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Non-daily Smoking and Alcohol Use, Hazardous Drinking, and Alcohol Diagnoses among Young Adults:

Findings from the NESARC

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Abstract

Background—Non-daily smoking and heavy alcohol use are prevalent behaviors among young adults, with non-daily smoking occurring primarily in the context of alcohol use. Although the relationship between drinking and daily smoking has been well characterized in young adults, few epidemiological investigations have investigated the association between non-daily smoking and drinking behavior.

Methods—We examined Wave 1 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; Grant et al., 2003; n=43,093). Young adults (age 18-25; n=5,838) were stratified on current smoking behavior (daily, non-daily, and non-smokers in the past 12 months) and differences in weekly quantity of alcohol use, frequency of alcohol use, frequency of binge drinking behavior, rates of NIAAA-defined hazardous drinking, and rates of DSM-IV alcohol diagnoses were investigated. College student status was examined.

Results—25% were current smokers and 7% were smoking on a non-daily basis. 71% were current drinkers, 39% reported binge drinking at least once a month, 41% met criteria for hazardous drinking, and 18% had alcohol use disorders. Across all measures of alcohol use there was a significant effect of smoking status, with daily smokers having greater alcohol use patterns, compared to non-daily smokers, with non-smokers consuming the least. Non-daily smokers were more likely to report any binge drinking in the past 12 months. However, daily smokers were more likely to report daily binge drinking. With regard to hazardous drinking and alcohol use disorders, non-daily smoking conferred the greatest risk, followed by daily smoking with non-smoking as the reference group. Multinomial logistic regression demonstrated the odds of being a hazardous drinker were 16 times greater (95% CI 9.46 — 26.48) in a non-daily smoker compared to a non-smoker, whereas the odds for a daily smoker were increased by 7-fold (95% CI 5.54 — 9.36). A similar pattern of results was demonstrated for DSM-IV alcohol diagnoses. No differences across college student status were observed.

Conclusions—The increased risk of hazardous drinking and alcohol use disorders conferred by non-daily smoking supports findings that non-daily smoking and drinking are highly concomitant behaviors. Results such as these suggest that interventions disengaging alcohol and cigarette use patterns (e.g., smoking bans in alcohol venues) might serve to limit the occurrence of hazardous drinking among young adults at heightened risk for this behavior.

Keywords

alcohol; non-daily smoking; daily smoking; young adults; NESARC; college student

Introduction

Binge drinking is defined as consuming five or more drinks per episode for males, and four or more drinks per episode for females (USDHHS, 2005; SAMSHA, 2005). Binge drinking is a major public health problem in the U.S. (Dawson et al., 2004; Wechsler & Kuo, 2000; Task Force on College Drinking, 2002), and despite significant public health measures, rates of binge drinking have risen almost 20% in young adults since 1993 (Naimi et al., 2003; Wechsler et al., 2002). The period of highest risk is evidenced in young adults (Naimi et al., 2003; USDHHS, 2002), with 44% reporting past year binge drinking, and 14% reporting at least weekly binge drinking (Dawson et al., 2004). This consumption pattern is associated with serious adverse consequences including the development of alcohol use disorders, unintentional injuries, property damage, assault, car crashes, unprotected sex, alcohol poisoning, and death (e.g., Wechsler et al., 1994; Wechsler, et al., 2002; Naimi et al., 2003; NHTSA, 2004; Rossow, 1996).

Binge drinking is highly co-morbid with cigarette smoking (Bobo & Husten, 2000; McKee et al., 2004; Schorling et al., 1994; Weitzmann & Chen, 2005). Smokers are more likely to demonstrate excessive episodic consumption (5+ drinks/episode) compared to non-smokers (20% vs. 6.5%; Dawson, 2000; Ockene et al., 1995) and are slower to mature out of heavy drinking patterns (Karlman et al., 2006). Studies of adolescents and young adults find that past month binge drinkers were 5 times more likely to be smokers (Bobo & Husten, 2000). Both non-daily and daily smokers were 4 times more likely than non-smokers to report binge drinking (Schorling et al., 1994), and 44 % of current smokers engaged in binge drinking at least once per month (Weitzman & Chen, 2005).

Most of the research examining the relationship between smoking status and alcohol consumption has focused on daily smokers. However, non-daily smoking is prevalent in young adults. Population studies have documented that 19-24% of current smokers are non-daily smokers (Hassmiller et al., 2003; Hennrikus et al., 1996), with younger age being significantly associated with this smoking pattern (Gilpin et al., 1997; Hassmiller et al., 2003; Hennrikus et al., 1996). In young adults aged 18-25, prevalence rates of co-morbid tobacco and alcohol use are the highest (Falk et al., 2006). Moreover, research examining young adult 'low-level' smokers has documented that non-daily smoking is most likely to occur in the context of alcohol use (Dierker et al., 2006; Nichter et al., 2006). Non-dependent smokers report that 74% of all smoking episodes occurred while under the influence of alcohol (McKee et al., 2004). Interviews conducted with these smokers find that they are cognizant of the reasons why they co-use tobacco and alcohol. They report that tobacco enhances the effect of alcohol or "brings on the buzz" (Nichter et al., 2006; Stromberg et al., 2007) and also report expectations that smoking enhances reinforcement from alcohol (e.g., "enjoy drinking more"; McKee et al., 2004).

In the present study we were interested in extending past work on the relationship between smoking status and alcohol consumption in young adults by examining how non-daily smoking is associated with drinking behavior and with binge drinking, hazardous drinking, and alcohol use disorders. The National Epidemiological Survey on Alcohol and Related Conditions (NESARC; Wave I, 2001-2002) (Grant et al., 2003) provided a unique opportunity to investigate this relationship in young adults aged 18-25. The purpose of this study was to use a range of smoking behaviors (daily smoking, non-daily smoking, non-smoking) to examine associations with alcohol drinking behavior (quantity and frequency) and with binge drinking, hazardous drinking, and alcohol use diagnoses.

Non-daily smoking has primarily been investigated in college populations of young adults (e.g., Schorling et al., 1994; Wechsler et al., 1995; Dierker et al., 2006; Nichter et al., 2006).

Moreover, in college populations, non-daily smoking is often referred to as social smoking. Moran et al. (2004) have found prevalence rates of social smoking at 51% of current smokers in a college sample. Given the selective focus of prior research, it is unclear whether this smoking behavior is strictly a student phenomenon. The secondary aim of the present investigation was to examine whether associations of smoking and alcohol use, hazardous drinking, and alcohol use disorders varied as a function of student status. To the degree that non-daily smoking confers risk for alcohol use disorders and hazardous drinking, we predicted that the relationship between non-daily smoking and alcohol use would be present regardless of student status.

Materials and Methods

Data Source

The NESARC study (Wave 1, 2001-2002) was conducted by the NIAAA. The data were collected by personal interviews with 43,093 civilian, noninstitutionalized adults (age, ≥ 18 years) residing in the United States. African Americans, Hispanics, and adults aged 18-24 were oversampled. In our analyses, the data were weighted to account for oversampling and to adjust for nonresponse. The weighted data were then further adjusted to be representative of the US civilian population using the 2000 decennial census. Further details of the sampling, purpose, and weighting have been published elsewhere (Grant, Kaplan et al., 2003). Age was restricted to 18-25 years for our analyses.

Definitions of Smoking Status, Alcohol Use Measures, Hazardous Drinking, Alcohol Diagnoses, and Student Status

Current (anytime within the past 12 months) smoking and drinking behavior and alcohol diagnostic criteria were assessed with the Alcohol Use Disorders and Associated Disabilities Interview Schedule-DSM-IV [Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition] Version (AUDADIS-IV) (Grant et al., 2001). The AUDADIS-IV has demonstrated both reliability and validity for the assessment of smoking and drinking behavior and alcohol use disorders. (Grant, Dawson et al., 2003; Nelson et al., 1999).

Cigarette Use

We coded the NESARC data into the following categories for past 12-month cigarette use. *Daily*: Someone who at the time of the survey responded 'yes' when asked, "did you smoke in the past year?" and when asked "how often did you smoke in the past year" indicated 'everyday'. *Non-daily*: Someone who responded 'yes' when asked "did you smoke in the past year" and when asked "how often did you smoke in the past year" indicated between 'once a month or less' up to '5-6 days a week'. *Non-smoker*: Someone who responded 'no' when asked "did you smoke in the past year?" When asked about the use of other tobacco products in the past 12 months (e.g., cigars, pipes, snuff, chewing tobacco), they responded 'no'. This group was comprised of both never (92.8%) and former (7.2%) smokers.

Alcohol Use Measures

Current drinking in the NESARC was defined by drinking behavior over the past 12 months. To identify current drinkers, we used the variable 'drank at least one alcoholic drink in the last 12 months'. To assess basic weekly quantity of consumption, we converted the variable 'average daily volume of ethanol intake' (see NESARC data notes, 2004 for calculation), to weekly number of drinks consumed (using a standard of 0.6 oz ethanol per drink; Dawson, 2000). Frequencies of drinking were assessed with the variable 'how often drank any alcohol in last 12 months'. Consistent with Dawson et al. (2004), increasing cut-points of alcohol drinking frequency were calculated, from drinking at least once in the past 12

months(yes/no), to drinking at least once a month (yes/no), to drinking at least once a week (yes/no), to drinking daily or nearly everyday (yes/no). Frequencies of binge drinking were assessed with the variable of 'how often an individual consumed 5 or more (for men) or 4 or more drinks (for women) of any alcohol in the last 12 months'. Increasing cut-points of binge drinking were calculated, from binge drinking at least once in the past 12 months (yes/no), to binge drinking at least once a month (yes/no), to binge drinking at least once a week (yes/no), to binge drinking daily or nearly everyday (yes/no).

Hazardous Drinking

The NIAAA guidelines, (USDHHS, 2005) which define hazardous drinkers as those exceeding sex-specific weekly limits (men, > 14 drinks per week; women, > 7 drinks per week) or exceeding daily drinking limits (men, \geq 5 drinks per day; women, \geq 4 drinks per day at least once in the past year) were used to define hazardous drinking. To determine whether weekly quantity limits were exceeded, we converted the variable "average daily volume of ethanol intake" (see NESARC data notes, 2004, for calculation) to weekly number of drinks consumed (using a standard of 0.6 oz [17.0 g] of ethanol per drink) (Dawson, 2000). To determine whether daily criteria were exceeded, frequency of binge drinking was assessed with the variable of "how often an individual consumed 5 or more (for men) or 4 or more drinks (for women) of any alcohol in the last 12 months."

Alcohol Diagnoses

The AUDADIS-IV uses DSM-IV (American Psychiatric Association, 1994) criteria to determine alcohol diagnoses. A diagnosis of alcohol dependence requires meeting 3 or more of the following criteria in the past year: tolerance; withdrawal; drinking more or longer than intended; persistent desire or unsuccessful efforts to cut down or control alcohol use; a great deal of time spent obtaining alcohol, using it, or recovering from its effect; important social, occupational, or recreational activities given up or reduced because of alcohol; and continued use despite knowledge of having a persistent or recurrent physical or psychological problem caused or exacerbated by alcohol. A diagnosis of alcohol abuse requires meeting 1 or more of the following criteria in the past year: recurrent use resulting in failure to fulfill major role obligations at work, school, or home; recurrent use in physically hazardous situations; recurrent alcohol-related legal problems; and continued use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by alcohol. Individuals who met criteria for either alcohol abuse or dependence were categorized as having an alcohol diagnosis.

College Student Status

College student status was assessed by asking participants, "Were you a full- or part-time student at any time in the last 12 months?" Those who indicated that they were either full-time or part-time college students were considered students in this analysis. Those who reported not currently being college students were considered non-students.

Data Analysis

Data analysis proceeded in several steps. The entire NESARC sample was included in SUDAAN analyses, using the calculated weights to account for design effects. Analyses were conducted on the age-restricted sample from within SUDAAN so that weights were correctly applied. First, demographic variables (race, education, marital status) were compared across smoking group (daily, non-daily, non-smoker) for descriptive purposes, and were also compared between students and non-students. Demographic variables demonstrating significant associations with smoking status were included as control variables in all subsequent analyses.

Second, associations were calculated between cigarette consumption and measures of quantity of alcohol consumption per week, frequency of alcohol drinking, frequency of binge drinking, hazardous drinking, and alcohol diagnoses. Post hoc comparisons examined both smoking groups in relation to non-smokers in the past 12 months and also daily to non-daily smokers. Linear regression models were utilized for continuous variables, and least squares means were used to perform post hoc t tests of group comparisons. A polytomous logistic regression model was utilized to examine hazardous drinking, which took on three levels. Ordered logistic regression models were not utilized since the homogeneity of odds ratio assumption was not met. Results are presented as adjusted Odds Ratios.

Finally, linear and polytomous logistic regression models were fit to the same alcohol consumption variables in order to test whether the association between cigarette smoking and alcohol consumption differed significantly between students and non-students. To test this hypothesis, interaction terms between student status and cigarette consumption were fit. Significant p values were reduced to $p < 0.001$ in all analyses in order to account for the number of dependent variables and post-hoc comparisons.

Results

Distribution of the demographic variables is presented in Table 1. Prevalence rates of smoking behavior were 25.2% for daily smokers, 7.2% for non-daily smokers, and 67.6% for non-smokers. Prevalence rates of drinking were 71.7% for current drinking. The sample was evenly split on gender (50.0% female) and college student status (54.0% student).

Baseline differences in gender, race, education, and student status were found across smoking groups. Chi square analyses indicated that daily and non-daily smokers were more likely to be male, compared to non-smokers. While daily smokers were predominantly White (76.9%), non-daily smokers were likely to be either White (66.8%) or Hispanic (17.5%). Non-smokers were more likely to be Black (16.4%, compared to 7.7% of daily smokers and 7.6% of non-daily smokers). Non-smokers were also likely to be Hispanic (20.8%). These racial differences are consistent with past literature (e.g., Hassmiller et al., 2003). Analyses also indicated that daily smokers were more likely to have not completed high school (21.7%) compared to non-daily smokers (14.3%) and non-smokers (15.5%). Both non-daily smokers (59.7%) and non-smokers (59.0%) were more likely to be college students, compared to daily smokers (39.6%).

Table 2 presents results examining current drinking status by smoking status. Daily (OR 4.81) and non-daily (OR 9.80) smokers were more likely to be current drinkers compared to non-smokers in the past 12 months. In comparison to daily smokers, there was a trend that non-daily smokers were more likely to be current drinkers. Examinations of increasing cut-points of frequency of alcohol consumption (drinks at least once a month, at least once a week, and at least once a day) determined that daily and non-daily smokers compared to non-smokers were generally more likely to report alcohol consumption at these frequencies. Daily smokers were more likely to report drinking daily or nearly every day, in comparison to non-daily and non-smokers. Examinations of increasing cut-points of binge drinking (any binge drinking in past 12 months, binge drinking at least once a month, at least once a week, and at least once a day) also determined that daily and non-daily smokers compared to non-smokers were generally more likely to report binge drinking. Daily smokers were more likely to report binge drinking daily or nearly every day, in comparison to non-daily and non-smokers. We then examined the NIAAA criteria for hazardous drinking by smoking status. Daily (OR 7.20) and non-daily smokers (OR 15.82) compared to non-smokers were more likely to meet criteria for hazardous drinking. When comparing non-daily smokers to daily smokers, non-daily smokers were significantly more likely to meet criteria for

hazardous drinking. Daily (OR 3.79) and non-daily smokers (OR 4.99) compared to non-smokers were also more likely to meet criteria for an alcohol diagnosis. Non-daily smokers, compared to daily smokers, had a higher but not significantly higher, likelihood of meeting criteria for an alcohol diagnosis. We also conducted exploratory analysis within the non-smoker group and observed no differences between never and former smokers.

Daily and non-daily smokers reported a higher weekly quantity of drinks, compared to never smokers. In comparison to non-daily smokers, daily smokers reported a higher weekly quantity of drinks. Daily smokers reported drinking 17.27 (SE = 1.37) drinks per week, non-daily smokers reported drinking 11.54 (SE=1.35) drinks per week, and non-smokers in the past 12 months reported drinking 5.88 (SE=0.44) drinks per week.

A significant association between smoking status and college student status was observed, as shown in Table 1. Non-daily smokers, compared to daily smokers, were more likely to be college students. All analyses were repeated with college student status (current student vs. non-current student) as a between subject variable, with no significant interactions ($p > .001$). College student status did not influence the relationship between smoking status and alcohol drinking behavior. As the interaction terms were not significant, the results were not stratified by college student status. However, all analyses were corrected for student status (as well as the other significant demographic variables, gender, race, and education) and the results presented in Table 2 reflect this correction.

Discussion

The purpose of the present study was to explore the relationship between smoking status and drinking behavior in young adults aged 18-25 through an examination of the NESARC database (Wave I, 2001-2002; Grant et al., 2003). Prevalence rates of co-morbid tobacco and alcohol use (Falk et al., 2006) and of non-daily smoking (Gilpin et al., 1997; Hassmiller et al., 2003; Hennrikus et al., 1996) are highest in young adults. We expanded on past research of the relationship between smoking and alcohol use by exploring how varying levels of smoking status (daily smokers, non-daily smokers, non-smokers) are associated with drinking behavior, binge drinking, hazardous drinking, and alcohol diagnoses in young adults. It was predicted that daily and non-daily smoking would confer greater risk for hazardous drinking and alcohol diagnoses and the results support this hypothesis. Daily and non-daily smokers were more likely to be current drinkers, to drink more alcohol, and to drink more frequently than non-smokers. These findings support prior research linking cigarette smoking with increased alcohol consumption (e.g., Schorling et al., 1994). However, some differences were observed between daily and non-daily smokers on measures of alcohol consumption.

In comparison with daily and non-smokers, non-daily smokers were at a significantly higher risk for meeting criteria for hazardous drinking. Although not significant, we also observed that a greater proportion of non-daily smokers engaged in binge drinking, which may put them at risk for the development of hazardous drinking and alcohol use diagnoses. 75.6% of non-daily smokers reported binge drinking in the past 12 months, compared to 69.4% of daily smokers and 47.0% of non-smokers. In this sample we also observed that daily smokers, compared to non-smokers, were more likely to report binge drinking daily or nearly everyday. Epidemiological data finds that frequent binge drinking increases the risk of developing alcohol use disorders (Dawson et al., 2004). Moreover, findings from the present study indicate higher rates of co-morbidity in young adults in comparison to adults across the entire adult lifespan (McKee et al., 2007). Young adults had much higher associations between smoking status and hazardous drinking. For example, McKee et al. (2007) demonstrated that the odds of meeting criteria for hazardous drinking was 5.33 times

greater in non-daily smokers, compared to never smokers across the entire adult age range (18 to 65+ years). In the current study, young adults (age 18-25) who were non-daily smokers were 15.82 times more likely to meet criteria for hazardous drinking.

A growing body of research suggests that non-daily smokers are largely aware that they often use tobacco and alcohol concurrently because co-morbid use enhances the positive subjective effects of each drug. Non-daily smokers report that tobacco enhances the effect of alcohol or “brings on the buzz”, and that alcohol and cigarettes go together like “drinking milk with cookies” or “eating peanut butter with jelly” (Nichter et al., 2006; Stromberg et al., 2007). This relationship appears to be reciprocal as alcohol use can increase the positive subjective effects of smoking (e.g., Rose et al., 2004; McKee et al., 2004; Harrison & McKee, 2008). The majority of smoking episodes in young adult non-daily smokers occurs while they are drinking alcohol and they report that alcohol increase their enjoyment of and desire for cigarettes (McKee et al., 2004; Harrison & McKee, 2008).

Future research should be conducted to identify mechanisms underlying the relationship between non-daily smoking status and alcohol consumption, particularly hazardous drinking. These mechanisms are largely unknown. The role of nicotine has been explored in non-daily male smokers, with nicotine-containing cigarettes increasing alcohol consumption (Barrett et al., 2006) while cigarettes with negligible levels of nicotine had no effect. Expectancies and social factors could also be factors underlying these relationships. Social smoking has been studied in college samples (Moran et al., 2004). However, the present research determined that college status did not confer any additional risk to the relationship between smoking behavior and drinking behavior. Odds ratios of smoking behavior increasing hazardous drinking or alcohol use disorder diagnoses were not greater in college students. The finding that college students are more likely to be non-daily smokers, compared to daily smokers, however, merits future research.

As presented, the cross-sectional design of the present findings does not allow for examinations of how smoking and drinking behaviors influence each other. The present study was based on Wave 1 of the NESARC data base. Future studies could incorporate findings from Wave 2 in order to develop a greater temporal understanding of the relationship between smoking and drinking in young adults. Future studies could also incorporate findings from Wave 2 in order to more fully examine various subtypes of occasional smokers (e.g., Hassmiller et al., 2003). Finally, the present results only generalize to young adults aged 18-25 in the United States.

This study reports on smoking and alcohol use in young adults aged 18-25. Results were based on findings from the NESARC. Several patterns of concern were observed. Overall, cigarette smoking young adults reported consuming more alcohol than their non-smoking peers. Differential risks based on smoking behavior (daily vs. non-daily) were observed. Although daily smokers reported greater quantity and frequency of alcohol use, non-daily smokers were more likely to report hazardous drinking and alcohol use disorder diagnoses, compared to non-smokers. Together these results add to a growing body of research suggesting that non-daily smoking confers possibly significant health risks, particularly by increasing hazardous drinking. Efforts to reduce the pairing of cigarette and alcohol use (e.g., smoking bans) could be beneficial in reducing the negative consequences of their combined use.

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Table 1

Distribution of Demographic Characteristics

	All		Daily Smokers (n=1320, 25.2%)		Non-daily Smokers (n=383, 7.2%)		Non-Smokers ^d (n=3961, 67.6%)	
	n	%	n	%	n	%	n	%
Gender *								
Male	2664	50.0	646	54.5	208	56.2	1680	46.1
Female	3174	50.0	674	45.5	175	43.8	2281	53.9
Race/Ethnicity *								
White, non-Hispanic	2763	62.2	849	76.9	209	66.8	1598	55.4
Black, non-Hispanic	1106	13.3	170	7.7	40	7.6	873	16.4
Other, non-Hispanic	332	7.1	77	6.4	23	8.1	222	7.4
Hispanic	1637	17.4	224	9.0	111	17.5	1268	20.8
Marital Status								
Married	1482	25.5	332	26.7	80	21.4	1020	25.1
Not Currently Married	4356	74.5	988	73.3	303	78.6	2941	74.9
Education *								
< HS graduate	1135	16.8	308	21.7	64	14.3	737	15.5
HS graduate	1901	31.9	491	37.9	113	32.6	1233	29.1
Some college	2802	51.3	521	40.4	206	53.1	1991	55.4
Student Status *								
College Student	2990	54.0	521	39.6	213	59.7	2171	59.0
Non-college Student	2848	46.0	799	60.4	170	40.3	1790	41.0
Alcohol Drinking Frequency								
Drink +1 in past year	3906	71.7	1168	89.2	356	94.3	2382	62.8
Drink +1 times/month	2616	69.3	896	76.4	285	81.3	1435	63.5
Drink +1 times/week	1553	42.0	615	53.2	184	52.8	754	34.3
Drink daily or nearly daily	252	6.5	126	10.8	34	7.1	92	4.1

All	All		Daily Smokers		Non-daily Smokers		Non-Smokers ^d	
	n	%	n	%	n	%	n	%
<i>Binge^b</i>								
Binge +1 in past year	2083	56.7	801	69.4	259	75.6	1023	47.0
Binge +1 times/month	1378	38.5	597	53.4	188	56.3	593	27.7
Binge +1 times/week	824	24.0	383	36.0	113	33.1	328	16.1
Binge daily or nearly daily	125	3.4	76	6.8	16	3.7	33	1.6
<i>Alcohol Classifications</i>								
Hazardous drinking ^c	2130	41.4	819	62.8	263	71.7	1048	30.1
Alcohol diagnosis ^d	919	17.9	392	31.0	137	38.7	390	10.8

n (unweighted) % (weighted)

* p<.001 by smoking status

^a Non-smokers reported not consuming any tobacco product in the past 12 months. The group was comprised of both never and ex smokers.

^b Binge drinking is defined as consuming 5 or more (for men) or 4 or more (for women) alcoholic drinks in a single episode.

^c NIAAA hazardous drinking definition: 5+ drinks per day for men and 4+ drinks per day for women at least once in the past year or consumes more than 14 drinks per week for men and more than 7 drinks per week for women

^d Alcohol diagnosis is defined as any past 12 month DSM-IV Alcohol Abuse or Dependence

Table 2

Odds Ratios (95% Confidence Intervals) from Adjusted Regressions Analyses Examining Associations of Smoking Status with Alcohol Use Patterns and Classifications

	Smoking Status		
	Daily Smoker	Non-daily Smoker	Non-Smoker ^a
<i>Frequency of Drinking</i>			
Current Drinker ^b (yes/no)	4.81 (3.78-6.12)*	9.80 (5.94-16.17)* [^]	ref
Drinks 1+/month (yes/no)	1.97 (1.61-2.42)*	2.58 (1.79-3.71)*	ref
Drinks 1+/week (yes/no)	2.23 (1.86-2.67)*	2.19 (1.64-2.93)*	ref
Drinks daily or nearly every day (yes/no)	2.68 (1.89-3.79)*	1.76 (1.03-3.01)	ref
<i>Binge Drinking^c</i>			
Binge drinking in past 12 months (yes/no)	2.57 (2.12-3.12)*	3.42 (2.48-4.72)*	ref
Binge 1+/month (yes/no)	3.01 (2.46-3.68)*	3.30 (2.53-4.29)*	ref
Binge 1+/week (yes/no)	2.85 (2.26-3.58)*	2.51 (1.88-3.35)*	ref
Binge daily or nearly every day (yes/no)	4.27 (2.55-7.14)*	2.18 (1.02-4.65)	ref
<i>Alcohol Classifications</i>			
Non-hazardous drinker vs. Non-drinker in past 12 months	2.81 (2.16-3.66)*	4.79 (2.73-8.39)*	ref
Hazardous drinker ^d vs. Non-drinker in past 12 months	7.20 (5.54-9.36)*	15.82 (9.46-26.48)* ⁺	ref
Alcohol Diagnosis ^e vs. No Alcohol Diagnosis	3.79 (3.10-4.62)*	4.99 (3.56-7.01)*	ref

n=5838,

compared to non-smokers

compared to daily smokers

compared to daily smokers

NOTE: These analyses were adjusted for education, race, sex, and student status.

* p<.001

+ p<.001

[^] p<.01 to p>.0015

^a Non-smokers reported not consuming any tobacco product in the past 12 months. The group was comprised of both never and ex smokers.

^b Any consumption of alcohol in past 12 months

^c defined as consuming 5 or more (for men) or 4 or more (for women) alcoholic drinks in a single episode

^d NIAAA hazardous drinking definition: 5+ drinks per day for men and 4+ drinks per day for women at least once in the past year or consumes more than 14 drinks per week for men and more than 7 drinks per week for women

^e Past 12 month DSM-IV Alcohol Abuse or Dependence diagnoses