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The Relationship between Child Abuse and Negative Outcomes among Substance Users: Psychopathology, Health, and Comorbidities

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Abstract

Background—Adults with substance use disorders (SUDs) report higher rates of child abuse than adults without SUDs. Prior work suggests this abuse is associated with higher rates of psychosis, posttraumatic stress disorder, physical health problems, alcohol dependence, and cannabis dependence among substance users. Little is known about other problems associated with child abuse experienced by substance users. We hypothesized among adults with SUDs, child abuse would be associated with elevated rates of all Diagnostic and Statistical Manual (DSM-IV-TR) psychiatric disorders, substance dependencies, and comorbidities assessed.

Method—We assessed 280 inpatients in substance use treatment with the Structured Clinical Interview for the DSM-IV-TR, the Diagnostic Instrument for Personality Disorders, and Childhood Trauma Questionnaire (CTQ). We used chi-square and regression analyses to establish whether rates of psychiatric disorders, substance dependencies, and comorbidities differed as a function of child abuse.

Results—Consistent with our hypotheses, higher scores on the CTQ were associated with elevated rates of psychiatric disorders (mood disorders, anxiety disorders, psychotic symptoms, and personality disorders) and substance dependencies (alcohol dependence and cocaine dependence). Moreover, higher rates of all comorbidity patterns (e.g. comorbid alcohol

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Contributors

Anne N. Banducci took the lead on developing the conceptualization for the paper, conducting the data analyses, writing the first draft of the paper, and editing the final manuscript. Elana Hoffman and Karestan C. Koenen contributed to writing and editing the manuscript. C.W. Lejuez contributed to the study design, oversaw the study implementation, and was involved with all stages of manuscript preparation. All authors have contributed to and have approved of the final manuscript.

Conflict of Interest

We have no conflicts of interest to report.

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dependence and anxiety) were observed among individuals who reported experiencing child abuse. Across all substance dependencies examined, individuals who had been abused had significantly higher rates of all psychiatric disorders assessed.

Conclusions—Individuals with substance use disorders who have been abused have particularly elevated rates of psychiatric and substance use disorders as a function of their abuse experiences. These findings have important treatment implications for individuals in residential substance use treatment settings.

Keywords

child abuse; substance use; psychopathology; comorbidities

1. INTRODUCTION

Child abuse and trauma are important public health problems associated with increased rates of psychiatric disorders, substance use disorders, and physical health problems among survivors (Green et al., 2010; Huang et al., 2011; Kessler, Davis, & Kendler, 1997; McLaughlin et al., 2010; Scott et al., 2011). It has been estimated that 30% of psychiatric disorders diagnosed in adults can be directly linked to these childhood experiences (Afifi, Enns, Cox, Asmundson, Stein, & Sareen, 2008; Green et al., 2010), with abuse accounting for an increased persistence of mood, anxiety, and substance use disorders across the lifespan (McLaughlin, Green, Grueber, Sampson, Zaslavsky, & Kessler, 2010). Based on a rich body of literature, child abuse appears to represent a particularly potent risk factor for psychopathology in adulthood.

Substance users as a group report particularly elevated rates of child abuse (Hefferman et al., 2000; Kendler et al., 2000; Rosenhow et al., 1988) and abuse has been shown to be robustly associated with increased odds of being diagnosed with DSM-IV-TR substance use disorders (Afifi, Henriksen, Asmundson, & Sareen, 2012). This abuse is associated with earlier substance use initiation, greater functional impairments, and increased odds of substance dependencies (Nomura, Herd, & Pilowsky, 2012). Further, individuals with substance use disorders who experienced child abuse have higher rates of posttraumatic stress disorder, psychosis, alcohol dependence, and cannabis dependence (Wu, Schairer, Dellor, & Grella, 2010). These results suggest child abuse not only increases the likelihood individuals will use substances, but also that these individuals will be dually diagnosed with comorbid psychopathology. Although prior work demonstrates increased rates of some psychiatric disorders among substance users who have experienced child abuse, the full range of DSM-IV-TR psychiatric and substance use disorders have not previously been examined as a function of child abuse in this population. Moreover, although individuals in the general population who have been abused are more likely to have comorbidities (e.g. multiple psychiatric and/or substance use disorders; Scott, Smith, & Ellis, 2010), rates of these comorbidities have not been previously examined among substance users as a function of abuse. An exploration of these relationships would enhance our understanding of the high rates of psychiatric disorders observed among substance users (e.g. Chen et al., 2011) and would be relevant to developing treatments addressing comorbid psychiatric and substance use disorders.

The current study aims to examine the relationships between child abuse, psychiatric disorders, substance dependencies, comorbidities, and health problems among individuals in residential substance use treatment. We hypothesized more severe child abuse would be associated with elevated rates of a variety of psychiatric disorders and substance dependencies in adult substance users (Brems et al., 2004), with the expectation that more severe abuse would be associated with higher rates of these disorders (Edwards et al., 2003). Further, we hypothesized substance users who had been abused would have a greater odds of being dually diagnosed with comorbidities (e.g. both alcohol dependence and major depressive disorder) and with health problems.

2. MATERIAL AND METHODS

2.1. Participants

As a part of a larger study, we recruited 280 participants (M age = 43.3; $S.D.$ = 9.79; 69.7% male; 88.4% African American) from a residential substance use treatment center in inner city Washington D.C. As a part of the treatment center requirements, participants were required to evidence a negative urine drug screen; those with positive urine screens entered a detoxification program before admittance. Typical inpatient treatment lasted between 30 and 180 days, depending on participants' treatment funding sources. During treatment, participants were only permitted to leave the center for scheduled appointments (e.g. appointments with psychiatrists, primary care physicians). Participants were involved in a variety of programs from 8am to 9pm daily, based on Alcoholics Anonymous and Narcotic Anonymous techniques, as well as on strategies focusing on the development of relapse prevention skills.

All participants were administered a standardized diagnostic assessment by our staff (graduate students and advanced post-baccalaureate research assistants) as a part of the treatment center's intake process. After completing this assessment, participants were given the option to become involved with our research study; informed consent was obtained after the study was explained (< 5% refused to participate). The University of Maryland Institutional Review Board approved the study protocol. All paper-based assessments completed by participants were coded with a subject number so that the identities of participants were kept confidential.

2.2. Assessments

2.2.1. Childhood abuse—Childhood abuse was assessed using the Childhood Trauma Questionnaire-Short Form (CTQ-SF; Bernstein et al., 2003), which is a validated self-report retrospective questionnaire (Thombs et al., 2007). The CTQ-SF has satisfactory specificity and good sensitivity in comparison to reports from child welfare agencies (Bernstein et al., 1997), as well as convergent and discriminant validity with other trauma measures (Bernstein et al., 1994). The sexual, physical, and emotional abuse subscales were administered (Bernstein & Fink, 1998); the internal consistency was good to excellent (.88, .86, .96, respectively). We examined the CTQ total score continuously and based on established cutoffs (Bernstein & Fink, 1998).

2.2.2. Diagnostic assessments—The Structured Clinical Interview for the DSM-IV-TR was used to diagnose current and lifetime Axis I and II disorders (First, Spitzer, Gibbon, & Williams, 2010), including major depressive disorder, dysthymia, bipolar I disorder, substance-induced mood disorder, panic disorder, social phobia, specific phobia, obsessive compulsive disorder, posttraumatic stress disorder, generalized anxiety disorder, antisocial personality disorder (ASPD), and substance dependencies (alcohol, cannabis, opioid, hallucinogen/PCP, stimulant, crack/cocaine, and polydrug). We also assessed for the presence or absence of psychotic symptoms using a screener included in the SCID. Borderline personality disorder (BPD) was assessed using the Diagnostic Instrument for Personality Disorders, because it is a more precise measure of BPD than the SCID-IV (Zanarini et al., 1987).

2.2.3. Composite scores—We created several composite scores based on the number of current and lifetime DSM-IV-TR disorders endorsed; higher composite scores indicated a greater number of DSM-IV-TR Axis I and II disorders endorsed within the composite (range: 0 – 13 disorders). Separate composite scores were created for the number of substance use disorders (range: 0–12), mood disorders (range: 0–4), and anxiety disorders (range: 0–4) endorsed. Additionally, a composite score was computed to indicate the total number of DSM-IV-TR Axis I and II psychiatric disorders endorsed (Psychiatric disorder composite; range: 0–13; substance use disorders were not included in this composite), as well as the total number of psychiatric and substance use disorders (All disorder composite; range: 0–17). These four composite scores were examined within analyses continuously (number of disorders endorsed) and dichotomously (to indicate the presence or absence of a given disorder within a particular category).

2.2.4. Health and symptom-level assessments—Additional measures were included to better understand the range of problems experienced by individuals within residential drug treatment programs. Basic questions about demographic characteristics and health behaviors were assessed verbally during the intake assessment. The Hamilton Rating Scale for Depression (HAM-D; Hamilton, 1960) was used as an additional symptom-level measure of psychopathology.

2.3. Analytic Strategy

Prior to data entry, the completed questionnaires and SCID interview sheets were checked for completeness or obvious errors. Data were double entered into SPSS (versions 14–20 over the course of the study) so potential inconsistencies or inaccuracies could be easily detected. There were occasional missing data points due to non-responses such as: “don’t know” or “refused” as participants could choose to not answer questions asked during the intake assessment. For example rates of missing data for psychiatric and substance use disorder diagnoses ranged from 0 – 2.1%. We did not implement any imputation procedure for these missing data, and only report results based on participants with valid and complete responses for the *relevant* questions (thus the N’s vary across analyses).

2.3.1. Analyses for diagnoses as a function of abuse—Hierarchical linear regression was used to determine the relationship between the *number* of DSM-IV-TR

psychiatric disorders and substance dependencies endorsed in our composite scores (i.e., all disorders, psychiatric disorders, anxiety disorders, mood disorders, substance use disorders composites) and CTQ total scores. Logistic regression was used to determine whether the *presence* of all individual disorders (e.g., major depressive disorder) and problematic behaviors assessed were associated with CTQ total scores. All analyses included gender, race/ethnicity, income, and education as covariates in the first step of the regression model. All betas presented are standardized regression coefficients.

2.3.2 Analyses of comorbid psychiatric and substance use disorders as a function of abuse—To determine whether rates of comorbid psychiatric and substance use disorders varied as a function of abuse experiences, we conducted two separate sets of analyses. For all chi square analyses described below, composite scores were recoded as 0 (does not have any disorders within the category) and 1 (has at least one disorder within the category). Psychotic symptoms, ASPD, and BPD, were coded as 0 (does not have the disorder) and 1 (has the disorder).

2.3.2.1. Basic comorbid psychiatric and substance use disorders analyses: For the first set of comorbidity analyses, chi-square analyses were conducted to examine whether the presence of comorbid psychiatric and substance use disorders varied as a function of abuse experienced by comparing persons with a specific substance use disorder (e.g. alcohol dependence) and a) any psychiatric disorder, b) any anxiety disorder, c) any mood disorder, d) psychotic symptoms, e) BPD, and f) ASPD. These analyses indicate whether the presence of comorbid psychiatric and substance use diagnoses differed within our sample as a function of abuse.

2.3.2.2. Conditional comorbid psychiatric and substance use disorder analyses: We conducted a second set of chi-square analyses of comorbid psychiatric and substance use disorders to better understand which types of substance dependences and psychiatric disorders were most likely to co-occur, without base rates of substance use disorders biasing our results. With these conditional analyses, we examined the presence of each category of comorbid psychiatric disorder (e.g. mood disorders, and anxiety disorders) as described above, given dependence across a specific substance type. This indicated the likelihood a participant would have a particular psychiatric disorder within a specific category, given the participant had a particular type of substance dependence.

3. RESULTS

3.1. Demographics

Within our sample, 43.6% of participants experienced childhood abuse, based on established CTQ cutoff scores (Bernstein & Fink, 1998). Women were significantly more likely to report abuse than men (53.5% of women versus 40.2% of men, $\chi^2 = 3.83, p = .035$). For substance dependencies, 44.8% of the sample reported ever having alcohol dependence, 28.4% ever having cannabis dependence, 68.4% ever having cocaine dependence, 29.9% ever having opioid dependence, and 18.4% ever having PCP/hallucinogen dependence. For psychiatric disorders, 68.8% reported ever having any of the psychiatric disorders we assessed, with 32.0% ever having an anxiety disorder, 47.4% ever having a mood disorder,

12.6% ever having psychotic symptoms, 24.0% having borderline personality disorder (BPD), and 25.3% having antisocial personality disorder (ASPD).

3.2. Psychiatric and Substance Use Disorders as a Function of Abuse Severity

Separate regression models were tested to determine the association between trauma severity and rates of psychiatric and substance use disorders. The model examining the relationship between the CTQ total score, covariates, and the psychiatric disorders composite was significant, with higher CTQ scores associated with a greater number of psychiatric disorders (Table 1). Similar findings were observed for the substance use disorders composite, mood disorder composite, and anxiety disorder composite; higher CTQ scores were associated with a greater number of current and past disorders within all of these composites (Table 1). Further, higher CTQ scores were associated with an increased likelihood of having psychotic symptoms, BPD, and ASPD (Table 1).

To better understand these patterns, we further probed the data using logistic regression to determine whether abuse severity was associated with a greater likelihood of ever being diagnosed with all individual disorders assessed (see Table 1). There were a number of disorders that were more frequently endorsed by participants who had higher CTQ scores (Table 1). Higher CTQ scores were associated with an increased likelihood of being diagnosed with major depressive disorder, bipolar disorder, social phobia, generalized anxiety disorder, and posttraumatic stress disorder. For substance dependencies, higher CTQ scores were associated with an increased likelihood of being diagnosed with alcohol and cocaine dependence; cannabis approached significance (Table 1).

3.3. Health and Symptom-Level Outcomes as a Function of Abuse

Abuse severity was associated with a number of health and symptom level outcomes. Previously receiving treatment for psychiatric and substance use disorders, taking psychiatric medications, attending 12-step groups, having a serious medical condition, not being married, and having an elevated HAM-D score were all associated with being abused as a child (Table 1).

3.4. Comorbidities as a Function of Abuse

3.4.1. Overall comorbidity rates as a function of abuse—When examining rates of comorbidities as a function of whether participants had been abused, there generally were elevated rates of comorbidities among participants who had been abused (Table 2). Particularly elevated rates of comorbidities, as a function of abuse, were observed for comorbid alcohol dependence and all psychiatric disorders examined, as well as comorbid cocaine dependence and all psychiatric disorders examined (excluding antisocial personality disorder and psychotic symptoms; Table 2). Individuals who had been abused also had significantly elevated rates of comorbid cannabis dependence and psychiatric disorders, specifically ASPD (Table 2). However, there were not significant differences in rates of comorbidities as a function of abuse experiences for participants with comorbid opioid dependence and psychiatric disorders (Table 2).

3.4.2. Conditional comorbidities as a function of abuse—As fewer participants in our sample endorsed cannabis dependence and opioid dependence, we were particularly interested in further probing comorbidity rates by looking at conditional rates. Here we examined rates of comorbidities among participants who endorsed particular substance dependencies. Across all substances examined, participants who experienced child abuse were significantly more likely to have psychiatric disorders (Table 3). More specifically, across all substances examined, they were significantly more likely to have each specific disorder class assessed (excluding antisocial personality disorder among individuals with cannabis dependence). Among participants with alcohol dependence, those who had been abused were 9.97 times more likely to have a comorbid psychiatric disorder as compared to those who had not been abused. Similarly, among those with cannabis dependence, cocaine dependence, and opioid dependence individuals were 4.5 times, 5.35 times, and 4.77 times more likely to be diagnosed with psychiatric disorders, respectively (Table 3). Thus, when examining comorbidities within specific substance dependence categorizations, individuals who had been abused were significantly more likely to have comorbid psychiatric disorders.

4. DISCUSSION

The results of the current study demonstrate a strong relationship between child abuse and adult psychopathology among individuals in residential substance use treatment. These findings are in line with and expand upon prior work demonstrating that child abuse was a predictor of posttraumatic stress disorder, psychosis, alcohol, and cannabis dependence among adults in residential drug treatment programs (e.g. Wu et al., 2010). Further, they follow patterns of findings within non-substance using samples, which demonstrate that child abuse is associated with elevated rates of delusions and hallucinations in adults with schizophrenia (Schenkel et al., 2005) and with severity of depression (Bifulco et al., 2002). Our work replicates and extends these findings by assessing the full range of psychiatric and substance use disorders in individuals in residential treatment. These findings suggest the importance of assessing for abuse experiences within substance using populations in order to better understand psychiatric symptoms that might be present.

An important extension of prior work is our findings regarding rates and patterns of comorbidities within our sample of substance users. When examining the entire sample, individuals who had experienced child abuse had elevated rates of comorbid alcohol/cocaine dependence and psychiatric disorders. These elevated rates of comorbidities are consistent with the findings of Scott and colleagues (2010) who demonstrated that individuals who experienced child abuse were more likely to be diagnosed with more than one psychiatric disorder. Our work extends these finding to a particularly at-risk sample, namely substance users in residential treatment. Moreover, we probed rates of *specific* DSM-IV-TR psychiatric and substance use disorder comorbidities, which have not previously been examined as a function of abuse status. These analyses allowed us to better understand patterns of comorbidities as a function of abuse experiences among substance users.

Perhaps even more interesting are the patterns of conditional comorbidities, as these findings better represent patterns of comorbidities among substances for which fewer participants met dependence. Conditional comorbidity rates, as compared to rates of overall

comorbidities, may be less biased to regional differences in substance use patterns. Results demonstrated that participants who were dependent on alcohol, cocaine, cannabis, or opioids were 4.5 to 9.79 times more likely to have psychiatric disorders if they had been abused as children. Moreover, across the types of specific psychiatric disorders examined, they were significantly more likely to have these comorbidities if they had been abused. This dramatic pattern of findings suggests abuse experiences need to be taken into account when attempting to understand any pattern of comorbidities within this type of sample. As individuals with comorbid substance use and psychiatric disorders are unlikely to be screened for psychiatric disorders (Substance Abuse and Mental Health Service Administration, 2009) or receive treatment for these disorders (Watkins et al., 2004; Weaver et al., 2001), it is particularly important to understand the types of factors that might distinguish individuals most in need of additional treatment services.

These results should be considered within the context of four limitations. First, ratings of child abuse were limited to self-report, which could result in reporting bias. However, as individuals generally underreport abuse experiences (Widom & Morris, 1997; Widom & Shepard, 1996) we did not believe that such-reporting bias would influence our pattern of findings. Second, we cannot assume our findings generalize to all residential substance use treatment populations, as some of the findings may have been due to region-specific patterns of substance use. Third, since this study was somewhat exploratory in nature, multiple statistical analyses were conducted, necessitating replications of these findings to ensure their accuracy. Finally, although we were careful to ensure the accuracy of the psychiatric and substance use disorder diagnoses, it would have been better to have audiotaped assessments for review or to have conducted multiple interviews with a subset of participants to establish reliability. It is necessary to replicate this pattern of findings among substance users in additional settings.

Despite these limitations, this work has important clinical implications. Due to elevated rates of child abuse among substance users, (Hefferman et al., 2000; Kendler et al., 2000), it is critical to incorporate interventions for trauma into existing substance use treatments. Existing evidence-based treatments targeting substance use behaviors include contingency management, cognitive-behavioral therapy, motivational interviewing, and structured family therapies (Knapp, Soares, Farrel, & Lima, 2008; Dutra, Stathopoulos, Basden, Leyro, Powers, & Otto, 2008; Kleber, Weiss, Anton, George, Greenfield, Kosten, et al, 2007). Given existing implementation challenges for these approaches in substance use treatment centers (Brown, Stout, & Mueller, 1999), the implementation of evidence-based treatments for comorbidities and trauma poses a particularly difficult challenge. Unfortunately, the current lack of attention to comorbidities leads to particularly poor outcomes among these individuals (Brown, Stout, & Mueller, 1999), making integrated treatment a priority in these settings.

5. CONCLUSIONS

Both abuse severity and presence of child abuse experiences are associated with a number of problems among substance users in residential treatment. In particular, child abuse is associated with elevated rates of substance dependencies, psychiatric disorders, and rates of

comorbidities. Many of these challenges are currently not addressed within substance use treatment settings, making them an important target. Additionally, screening for and providing forums for a discussion of these abuse experiences is critical for substance users, as almost half of individuals within our sample experienced child abuse and associated difficulties.

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Highlights

- DSM-IV disorders were examined as a function of child abuse in substance users
- Substance users who had been abused had a greater number of DSM-IV disorders
- They also had increased rates of comorbidities as a function of abuse

Table 1

Association between Childhood Trauma Severity and Psychiatric Disorders, Substance Use Disorders, and Health Outcomes

	β	t	p	OR	95% CI
All Disorders Composite¹	.098	6.46	<.001		
Psychiatric Disorders Composite	.354	6.18	<.001		
Mood Disorders Composite	.271	4.64	<.001		
Major Depressive Disorder (MDD) ²			.004	1.03	[1.01, 1.05]
Dysthymia			.765	1.01	[0.95, 1.07]
Substance-Induced MDD			.310	.984	[0.95, 1.04]
Bipolar I/II Disorder			.002	1.04	[1.01, 1.07]
Anxiety Disorders Composite	.253	4.26	<.001		
Social Phobia			.011	1.04	[1.01, 1.07]
Specific Phobia			.080	1.03	[1.00, 1.05]
Generalized Anxiety Disorder			.018	1.03	[1.01, 1.06]
Obsessive Compulsive Disorder			.669	1.01	[0.96, 1.06]
Posttraumatic Stress Disorder			.015	1.03	[1.01, 1.05]
Panic Disorder			.084	1.04	[0.99, 1.10]
Psychotic Symptoms			.003	1.04	[1.01, 1.06]
Borderline Personality Disorder			<.001	1.05	[1.03, 1.07]
Antisocial Personality Disorder			<.001	1.04	[1.02, 1.06]
Substance Use Disorders Composite	.268	4.49	<.001		
Alcohol Dependence			<.001	1.05	[1.02, 1.07]
Cannabis Dependence			.063	1.02	[1.00, 1.04]
Cocaine Dependence			.004	1.04	[1.01, 1.06]
Opioid Dependence			.190	0.99	[0.96, 1.00]
PCP/Hallucinogen Dependence			.749	1.00	[0.98, 1.03]
Stimulant Dependence			.373	1.03	[0.97, 1.08]
Mental and Physical Health Outcomes					
Has a serious medical condition			.007	1.03	[1.01, 1.05]
Has received treatment for a psychological problem			<.001	1.05	[1.03, 1.08]

	β	t	p	OR	95% CI
Is court-mandated to attend substance use treatment			<.001	0.96	[0.94, 0.98]
Is currently taking psychiatric medication			<.001	1.06	[1.03, 1.08]
Has previously attended 12 step groups			.038	1.02	[1.00, 1.05]
Is currently married			.010	.951	[0.92, 0.99]
HAM-D score	.224	2.37	.020		

¹Linear regression was used for the composite scores to assess whether participants had a greater number of disorders within the composite score, as a function of trauma severity.

²Logistic regression was used to assess whether participants had a particular diagnosis or particular outcomes, as a function of trauma severity.

Table 2

Comorbidity of Psychiatric and Substance Use Disorders as a Function of Abuse

Comorbidity of Psychiatric and Substance Use Disorders	Total N	Abused N	122	Not Abused N	158	p-value ^I	Odds Ratio [95% CI]
Alcohol Dependence and Any Psychiatric Disorder (%)	36.1	59.2	122	18.5	158	<.001	3.42 [1.97, 5.87]
Alcohol Dependence and Any Anxiety Disorder	19.9	35.8	122	7.6	158	<.001	3.48 [2.03, 5.98]
Alcohol Dependence and Any Mood Disorder	29.2	49.2	122	14.0	158	<.001	3.65 [2.22, 6.00]
Alcohol Dependence and Psychotic Symptoms	8.1	16.8	122	1.3	158	.004	2.98 [1.35, 6.56]
Alcohol Dependence and BPD	17.4	34.2	122	4.5	158	<.001	4.08 [2.26, 7.39]
Alcohol Dependence and ASPD	16.2	29.2	122	6.4	158	<.001	2.60 [1.50, 4.53]
Cocaine Dependence and Any Psychiatric Disorder	51.3	70.5	122	36.3	158	<.001	3.29 [1.93, 5.60]
Cocaine Dependence and Any Anxiety Disorder	24.0	39.3	122	12.1	158	.014	2.01 [1.11, 3.65]
Cocaine Dependence and Any Mood Disorder	38.7	57.4	122	24.2	158	<.001	3.10 [1.80, 5.35]
Cocaine Dependence and Psychotic Symptoms	9.5	18.3	122	2.6	158	.083	2.07 [0.82, 5.24]
Cocaine Dependence and BPD	20.9	36.9	122	8.3	158	<.001	3.29 [1.59, 6.81]
Cocaine Dependence and ASPD	19.0	27.9	122	12.1	158	.213	1.34 [0.73, 2.43]
Opioid Dependence and Any Psychiatric Disorder	17.0	20.7	122	14.2	158	.455	0.93 [0.53, 1.63]
Opioid Dependence and Any Anxiety Disorder	7.6	11.6	122	4.5	158	.389	0.87 [0.49, 1.58]
Opioid Dependence and Any Mood Disorder	13.0	16.5	122	10.3	158	.436	1.08 [0.64, 1.85]
Opioid Dependence and Psychotic Symptoms	3.7	8.4	122	0	158	.333	1.29 [0.58, 2.88]
Opioid Dependence and BPD	5.5	8.3	122	3.2	158	.260	0.76 [0.40, 1.46]
Opioid Dependence and ASPD	8.7	12.4	122	5.8	158	.072	1.63 [0.90, 2.93]
Cannabis Dependence and Any Psychiatric Disorder	23.5	32.5	122	16.6	158	.008	2.08 [1.17, 3.72]
Cannabis Dependence and Any Anxiety Disorder	11.2	17.5	122	6.4	158	.077	1.55 [0.90, 2.66]
Cannabis Dependence and Any Mood Disorder	15.5	24.2	122	8.9	158	.301	1.19 [0.71, 1.98]
Cannabis Dependence and Psychotic Symptoms	4.0	7.6	122	1.3	158	.375	1.22 [0.56, 2.67]
Cannabis Dependence and BPD	7.2	13.3	122	2.6	158	.488	0.94 [0.52, 1.72]
Cannabis Dependence and ASPD	11.6	16.7	122	7.6	158	.003	2.29 [1.31, 4.02]

^I p values are based on chi-square tests

Table 3

Conditional Comorbidities as a Function of Abuse

Substance Dependence	Comorbidity	Total (%)	By Abuse		<i>p</i> -value ^J	OR [C.I.]
			Abused (%)	Not Abused (%)		
Alcohol Dependence # Abused= 76 # Not Abused= 49	Any psychiatric disorder	80.0	93.4	59.2	<.001	9.79 [3.36, 28.58]
	Any mood disorder	64.8	77.6	44.9	<.001	4.26 [1.95, 9.29]
	Any anxiety disorder	44.0	56.6	24.5	<.001	4.02 [1.82, 8.88]
	Psychotic symptoms	17.7	26.7	4.1	.001	8.55 [1.90, 38.48]
Cannabis Dependence # Abused= 44 # Not Abused= 41	BPD	38.4	53.9	14.3	<.001	7.03 [2.81, 17.61]
	ASPD	36.0	46.1	20.4	.003	3.33 [1.45, 7.62]
	Any psychiatric disorder	76.5	88.6	63.4	.006	4.5 [1.46, 13.89]
	Any mood disorder	50.6	65.9	34.1	.003	3.73 [1.52, 9.15]
Cocaine Dependence # Abused= 97 # Not Abused= 96	Any anxiety disorder	36.5	47.7	24.4	.022	2.83 [1.12, 7.15]
	Psychotic symptoms	13.3	20.9	5.0	.032	5.03 [1.02, 24.92]
	BPD	23.5	36.4	9.8	.004	5.29 [1.59, 17.56]
	ASPD	37.6	45.5	29.3	.094	2.01 [0.82, 4.94]
Opioid Dependence # Abused= 30 # Not Abused= 43	Any psychiatric disorder	74.1	88.7	59.4	<.001	5.35 [2.53, 11.30]
	Any mood disorder	56.0	72.2	39.6	<.001	3.96 [2.16, 7.24]
	Any anxiety disorder	34.7	49.5	19.8	<.001	3.97 [2.09, 7.53]
	Psychotic symptoms	13.8	23.2	4.3	<.001	6.78 [2.24, 20.56]
Substance Dependence # Abused= 76 # Not Abused= 49	BPD	30.2	46.4	13.7	<.001	4.46 [2.69, 11.08]
	ASPD	27.5	35.1	19.8	.013	2.19 [1.14, 4.20]
	Any psychiatric disorder	64.4	83.3	51.2	.004	4.77 [1.54, 14.79]
	Any mood disorder	49.3	66.7	37.2	.012	3.38 [1.27, 8.98]
Alcohol Dependence # Abused= 30 # Not Abused= 43	Any anxiety disorder	28.8	46.7	16.3	.005	4.50 [1.53, 13.27]
	Psychotic symptoms	13.9	33.3	0.0	<.001	1.50 [1.17, 1.93]
	BPD	20.8	33.3	11.9	.028	3.70 [1.11, 12.33]
	ASPD	32.9	50.0	20.9	.010	3.78 [1.46, 10.54]

^J *p* values are based on chi-square tests