

Adolescents in Public Substance Abuse Treatment Programs: The Impacts of Sex and Race on Referrals and Outcomes

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ABSTRACT. Adolescent substance use continues to be a serious public health and social problem. However, very little research has been conducted to understand substance use treatment for adolescents during the past thirty years. This study reports on adolescents in publicly funded AOD treatment programs from 1997-1999 (N = 4,733). Analyses are presented examining sex and ethnic differences within this population. Females were more likely to report methamphetamine and males reported marijuana use. Females were more likely to report injection drug use; males were more likely to be mandated to treatment. Hispanic and African American youth were referred into treatment from criminal justice; reported marijuana as the primary drug; much less likely to be IDUs; be mandated to treatment; and released unsatisfactorily compared to white adolescents. Implications for future research and substance abuse treatment are discussed. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> © 2003 by The Haworth Press, Inc. All rights reserved.]*

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Journal of Child & Adolescent Substance Abuse, Vol. 12(4) 2003
<http://www.haworthpress.com/store/product.asp?sku=J029>
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10.1300/J029v12n04_05

KEYWORDS. Alcohol, drugs, treatment, adolescents, sex, ethnicity

BACKGROUND

Adolescent alcohol and other drug use (AOD) continues to be a serious public health and social problem. The most recent National Institute of Drug Abuse (NIDA)-funded Monitoring the Future study found that by twelfth grade, 54% of students had used an illicit drug. Nearly half (48.8%) of high school seniors had ever used marijuana, 80.3% had ever used alcohol, and 62.3% had been drunk. When examining AOD use among high school seniors (past 30 days), 24.9% reported using at least one illicit drug, 50% had used alcohol and 32.3% had been drunk (Johnston, O'Malley & Bachman, 2001).

Two demographic variables associated with adolescent alcohol use include sex and race/ethnicity. Males have been found to report alcohol use more than females (Windle, 1991) and white adolescents report alcohol use more than African Americans and Hispanics youth (Warheit, Vega, Khoury, Gil, & Elfenbein, 1996; Vega, Zimmerman, Warheit, Apospori, & Gil 1993; Windle, 1991). Concerning heavy drinking, Johnston and associates (1997) reported more male high school seniors reported heavy drinking (38%) than did their female counterparts (24%) and the number of occasions of heavy drinking increased with age. Other drug use has been found to be higher for white and Latino youth and lower among black youth (Bachman, Wallace, O'Malley, Johnston, Kurth & Neighbors, 1991; Prendergast, Austin, Maton & Baker, 1989). In general Hispanic and white adolescents report substance use at similar rates (O'Malley, Johnston, & Bachman, 1999). Use of illicit substances has been found to be reported by about one third of both males (30%) and females (31%) among whites and 32% for Hispanic males and females. Whereas for Black youth, the findings indicate the usage rates are 22% for males and 17% for females (O'Malley et al., 1999).

These AOD use levels result in serious problems for small percentages of adolescents. Liu and Maxwell (1995) reported that 7% of junior high and high school students tried to find help for their substance use problems. Smart and Stoduto (1997) found that among students with two or more alcohol related problems in grades 7 through high school, 2.7% entered AOD treatment due to alcohol related problems, 5.4% felt they needed treatment and 31.0% wished they could drink less. Of those reporting two or more drug related problems, 8.4% percent had been in

treatment, 12.2% reported needing treatment and 19.8% reported they would like to use drugs less.

Relative to adult substance use treatment, few studies have been published on adolescent substance abuse treatment. Based upon a recent review of the adolescent substance use treatment literature, it was found that only 53 published or unpublished studies examined this population. This is compared to over 1,000 like reports on adults in AOD treatment (Williams & Chang, 2000). Of these 53 studies, three were published in the 1970s, 19 in the 1980s and 32 in the 1990s. Therefore of the studies found, only 60% were published in the past decade and several may not reflect adolescents entering treatment currently.

Nationally, most of the adolescents in AOD treatment are between 15-17 years old, Caucasians and polysubstance users (Williams & Chang, 2000; Rounds-Bryant, Kristiansen, & Hubbard, 1999). Rounds-Bryant, Kristiansen, and Hubbard (1999) reported data from the national Drug Abuse Treatment Outcome Study of Adolescents (DATOS-A) and found that those in adolescent AOD treatment were primarily male. The primary drugs used by adolescents in treatment are alcohol and marijuana (Hovens, Cantwell, & Kiriakos, 1994; Rounds-Bryant, Kristiansen, & Hubbard, 1999; Rounds-Bryant, Kristiansen, Fairbank & Hubbard, 1998) with a high preponderance of binge drinking (five or more drinks at a single setting) and poly substance use (Friedman, Glickman & Morrissey, 1986; Leccese & Waldron, 1994; Williams & Chang, 2000; Winters, Stinchfield, Weller, & Latimer, 2000).

Treatment Outcomes

It has been found that adolescents who complete treatment had far better outcomes compared to those who did not complete treatment or those who did not receive any treatment at all (Winters et al., 2000). Winters et al. (2000) report that regardless of treatment setting (outpatient or residential), 53% of adolescents who completed treatment were either abstinent or had a minor relapse at 12 month follow-up compared to 15% of incompleters and 23% of waiting list groups.

When treatment success is defined as abstinence though, the percentage of such favorable outcomes decreases. Of the studies that conducted post-treatment follow-ups, Williams and Chang (2000) found that 38% of adolescents reported abstinence at 6 months, while 32% reported no AOD use at 12 months. Brown, Mott and Myers (1990) found that two thirds of adolescents relapsed back to substance use in the first 3 months after attending inpatient treatment.

When examining the reports on outpatient programs, the research indicates that the average abstinence rate reached by the end of treatment is only about 44% (Williams & Chang, 2000). Although the abstinence rate for those in outpatient programs may be low, Friedman et al. (1986) reported that the average drug usage was reduced by about half at discharge as compared to pretreatment levels.

Reduced rates of substance use were also found for inpatient treatment by Brown, et al. (1990) and Richter, Brown and Mott (1991) with both studies reporting about a 50% decrease after inpatient treatment at 6 months posttreatment compared to intake levels. Similarly, the DATOS-A multi-site, multi-program study reported a reduction in marijuana use of 51-55% at 12 months postdischarge (Hser, Grella, Hsieh, & Anglin, 1999).

A number of variables have been identified to be associated with treatment success in different studies. These include having support for the non-use of substances from both parents and peers (Hawkins, Catalano & Miller, 1992; Latimer, Newcomb, Winters, & Stinchfield, 2000). Latimer et al. (2000) noted that the number of non substance using peers for a youth in treatment is a stronger, predictive factor for treatment success for a recovering adolescent than is the number of using peers. Based upon longitudinal studies of adolescents in treatment, it has been found that the major portion of situations that teens identify as "high risk" for relapse involve social pressure to use AOD (Brown, 1993; Brown, Stetson & Beatty, 1989; Brown, Vik, Creamer, 1989; Myers & Brown, 1990; Richter et al., 1991).

Also found to be associated with treatment success is doing better in school or having a higher level of school connectedness (Hawkins et al., 1992). In fact, Friedman, Terras and Ali (1998) found that being expelled from school was one of two variables studied that predicted negative treatment outcomes for both inpatient and outpatient adolescents.

Motivation is a variable found associated with treatment success and may be an intervening variable with treatment completion and aftercare attendance both of which are also associated with better AOD treatment outcomes (Williams & Chang, 2000). Perhaps related to motivation is the finding that adolescents who are referred to treatment by a court or who reported higher levels of illegal activity were less likely to have positive AOD treatment outcomes (Friedman et al., 1998). This is in contrast to youth who were self-referred into treatment who were found to have higher rates of positive treatment outcomes particularly for those in outpatient treatment (Friedman et al., 1998). Friedman, Granick and Kreisher (1994) reported that posttreatment AOD use rates

were inversely related to adolescent reports of wanting help. This association has also been found for adolescent readiness for treatment (Cady, Winters, Jordan, Solberg & Stinchfield, 1996). Friedman, Terras, and Ali (1998) found that the client's rating of the harmfulness to one's health resulting from AOD use was predictive of outcomes for both inpatient and outpatient teens.

The findings regarding the association between the level of substance use prior to treatment and treatment outcomes is mixed. Some research has shown that those with a lower level of substance use when entering treatment have better treatment outcomes, which mirrors adult treatment findings (Williams & Chang, 2000; Moos, Finney & Cronkite, 1990). However, a recent study by Latimer et al. (2000) found that pre-treatment substance abuse problem severity did not predict treatment outcome, in that adolescents with a higher problem severity were just as likely to benefit from treatment as those with a lower problem severity.

The majority of prior research has not identified significant differences in treatment completion nor treatment outcomes based upon ethnicity or gender. Gender differences are found in some of the research; however, in some studies these differences appear to fade given the length of treatment is sufficiently long (Catalano, Hawkins, Wells, Miller, & Brewer, 1991; De Leon & Jainchil, 1991; Latimer et al., 2000).

As noted, there is a dearth of research on adolescent AOD treatment. Little has been published on adolescent AOD treatment in general and much less has been reported on the gender and ethnic differences in referral/admission and treatment discharge information. The purpose of this paper is to fill this void by presenting the results of an exploratory study to understand the characteristics of adolescents entering all publicly funded AOD treatment in a San Diego county.

METHOD

Data Collection

The data presented here are from the San Diego County Office of Alcohol and Drug Services. The self-reported information is collected on all client admissions and discharges by the contracted county treatment providers and is reported monthly. The discharge data are confidential data collected and reported by treatment providers. The researchers used only data with ID numbers, and no identifying information was available in the dataset. For this study, the data for 4,733 AOD adoles-

cent clients receiving substance use treatment during the three-year period of 1997-1999 were used. All clients aged 11-20 and whose ethnicity was white, Hispanic, or African American (the numbers in other ethnic groups were too low for analysis) were included for this study. Clients were included for analyses if they reported their primary problem drug as being alcohol, marijuana or methamphetamine, which represented 90% of all admissions. The other 10% were excluded because they reported so many other drugs as their primary drug that there was not enough power to stratify by ethnicity or sex. The county database included information regarding: demographics, drug history, treatment utilization, and discharge status. Entry to Alcohol and Drug Services (ADS) is by either a self-referral or a referral from one of the following: caseworkers, probation officers or other social service providers.

Variables

A number of categorical variables were recoded for this study: lifetime and 12-month injection drug use (IDU) (never = 0, ever = 1), having a permanent residence at admission, being formally mandated to receive AOD treatment (no = 0, yes = 1). Some categorical variables were dummy coded to facilitate logistic analyses: ethnicity (Caucasian and not Hispanic, African American or Hispanic), referral source (self, criminal justice or other) primary and secondary problem drugs (Alcohol, Methamphetamine, Marijuana—each substance coded 1 and all others coded 0), type of treatment program (Detoxification, Long-term Residential, Outpatient, and Day Treatment), route of administration (oral, smoking, inhaling, injecting), exit status (satisfactory, unsatisfactory or referred elsewhere for more treatment). The personnel at the treatment facilities recorded exit status. They made the decision whether the youth had completed treatment as needed, stopped treatment before completion or if the youth should be referred for more treatment due to need.

There are also several continuous variables which include: age, education, monthly income, number prior arrests, number prior AOD treatments, age of onset for the primary and secondary drugs, years of problem use, and number of prior arrests at admission. Another continuous variable, length of stay in treatment, was calculated by subtracting the admission date from the discharge date. This variable, however, does not indicate the amount of treatment received.

Data Analyses

The data for this study were analyzed in order to test for the differences between males and females and between white, Hispanic and Af-

rican American youth in treatment. The analyses were conducted using Chi-square and Analysis of Variance (ANOVA). When the ANOVAs were computed with ethnicity as the independent measure, which is coded with three categories, a post hoc Scheffe means test was calculated to test for significant differences between the three groups. With our analyses we accepted results that had a probability level of .001 or less due to the risk of inflated alphas. There were no standardized measures used nor were there any diagnostic data available for this study. All statistical tests were conducted using SPSS 9.0.

RESULTS

Descriptive Data

The descriptive data for this group of adolescents in AOD treatment are presented in Table 1. As can be seen, the clients were primarily male (69%) and white (46.2%) or Hispanic (42.1%). About half of those in treatment were referred from the criminal justice system with about an equal percentage entering treatment via self-referral or other referral sources. The youth had a mean number of over 2.5 prior arrests, with some adolescents reporting as many as 9 arrests prior to admission to treatment. It was found that the mean age was 17.1 years and the mean education level was about freshman in high school.

The primary problem drug reported by these youth was first marijuana (56.3%) followed by methamphetamine (27.7%) and alcohol (15.9%) (see Table 2). About one third of the sample reported no secondary problem drug. Though, of those who did report a secondary problem drug, the majority reported alcohol followed by marijuana and then methamphetamine. Consistent with marijuana being the primary problem drug, nearly three fourths of the youth reported smoking as the route of administration for their primary problem drug. The mean age at onset for the primary and secondary problem drug was 13 years, while the mean number of years of using the primary problem drug was nearly 2.9 years and just over 2.5 years for the secondary problem drug. Over seven percent of these youth reported a lifetime prevalence of injection drug use with over five percent reporting injection drug use in the past year.

Over half of the youth were formally mandated to attend treatment. Just over one third of youth entered outpatient treatment and another third entered day treatment. Residential treatment, either long-term or short-term, was attended by just over 15% of the clients with 10% at-

TABLE 1. Descriptive Data for Adolescents Receiving Alcohol and Drug Services (N = 4733)

	N	Percent		
Sex				
Female	1446	30.6		
Male	3287	69.4		
Ethnicity				
White	2187	46.2		
Black	553	11.7		
Hispanic	1993	42.1		
Permanent Residence at Admission				
Yes	3942	83.3		
Referral Source				
Self-Referral	826	17.5		
Criminal Justice Referral	3071	64.9		
Other	836	17.7		
	Range	Mean	SD	
Age	11.78 - 20.99	17.09	1.80	
Education	0 - 17	8.89	3.02	
Monthly Household Income	0 - 9998	781	1755	
No. of arrests prior to treatment	0 - 9	2.65	2.51	

tending a detoxification program. The mean number of prior treatment episodes was less than one (.76) and the mean length of stay was about 2.5 months. At the end of treatment, about half were released satisfactorily, over a third were released unsatisfactorily and twelve percent were referred on for more treatment.

Sex

The comparisons between males and females for descriptive data are presented in Table 3 and the presentations of these comparisons for the substance use and treatment data are found in Table 4. As found in Table 3, males and females in treatment were equally as likely to be African American. However, males were more likely to be Hispanic than females, whereas the females were more likely to be white. Females were significantly more likely than males to have a permanent residence at admission, to be older, and have a higher mean education. Compared to females, males were more likely to be referred to treatment through the criminal justice system and have a higher mean number of prior arrests.

TABLE 2. Substance Use Behaviors and Treatment Variables for Adolescents Receiving Alcohol and Drug Services (N = 4733)

	N	Percent	
Primary drug used			
Methamphetamine/Crystal	1313	27.7	
Alcohol	753	15.9	
Marijuana	2667	56.3	
Secondary drug used (of those reporting a second problem drug)			
No Secondary drug used	1674	35.4	
Methamphetamine/Crystal	474	10.0	
Alcohol	1577	32.9	
Marijuana	1008	21.3	
Formally Mandated to Receive AOD Services	2941	62.1	
Ever Used Injection Drugs	344	7.3	
Used Injection Drugs Past 12 months	255	5.4	
Route of Administration of Primary Problem Drug			
Oral	840	17.9	
Smoking	3443	73.2	
Inhale	318	6.8	
Injecting	103	2.2	
Type of Treatment Program			
Detoxification	486	10.3	
Short-term Residential	97	2.0	
Long-term Residential	643	13.6	
Outpatient	1727	36.5	
Day Treatment	1780	37.6	
Status at Exit from Treatment			
Satisfactory	2035	49.0	
Unsatisfactory	1615	38.9	
Referred elsewhere	503	12.1	
	Range	Mean	SD
Age Onset			
Primary Substance	5 – 20	13.03	2.17
Secondary Substance	5 – 20	13.20	2.23
Years of Use			
Primary Substance	0 – 15	2.86	2.11
Secondary Substance	0 – 15	2.59	2.19
Number of Prior Treatment Episodes	0 – 9	0.76	1.19
Length of Stay	1 – 942 days	76.67	76.01

Sex and Substance Use Variables

When examining the substance use variables it was found that females, in contrast to their male counterparts, were more likely to report both lifetime and past year injection drug use. Females were also much more likely than males to report methamphetamine as their primary

TABLE 3. Chi-square and ANOVA Results of Descriptive Variables for Male and Female Adolescents Receiving Substance Use Treatment (N = 4733)

	MALES N (%)	FEMALES N (%)	Chi-square Value
Race			
White	1402 (42.7)	785 (54.3)	54.69***
Black	394 (12.0)	159 (11.0)	ns
Hispanic	1491 (45.3)	502 (34.7)	46.67***
Permanent Residence at Admission	8001 (49.8)	7069 (61.3)	361.27***
Referral Source			
Self-Referral	513 (15.6)	313 (21.6)	25.42***
Criminal Justice Referral	2294 (69.8)	777 (53.7)	113.62***
Other Referral	480 (14.6)	356 (24.6)	69.28***
	Mean (SD)	Mean (SD)	F Value
Age	16.93 (1.68)	17.46 (2.02)	88.12***
Education	8.77 (3.08)	9.14 (2.87)	14.42***
Number of Prior Arrests	2.85 (2.52)	2.18 (2.40)	73.26***
Monthly Income	832.97 (1784)	668.89 (1684)	ns

ns = not significant

*** = $p < .001$

problem drug and marijuana as their secondary problem drug. In contrast to females, males were more likely to report marijuana as their primary problem drug and alcohol as their secondary problem drug. Males did report their mean age of onset for their primary problem drug nearly a year younger than did females. For both males and females the primary route of administration was smoking followed by oral use. The route of administration was also found to differ for males and females in that males were more likely to report smoking compared to females and females were more likely to report inhaling and injecting their substance.

Sex and Treatment Variables

In terms of treatment variables, it was found that males were more likely to be mandated to attend treatment and attend outpatient treatment compared to their female counterparts. Whereas females were more likely to enter a detoxification program or a long-term residential treatment center compared to males. Males and females did not differ on their number of prior AOD treatments or their length of stay in treatment.

Ethnicity

The comparisons between white, Hispanic and African American youth in AOD treatment are presented in Tables 5 and 6. It was found that white youth were significantly more likely to report having no permanent residence at the time of admission to treatment compared to Hispanic or African American youth. White adolescents were found to be significantly older than the other two groups. In terms of education, white adolescents were found to report a higher educational level than African American or Hispanic youth; and the Hispanic youth were found to have a significantly higher education compared to the African American youth.

The white youth were more likely to be self-referred to AOD treatment or referred through another source compared to Hispanic or African American youth. However, when the referral from the criminal justice system is examined, it can be seen that Hispanic and African American youth are significantly more likely to be referred through this source compared to the white adolescents. In fact, it was found that nearly three fourths of the Hispanic and African American youth were referred through the criminal justice system compared to just over half

TABLE 4. Chi-square and ANOVA Results of Substance Use Behaviors and Treatment Variables for Male and Female Adolescents (N = 4733)

	MALES N (%)	FEMALES N (%)	Chi-square Value
Ever Injected Drugs	175 (5.3)	169 (11.7)	60.33***
Injected Drugs Past 12 months	127 (3.9)	128 (8.9)	49.02***
Primary Problem Drug			
Methamphetamine/Crystal	610 (18.6)	703 (48.6)	452.65***
Alcohol	546 (16.6)	207 (14.3)	ns
Marijuana/Hash	2131 (64.8)	536 (37.1)	314.70***
Secondary Problem Drug			
Methamphetamine/Crystal	305 (14.1)	169 (18.8)	10.37***
Alcohol	1225 (56.8)	352 (39.1)	79.71***
Marijuana/Hash	628 (29.1)	380 (42.2)	49.12***
Route of Administration			
Oral	599 (18.3)	241 (16.8)	ns
Smoke	2499 (76.5)	944 (65.7)	58.55***
Inhale	131 (4.0)	187 (13.0)	128.6***
Inject	39 (1.2)	64 (4.5)	49.61***
Mandated to Attend Treatment	2157 (65.6)	784 (54.2)	55.51***
Status at Exit from Treatment			
Satisfactory Release	1418 (49.2)	617 (48.5)	ns
Unsatisfactory Release	1144 (39.7)	471 (37.1)	ns
Referred Elsewhere	320 (11.1)	183 (14.4)	ns

Treatment Program Type	MALES N (%)	FEMALES N (%)	Chi-square
Detoxification	296 (9.0)	190 (13.1)	18.63***
Short-term residential	68 (2.1)	29 (2.0)	ns
Long-term residential	406 (12.4)	237 (16.4)	13.95***
Outpatient	1282 (39.0)	445 (30.8)	29.33***
Day Treatment	1235 (37.6)	545 (37.7)	ns
	Mean (SD)	Mean (SD)	F Value
Age of Onset, Primary Drug	12.86 (2.17)	13.42 (2.13)	67.03***
Age of Onset, Secondary Drug	13.15 (2.22)	13.32 (2.26)	ns
No. Years of Problem Use for Primary Drug	2.84 (2.10)	2.92 (2.13)	ns
No. Years of Problem Use for Secondary Drug	2.56 (2.14)	2.66 (2.29)	ns
No. of Prior Treatments	1.63 (2.02)	1.57 (1.89)	ns
Length of Stay in Treatment	76.14 (71.88)	74.60 (64.68)	ns

ns = not statistically significant

*** = p < .001

for the white teens. This is mirrored by the report of having a form of legal involvement at admission (probation, parole, diversion program or incarceration) for both the Hispanic and African American youth. Again, three fourths of both groups reported legal involvement at admission, although more white youth reported involvement with the legal system compared to the number who were mandated to treatment.

Ethnicity and Substance Use Variables

There are a number of differences found between the three groups on both their substance use experiences and their treatment experiences. As found in Table 6, the three ethnic groups did not differ in terms of when they started to use their primary or secondary problem drugs. Whites did report a significantly longer mean number of years of use of their primary problem drugs. When a Scheffe means test was conducted it was found that the significant difference was between the white youth and both Hispanic and African American youth. However, the African American and Hispanic adolescents did not differ.

The primary problem drugs reported by the adolescents reported differed for the three ethnic groups. White adolescents were significantly more likely to report methamphetamine use compared to the other two groups at 33.4% followed by Hispanic youth with 27.3%. Marijuana was reported as a primary problem drug for a large number of youth. However, significantly more African American youth reported using marijuana as their primary problem drug with 78.5% reporting it. Marijuana was also reported as the primary problem drug for about half of the white and Hispanic youth as well. No significant differences were found between the groups for alcohol.

Significant differences between groups were found for all three substances when the secondary problem drug is examined. African American youth primarily reported marijuana as their primary and alcohol was reported by most as the secondary problem drug. Just over half of the Hispanic youth reported alcohol as the secondary problem drug with nearly a third reporting marijuana as the secondary. The percentage of white youth reporting alcohol and marijuana as a secondary problem drug was similar to that of the Hispanic youth, with nearly half reporting alcohol and just over a third reporting marijuana.

The route of use for the primary problem drug was smoking for most of the youth. However, African American youth were significantly more likely to report smoking, followed by Hispanic and then white youth.

TABLE 5. Chi-square and ANOVA Results of Descriptive Variables for White, Black and Hispanic Adolescents Receiving Substance Use Treatment (N = 4733)

	White N (%)	Blacks N (%)	Hispanics N (%)	Chi-square Value
No Permanent Residence at Admission	427 (19.5)	77 (13.9)	287 (14.4)	23.17***
Referral Source				
Self-Referral	507 (23.2)	72 (13.0)	247 (12.4)	92.79***
Criminal Justice Referral	1232 (56.3)	401 (72.5)	1438 (72.2)	130.53***
Other Referral	448 (20.5)	80 (14.5)	308 (15.5)	22.54***
Legal Status				
Reported Legal Involvement	1367 (62.5)	417 (75.4)	1503 (75.4)	92.36***
Age	Mean (SD)	Mean (SD)	Mean (SD)	F Value
	17.30 (1.92)	16.92 (1.71)	16.92 (1.67)	26.54*** a, b
Education	9.42 (2.55)	8.82 (3.17)	8.32 (3.34)	70.86*** a, b, c
Number of Prior Arrests	2.55 (2.56)	2.76 (2.51)	2.72 (2.44)	46.38*** d
Monthly Income	801.89 (1758)	732.37 (1728)	775.57 (1758)	ns

ns = not statistically significant

*** = p < .001

Significant Scheffe Means test a = Caucasian Different from African American

b = Caucasian Different from Hispanic

c = African American Different from Hispanic

d = No Significant Differences with Means Test

TABLE 6. Chi-square and ANOVA Results of Substance Use Behaviors and Treatment Variables for White, Black and Hispanic Adolescents (N = 4733)

	White N (%)	Blacks N (%)	Hispanics N (%)	Chi-square Value
Ever Injected Drugs	249 (11.4)	10 (01.8)	85 (04.3)	106.14***
Injected Drugs Past 12 months	190 (08.7)	4 (00.7)	61 (03.1)	91.50***
Primary Problem Drug				
Methamphetamine/Crystal	730 (33.4)	39 (07.1)	544 (27.3)	152.96***
Alcohol	345 (15.8)	80 (14.5)	328 (16.5)	ns
Marijuana/Hash	1112 (50.8)	434 (78.5)	1121 (56.2)	137.06***
Secondary Problem Drug				
Methamphetamine/Crystal	234 (16.3)	18 (06.3)	222 (16.6)	20.61***
Alcohol	679 (47.4)	205 (71.4)	693 (51.8)	55.39***
Marijuana/Hash	520 (36.3)	64 (22.3)	424 (31.7)	22.96***
Route of Administration				
Oral	393 (18.1)	93 (16.9)	354 (17.9)	ns
Smoke	1483 (68.2)	449 (81.6)	1511 (76.3)	57.26***
Inhale	212 (9.8)	6 (01.1)	100 (05.1)	68.09***
Inject	86 (4.0)	2 (00.4)	15 (00.8)	59.19***
Mandated to Attend Treatment	1179 (53.9)	370 (66.9)	1392 (69.8)	118.60***
Status at Exit from Treatment				
Satisfactory Release	994 (51.3)	189 (38.7)	852 (49.3)	24.82***
Unsatisfactory Release	699 (36.1)	229 (46.9)	687 (39.8)	20.21***
Referred Elsewhere	244 (12.6)	70 (14.4)	189 (10.9)	ns

Treatment program type	White N (%)	Blacks N (%)	Hispanics N (%)	Chi-square Value
	Mean (SD)	Mean (SD)	Mean (SD)	
Detoxification	252 (11.5)	50 (09.0)	184 (09.2)	ns
Short-term residential	67 (03.1)	10 (01.8)	20 (01.0)	22.22***
Long-term residential	412 (18.8)	50 (09.0)	181 (09.1)	95.56***
Outpatient	736 (33.7)	201 (36.3)	790 (39.6)	16.12***
Day Treatment	720 (32.9)	242 (43.8)	818 (41.0)	39.42***
	Mean (SD)	Mean (SD)	Mean (SD)	F Value
Age of Onset, Primary Drug	13.03 (2.19)	13.04 (2.15)	13.03 (2.16)	ns
Age of Onset, Secondary Drug	13.16 (2.33)	13.53 (2.23)	13.18 (2.10)	ns
No. Years of Problem Use for Primary Drug	3.04 (2.16)	2.62 (2.10)	2.74 (2.04)	14.75*** a, b
No. Years of Problem Use for Secondary Drug	2.76 (2.29)	2.18 (2.07)	2.49 (2.07)	13.08*** a, b
No. of Prior Treatments	0.94 (1.37)	0.55 (0.96)	0.63 (1.00)	46.38*** a, b
Length of Stay in Treatment	75.89 (80.43)	72.73 (67.51)	76.25 (73.21)	ns

ns = not statistically significant

*** = $p < .001$

Significant Scheffe Means test

a = Caucasian Different from African American

b = Caucasian Different from Hispanic

c = African American Different from Hispanic

d = No Significant Differences with Means Test

White youth were significantly more likely to use their primary problem drug by inhaling and by injection compared to either of the other groups.

When examining any injection drug use for lifetime and for past year, white youth were much more likely to report this compared to African American or Hispanic adolescents. Over 11% of white youth reported ever injecting compared to about 4% of Hispanic and 2% of African American youth. Nearly 9% of the white adolescents also reported their injection drug use in the past year. This use drops to 3% for Hispanic and less than one percent of African American youth.

Ethnicity and Treatment Variables

In terms of treatment, it was found that African American and Hispanic youth were significantly more likely to be mandated to treatment compared to white youth. Over two thirds of both of these groups were mandated compared to just over half of the whites. White adolescents reported a significantly higher mean number of prior AOD treatments than both the African American and the Hispanic adolescents.

White adolescents were much more likely to enter into a residential treatment setting than were Hispanic or African American youth. The African American and Hispanic youth were more likely to enter either outpatient or day treatment compared to the white youth.

Although the length of treatment did not differ between the 3 groups it was found that significantly more white adolescents were released from treatment satisfactorily followed closely by the Hispanic adolescents. However, nearly half of the African American youth were released from treatment unsatisfactorily which was significantly higher than the other two groups.

Treatment Program and Exit Status

The last analyses that were conducted examined if there was an association between the type of treatment program attended and the exit status of the adolescents. It was found that, of youth who were released with a satisfactory status, 45.1% were attending outpatient, 22.7% were in day treatment, 17.1% were in detoxification programs, 12.6% were in long term treatment and 2.5% were in short term treatment. Those who were more likely to be released unsatisfactorily were those in day treatment (50.8%), followed by outpatient treatment (23.3%) and long term treatment (18.1%) (not included in a table).