

SUBSTANCE USE DISORDERS IN AN ADOLESCENT INPATIENT PSYCHIATRIC POPULATION

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This study examined the comorbidity of substance use disorders and other psychiatric disorders in adolescent populations. The study population was comprised of 100 consecutive admissions, ages 13 to 17, to an acute care adolescent psychiatric inpatient unit for substance use disorders. Patients were assessed using the Personal Experience Screening Questionnaire (PESQ) and the substance-use disorder portion of the Structured Clinical Interview for DSM III-R (SCID-R).

Thirty-three (33%) patients were identified as having a substance abuse or dependence diagnosis. There was no significant difference in the age between substance users and non-substance users. There were significantly more whites in the substance-using group. Sixty percent of all adolescents interviewed had histories of sexual or physical trauma, with trauma being significantly more common in the substance-using group. There were no significant differences in the number or type of other Axis I or Axis II diagnoses between the two groups. While substance users and nonsubstance users had no significant difference in the number of past psychiatric hospitalizations, nonsubstance users had significantly more past medical hospitalizations. These results indicate that high rates of comorbid substance abuse and psychiatric disorders exist in adolescents, and more in-depth study of comorbidity among adolescents is warranted. (*J Natl Med Assoc.* 1998;90:233-238.)

Key words: substance abuse ♦ adolescents

Few studies have investigated the coexistence of substance use and other psychiatric disorders in adolescent inpatient psychiatric populations. This phenomenon has been more widely studied in adult populations, and many studies indicate a high prevalence of drug and alcohol use among adults with psychiatric disorders, which impacts the course and prognosis of both disorders.¹⁻³ Analysis of the lifetime prevalence of mental illness and alcohol and

other drug abuse disorders, as shown by the National Institute of Mental Health's Epidemiologic Catchment Area Study (ECA), revealed comorbidity rates of 28% for substance abuse disorders among adults with a primary diagnosis of a mental disorder.⁴

Much of what is known about comorbidity of psychiatric and substance use disorders have come from systematic studies of adult populations.^{4,5} Some of the studies of adult populations indicate that many of the psychiatric disorders began during childhood and adolescence, and the individuals later became substance users.⁶ This underscores the importance of exploring comorbidity in adolescent populations.

It has been reported that drug use may function as "self-medication" of psychiatric disturbances, especially symptoms of depression.^{7,8} Adolescents with psy-

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Table 1. Patient Demographics

	% Substance Users (n=33)	% Nonsubstance Users (n=67)	Statistic
Mean age±SD (years)	15±1.26	15±.96	NS
Gender			
Male	52	42	NS
Female	48	58	
Race			
African American	24	58	$P \leq .001^*$
White	76	42	
Average length of hospital stay	14 days	15 days	NS

Abbreviations: SD=standard deviation and NS=not significant.

chiatric disorders may begin a process of self-medication that eventually leads to substance use disorders. Deas-Nesmith and colleagues⁹ examined adolescents from a substance abuse inpatient facility, an acute psychiatric inpatient facility, and a community mental health center for anxiety disorders and substance abuse, and found that anxiety symptoms began on average 2 years before the adolescents met *DSM-III-R* criteria for a substance use disorder.

There is a dearth of studies that have systematically explored the coexistence of substance use in adolescent psychiatric populations. The vast majority of comorbidity studies of adolescents have addressed the presence of psychiatric disorders in substance-abusing inpatient populations. In a group of 52 adolescents hospitalized for substance abuse and 23 nonsubstance-abusing adolescents with conduct or oppositional defiant disorders, Hovens et al¹⁰ found that 85% of the substance abusers versus 65% of the nonsubstance abusers demonstrated psychiatric comorbidity. A pilot study of 226 adolescents entering inpatient treatment because of a primary substance use disorder revealed that 74% had two or more psychiatric disorders, and the disturbances of depression, anxiety, and conduct preceded the regular use of alcohol or illicit drugs in 68% of the sample.¹¹ Data from the National Institute of Mental Health ECA Study have shown that psychiatric disorders that begin in late adolescence or young adulthood increase the risk of later substance abuse.⁶

Affective disorder comorbidity is the most studied psychopathology that occurs with substance abuse in adolescents.¹²⁻¹⁶ In a sample of 547 adolescents with serious emotional disturbances, Greenbaum et al¹⁷ found that adolescents with

severe depressive disorders were more likely to be diagnosed with a substance abuse disorder than adolescents without depressive disorders. In the investigation of the prevalence of depression among 223 adolescents, aged 15 to 19, who were in residential treatment for alcohol or drug dependence, Deykin et al¹⁶ found that 54 (24.7%) met *DSM-III-R* criteria for depression.

The vast majority of studies exploring comorbidity among adolescents have been performed in inpatient substance-abusing populations. Although the rates of comorbidity are consistently high, it is unclear whether these rates are equally high among adolescents hospitalized for psychiatric disorders. Investigation of comorbid substance use among adolescents with psychiatric disorders may be useful in determining the onset, course, treatment, and prognosis of both psychiatric and substance use disorders. Early identification and treatment of psychiatric illnesses in adolescents may play a role in the prevention of substance use disorders. This study examined the coexistence of substance use and other psychiatric disorders among adolescents hospitalized for psychiatric treatment.

MATERIALS AND METHODS

Subjects were 100 consecutive admissions to the acute adolescent psychiatric inpatient unit at the Institute of Psychiatry, Medical University of South Carolina. The study was approved by the institutional review board at the Medical University of South Carolina. Parents or guardians were apprised of the study, and informed consent was obtained. Assent was received by all adolescents who participated in the study.

Upon admission, patients received the self-report Personal Experience Screening Questionnaire (PESQ)¹⁸ to assess general substance use and emotional problems. This initial screening tool was followed by the administration of a modified version of the substance use disorders portion of the Structured Clinical Interview for *DSM-III-R* (SCID-R)¹⁹ to assess for substance abuse or dependence. The SCID-R was administered by either a board-certified psychiatrist (D.D.) or a licensed master of social work who specialized in adolescent psychiatry (S.C.). Inter-rater reliability estimates (Kappa coefficients) were determined for 15 subjects, and based on criterion items from the structured interviews, the reliability ranged from .90 to .95.

Subjects received an intake assessment to obtain data on demographics, family history, trauma, and past psychiatric and medical hospitalizations. Psychiatric diagnoses were determined by treatment team consensus using *DSM-III-R* criteria.²⁰ Urine drug screens were ordered at the time of admission and were analyzed by the Abbott TDX semiquantitative method using radioimmunoassay.

Based on findings from the substance use diagnostic assessment, subjects were divided into two groups: substance users or nonsubstance users. All subjects in the substance-using group met *DSM-III-R* criteria for substance abuse or dependence. Chi-squared analysis was used to compare subjects within groups and across groups with regard to demographics, frequency of psychiatric and medical diagnoses, trauma, and family medical and psychiatric histories.

RESULTS

Table 1 displays patient demographics. The average patient age for both groups was 15. While there was no significant difference in gender distribution, there were slightly more males in the substance-using group. There were significantly more whites than African Americans in the substance-using group. There was a 33% prevalence rate of substance use in this psychiatric treatment-seeking population. On initial triage to the hospital, these adolescents were not identified as having a substance use disorder.

Table 2 lists the substance use disorders for which subjects met *DSM-III-R* criteria of abuse or dependence. As can be seen, alcohol was the most common substance of abuse, followed by marijuana. Almost half (45%) of the subjects in the substance-using group were using two or more substances.

Table 2. Substance Use Disorders

Substance	No. Disorders
Alcohol	29
Cocaine	3
Marijuana	9
Inhalants	3
≥2 of the above	15

There were no significant differences in the prevalence of number or percentage of adolescents with an Axis I or Axis II diagnosis among substance users and nonsubstance users (Table 3). A history of trauma was common in both groups; however, the substance-abusing group experienced significantly more sexual and physical trauma. There was no significant difference in the number of past psychiatric admissions between the two groups. Nonsubstance users had significantly more past medical hospitalizations and were significantly more likely to have a member of their immediate family hospitalized with a serious medical illness. Examples of serious medical illnesses included diabetes, asthma, and gastrointestinal and renal problems. There was no difference in family history of substance use disorders between the groups. More than 60% from each group had a family member with a history of substance abuse.

There were no significant differences between the substance- and nonsubstance-using groups in the frequency of specific psychiatric disorders (Table 4). Both affective disorders and disruptive disorders were highly represented among both groups.

DISCUSSION

This study found a high prevalence of substance use among adolescents admitted to an acute inpatient psychiatric unit. Our finding that 33% of adolescents admitted to an inpatient psychiatric unit had a diagnosis of substance abuse or dependence underscores the importance of screening psychiatric patients for substance use disorders. These adolescents were admitted to an inpatient facility for psychiatric reasons other than substance use disorders. Moreover, outpatient clinicians had not identified a substance use disorder in any of the adolescents prior to their inpatient admission. Perhaps these adolescents would have gone undiagnosed for their substance use disorders.

Table 3. Psychiatric and Medical History

	No. (%) Substance Users (n=33)	No. (%) Nonsubstance Users (n=67)	P Value
Axis I diagnoses*	2.6	2.5	NS
Axis II diagnoses	26 (79)	52 (78)	NS
History of trauma	25 (75)	37 (55)	≤.05†
Past medical hospitalizations	10 (30)	35 (52)	≤.05‡
Past psychiatric hospitalizations	10 (30)	25 (37)	NS
Family medical history	8 (24)	31 (46)	≤.05§
Family substance use history	22 (67)	43 (64)	NS

Abbreviations: NS=not significant.
 *Mean.
 † $\chi^2=3.95$.
 ‡ $\chi^2=4.30$.
 § $\chi^2=4.50$.

Table 4. Frequency of Psychiatric Diagnoses

	No. (%) Substance Users (n=33)	No. (%) Nonsubstance Users (n=67)
Affective disorders	24 (73)	52 (78)
Anxiety disorders	7 (21)	20 (30)
Disruptive disorders	20 (61)	47 (70)

The presence of the substance use disorders may have impacted the primary psychiatric disorder by exacerbation or further relapse. Review of previous medical records revealed that those adolescents identified with comorbid substance use disorders had a higher rate of recidivism (40% versus 10%) than those without a substance use disorder. The presence of an undiagnosed substance use disorder in an adolescent with a primary mental disorder may contribute to poor response to treatment and repeated hospitalizations.

Singer and Song²¹ found a 40% rate of substance use disorders comorbid with psychiatric disorders among 319 adolescents admitted consecutively over a 2-year period to an adolescent psychiatric unit. Our data indicate that adolescents hospitalized for psychiatric disorders may be at risk for the development of a substance use disorder.

Assessment for substance use in the adolescent psychiatric population should be a standard practice. Some clinicians may focus solely on the presenting psychiatric symptoms and neglect to explore further for substance use. The National Household

survey on drug abuse reported that 17.9% of youth aged 12 to 17 had ever used an illicit drug, while 41.3% reported having ever used alcohol.²²

Although these rates do not reflect abuse or dependence, it is noteworthy that adolescents within the general population are using substances at an alarming rate. The University of Michigan's Monitoring the Future Study revealed that 29.8% of high school seniors in 1995 reported drinking ≥ 5 drinks in a row in the last 2 weeks prior to the interview.²³ It is not known whether these adolescents had psychiatric symptoms predating their substance use; however, their binge patterns of use are indicative of substance abuse or dependence.

Significantly ($P<.001$) more whites were in the substance-using group in our study. There was no difference in the number of African Americans ($n=47$) and whites ($n=53$) among the 100 consecutively admitted adolescents. Additionally, socioeconomic status and methods of payment were similar. Hubbard et al²⁴ found that alcohol use may begin at a later age for African Americans compared with persons from other ethnic groups who eventually

enter drug treatment programs. Although the incidence of drinking may be increasing among black males who come to drug treatment, the age of initiation of weekly alcohol use and the first episode of drunkenness are reportedly much later for African Americans than for whites and Hispanics.

The National Comorbidity Survey results indicated that blacks have a significantly lower prevalence of affective disorders, substance use disorders, and lifetime comorbidity than whites, and the differences were not explained by controlling for income and education.²⁵ These findings are consistent with the ECA finding of a higher prevalence of drug and alcohol abuse and dependence among whites compared with young blacks.^{26,27}

Accessibility of substances of abuse and availability of financial resources may account in part for the higher rate of substance use among adolescent whites. Furthermore, as African Americans reach adulthood, it may be that psychosocial deprivation and discrimination become more important factors that predispose to drug addiction. The stressors of unemployment, poverty, and limited opportunities may in part increase the risk of substance use.

Adolescents in the substance-using group were significantly ($P < .05$) more likely to have experienced sexual and physical trauma. The serious sequelae of sexual and physical abuse among children are becoming more recognized. Cohen and Densen-Gerber²⁸ found that 33% of 178 women substance abusers in treatment for drug/alcohol addiction had been victims of sexual abuse. In an adolescent sample investigated by Harrison et al,²⁹ sexual abuse victims reported earlier onset of alcohol and drug use, more self-medication, and more substance use to escape family problems.

A study of 4000 women receiving a structured telephone interview to determine assault histories, psychological sequelae, and substance abuse patterns revealed that 36% reported a history of assault or attempted assault (physical or sexual). Among the assault victims, two thirds had been sexually assaulted before the age of 18, and one third occurred before the age of 11.³⁰ In a study exploring the relationship between sexual and physical assault and post-traumatic stress disorder in 100 substance-dependent inpatients, 66% had experienced at least one form of sexual or physical assault.³¹

In our population of adolescents, while those with a substance use disorder experienced more physical and sexual trauma, it is also of note that more than

half (52%) of those in the nonsubstance-using group also experienced trauma. Substance use as a mechanism of coping with trauma may have been used by some of these adolescents. All adolescents who have experienced trauma do not cope by using substances. It is unclear what other factors may be involved in the pathway to substance use when trauma has been experienced. Early intervention and treatment of traumatized children and adolescents may reduce the likelihood of developing substance use disorders.

Among substances used in our sample of adolescents, alcohol was the most common substance of abuse. While the "war on drugs" tends to focus on other illicit substances, alcohol has been much less frequently targeted as a problematic substance for adolescents. Adolescents may view alcohol as a more socially acceptable substance and, in fact, not consider alcohol to be a drug. It is of concern that based on the Monitoring the Future Survey, almost a third (29.8%) of high school seniors may be considered binge drinkers.²³ Educational programs targeting alcohol use within the adolescent population may be helpful. Urine drug screens of all of the adolescents in the sample were negative, although marijuana and cocaine were among the substances for which subjects met abuse or dependence criteria. The negative urine drug screens correlated with the length of time since last use of substances. A substance use treatment population may have had more positive drug screens due to the regularity of use than our primarily psychiatric treatment-seeking population.

Limitations of this study include the sample size and the use of team consensus for the psychiatric diagnoses. The finding of no difference in the frequency of psychiatric diagnoses between the groups may be reflective of this limitation. A semistructured interview assessing for psychiatric disorders would have been a strength in this study; however, structured interviews were used to obtain the substance use diagnoses in this population.

CONCLUSION

Although not widely studied, a high rate of comorbidity of substance abuse and psychiatric disorders exists in psychiatric treatment-seeking adolescents. Despite the fact that most adolescent studies have focused on substance use treatment-seeking adolescents, systematic assessment of psychiatric treatment-seeking adolescents is necessary. Proper diagnoses and treatment may reduce recidivism and improve outcome. More in-depth exploration of comorbidity

among inpatient adolescents seeking psychiatric treatment is warranted.

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