Controlled Study of Psychiatric Comorbidity in Psychiatrically Hospitalized Young Adults With Substance Use Disorders

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Objective: *The purpose of this study was to examine DSM-III-R axis I and axis II comorbidity in psychiatrically hospitalized young adults with substance use disorders.* *Method:* *Structured diagnostic interviews were given to 117 consecutive inpatients. Seventy patients with substance use disorders and 47 patients without substance use disorders were compared.* *Results:* *High rates of co-occurrence of axis I disorders were observed, but no disorder coexisted in the group with substance use disorders at a significantly higher rate than in the group without substance use disorders. Among axis II disorders, borderline personality disorder was diagnosed significantly more frequently in the group with substance use disorders.* *Conclusions:* *Significant additional diagnostic co-occurrence, defined as comorbidity, was observed only between borderline personality disorder and substance use disorders. The use of a relevant psychiatric comparison group allows for finer distinctions between covariation based on shared severity and comorbidity possibly based on shared pathophysiology.*

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Studies of psychiatric comorbidity among patients with substance use disorders have found high rates of co-occurrence of other diagnoses (1, 2). Unfortunately, the nature of the associations remains uncertain. Co-occurrence may reflect many things, including 1) different disorders that share a common etiology or pathophysiology, 2) different disorders that are truly independent but that occur in the same patient, and 3) a variety of artifacts including chance and sampling effects (3). For heuristic purposes, we shall refer to the first type of co-occurrence as comorbidity, the second type as covariation, and the third type as error covariation.

Here we define comorbidity as diagnostic co-occurrence rates that are statistically greater than would be expected by chance, given the base rates of covariation in a relevant comparison group (4). In order to avoid the sampling pitfalls (e.g., patient recruitment and study selection biases) highlighted by du Fort et al. (3), we suggest that comparison groups should be obtained from the same overall sample (with similar demographic and severity features) and should be assessed in a similar manner (4).

In this study we examined the frequency of co-occurring axis I disorders and axis II personality disorders in psychiatrically hospitalized young adults with substance use disorders. We aimed to assess whether certain disorders co-occur significantly more frequently in patients with substance use disorders than in a hospitalized psychiatric comparison group.

METHOD

Subjects were a consecutive series of 117 young adults admitted to a private, not-for-profit, tertiary-care psychiatric hospital. Patients were hospitalized for a variety of psychiatric problems that may or may not have included a substance use disorder. Admission was based on psychiatric need for inpatient treatment; no other selection processes were used. All subjects provided written informed consent.

Subjects were aged 18 to 37 years (mean=23.6, SD=5.6). Sixty-one subjects (52.1%) were men, 113 (96.6%) were Caucasian, most were middle-class (70.0% [N=82] were from families in Hollingshead-Redlich social classes II–IV), and all had some form of insurance coverage. Global Assessment of Functioning ratings at time of admission averaged 34.2 (SD=10.6).

Subjects were given the Structured Clinical Interview for DSM-III-R—Patient Version (SCID-P) (5) to determine current axis I diagnoses and the Personality Disorder Examination (6) to assess for DSM-III-R axis II personality disorders. Patients were considered to meet the specific criteria of the Personality Disorder Examination diagnoses if their symptoms had been pervasive and persistent for at least 5 years (7); this represents a more stringent criterion than either DSM-III-R or DSM-IV.

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TABLE 1. Comorbid DSM-III-R Axis I and II Disorders in Inpatients Without and With Substance Use Disorders

Diagnosis	No Substance Use Disorders (N=47) N	%	Substance Use Disorders (N=70) N	%	χ^2 (df=1)[a]
Axis I					
Mood disorders	29	62	43	61	0.00
Bipolar disorder	4	9	10	14	0.43
Major depression	20	43	31	44	0.00
Dysthymia	8	17	19	27	1.10
Psychotic disorders	13	28	19	27	0.00
Anxiety disorders	7	15	18	26	1.37
Eating disorders	5	11	16	23	2.08
Axis II personality disorders					
Any	22	47	55	79	11.24*
Cluster A	7	15	9	13	0.00
Paranoid	1	2	4	6	0.22
Schizoid	3	6	0	0	2.39
Schizotypal	4	9	6	9	0.00
Cluster B	9	19	47	67	24.07*
Antisocial	3	6	13	19	2.58
Borderline	7	15	43	61	23.02*
Histrionic	2	4	9	13	1.54
Narcissistic	3	6	4	6	0.00
Cluster C	12	26	24	34	0.64
Avoidant	6	13	9	13	0.00
Dependent	6	13	12	17	0.15
Obsessive-compulsive	1	2	3	4	0.01
Passive-aggressive	3	6	8	11	0.35
Not otherwise specified	5	11	9	13	0.01

[a]With Yates's correction for continuity. Tests were two tailed.
*$p \leq 0.001$.

The structured interviews were performed soon after admission by a trained and monitored research evaluation unit that functioned independently of the clinical teams. Most interviews were performed 1–2 weeks after admission, thus decreasing the potentially confounding influences of acute psychiatric decompensation (e.g., florid psychosis) or acute substance-related symptoms on the assignment of diagnoses.

Kappa coefficients for interrater reliability (based on independent simultaneous ratings by pairs of raters) across all diagnoses ranged from 0.65 to 1.00; average kappas for axis I and axis II were 0.77 and 0.84, respectively. Kappa for substance use disorders was 1.00. Final research diagnoses were established by the "best-estimate" method, based on the structured interviews and any additional relevant medical record data, following the Longitudinal Expert All Data standard (7). The best-estimate research diagnosis was generated at an evaluation research conference approximately 4 weeks after admission, thus allowing for the consideration and integration of clinical data that were potentially no longer confounded by acute substance-related effects.

RESULTS

Seventy of the 117 patients (59.8%) met criteria for at least one substance use disorder, and 47 (40.2%) did not. The group with substance use disorders was characterized by disorders of alcohol use in most cases (N=49, 70.0%) and disorders related to the following nonalcohol substances: cannabis (N=28, 40.0%), cocaine (N=17, 24.3%), inhalants (N=9, 12.9%), hallucinogens (N=4, 5.7%), opioids (N=2, 2.9%), amphetamines (N=1, 1.4%), sedatives (N=1, 1.4%), and multiple substances (N=18, 25.7%). Seventy percent of the overall group with substance use disorders (N=49 of 70), 63.3% of patients with alcohol use disorders (N=31 of 49), and 66.1% of patients with a nonalcohol substance use disorder (N=39 of 59) met criteria for dependence.

Univariate analyses (one-way analyses of variance for continuous variables and chi-square analyses for categorical variables) revealed that the groups with and without substance use disorders did not differ with regard to age, gender, ethnicity, age at first psychiatric contact, age at first psychiatric hospitalization, or current Global Assessment of Functioning rating. The group with substance use disorders had a greater number of previous psychiatric hospitalizations than the group without such disorders (mean=3.9, SD=4.0, versus mean=2.4, SD=2.6) ($F=4.75$, df=1, 116, $p<0.05$, two-tailed test).

Table 1 summarizes the distribution of the major axis I diagnoses and the axis II clusters and disorders for both study groups. Chi-square analyses (with Yates's correction for continuity) were performed to test for group differences. High rates of coexisting axis I disorders were observed in the group with substance use disorders, but none was diagnosed significantly more frequently than in the group without substance use disorders. In general, axis II personality disorders were diagnosed significantly more frequently in the group with than in the group without substance use disorders. Significant co-occurrence was observed between substance use disorders and borderline personality disorder.

The significant association between borderline personality disorder and substance use disorders was observed for both men and women. Among men, borderline personality disorder was diagnosed significantly more frequently in the group with substance use disorders (58%, N=19) than in the group without such disorders (14%, N=4) (Yates's continuity corrected $\chi^2=10.31$, df=1, $p<0.001$, two-tailed test.). Similarly, for women, borderline personality disorder was diagnosed significantly more frequently in the group with substance use disorders (65%, N=24) than in the group without such disorders (16%, N=3) (Yates's corrected $\chi^2=10.22$, df=1, $p<0.001$, two-tailed test).

We explored the possibility that the significant association between substance use disorders and borderline personality disorder may represent, in part, an artifact of DSM-III-R. Substance abuse is one possible criterion (of a required minimum of two) contributing to the "impulsiveness" criterion for borderline personality disorder. Therefore, it is more likely for a person with

substance use disorders also to meet criteria for borderline personality disorder. We evaluated the effect of this criterion isomorphism by reanalyzing the co-occurrence of substance use disorders and borderline personality disorder after suspending substance abuse as a way of meeting the impulsiveness criterion for borderline personality disorder. For this analysis, we used a subgroup of 92 subjects for whom all criterion-level symptom data were available. The group with substance use disorders remained significantly more likely than the group without substance use disorders to meet the criteria for borderline personality disorder (35.0%, N=21, versus 12.5%, N=4) (Yates's continuity corrected χ^2=4.26, df=1, p<0.05, two-tailed test).

DISCUSSION

This study examined DSM-III-R comorbidity in psychiatrically hospitalized young adults with substance use disorders. We assessed a consecutive series of inpatients by using reliably administered, structured diagnostic interviews. Although high rates of diagnostic co-occurrence were observed, statistically significant additional co-occurrence—defined here as comorbidity—was observed only between borderline personality disorder and substance use disorders. The association between substance use disorders and borderline personality disorder was observed for both men and women and was not due to DSM-III-R criterion isomorphism.

The finding of significant comorbidity between substance use disorders and borderline personality disorder in young adults extends our previous findings of similarly determined comorbidity among adolescent inpatients (8). While it is not ascertainable from these cross-sectional data, the findings suggest that substance abuse can perhaps be regarded as due, in part, to deficits in affect regulation and impulse control, which are characteristic of persons with borderline personality disorder.

Our use of a relevant psychiatric comparison group recruited in the same overall manner, and similar in many demographic and severity features, decreased possible artifacts such as diagnostic covariation and error covariation (3). Our use of Loranger's requirement (6) that patients were considered to meet the criteria of the Personality Disorder Examination diagnoses if their symptoms had been present for at least 5 years is more stringent than DSM-III-R or DSM-IV specifications—suggesting that our findings regarding personality disorder may reflect a relatively stable phenomenon, rather than a situational response to axis I pathology.

In a similar vein, it is possible that the diagnoses reported here might reflect, in part, substance-induced organic disorders. Although we did not assess patients for organic disorders, our diagnostic procedures (i.e., structured interviews 1–2 weeks after admission and Longitudinal Expert All Data standard best-estimate diagnosis 4 weeks after admission) should have decreased the likelihood of this type of misdiagnosis. Furthermore, one study found that interrater reliability for the SCID-P for DSM-III-R diagnoses remains acceptable when a substance use disorder is present and is moderate for ratings of whether the assigned diagnosis is caused by the substance use disorder (9).

Possible limitations of our study include the use of a heterogeneous group of psychiatric inpatients, which perhaps reduces the generalizability of the findings to psychiatric outpatients, chemical dependency programs (1), or community samples, which may all differ in their base rates of disorders. Furthermore, our cross-sectional data cannot address issues pertaining to the longitudinal associations of the disorders.

In summary, although high rates of diagnostic co-occurrence were observed in adult psychiatric inpatients with substance use disorders, statistically significant additional co-occurrence was observed only between borderline personality disorder and substance use disorders. The use of a relevant comparison group allows for finer distinctions between covariation based on shared severity and comorbidity based on possible shared pathophysiology.

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