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Past year treatment status and alcohol abuse symptoms among US adults with alcohol dependence

S. Janet Kuramoto, M.H.S^a, Silvia S. Martins, M.D., Ph.D^a, Jean Y. Ko, Ph.D^a, and Howard D. Chilcoat, Sc.D^{a,b}

S. Janet Kuramoto: skuramot@jhsph.edu; Silvia S. Martins: smartins@jhsph.edu; Jean Y. Ko: jyko@jhsph.edu; Howard D. Chilcoat: Howard.Chilcoat@pharma.com

^a Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, 624, N. Broadway, 8th floor, Baltimore, MD 21205-1900, USA

^b Purdue Pharma, Risk Management and Epidemiology, One Stamford Forum, Stamford, CT 06901

Abstract

Objective—We tested whether the number and type of alcohol abuse symptoms were associated with an increased likelihood of treatment seeking among respondents with alcohol dependence.

Methods—Data from 4,027 adult respondents from 2006 and 2007 National Survey on Drug Use and Health (NSDUH) who met DSM-IV criteria for past year alcohol dependence were used. Respondents were classified according to the number of past year alcohol abuse symptoms endorsed, as well as type of abuse symptom. Associations were estimated using weighted multivariate logistic regressions that controlled for severity of alcohol dependence, other drug use disorders and other characteristics.

Results—Twenty-eight percent of individuals with alcohol dependence had one alcohol abuse symptom, 20% had two and 19% had three or four. Individuals with more alcohol abuse symptoms differed from those without alcohol abuse symptoms in a number of sociodemographic characteristics and severity of alcohol and drug dependence. Even after adjusting for these factors, individuals with three or four alcohol abuse symptoms had 2.67 times increased odds of treatment seeking, as compared to those without alcohol abuse symptoms [95%CI = 1.65–4.30]. However, individuals with one or two alcohol abuse symptoms were no more likely to seek treatment than those without alcohol abuse symptoms. Majority of those with one or two alcohol abuse symptoms endorsed the hazardous abuse symptom.

Conclusion—Alcohol abuse symptoms are important factors for treatment seeking in individuals with alcohol dependence, but only among certain subset of individuals with three or

Corresponding Author: S. Janet Kuramoto, Johns Hopkins Bloomberg School of Public Health, Department of Mental Health, 624 N. Broadway, 8th floor, Baltimore, MD 21205-1900, USA. Phone: 01-410-614-5473/ Fax: 01-410-955-9088, skuramot@jhsph.edu.

Conflict of Interest

Dr. Chilcoat is currently employed by Purdue Pharma.

Contributors

Drs. Martins and Chilcoat wrote the research questions. Dr. Martins, Janet Kuramoto undertook the statistical analyses, Janet Kuramoto wrote the first draft of the manuscript. Janet Kuramoto and Jean Ko managed the literature searches and summaries of previous related work. All authors revised the manuscript drafts. All authors contributed to and have approved the final manuscript.

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four alcohol abuse symptoms. Examining structural and psychosocial differences across these subgroups may help inform and reduce barriers to treatment seeking among this population.

Keywords

alcohol-related disorders; treatment; service utilization; alcohol abuse; alcohol dependence

1. Introduction

Despite the seriousness of alcohol-related disorders and availability of effective treatments (McLellan, Lewis, O'Brien, & Kleber, 2000; Rehm, et al., 2003), a low likelihood of alcohol treatment among individuals with alcohol use disorders (i.e. dependence and/or abuse) continues to be a long-recognized problem. The prevalence of past year treatment among individuals with alcohol-related disorders in the United States ranges anywhere from 9.9% to 12.2% (Cohen, Feinn, Arias, & Kranzler, 2007; Hasin, Stinson, Ogburn, & Grant, 2007; Wu & Ringwalt, 2005; Wu & Ringwalt, 2004) and between 14.6% to 24.7% for lifetime treatment (Cohen, et al., 2007; Cunningham & Blomqvist, 2006; Hingson, Heeren, & Winter, 2006). Given these low estimates of treatment rate, a greater understanding of the characteristics associated with seeking treatment for alcohol use disorders may better inform clinical efforts and interventions.

Recent research suggests that the severity of alcohol problems may be a stronger factor for treatment seeking than sociodemographics alone (Saunders, Zygowicz, & D'Angelo, 2006; Weisner, Matzger, Tam, & Schmidt, 2002). Individuals with alcohol dependence are considered to be at the highest spectrum of severity; yet treatment seeking is still fairly low in this group (Cohen et al., 2007; Ko et al, 2010). Two epidemiological studies have identified presence of alcohol abuse as a strong factor for treatment seeking among individuals with alcohol dependence (Cohen, et al., 2007; Mojtabai & Singh, 2007). Data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) showed that 28% of individuals with both lifetime alcohol abuse and dependence had ever sought treatment, whereas less than 10% sought treatment among individuals with either abuse or dependence alone (Cohen, et al., 2007). Using another epidemiologic survey, the National Survey on Drug Use and Health (NSDUH), Mojtabai and Singh (2007) also found that individuals with alcohol dependence and abuse were over eight times more likely to seek treatment than alcohol dependent individuals without alcohol abuse.

These prior studies have used a dichotomous measure of alcohol abuse symptoms (presence vs. absence), which fails to capture qualitative and quantitative aspects of alcohol abuse symptoms in its relationship to treatment seeking. In this study we aim to extend prior understandings of the role of alcohol abuse symptoms on treatment seeking by estimating the association of past year alcohol treatment seeking with number of alcohol abuse symptoms, as well as type of symptoms among adults with past year alcohol dependence. Further, we estimate these associations by holding constant severity of alcohol dependence and presence of other drug dependence, as well as other characteristics.

2. Methods

2.1 Data Source

The NSDUH is sponsored by the Substance Abuse and Mental Health Administration (SAMHSA) and is designed to provide estimates of the prevalence of extramedical use of legal and illegal drugs in United States household populations aged 12 and older. Surveys have been conducted on a regular basis since 1971. The computer-assisted questionnaire (CAPI and ACASI- audio computer-assisted self-interviewing) was incorporated in 1999 to

increase the validity of self-reports of illicit drug use and other sensitive behaviors by providing confidential means for the participants to respond to these questions (Office of Applied Studies, 2007). The respondents were offered a \$30 incentive payment for participation in the survey (Office of Applied Studies, 2007). The overall weighted response rates for 2006 and 2007 were both 74%. Detailed information about the sampling and survey methodology in the NSDUH are found elsewhere (Office of Applied Studies, 2007, 2008).

2.2 Sample

The combined NSDUH public use data files from 2006 (n=55,279) and 2007 (n=55,435) were used for the analyses to obtain a larger aggregate sample size of 110, 714 (Office of Applied Studies, 2007, 2008). In this report, we focus on the 4,036 respondents who met the DSM-IV criteria (APA, 1994) for alcohol dependence in the year prior to the interview. After excluding six individuals due to missing information on at least one alcohol abuse symptom, one individual with missing treatment location, and two who sought alcohol treatment at a jail setting, the final sample size became 4,027.

2.3 Measurement

Definition of alcohol use and dependence—In the NSDUH, ten questions were used to measure the seven DSM-IV symptoms of alcohol dependence experienced during the 12 months prior to the interview (Office of Applied Studies, 2007, 2008). All response choices were binary, in which the respondents reported whether or not they experienced any of these dependence symptoms in the past 12 months. Symptoms of past year alcohol dependence were self-reported, and respondents were classified as alcohol dependent if they met the DSM-IV criteria for alcohol dependence (3 out of 7 symptoms; (APA, 1994)).

Past year treatment seeking for alcohol—Those who reported lifetime substance use were asked whether they have “ever received treatment or counseling for your use of alcohol or any drug, not counting cigarettes” (Office of Applied Studies, 2007, 2008). Respondents who answered affirmatively were subsequently asked to specify if they sought treatment or counseling for alcohol use only, drug use only or both alcohol and drug in the past 12 months. Individuals were defined as having sought alcohol treatment if they had sought treatment for alcohol at any location in the past year, broadly defined as any source that intended to help the individual reduce or stop their substance use. These sources included specialty facilities (hospitals, inpatient and outpatient residential rehabilitation facility, or mental health center) and non-specialty facilities (e.g. self-help group, emergency room, doctor’s visit).

Alcohol abuse symptoms—The NSDUH includes five questions that examine the four alcohol abuse symptoms as defined by DSM-IV (APA, 1994): “1) recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (e.g., repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school; neglect of children or household); 2) recurrent substance use in situations in which it is physically hazardous (e.g., driving an automobile or operating a machine when impaired by substance use); 3) recurrent substance-related legal problems (e.g., arrests for substance-related disorderly conduct); 4) continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance (e.g., arguments with spouse about consequences of intoxication, physical fights).” The number of alcohol abuse symptoms was summed, and individuals were categorized as having none, one, two, or three or four alcohol abuse symptoms. Three or four abuse symptoms were combined into one category because of the smaller number of individuals with three or four abuse symptoms compared to the other categories.

Other individual characteristics—All respondents provided information about their drug experiences and other personal data (e.g., demographic data). The sociodemographic variables selected for this study were gender, age of respondent at time of interview, race/ethnicity (Non-Hispanic White, Non-Hispanic African-American, Hispanic, Other), education (at least high school), marital status (married, single, and no longer married [widowed, divorced or separated]), insurance status (public [Medicare, Tricare, Champus, VA, and/or military health], private/other and uninsured) and employment status (employed if full-time or part-time). Number of alcohol dependence symptoms and presence of other drug dependence (none vs. one or more) were also considered. Other drug dependence variable included past year dependence on marijuana, cocaine, inhalant, hallucinogen, extramedical prescription drugs (i.e., stimulant, sedative, tranquilizers, and analgesics) and/or heroin.

2.4 Statistical Analyses

Cross-tabulations were performed to describe individual characteristics across the number of alcohol abuse symptoms. We also used cross-tabulations to report different types of abuse symptoms associated with treatment seeking (Table 3) and treatment locations (Table 4). Logistic regression was then conducted to examine the magnitude of association between these characteristics and alcohol treatment seeking without any adjustments. Next, multivariate logistic regression was conducted to control for sociodemographic characteristics. The subsequent model added number of alcohol dependence symptoms and presence of other drug dependence to examine the association between past year treatment seeking and number of alcohol abuse symptoms after adjusting for these factors. Gender differences were also examined by including interaction terms.

NSDUH recommends using the sample weights that adjust for complex sampling design such as nonresponse and multistage sampling. Because two survey years were combined for this analysis (Office of Applied Studies, 2008), the weights were revised by dividing each weight by the number of survey years as instructed by the NSDUH files. In order to take the complex sampling design into account and estimate standard errors so appropriate inferences can be drawn, all analyses were carried out using Taylor series linearization approach. The analyses were conducted with Stata version 10 (StataCorp, 2007).

3. Results

3.1 Description of individuals with alcohol dependence by number of alcohol abuse symptoms

This study examined 4,027 individuals who met criteria for alcohol dependence in the past year. Approximately two-thirds of individuals with alcohol dependence also had at least one alcohol abuse symptom. Specifically, one-third (33%; $n=1,235$) had no abuse symptoms, 28% ($n=1,193$) reported having one alcohol abuse symptoms, 20% ($n=820$) had two and 19% ($n=779$) had three or four symptoms.

The four groups also differed in sociodemographic characteristics (Table 1). A much higher proportion of those with three or four alcohol abuse symptoms had less than high school education, were no longer married, unemployed and uninsured. Severity of alcohol dependence and presence of other drug dependence was positively associated with a greater number of alcohol abuse symptoms.

3.2 Prevalence of past year alcohol treatment among adults with alcohol dependence, by number of alcohol abuse symptoms

Overall, 421 (11%) individuals out of 4,027 individuals with past year alcohol dependence reported that they had sought treatment for alcohol at any location in the past year. The proportion of those seeking treatment increased disproportionately with a greater number of alcohol abuse symptoms. As shown in Table 1, those with one abuse symptom had a slightly higher likelihood of seeking treatment as those without abuse symptoms (7% vs. 5% respectively). The greatest likelihood of treatment seeking was found among individuals with three or four alcohol abuse symptoms (24%).

3.3 Association of past year alcohol treatment with number of alcohol abuse symptoms

In the unadjusted models, those with three or four alcohol abuse symptoms were six times more likely to seek treatment at any location, as compared to those without abuse symptoms [unadjusted odds ratio (UOR) = 5.88; 95%CI = 3.70–9.37] (Table 2). Additionally, individuals with two versus no alcohol abuse symptoms also had increased odds for treatment at any location [UOR = 2.10; 95%CI = 1.19–3.69]. Several other characteristics were independently associated with treatment seeking, such as male gender, less than high school education, unemployed, publicly insured, no longer being married, number of alcohol dependence symptoms and presence of drug dependence.

When the model was adjusted for sociodemographic characteristics, the magnitude of the association between number of abuse symptoms and treatment seeking remained similar to the unadjusted model (Table 2). Once severity of alcohol dependence and presence of other drug dependence was controlled, the magnitude of the association was reduced in half (Table 2). However, the presence of three or four alcohol abuse symptoms remained strongly associated with treatment seeking; these individuals were 2.67 times more likely to seek alcohol treatment in the past year, as compared to those without any alcohol abuse symptoms [95%CI = 1.65–4.30]. The presence of two alcohol abuse symptoms was no longer associated with treatment seeking in the adjusted model. The association did not vary by gender.

Several other predictors were also associated with treatment seeking in the multivariate model (Table 2). Greater than five symptoms of alcohol dependence and presence of other drug dependence were each associated with over two-fold increase in treatment seeking in the adjusted model (AOR = 2.35, 95% CI = 1.50–3.70 for five alcohol dependence symptoms; AOR=3.43, 95% CI=2.07–5.68 for six or seven alcohol dependence symptoms; and AOR = 2.55, 95%CI = 1.56–4.18 for other drug dependence).

We also examined if treatment seeking differed by a specific type of abuse symptoms among those with the same number of alcohol abuse symptoms (Table 3). Hazardous abuse symptom was seen most frequently across all groups, and the majority of individuals with one or two alcohol abuse symptoms endorsed the hazardous abuse symptom (56% and 77% for one and two symptoms, respectively). However, treatment seeking among those who reported hazardous abuse symptom was low; for example, among those with only one symptom, only 6% of those with hazardous use sought treatment versus 11% of those with legal problems and 10% with social problems. Presence of legal problems signaled the highest likelihood of treatment regardless of number of symptoms. A greater proportion of individuals who had four alcohol abuse symptoms sought treatment compared to individuals who had three alcohol abuse symptoms (35% vs. 16–24%).

Table 4 shows the locations in which respondents sought treatment. The majority of respondents (68%) reported seeking treatment at a self-help group, followed by residential facilities and mental health center. The locations were also categorized by type of location:

specialty facility only, non-specialty facility only or both. Sixty one percent of those who sought treatment sought at both types of locations, and 30% sought treatment at non-specialty facility only such as jail, emergency room visits and self-help groups.

4. Discussion

This epidemiologic study of individuals with alcohol dependence refined prior research that examined the role of alcohol abuse symptoms in treatment seeking. After accounting for other severity measures for alcohol dependence, our study found that presence of three or four alcohol abuse symptoms was significantly associated with treatment seeking, whereas odds of treatment did not differ for those with 0, 1, or 2 alcohol abuse symptoms. The magnitude of estimates in this study was much lower than those previously reported by Mojtabai and Singh (2007), mostly due to our adjustment for number of alcohol dependence symptoms, as well as specification of number of alcohol abuse symptoms rather than a dichotomous indicator of the presence of abuse symptoms. The relatively high number of respondents reporting participation in self-help groups found in this study is consistent with the findings from the NESARC study (Cohen et al., 2007), and points to the importance of self-help groups as an important source of treatment for individuals with alcohol dependence.

Individuals with one or two alcohol abuse symptoms were no more likely to seek treatment compared to individuals without any alcohol abuse symptoms after adjustment for severity of dependence, as reflected by the number of dependence symptoms. This suggests a possible threshold of abuse symptoms among individuals with alcohol dependence that needs to be experienced before individuals seek treatment. Results from this study are consistent with those of Moss et al. (2007) and Ko et al. (2010), which identified classes of alcohol dependent individuals who were more likely to endorse alcohol abuse symptoms, alcohol-related problems and had the highest proportion of individuals seeking treatment (Moss, Chen, & Yi, 2007). A study by Ray and colleagues (2009) also suggested that those with and without alcohol abuse are a distinct group of individuals, with differential endorsement of alcohol dependence symptoms and sociodemographic characteristics (Ray, et al., 2009). It is also possible that those with three or four alcohol abuse symptoms are further distinct from those with one or two alcohol abuse symptoms, which was suggested by several characteristics such as greater severity of alcohol dependence, presence of other drug dependence, higher unemployment and less than high school education.

Recent studies using item response theory analyses suggested that alcohol abuse symptoms could be as or more severe than alcohol dependence symptoms in the continuum of alcohol severity, in contradiction to the notion of a hierarchy of alcohol abuse and dependence (Kahler & Strong, 2006; Ray, Kahler, Young, Chelminski, & Zimmerman, 2008). We found that over one-third of individuals who met criteria for alcohol dependence also did not meet criteria for past year alcohol abuse, which is consistent with previous findings (Hasin & Grant, 2004; Mojtabai & Singh, 2007) and further supports the findings from the item response analyses. Additionally, this study suggested that even among those with the same number of alcohol abuse symptoms, treatment rate varied by type and combination of alcohol abuse symptoms. Hazardous symptom was a predominant type of alcohol abuse symptom reported, especially among those with few alcohol abuse symptoms. However, individuals with this abuse symptom had fairly low treatment rate. The low treatment rate among those with hazardous abuse may be in part due to less severity associated with this type of abuse, as suggested by the item response analysis (Ray, et al., 2008). The lack of social and legal consequences followed by this type of alcohol abuse symptom may be another reason for its weak association with treatment seeking. These consequences may either force an individual to seek treatment regardless of their perceived need or may

enhance their perception of treatment need. Social consequences, such as being told to cut down on drinking by others, have been shown to be strong predictors for alcohol treatment among problem drinkers, more so than drinking behavior itself (Kaskutas, Weisner, & Caetano, 1997; Weisner & Matzger, 2002; Weisner, et al., 2002).

Several limitations should be kept in mind when interpreting these findings. Although large epidemiologic datasets are useful for examining factors associated with treatment among individuals with alcohol dependence, we can at most infer associations using the cross-sectional design of this study. Even though past-year dependence and abuse questions for different substance classes are asked in separate sections of the NSDUH, some misclassifications among respondents who are past-year users of more than one class of substances are possible (e.g., respondents who are past-year alcohol and cocaine users might attribute alcohol abuse and dependence symptoms to the cocaine they use and vice-versa). NSDUH also only measures dependence and symptoms occurring in the year prior to interview, with unknown durations. The survey does not include details regarding the quality of the treatment received, including the number of treatment sessions sought. The surveys were based on self-report, but the use of a computerized reporting system minimizes the impact of social desirability bias on reporting (Turner, et al., 1998).

Despite these limitations, results from this study have sharpened the focus on the role of abuse symptoms on treatment seeking by differentiating the number and type of alcohol abuse symptoms that signal treatment seeking among individuals with alcohol dependence. Specifically, not all individuals with alcohol abuse symptoms were equally likely to seek treatment for alcohol dependence. The differences in treatment seeking may reflect potential differences in consequences related to these abuse symptoms, as well as differences in severity of alcohol dependence symptoms associated with these abuse symptoms. Although natural recovery is possible, alcohol treatment has been shown to be beneficial to individuals with alcohol dependence (Weisner, Matzger, & Kaskutas, 2003). Our results suggest that a greater number of alcohol abuse symptoms is an important potential determinant of treatment seeking for alcohol dependence. However, even among individuals who met criteria for alcohol dependence and had three or four alcohol abuse symptoms, three-quarters to two-thirds did not seek treatment for alcohol. Further understanding of factors influential in motivating individuals to seek treatment is important to inform public health interventions and enhance treatment seeking rate.

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Sample characteristics by number of alcohol abuse symptoms among adults aged 18 and older with past year alcohol dependence, NSDUH 2006–2007 (n=4,027).^a

Table 1

	Number of Alcohol Abuse Symptoms in the Past year				p-value
	None 1,235 (33%)	One 1,193 (28%)	Two 820 (20%)	Three or four 779 (19%)	
Received alcohol treatment in the past year					
Yes	56 (5)	78 (7)	93 (10)	194 (24)	<0.001
Gender					
Female	525 (37)	491 (33)	318 (31)	284 (27)	0.02
Male	710 (63)	702 (67)	502 (69)	495 (73)	
Race/Ethnicity					
Non-Hispanic African-American	140 (14)	122 (12)	70 (13)	66 (10)	0.02
Hispanic	176 (13)	146 (10)	115 (15)	144 (21)	
Other ^b	113 (5)	101 (5)	66 (3)	88 (4)	
Non-Hispanic White	806 (68)	824 (73)	569 (69)	481 (65)	
Education					
Less than high school	212 (16)	217 (18)	159 (15)	226 (29)	<0.001
At least high school	1,023 (84)	976 (82)	661 (85)	553 (71)	
Marital Status					
Never married	857 (46)	912 (54)	618 (57)	560 (49)	0.04
No longer married	125 (19)	102 (17)	76 (17)	111 (25)	
Married	253 (35)	179 (29)	126 (26)	108 (26)	
Age					
35 and older	310 (53)	195 (42)	139 (44)	157 (50)	0.02
26–34 years old	165 (19)	159 (22)	116 (23)	110 (22)	
18–25 years old	760 (28)	839 (36)	565 (33)	512 (28)	
Employment Status					
Unemployed	308 (23)	307 (24)	209 (22)	265 (38)	<0.001
Employed	927 (77)	886 (76)	611 (78)	514 (62)	
Health insurance status					
Private	751 (64)	728 (63)	488 (58)	378 (45)	0.001

	Number of Alcohol Abuse Symptoms in the Past year				p-value
	None 1,235 (33%)	One 1,193 (28%)	Two 820 (20%)	Three or four 779 (19%)	
Public	163 (14)	122 (12)	98 (16)	127 (19)	<0.001
Uninsured	321 (22)	343 (25)	234 (26)	274 (36)	
Number of alcohol dependence symptoms					
3	841 (65)	689 (53)	319 (40)	152 (15)	
4	267 (24)	312 (29)	275 (31)	192 (25)	
5	97 (8)	140 (13)	149 (20)	225 (29)	
6 or 7 symptoms	30 (3)	52 (5)	77 (9)	210 (31)	
Presence of other drug dependence					
one or more	98 (5)	177 (13)	189 (20)	256 (30)	<0.001
none	1,137 (95)	1,016 (87)	631 (80)	523 (70)	

^a All percents are weighted

^b Includes Native Americans, Asians, Hawaiians, Pacific Islanders and non-Hispanics who reported more than one race.

Table 2

Unadjusted and adjusted odds of seeking treatment at any locations in the past year, NSDUH 2006–2007 (n=4,027).^a

Characteristics	Unadjusted OR (95% CI)	Adjusted with demographics alone AOR (95% CI)	Adjusted with demographics and severity of alcohol dependence AOR (95% CI)
Number of alcohol abuse symptoms in past 12 months (ref: none)			
Three or four	5.88 (3.70–9.37) ***	5.59 (3.62–8.62) ***	2.67 (1.65–4.30) ***
Two	2.10 (1.19–3.69) *	2.11 (1.17–3.79) *	1.48 (0.83–2.65)
One	1.47 (0.85–2.53)	1.54 (0.88–2.69)	1.25 (0.71–2.20)
Gender (ref: Male)			
Female	0.58 (0.40–0.85) **	0.60 (0.39–0.91) *	0.62 (0.40–0.95) *
Race/Ethnicity (ref: Non-Hispanic White)			
Non-Hispanic African- American	0.77 (0.48–1.25)	0.57 (0.35–0.95) *	0.50 (0.29–0.87) *
Hispanic	0.86 (0.48–1.52)	0.61 (0.35–1.05)	0.61 (0.38–0.98) *
Other ^b	0.84 (0.44–1.60)	0.79 (0.39–1.59)	0.85 (0.45–1.60)
Education (ref: less than high school)			
At least high school	0.61 (0.43–0.88) **	0.79 (0.50–1.23)	0.78 (0.51–1.18)
Marital Status (ref: married)			
Never married	1.50 (0.91–2.47)	1.75 (0.97–3.16)	1.42 (0.78–2.58)
No longer married	2.74 (1.62–4.63) ***	2.47 (1.37–4.44) **	2.42 (1.35–4.33) **
Age (ref: 18–25 years old)			
35 and older	1.41 (0.95–2.10)	1.27 (0.81–1.98)	1.21 (0.76–1.92)
26–34 years old	1.24 (0.82–1.89)	1.15 (0.72–1.81)	1.02 (0.62–1.70)
Employment Status (ref: employed)			
Unemployed	1.47 (1.04–2.08) *	0.89 (0.57–1.38)	0.80 (0.53–1.20)
Health insurance status (ref: uninsured)			
Private	0.82 (0.54–1.24)	1.14 (0.68–1.88)	1.18 (0.72–1.92)
Public	2.28 (1.41–3.70) **	2.72 (1.53–4.83) ***	2.87 (1.69–4.89) ***
Severity of alcohol dependence (ref: 3 symptoms)			
4	2.06 (1.41–3.00) ***		1.69 (1.12–2.54) *
5	3.63 (2.29–5.74) ***	-	2.35 (1.50–3.70) ***
6 or 7	7.32 (4.78–11.21) ***		3.43 (2.07–5.68) ***
Presence of other drug dependence (ref: none)			
One or more	3.51 (2.38–5.18) ***	-	2.55 (1.56–4.18) **
Survey year (ref: 2006)			
2007	1.08 (0.79–1.49)	0.98 (0.70–1.36)	0.97 (0.69–1.36)

p<0.001;

**
p<0.01;

*
p<0.05

^a All percents are weighted

^b Includes Native Americans, Asians, Hawaiians, Pacific Islanders and non-Hispanics who reported more than one race.

^c Adjusted OR: Odds ratio adjusted for other covariates in the final model

- indicates covariates not included in the model

Table 3
Type of alcohol abuse symptoms and treatment seeking, NSDUH 2006–2007 (n=4,027).^a

One abuse symptom		Two abuse symptoms		Three or four abuse symptoms	
Abuse symptom patterns (% ^b)	Sought Treatment n (%)	Abuse symptom patterns (% ^c)	Sought Treatment n (%)	Abuse symptom patterns (% ^d)	Sought Treatment n (%)
Hazard ¹ (56)	34 (6)	Social + Hazard (42)	21 (7)	Social, Hazard, Role (43)	54 (16)
Social ² (24)	20 (10)	Role + Hazard (36)	35 (11)	All four (37)	82 (35)
Role ³ (17)	19 (7)	Role + Social (13)	13 (12)	Legal + two other (20)	58 (24)
Legal ⁴ (3)	5 (11)	Legal + one other (9)	24 (21)		

¹ Hazard = engage in situations which is physically hazardous (abuse criteria #2)
² Social = use despite recurrent social or interpersonal problems caused or worsened by alcohol (abuse criteria #4)
³ Role = failure to fulfill major role obligations at work, school or home (abuse criteria #1)
⁴ Legal = substance-related legal problems (abuse criteria #3)
^a All percents are weighted
^b Percent of those with one alcohol abuse symptom who reported this type of abuse symptom
^c Percent of those with two alcohol abuse symptoms who reported this type of abuse symptoms
^d Percent of those with three or four alcohol abuse symptoms who reported this type of abuse symptoms

Table 4

Locations for alcohol treatment among those who sought treatment, NSDUH 2006–2007 (n=421).^{a, b}

	Number of Alcohol Abuse Symptoms in the Past year				
	Overall	None 1,235 (33%)	One 1,193 (28%)	Two 820 (20%)	Three or four 779 (19%)
Hospital	107 (32)	14 (17)	9 (18)	16 (22)	68 (48)
Residential inpatient facility	127 (37)	15 (21)	15 (26)	23 (29)	74 (51)
Residential outpatient facility	201 (44)	23 (38)	27 (26)	36 (41)	115 (56)
Mental health center	140 (32)	20 (36)	18 (19)	24 (23)	78 (39)
Doctor's visit	93 (22)	10 (17)	14 (16)	22 (19)	47 (28)
Emergency room	62 (17)	4 (4)	4 (9)	9 (7)	45 (29)
Self-help	261 (68)	27 (64)	41 (63)	53 (62)	140 (74)
Jail	48 (12)	6 (3)	3 (2)	6 (3)	33 (24)
Other location	109 (20)	15 (21)	20 (20)	23 (16)	51 (21)
Specialty facility only	53 (9)	10 (13)	10 (6)	14 (16)	19 (6)
Non-specialty facility only	122 (30)	18 (41)	31 (44)	35 (38)	38 (16)
Both specialty and non-specialty	246 (61)	28 (45)	37 (50)	44 (46)	137 (78)

^a All percents are weighted

^b Specialty facility includes hospital, inpatient and outpatient facility, and mental health center