-American (72%), with an average age of 33 years. There were no differences in treatment length or percentage of drop-outs between those with and without legal obligations. Table 2 shows that the majority of individuals had at least one additional current nonsubstance use psychiatric disorder (75%), with the most common Axis I disorders being major and substance-induced depression, specific anxiety disorder, posttraumatic stress disorder, and ADHD.

Table 3 shows that there was a significant difference in the proportion of early drop-outs, late drop-outs, and completers/graduates between individuals with adult ADHD, those with other Axis I disorders, and those with no other Axis I disorders (see table). Partitioning the table revealed that the ADHD individuals did not differ from the no Axis I disorder group in early versus late drop-outs, but these two groups had a greater proportion of early drop-outs than those with other Axis I disorders [$\chi^2(1) = 9.68$, $P < .01$].

The difference in the number of weeks in treatment between the ADHD group, those with another Axis I disorder, and those with no Axis I disorders approached significance (Table 3). Because the data were not normally distributed, a log transformation was performed. ANOVA performed on the transformed data revealed a significant difference between the three groups [$F(2,132) = 3.19$, $P = .05$]. Post hoc Tukey tests indicated that individuals with ADHD spent less time in treatment compared to those with other Axis I disorders ($P = .05$), but not significantly less time than those with no Axis I disorders.

Because no individuals with ADHD graduated from the therapeutic community, a post hoc comparison of those who graduated treatment was carried out between those with ADHD (0/23 or 0%), those with other Axis I disorders (5/53 or 9%), and those with no Axis I disorders (11/53 or 19%). The difference in the proportion of graduates was significant when a Fisher's test was applied ($P < .05$) and when those with ADHD were compared to those with no Axis I disorders, the Fisher statistic was significant ($P < .03$).

Table 1
Demographics and pattern of cocaine use among cocaine-dependent individuals admitted to Phoenix House

General demographics	$N = 135$
Age (in years)	32.6 ± 6.0
Gender	
Male	119 (88%)
Female	16 (12%)
Race	
African-American	97 (72%)
Hispanic	21 (16%)
Caucasian	19 (14%)
Other	2 (1%)
Marital status	
Single	73 (54%)
Married	21 (16%)
Separated	19 (14%)
Divorced	20 (15%)
Widowed	2 (1%)
Education (in years)[a]	11.6 ± 2.2
Annual income (US$)[b]	20,842 ± 21,857
Legal status	
No legal involvement	103 (76%)
Pending case	13 (10%)
Probation/parole	16 (12%)
Court referral/conditional release	3 (2%)
Drug use demographics	
Age of first cocaine use[c]	19.6 ± 5.3
Age of regular cocaine use[c]	21.5 ± 5.9
Days of cocaine use in past month[d]	20.2 ± 9.7
Amount spent on cocaine in past month (US$)[e]	1712 ± 2021
Longest period of cocaine abstinence (months)[f]	20.5 ± 25.7
Polydrug use pattern	
Cocaine only	36 (27%)
With one additional drug	57 (42%)
With two or more additional drugs	42 (31%)

Values expressed as *n* (%).
[a] $n = 127$.
[b] $n = 133$.
[c] $n = 131$.
[d] $n = 127$.
[e] $n = 132$.
[f] $n = 130$.

Individuals with depression and/or anxiety disorders also differed in their rates of early drop-outs, late drop-outs, and treatment completers when compared to those with other Axis I disorders (no depression or anxiety disorders) or no Axis I disorders [$\chi^2(4) = 10.8$, $P = .03$]. Individuals with depression and/or anxiety were substantially less likely to drop out of

Table 2
Current rates of nonsubstance use psychiatric disorders among cocaine-dependent individuals admitted to Phoenix House

Any nonsubstance use disorder ($n = 135$)	101 (75%)
Any Axis I disorder ($n = 135$)	76 (56%)
Mood disorders	33 (24%)
Bipolar	0
Major depressive[a]	33 (24%)
Dysthymic	1 (1%)
Medical condition	0
Anxiety disorders	44 (33%)
Panic	1 (1%)
Agoraphobia	1 (1%)
Social	14 (10%)
Specific	21 (16%)
Obsessive compulsive	3 (2%)
Posttraumatic stress	17 (13%)
Generalized anxiety	0
Medical condition	0
Substance induced	4 (3%)
NOS	1 (1%)
Attention-deficit hyperactivity disorder	23 (17%)
Psychotic disorders	1 (1%)
Schizophrenia	0
Schizophreniform	0
Schizoaffective	0
Delusional	0
Brief psychotic	0
Medical condition	0
Substance induced	1 (1%)
Any Axis II disorder ($n = 129$)	60 (47%)
Cluster A	20 (16%)
Paranoid	20 (16%)
Schizoid	0
Schizotypal	1 (1%)
Cluster B	46 (36%)
Antisocial	38 (30%)
Borderline	3 (2%)
Histrionic	1 (1%)
Narcissistic	7 (5%)
Cluster C	8 (6%)
Avoidant	6 (5%)
Dependent	2 (2%)
Obsessive compulsive	1 (1%)
NOS	11 (9%)

Values expressed as *n* (%). The percentages for each disorder and diagnostic category are not mutually exclusive. An individual may have more than one disorder and/or belong to more than one diagnostic category.

[a] Includes substance-induced mood disorder.

Table 3
Retention pattern and type of discharge among cocaine-dependent individuals with no Axis I disorders, other axis I disorders, or ADHD

	No Axis I ($n=59$)	Other Axis I ($n=53$)	ADHD ($n=23$)	Statistic, significance
Retention pattern, n (%)				
Stage in treatment				
Early drop-outs (≤ 60 days)	16 (27)	5 (9)	8 (35)	
Late drop-outs (>60 days)	26 (44)	39 (74)	12 (52)	$\chi^2(4)=13.47$, $P=.01$
Completed/graduated	17 (29)	9 (17)	3 (13)	
Weeks in treatment, *M* (S.D.)	49.1 ± 42.1	59.2 ± 40.7	37.4 ± 34.9	$F(2,132)=2.45$, $P=.09$
Discharge type, n (%)				
Administrative	5 (8)	4 (8)	3 (13)	
Voluntary	37 (63)	40 (75)	17 (74)	$\chi^2(4)=4.03$, $P=.40$
Completed/graduated	17 (29)	9 (17)	3 (13)	

treatment early (14%) than those with other Axis I disorders (40%) or no Axis I disorders [27%; $\chi^2(2)=5.6$, $P=.06$]. However, individuals with depression and/or anxiety were significantly more likely to drop out later on in their treatment (70%) than those with other Axis I disorders (50%) or no Axis I disorders [44%; $\chi^2(2)=8.6$, $P=.01$].

4. Discussion

This study was carried out to determine if certain psychiatric comorbidities were associated with earlier drop-out rates, shorter lengths of treatment, or less successful progression through treatment. We expected that cocaine-dependent individuals with ADHD would have higher early drop-out rates from treatment than those with either no Axis I or other Axis I disorders. However, for those individuals with ADHD who remained in treatment, it was expected that the benefits of the structured setting would produce similar retention rates and types of discharge from treatment to those with no Axis I disorders. Contrary to our expectations, although individuals with adult ADHD had the highest early drop-out rates (35%), this rate was not significantly higher than those with no Axis I disorders (27%). When all cocaine-dependent individuals with other Axis I disorders were compared to those with no additional Axis I disorders, there was a significant difference between the two groups in the proportion of those who dropped out later in treatment, such that individuals with any additional Axis I disorder (whether it be adult ADHD, depression, or an anxiety disorder) were found to complete the first two phases of treatment at a lower rate (16%) than those with no other Axis I disorders (29%). Furthermore, individuals with ADHD were less likely to graduate treatment than those with other Axis I or no Axis I disorders.

Because the number of graduates was so low for the entire sample, an initial decision was made to combine completers and graduates. Individuals with ADHD had a lower rate of

completion/graduation from Phoenix House compared to those with no Axis I disorders, but this difference was not statistically significant. However, what was particularly striking, and contrary to one of the initial hypotheses, was that no one with ADHD graduated from treatment. Graduation from a therapeutic community is a substantial achievement and is associated with the best long-term outcome. Therefore, despite the small numbers, graduation rates for those with ADHD were compared to those with other Axis I disorders and no Axis I disorders and the difference across the three groups was significant. This finding contrasts one of the initial hypotheses that individuals with ADHD who do not drop-out of treatment early would complete and graduate from treatment at rates similar to those without ADHD. It is a common clinical observation that individuals with ADHD do best when they are provided with structure (Weiss, Hechtman, & Weiss, 1999), a clinical feature inherent to therapeutic community settings. However, the "staying" power of individuals with ADHD may be lower if the demands become too great.

Similar to the findings of this study, Wise et al. (2001) evaluated adolescents within a residential treatment program and found that those with ADHD were less successful in meeting the goals of a treatment plan in a 30-day residential treatment program than those without ADHD. Thus, it may be that ADHD symptoms impede an individual's ability to successfully negotiate through a full course of treatment.

Consistent with our initial hypotheses, individuals with depression and/or anxiety disorders had the best early retention rates, but subsequently had a high rate of late drop-outs. Supporting this, Agosti, Nunes, Stewart, and Quitkin (1991) found that cocaine abusers seeking outpatient treatment who were female, white, or had depression were more likely to remain in treatment than males, minorities, or those with no depression, and the authors posited that individuals with depression remained in treatment due to their substantial psychiatric distress. However, in Agosti et al.'s study, individuals were entered into a relatively short 12-week trial; thus, the question of treatment retention during prolonged treatment could not be assessed.

Undoubtedly, this investigation is exploratory. The study was carried out in a therapeutic community among individuals who identified cocaine as their primary drug of abuse. The findings from this study may not generalize to other groups of substance abusers or those treated in other settings. Because the overall sample size is small, finding significant differences across different psychiatric subgroups was less likely than if a substantially larger sample had been assessed. Future studies are needed to determine whether treating depression, anxiety, or ADHD in a therapeutic community setting improves treatment retention and outcome.

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