

FACTORS ASSOCIATED WITH ADOLESCENT UTILIZATION OF ALCOHOL TREATMENT SERVICES

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ABSTRACT

Objective: This study examined factors associated with adolescents' use of alcohol treatment services.

Method: Data on adolescents (aged 12–17) from the 1994 National Household Survey on Drug Abuse (NHSDA, $N = 4698$), a large representative sample of the U.S. population, were used in this study. Information obtained from the survey included adolescent alcohol use, drinking patterns, alcohol abuse/dependent problems, and service use for alcohol-related problems. In addition, socio-

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demographics, health insurance, mental and behavioral problems, and other drug use were also included in the analysis.

Results: The findings indicate that many adolescents with alcohol problems did not receive treatment. White adolescents were more likely to receive alcohol treatment services than nonwhites. Among alcohol-related problems, alcohol causing problems at home, school, or other settings predicted entry into alcohol treatment. Drug use and poor health status were also associated with receiving alcohol treatment services.

Conclusions: This study calls for an improved service delivery system to meet service needs of adolescents with alcohol-related problems, especially among minorities, and those with alcohol-related problems but without yet experiencing significant negative social consequences.

INTRODUCTION

Many social problems are associated with adolescent alcohol abuse, including drunk driving, date rape, school failure, and vandalism (1,2). Consequently, the seemingly intractable problems associated with adolescent alcohol use and abuse are of great concern to parents, service providers, and policy makers alike. Improved understanding of adolescent need for treatment and patterns of adolescent service use for alcohol problems is an important first step in accurately targeting preventive intervention and developing improved services.

Most studies of factors influencing service utilization for alcohol problems have been conducted with adults (3–9). It has been estimated that only about 10% of adults with a current alcohol use disorder have obtained treatment (3,6). Andersen's behavioral model of health services (10,11), developed to facilitate our understanding of health services delivery, has been applied in alcohol service utilization research. This model suggests that use of health services is a function of (a) predisposition (demographics, social structure, health beliefs, etc.), (b) factors that enable or impede their use (family income, health insurance, regular source of care, etc.), and (c) need for services (severity of alcohol problems and comorbid health conditions). In adult studies, gender has also been shown to be a factor associated with treatment utilization for alcohol problems (12). Studies also found that minority women and people with limited education were less likely to receive treatment for alcohol problems (3,8). Unemployment, lack of financial resources, stigma, and lack of confidence in the alcohol treatment system and

its effectiveness have been identified as barriers to alcohol treatment (3,4,8). In terms of service need, the severity of alcohol use disorders and comorbid major depression were found to predict entry into alcohol treatment (3). It was also reported that getting into trouble with family or the community due to alcohol problems played a more important role than other symptoms for entering alcohol treatment (8).

To date, however, very little is known about the service use patterns of adolescents with alcohol problems; including once they enter services whether or not the available services actually meet adolescent treatment needs; and how socio-demographic characteristics and other family and individual factors may affect adolescent use of services for alcohol-related problems. Windle and colleagues (13) studied adolescent perceptions of help-seeking resources for substance abuse. It was found that males were less likely than females and minorities were less likely than whites to utilize any social resource and services for their substance use problems. Our understanding of these findings is limited, and clearly more research is needed in order to understand the service need and utilization patterns of adolescents at different stages of alcohol use.

This article assesses service needs of adolescents with alcohol problems, and identifies factors associated with adolescent use of alcohol treatment services. The findings help us to better understand adolescent needs and unmet needs for alcohol intervention and treatment services, which in turn should help in improving service delivery to adolescents with alcohol problems.

METHOD

Sample and Data

Data on adolescents (ages 12–17) from the 1994 National Household Survey on Drug Abuse (NHSDA, $N = 4698$) are used in this study. The target population for the 1994 NHSDA survey is defined as the civilian, noninstitutionalized population of the 50 U.S. States (including civilians living on military bases) who are 12 years of age and older. The survey was based on a stratified, multi-stage, area probability sample. The data set incorporates adjustments to the sampling weights to account for both person and dwelling unit nonresponse. The details of survey methodology, such as sample design and weighting procedure, are discussed elsewhere (14). Trained interviewers conducted in-person interviews at respondents' homes. To maximize accurate reporting of drug use, self-administered questionnaires were used for all questions relating to drug, alcohol, and tobacco use (14).

Measures

Treatment for Alcohol-Related Problems

Adolescents were asked if they had received any treatment designed to help reduce or stop alcohol use, or any treatment for medical problems associated with alcohol use, in the year prior to the interview. They were also asked the type of place where the treatment for alcohol use was offered: alcohol or drug rehabilitation facility, mental health center, hospital inpatient, emergency room, doctor's office, or self-help group.

Predisposing and Enabling Factors

Predisposing factors include the adolescent's age, gender, and ethnicity. Enabling factors include geographic region of residence (urban vs. rural), family income, and health insurance. Low family income was defined as an annual income less than \$15,000 (lowest 25% of the sample). Health insurance status was divided into three categories: no insurance, public insurance (Medicaid), and private insurance. In the logistic analysis, the group with no insurance was used as the reference group.

Service Needs

Alcohol Use and Related Problems

Adolescents were asked about their use of alcohol during their lifetime and during the last year, including the frequency and quantity of use. In addition, information is also available on adolescent alcohol-related problems (15). Six questions about alcohol abuse or dependence are (a) drinking more than intended, (b) spending a great deal of time on obtaining alcohol, (c) building up a tolerance for alcohol, (d) wanting to cut down on alcohol use, (e) alcohol use causing problems with family, school, work, or with the police, and (f) physical safety being threatened because of alcohol use. Using these questions, past-year alcohol drinkers were divided into three groups: no alcohol use related problems, one to three problems, and four or more problems. The cut-off of four or more problems was two standard deviations above the mean number of problems among past-year alcohol users. The groupings reflect the severity and level of service needed for alcohol-related problems.

Measures of Mental and Physical Health

Youth emotional and behavioral problems in the past 6 months were measured using Achenbach's youth self-report (YSR) (16). Five syndromes were used in the analysis: anxious/depressed (16 items), withdrawn (seven items), somatic complaints (nine items), delinquent behavior (11 items), and aggressive behavior (19 items). These syndrome scores were dichotomized according to a clinical cut-point of a *T*-score of 70 or higher, as recommended by Achenbach (16). Anxious/depressed, withdrawn, and somatic complaints represent internalizing problems. Delinquent and aggressive behaviors represent externalizing problems.

Adolescents were also asked to rate their own health in general. A dichotomous health variable was created with "1" for youth who rated their health as being poor/fair and "0" for those who rated their health as being good/very good/excellent.

Analysis

Descriptive statistics were first employed to examine the rate of alcohol use and abuse, as well as the demographic distribution by drinking status across the total sample. Adolescents who reported using alcohol in the year prior to the interview ($N = 1739$) were selected for further analyses, assessing factors associated with service utilization for alcohol problems.

To better understand the service needs of adolescents with alcohol problems, we first assessed the relationships between drinking problems and other possible comorbid drug use problems, emotional, behavioral, and health problems, because studies in adult populations showed that persons with alcohol abuse and dependence are more likely to have other comorbid psychiatric or health problems (17–19).

Finally, the impacts of predisposing, enabling, and service need factors on adolescents' receiving treatment for alcohol problems were assessed at both univariate and multivariate levels. At the multivariate level, logistic regression analyses predicting adolescent service utilization for alcohol problems were conducted hierarchically. In model 1, predisposing and enabling factors were included into the equation. In model 2, levels of service need, measured by numbers of alcohol-related problems, were added to the model. In model 3, in addition to predisposing and enabling factors, individual alcohol-related problems were included into the equation to assess which problem(s) predict service use. In the last model (model 4), in addition to all of the variables in model 3, adolescent drug use, externalizing and internalizing behaviors, and perceived health were included to better understand the pathway to services.

Since the NHSDA was a multistage survey, the observations were weighted to account for the probability of selection at each sampling stage in the survey. Analyses were conducted using the computer software SUDAAN (20), which took into account the complex features of the NHSDA sampling design, in order to obtain correct variance estimates (14).

RESULTS

Socio-demographics

Among 4698 adolescents, 58% ($N = 2721$) had never drunk alcohol, 5% ($N = 238$) had used alcohol in their lifetime but not in the year prior to the interview. Thirty seven percent ($N = 1739$) of adolescents reported that they used alcohol in the last year, with 16% ($N = 754$) reporting no alcohol-related problems, 17% ($N = 816$) having 1–3 alcohol-related problems, and 4% ($N = 170$) having 4 or more alcohol-related problems.

Table 1 compares the socio-demographic status of the adolescents across groups with different drinking status. In terms of gender, although more boys than girls used alcohol in the year prior to the interview, there were more girls than boys reporting four or more alcohol-related problems. There is a linear relationship between age and alcohol-related problems, with more younger adolescents (66.6%) in the never used group and more older adolescents in the other groups. Among those reporting four or more problems, 80% were older adolescents. White adolescents were more likely to use alcohol and to report alcohol-related problems than other ethnic groups. Adolescents who reported four or more alcohol problems were less likely to come from low income families (7%) than those in other groups (14–18%).

Alcohol Abuse/Dependence Problems and Other Emotional, Behavioral, and Health Problems

The subsequent analyses focus on the 1739 adolescents who used alcohol in the year prior to the interview. Adolescents with alcohol-related problems, especially those with four or more problems, were more likely to have behavioral problems, withdrawal problems, and to smoke and use drugs currently. However, alcohol-related problems were not significantly associated with adolescent somatic, anxious/depressive syndromes, and perceived health status (Table 2).

Table 1. Socio-demographic Characteristics by Drinking Status Youth Ages 12–17, National Household Survey on Drug Abuse (N = 4698)

	Never Used (n = 2721) (%)	Used, Not Last Year (n = 238) (%)	Used in the Last Year (N = 1739)				Total (n = 4698) (%)
			No Abuse/ Dep Problems (n = 754) (%)	1–3 Abuse/ Dep Problems (n = 816) (%)	4+ Abuse/ Dep Problems (n = 170) (%)		
Gender*							
Female	50.1	38.9	45.4	49.7	54.1	48.8	
Male	49.9	61.1	54.6	50.3	45.9	51.2	
Age***							
< 15	66.6	40.2	36.1	27.4	20.0	51.9	
15–17	33.4	59.8	63.9	72.6	80.0	48.1	
Ethnicity***							
White	64.6	71.1	71.9	76.9	81.9	68.9	
Black	16.2	13.3	13.3	9.9	6.3	14.1	
Hispanic	12.9	13.3	11.9	11.1	11.2	12.4	
Other	6.3	2.3	2.9	2.2	0.6	4.7	
Residence†							
Rural	25.6	29.4	22.2	21.8	25.2	24.6	
Urban	74.4	70.6	77.8	78.2	74.8	75.4	
Low income*** (<\$15,000)	18.2	16.8	17.6	14.2	6.8	16.9	

† p < 0.10.

* p < 0.05.

** p < 0.01.

*** p < 0.001.

Table 2. Alcohol Treatment, Drug Use, Emotional and Behavioral Problems, and Health Status by Drinking Status Among Past-Year Alcohol Users Youth Ages 12–17, National Household Survey on Drug Abuse ($N = 1739$)

	No Abuse/ Dep Problems ($n = 754$) (%)	1–3 Abuse/ Dep Problems ($n = 816$) (%)	4+ Abuse/ Dep Problems ($n = 170$) (%)	Total ($n = 1739$) (%)
Alcohol treatment				
Treatment for alcohol problems*	1.2	2.1	7.9	2.2
Drug use				
Any drug use past year***	21.8	43.9	66.4	36.5
Smoking***	37.3	58.9	68.3	50.5
Emotional and behavioural problems				
Internalizing problems				
Withdrawn*	1.1	2.6	5.5	2.2
Somatic	4.8	6.3	9.9	6.0
Anxious/depressed	2.6	3.6	7.4	3.5
Externalizing problems				
Delinquent behavior***	3.0	10.9	29.5	9.3
Aggression**	3.0	5.9	14.0	5.5
Perceived general health				
Not in good health	4.8	7.4	5.3	6.1

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

Factors Associated with Adolescents' Alcohol Treatment

Among adolescents who drank alcohol in the year prior to the interview ($N = 1739$), those who received treatment for alcohol abuse ($N = 39$) and those who did not ($N = 1700$) were compared on factors associated with service utilization. The results are reported in Table 3. Two predisposing factors associated with receiving treatment were age and ethnicity. Older adolescents were more likely to receive treatment than younger ones. Compared with minority adolescents, whites were more likely to receive treatment than nonwhites. None of the enabling factors were associated with receiving treatment for alcohol-related problems.

Regarding the associations between alcohol treatment and service need measures, as expected, adolescents who received treatment for alcohol problems were more likely to report alcohol abuse/dependent problems ($P < 0.05$). An examination of specific alcohol abuse and dependent problems showed that, although four out of the six problems were statistically related to alcohol treatment, one problem, "alcohol causing problems at home, school, etc.," best predicted receiving alcohol treatment. Adolescents who received alcohol treatment were about five times more likely than nonservice users to be positive on this item (53.2 vs. 9.8%). Adolescents in the alcohol treatment group were also more likely to be drug users. Externalizing problems, not internalizing problems, were also associated with receiving alcohol treatment.

Multivariate Analyses

Because of the associations among some socio-demographic factors and service need variables (See Tables 1 and 2), bivariate analyses might be limited and the results might be misleading. To better understand how each independent variable contributes to adolescents receiving alcohol treatment, multiple logistical regression analyses were conducted to evaluate the independent contribution of each factor to receiving alcohol treatment, adjusted for the effects of other factors (Table 4).

In model 1, predisposing and enabling factors were included into the regression equation. Being white significantly predicts receiving alcohol treatment [adjusted odds ratio (AOR = 4.2), $p < 0.01$]. There was a trend that older adolescents were more likely to receive treatment (AOR = 2.7, $p < 0.10$).

In the subsequent models, service need variables were added. In model 2, two service need variables, having 1–3 alcohol-related problems and having four or more problems, were added into the equation. The results showed that having four or more alcohol problems (AOR = 5.6, $p < 0.001$) significantly predicted receiving alcohol treatment.

Table 3. Predisposing and Enabling Factors by Alcohol Treatment Status Among Past-Year Alcohol Users Youth Ages 12–17, National Household Survey on Drug Abuse ($N = 1739$)

	No Treatment ($n = 1700$) (%)	Treated ($n = 39$) (%)
Predisposing factors		
Male	51.9	44.6
Age (15 and over)	69.2	85.8*
Ethnicity*		
White	74.8	92.4
Black	11.2	3.3
Hispanic	11.6	4.3
Other	2.4	0.0
Enabling factors		
Urban	77.9	67.7
Low income (<\$15,000)	15.1	9.2
Insurance		
None	15.3	21.0
Medicaid	10.3	11.5
Private insurance	74.4	67.6
Service need		
Alcohol abuse		
Number of abuse/dependence problems*		
No problems	43.8	22.4
1–3 Problems	47.0	43.7
4+ Problems	9.2	33.9
Specific abuse/dependence problems*		
Used more than intended	18.4	37.3 [†]
Built up tolerance for alcohol	17.4	36.2*
Alcohol caused problems at home, school, or w/police	9.8	53.2***
Spent a lot of time getting/using alcohol	17.8	41.9*
Wanted to cut down on alcohol use	43.7	66.3*
Used alcohol in physically threatening situation	11.3	23.1
Drug use		
Any drug use in past year	35.6	77.7***
Smoking in past year	50.0	71.1 [†]
Emotional and behavioral problems		
Internalizing problems		
Withdrawn	2.2	5.2
Somatic	5.9	10.4
Anxious/depressed	3.5	7.4
Externalizing problems		
Delinquent behavior	8.8	32.9**
Aggressive	5.1	23.0*
Perceived general health		
Not in good health	5.8	18.5 [†]

[†] $p < 0.10$.* $p < 0.05$.** $p < 0.01$.*** $p < 0.001$.

To examine if different alcohol problems were related to treatment differentially, six specific problems were added into the equation (model 3). The results revealed that adolescents were more likely to receive alcohol treatment when their alcohol problems significantly interfered with their daily life at home, school, or other places (AOR = 7.8, $p < 0.001$).

The last model (model 4) took comorbidity into consideration under the assumption that adolescents with other problems (drug related, mental, and physical health status) are more likely to see other health professionals (those in a mental health setting or a primary care setting), and therefore are more likely to be referred to an alcohol treatment facility. Comparing model 4 with model 1, after controlling for the service need variables, the effect of ethnicity remained (AOR = 5.2, $p < 0.01$) and the effect of age was no longer significant. Perceived health (AOR = 5.8, $p < 0.001$), and use of other drugs (AOR = 4.1, $p < 0.01$) independently contribute to alcohol treatment. There is also a weak relationship between externalizing behaviors and treatment (AOR = 2.5, $p < 0.10$).

DISCUSSION

Using data from a national community survey, this article examined adolescent need for alcohol treatment services and factors influencing services received for alcohol-related problems. Since this is an understudied area and the findings from this article should provide useful information to policy makers and clinicians who are concerned with preventing alcohol abuse, as well as those involved in the treatment of alcohol use disorders among adolescents.

About 2% of adolescent drinkers received any treatment for their alcohol problems in the year prior to the interview. Even among those who reported four or more alcohol abuse or dependent problems and thus the most in need of treatment, only fewer than 8% received treatment. The findings call for an improved service delivery system that will more effectively reach this needy population.

Our findings also indicate that minority adolescents were less likely to receive alcohol treatment. This finding is similar to those found in previous alcohol treatment studies (8,13), and in adolescent mental health services research (21–23). This ethnic difference is independent from family socio-economic status and may reflect either unmeasured cultural attitudes about help seeking among ethnic minority youth, or access barriers to services including, but not limited to, the lack of culturally appropriate services (24,25). Studies are needed to further explore this ethnic difference in detail.

Consistent with previous studies (3,8), we also found that service need factors significantly contribute to receiving treatment. Traditional models of treatment utilization have assumed that when an individual's condition (the

Table 4. Logistic Regression Predicting Receiving Alcohol Treatment Among Past Year Alcohol Users Youth Ages 12–17, National Household Survey on Drug Abuse (N = 1739)

	Model 1		Model 2		Model 3		Model 4	
	AOR ^a	(95% CI) ^b	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Predisposing factors								
Male	0.7	(0.33, 1.68)	0.8	(0.34, 1.85)	0.8	(0.33, 1.73)	1.1	(0.47, 2.80)
Age (15 and over)	2.7 [†]	(0.85, 8.29)	2.4	(0.78, 7.19)	2.1	(0.66, 6.71)	2.3	(0.72, 7.12)
White	4.2 ^{**}	(1.65, 10.44)	3.9 [*]	(1.53, 9.96)	3.6 ^{**}	(1.45, 9.06)	5.2 ^{**}	(1.88, 14.41)
Enabling factors								
Urban	0.7	(0.28, 1.74)	0.7	(0.26, 1.91)	0.7	(0.27, 2.00)	0.8	(0.26, 2.32)
Low income	0.5	(0.06, 4.47)	0.7	(0.07, 5.85)	0.5	(0.05, 5.30)	0.4	(0.06, 3.23)
Insurance ^c								
Medicare/medicaid	1.4	(0.39, 5.23)	1.5	(0.36, 5.92)	1.5	(0.45, 5.33)	1.1	(0.35, 3.66)
Private insurance	0.5	(0.21, 1.38)	0.6	(0.22, 1.59)	0.6	(0.19, 1.72)	0.6	(0.20, 1.96)
Service need								
1–3 Alcohol problems			1.6	(0.66, 3.71)				
4 Alcohol problems			5.6 ^{***}	(2.11, 14.82)				

Used more than intended	0.9	(0.22, 3.35)	0.9	(0.24, 3.27)
Built up tolerance for alcohol	1.0	(0.45, 2.16)	0.8	(0.33, 1.70)
Alcohol caused problems at home or work	7.8***	(3.34, 18.08)	7.2***	(3.29, 15.77)
Spent a lot of time getting/using alcohol	1.8	(0.60, 5.18)	1.2	(0.42, 3.52)
Wanted to cut down on alcohol use	1.4	(0.66, 3.13)	1.4	(0.61, 3.12)
Used alcohol in physically threatening situation	0.8	(0.23, 2.51)	0.6	(0.17, 2.17)
Any drug use past year			4.1**	(1.58, 10.69)
Externalizing behaviors ^d			2.5 [†]	(0.94, 6.80)
Internalizing behaviors ^e			0.5	(0.13, 2.24)
Not in good health			5.8***	(2.20, 14.99)

[†] $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

^a AOR = adjusted odds ratio.

^b CI = Confidence interval.

^c Reference = no insurance.

^d Positive on either delinquent or aggressive behaviors.

^e Positive on one of the three interviewing behavior domains: withdrawn, somatic or anxious/depressed.

accumulation of symptoms of dependence) becomes sufficiently serious, the person will seek help. However, research among adults has shown that getting into trouble with family or the community may be the key factor in entering into this treatment (26,27,8). Studies have also shown that children with externalizing (disruptive) disorders are more likely to receive mental health services than those with internalizing (depressive or anxiety) disorders (28,29,22). In this study, we also found that among all the symptoms, the one that most significantly predicted service utilization was alcohol use resulting in problems at home, school, or with police. This may be related to an increase in social policies directed at targeting individuals from service systems, such as criminal (or juvenile) justice systems, to receive alcohol treatment (30). The co-occurrence of alcohol abuse/dependence with problems related to either drug use, behavioral problems or general health, and its relationship to receiving alcohol treatment, highlight the importance of screening for alcohol, drug, and other psychiatric problems in primary care settings and other systems serving youth.

The strengths of this study include (1) the use of national data from a general population sample rather than a clinical sample, which allowed us to estimate the unmet needs of adolescents with alcohol-related problems and (2) the examination of factors potentially influencing alcohol treatment. However, the measure of alcohol abuse/dependent problems is based on a limited number of questions and may not be the best indicator of service need. The study is also limited by its cross-sectional design, and a lack of information on factors at the service system as well as the community level. Future research is needed not only to examine how factors at the individual level predict receiving alcohol treatment, but also to assess the interrelationships of factors from multiple domains.

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