

## Social determinants of alcohol use and having episodic drinking among Hispanic young adults

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### ABSTRACT

**Background:** Although there are numerous preventive measures in the literature, a vast percentage of Hispanic young adults continue to engage in alcohol use and heavy episodic drinking. The purpose of the study was to examine social determinants of recent alcohol use and heavy episodic drinking among Hispanic young adults 18–25 years of age.

**Methods:** In 2016, a secondary analysis ( $N = 3,452$ ) was performed of 2012 National Survey on Drug Use and Health data. A series of logistic regression analyses were performed to determine whether recent alcohol use and heavy episodic drinking differed based on sex, education level, family income, employment status, location of residence (type of metro area), self-reported health status, first use of alcohol before age 21, first use of tobacco before age 21 and first use of marijuana before age 21.

**Results:** Regarding alcohol use, 51.8% of Hispanic young adults reported that they had consumed alcohol in the past month and 35.0% reported that they had engaged in heavy episodic drinking. Hispanic young adults at highest risk for recent alcohol use were male, had some college or more, had high family income, were employed, lived in a large metropolitan area, had excellent/very good health status, and had early initiation of substance use. Those at highest risk for heavy episodic drinking were male, were employed, and had early initiation of substance use.

**Conclusion:** The present study found that a sizeable percentage of Hispanic young adults are involved in recent alcohol use and heavy episodic drinking. Since Hispanic young adults are disproportionately at risk for substance use and scarce resources are available to effectively address the needs of this population, further interventions are warranted. Findings may aid prevention scientists in developing, implementing and evaluating alcohol use programs for this population.

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### Background

Although there are numerous preventive measures in the literature, a vast percentage of Hispanic young adults continue to engage in alcohol use and heavy episodic drinking [1]. Approximately 43% of Hispanic adults have used alcohol in the past 30 days [2]. Nearly one-fifth (24.1%) of Hispanics engaged in heavy episodic drinking, which is commonly referred to as binge drinking. Further, the United States' (US) Census Bureau [3] indicates that the Hispanic ethnic group

increased more than 40% in the past decade corresponding to an increase of 15.2 million.

Numerous risk factors for alcohol use have been identified in the literature. Factors associated with use include, but are not limited to, education, employment, income, and early age of alcohol initiation [2,4–6]. More specifically the Substance Abuse and Mental Health Services Administration (SAMHSA) [2] found that increasing levels of education is positively correlated with elevated levels of alcohol use. Regarding type of employment, other

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research indicates young adults who are employed as machine operators, factory assemblers, transporters, material moving workers and those that report functional limitations are more likely to report heavy alcohol use compared to those in more professional jobs such as teachers and pharmacists [4]. Another study showed the risk of alcohol abuse was higher among laborers and those in the trades as opposed to those in more professional-oriented employment [7]. Regarding family income, one study found that young adults with a family income exceeding \$50,000 are at increased risk for engaging in alcohol use than young adults with a family income of \$25,000 or less, representing 56% vs. 38% [8]. However, other researchers have found that a lower income level significantly predicted higher alcohol use among Hispanic young adults [9].

Specific to US Hispanics, research suggests the earlier age at first drink predicts heavier drinking patterns [10]. Hingson, Heeren, and Winter [11] found that Hispanic young adults who start drinking before age 14 were more likely to consume more alcohol in a week than those who delayed drinking till age 21. Others have shown that consuming alcohol at an early age is correlated with risk propensity for suicide, violence, delinquency, and other unproductive behaviors [11,12]. Also, individuals who start drinking prior to age 21 tend to be more likely to engage in alcohol use than those who delay consuming alcohol until at least age 21 [13,14]. In addition, early alcohol initiation predicts vulnerability for current, recurrent and lifetime alcohol use disorders [15]. Further the rate of past year alcohol use was much higher for individuals who started drinking before age 14 (47% and 13%, respectively) than for individuals who delayed drinking until age 20 (9% and 2%, respectively) [11]. Thus, it is not surprising that the Healthy People 2020 [16] set objectives to reduce the proportion of 1) adolescents never using substances and 2) adults who excessively drank alcohol in the past 30 days, and 3) adults who engage in heavy episodic drinking. In order to work towards meeting these objectives, more research is needed on this fast growing US ethnic population.

### **Study purpose**

While various studies have assessed predictors of alcohol use among general young adult populations, significant gaps exist specifically among Hispanic young adults. Therefore the purpose of the present

study was to examine the social determinants of recent alcohol use (past 30 days) and heavy episodic drinking (i.e., consuming five or more drinks on one occasion) among Hispanic young adults aged 18–25 years.

## **Methods**

### **Participants**

In 2016, a secondary analysis of 2012 National Survey on Drug Use and Health (NSDUH) data was performed to answer specific research questions. Participants in this study comprised 18–25 year old Hispanic young adults ( $n = 3,452$ ) in the US including the District of Columbia who participated in the 2012 NSDUH [17]. All participation in the NSDUH was voluntary and confidential. The authors' university-based institutional review board determined this study exempt from review due to being "not human subjects" research.

### **Data collection**

The NSDUH obtains national data on substance use and mental illness and is co-sponsored by SAMHSA and the US Department of Health and Human Services. The NSDUH was proctored in participants' households by the trained interviewers. For more information on procedures, please refer to the SAMHSA Methodological Resource Book [17].

### **Measures**

The following NSDUH survey sections/items were used in the present study: Personal/family information; Alcohol use; Family income; Participation in governmental assistance programs; Living location (type of metropolitan area); and Alcohol use with other drugs. Statistical imputation was utilized by the NSDUH to substitute for possible problems arising from any missing data which could include replacing missing values with those that are none, especially when there was no known reported respondent's period of substance use.

Recent alcohol use among young Hispanic young adults referred to use of alcohol within the past 30 days. Regarding heavy episodic drinking, young adults were asked if they consumed five or more drinks on the same occasion, defined as at the same time or within a few hours of each other, during the past 30 days of completing the survey. Participation in government assistance programs of the survey consisted of a Yes/No question.

Use of alcohol before age 21, use of tobacco before age 21 and use of marijuana before age 21 were also assessed via Yes/No items. Participants reported their highest educational level which was dichotomized into “Some College or higher” and “High School diploma or lower”. Participants reported their health status using a five point scale that was subsequently dichotomized into “Excellent/Very good” and “Good/Fair/Poor”. Location of residence (type of metropolitan area) was dichotomized into “Small Metro Area/Non-metro Area” and “Large Metro Area.” Race/ethnicity and age were self-reported.

### Analysis

All data was analyzed using the Statistical Software Package for Social Sciences (SPSS version 23). Frequency distributions, means and standard deviations were computed to determine Hispanic young adults’ demographic information, involvement in recent alcohol use and heavy episodic drinking. A series of logistic regression analyses were performed to determine whether recent alcohol use and heavy episodic drinking differed based on sex, education level, family income, employment status, location of residence (type of metro area), self-reported health status, first use of alcohol before age 21, first use of tobacco before age 21 and first use of marijuana before age 21. An Institutional Review Board reviewed and exempted this study from review since it is a secondary analysis of publicly available data with no identifiers.

### Results

Of the sample, 48.6% were female and 51.4% were male. Regarding alcohol use, 51.8% of Hispanic young adults reported that they had consumed alcohol in the past month, and 35.0% reported that they had engaged in heavy episodic drinking by consuming five or more alcoholic beverages on the same occasion. Males were significantly more likely than females to have engaged in recent alcohol use [OR = 1.51, 95% confidence interval (CI) = (1.32, 1.73)  $p < 0.001$ ] (Table 1). Hispanic males were significantly more likely than Hispanic females to engage in heavy episodic drinking in the past month [odds ratio (OR) = 2.05, 95% CI = (1.78, 2.36),  $p < 0.001$ ].

Regarding education, results showed that Hispanic young adults with a high school diploma or less (45.7%) were significantly less likely than Hispanic young adults with some college/college degree (62.5%) to have engaged in recent alcohol

use [OR = 0.51, 95% CI = (0.44, 0.58),  $p < 0.001$ ] (Table 2). Regarding heavy episodic drinking, Hispanic participants with a high school diploma or less (32.5%) were less likely than participants with some college or more (39.3%) to have engaged in heavy episodic drinking [OR = 0.74, 95% CI = (0.64, 0.86),  $p < 0.001$ ]. Hispanic young adults with a family income less than \$20,000 (49.5%) were less likely than Hispanic young adults with a family income of \$20,000 or more (54.6%) to have engaged in recent alcohol use [OR = 0.71, 95% CI = (0.61, 0.81),  $p < 0.001$ ].

Results indicated that Hispanic young adults who worked during the past 12 months (51.8%) were significantly more likely than Hispanic young adults who did not work during the past 12 months (35.7%) to have engaged in recent alcohol use [OR = 1.94, 95% CI = (1.54, 2.44),  $p < 0.001$ ]. Regarding heavy episodic drinking, Hispanic young adults who worked during the past 12 months (35.2%) were significantly more likely than Hispanic young adults who did not work during the past 12 months (22.6%) to have engaged in heavy episodic drinking [OR = 1.86, 95% CI = (1.45, 2.39),  $p < 0.001$ ].

Results indicated that 44.5% Hispanic young adults who participated in government assistance programs were significantly less likely than Hispanic young adults who did not participate in government assistance programs (55.8%) to have engaged in recent alcohol use [OR = 0.64, 95% CI = (0.55, 0.73),  $p < 0.001$ ; Table 3]. Regarding heavy episodic drinking, 30.5% of Hispanic young adults who participated in government assistance programs (30.5%) were significantly less likely than Hispanic young adults who did not participate in government assistance programs (37.4%) to have engaged in heavy episodic drinking [OR = 0.73, 95% CI = (0.63, 0.85),  $p < 0.001$ ; see Table 3].

Results indicated that those living in a large metropolitan area (53.2%) were significantly more likely than those living in a small metropolitan or non-metropolitan area (49.7%) to have engaged in recent alcohol use [OR = 1.15, 95% CI = (1.00, 1.32),  $p = 0.04$ ; see Table 3]. Heavy episodic drinking did not significantly differ based on location of residence [OR = 0.99, 95% CI = (0.86, 1.14),  $p = 0.89$ ]. Interestingly, no differences were found based on self-reported health status.

Results indicated that participants who had used alcohol before age 21 (65.0%) were significantly more likely than participants who had not used alcohol before age 21 (15.8%) to have engaged in recent alcohol use [OR = 9.90, 95% CI = (8.16, 12.03),

**Table 1.** Odds ratios for recent alcohol use and heavy episodic drinking based on sex.

Demographic variable	Recent alcohol use					Heavy episodic drinking				
	Did Not Use n (%)	Used n (%)	OR	95% CI	p	Did not use n (%)	Used n (%)	OR	95% CI	p
Sex										
Female <sup>a</sup>	944 (53.2)	829 (46.8)	1.000			1,292 (72.9)	481 (27.1)	1.000		
Male	721 (42.9)	958 (57.1)	1.513	1.323, 1.731	<0.001	953 (56.8)	726 (43.2)	2.046	1.775, 2.359	<0.001

Note. <sup>a</sup>Referent; missing values excluded.

**Table 2.** Odds ratios for recent alcohol use and heavy episodic drinking based on educational level, family income and employment status.

Demographic variable	Recent alcohol use					Heavy episodic drinking				
	Did Not Use n (%)	Used n (%)	OR	95% CI	p	Did not use n (%)	Used n (%)	OR	95% CI	p
Educational level										
Some college or more <sup>a</sup>	471 (37.5)	784 (62.5)	1.000			762 (60.7)	493 (39.3)	1.000		
HS Diploma or less	1,194 (54.3)	1,003 (45.7)	0.505	0.438, 0.582	<0.001	1,483 (67.5)	714 (32.5)	0.744	0.644, 0.860	<0.001
Family income										
\$20,000 or more <sup>a</sup>	1,060 (45.4)	1,274 (54.6)	1.000			1,493 (64.0)	841 (36.0)	1.000		
Less than \$20,000	605 (54.1)	513 (45.9)	0.706	0.611, 0.814	<0.001	752 (67.3)	366 (32.7)	0.864	0.743, 1.005	0.057
Employment status in past 12 months										
Did not work <sup>a</sup>	449 (64.3)	249 (35.7)	1.000			540 (77.4)	158 (22.6)	1.000		
Did work	259 (48.2)	278 (51.8)	1.935	1.539, 2.435	<0.001	348 (64.8)	189 (35.2)	1.856	1.445, 2.385	<0.001

Note. <sup>a</sup>Referent; missing values excluded.

**Table 3.** Odds ratios for recent alcohol use and heavy episodic drinking based on participation in governmental assistance programs, location of residence and self-reported health status.

Demographic variable	Recent alcohol use					Heavy episodic drinking				
	Did Not Use n (%)	Used n (%)	OR	95% CI	p	Did not use n (%)	Used n (%)	OR	95% CI	p
Participation in governmental assistance program										
No <sup>a</sup>	987 (44.2)	1,244 (55.8)	1.000			1,396 (62.6)	835 (37.4)	1.000		
Yes	678 (55.5)	543 (44.50)	0.635	0.552, 0.731	<0.001	849 (69.5)	372 (30.5)	0.733	0.631, 0.850	<0.001
Location of residence										
Small or non-metro area <sup>a</sup>	719 (50.3)	711 (49.7)	1.000			928 (64.9)	502 (35.1)	1.000		
Large metro area	946 (46.8)	1,076 (53.2)	1.150	1.004, 1.3170	0.043	1317 (65.1)	705 (34.9)	0.990	0.859, 1.141	0.885
Self-reported health Status										
Excellent/Very good <sup>a</sup>	1,033 (48.0)	1,120 (52.0)	1.000			1,422 (66.0)	731 (34.0)	1.000		
Good/Fair/Poor	625 (48.6)	660 (51.4)	0.974	0.848, 1.118	0.708	814 (63.3)	471 (36.7)	1.126	0.974, 1.300	0.108

Note. <sup>a</sup>Referent; missing values excluded.

**Table 4.** Odds ratios for recent alcohol use and heavy episodic drinking based on age of initiation for alcohol, tobacco, and marijuana.

Demographic variable	Recent alcohol use					Heavy episodic drinking				
	Did Not Use n (%)	Used n (%)	OR	95% CI	<i>p</i>	Did not use n (%)	Used n (%)	OR	95% CI	<i>p</i>
First used alcohol before age 21										
No <sup>a</sup>	783 (84.2)	147 (15.8)	1.000			863 (92.8)	67 (7.2)	1.000		
Yes	882 (35.0)	1,640 (65.0)	9.904	8.156, 12.028	<0.001	1,382 (54.8)	1,140 (45.2)	10.627	8.187, 13.789	<0.001
First used tobacco before age 21										
No <sup>a</sup>	1,019 (67.3)	496 (32.7)	1.000			1,244 (82.1)	271 (17.9)	1.000		
Yes	646 (33.4)	1,291 (66.6)	4.106	3.559, 4.737	<0.001	1,001 (51.7)	936 (48.3)	4.292	3.662, 5.031	<0.001
First used marijuana before age 21										
No <sup>a</sup>	1,248 (64.5)	687 (35.5)	1.000			1,535 (79.3)	400 (20.7)	1.000		
Yes	417 (27.5)	1,100 (72.5)	4.792	4.140, 5.546	<0.001	710 (46.8)	807 (53.2)	4.362	3.757, 5.064	<0.001

Note. <sup>a</sup>Referent; missing values excluded.

$p < 0.001$ ] (Table 4). Participants who had used alcohol before age 21 (45.2%) were significantly more likely than participants who had not used alcohol before age 21 (7.2%) to have engaged in heavy episodic drinking [OR = 10.63, 95% CI = (8.19, 13.79),  $p < 0.001$ ].

Results indicated that participants who had used tobacco before age 21 (66.6%) were significantly more likely than participants who had not used tobacco before age 21 (32.7%) to have engaged in recent alcohol use [OR = 4.11, 95% CI = (3.56, 4.74),  $p < 0.001$ ] (Table 4). Participants who had used tobacco before age 21 (48.3%) were also significantly more likely than those who had not used tobacco before age 21 (17.9%) to have engaged in heavy episodic drinking [OR = 4.29, 95% CI = (3.66, 5.03),  $p < 0.001$ ].

Results indicated that participants who had used marijuana before age 21 (72.5%) were significantly more likely than participants who had not used marijuana before age 21 (35.5%) to have engaged in recent alcohol use [OR = 4.79, 95% CI = (4.14, 5.55),  $p < 0.001$ ] (Table 4). Participants who had used marijuana before age 21 (53.2%) were significantly more likely than participants who had not used marijuana before age 21 (20.7%) to have engaged in heavy episodic drinking [OR = 4.36, 95% CI = (3.76, 5.06),  $p < 0.001$ ].

A multiple regression for recent alcohol use was performed on the nine variables that were significant for recent alcohol use. Results found the

model was significant ( $p < 0.001$ ) and predicted 26.3%–35.3% of the variance in recent alcohol use. Similarly, a multiple regression for heavy episodic drinking was performed on the seven variables that were significant for heavy episodic drinking. Results found the model was significant ( $p < 0.001$ ) and predicted 20.5%–29.4% of the variance in heavy episodic drinking.

## Conclusions

The present study found that a sizeable percentage of Hispanic young adults are involved in recent alcohol use and heavy episodic drinking. Since Hispanic young adults are disproportionately at risk for substance use and scarce resources are available to effectively address the needs of this population, further interventions are warranted [1, 20–22].

A large proportion of males (57.1%) and females (46.8%) were involved in recent alcohol use. Hispanic males were also more likely than females to have engaged in heavy episodic drinking (43.2% and 27.1%, respectively). A possible explanation for this difference is related to the gender stratification within the Hispanic culture [23]. Traditionally, in this culture, males are encouraged to promote a sense of strong machismo or masculinity, and thereby consume more alcohol than females, whereas females are discouraged from consuming alcohol [24]. Previous studies have asserted gender differences as a risk factor for alcohol use in this population [25,26].

The present study revealed that recent alcohol use and heavy episodic drinking differed significantly by educational level. Previous studies have found higher educational level to be associated with decreased alcohol use [2,27]. This higher instance of alcohol use may be partially explained by the suggestion that Hispanic young adult see drinking as an earned right upon reaching maturity [28]. Given that most Hispanic youth start drinking before age 21, this predicts continued alcohol use in young adulthood [5]. Future research efforts should examine differences in Hispanic college graduate and non-college graduate alcohol use as well as associated consequences [22].

The present study found that recent alcohol use among Hispanic young adults significantly differed based on family income. Interestingly, heavy episodic drinking did not differ based on family income. The present study is consistent with other national research indicating elevated alcohol use among those in higher income levels [29]. This could be due to the fact that higher income results in more disposable income which could allow for the purchase of affordability of alcohol. Further research is needed to examine whether specific cultural factors are involved. Results also found that recent alcohol use differed based on employment status. Being employed may allow for more disposable income, as mentioned above, which could in turn be used to purchase alcoholic beverages. This is noteworthy since studies have also shown employment disadvantages on alcohol use [30].

Hispanic young adults participating in governmental assistance programs were less likely than those not participating in governmental assistance programs to have engaged in recent alcohol use. Involvement in heavy episodic drinking showed a similar difference with Hispanic young adults participating in governmental assistance programs to be less likely than their counterparts to engage in heavy episodic drinking. However, previous research found that Hispanic young adults who are recipients of governmental assistance programs are more likely to engage in alcohol use compared to the general population [31,32]. Similar research also found that increased alcohol use among Hispanics who were on temporary assistance to needy families and received public assistance for housing [33,34].

The present study found that recent alcohol use and heavy episodic did not significantly differ based on location of residence (type of metropolitan area). Interestingly, some studies have found that alcohol use and heavy episodic drinking are higher in rural

areas [35]. The slight increase in alcohol use could be explained by difficulties in accessing, and administering substance abuse treatment in the affected rural areas. Programs to tackle alcohol abuse should include access to prevention measures for both populations living in non-metropolitan and metropolitan areas.

Both recent alcohol use and heavy episodic drinking did not significantly differ based on self-reported health status. The present study is similar to previous research which reported that a history of self-reported health status could facilitate increased reporting of alcohol use [14]. Another study conducted by Wellman, Contreras, Dugas, and O'Loughlin [36] found a correlation between negative self-reported health status and increased alcohol use in young adults. Prior research also suggests that those with poorer health status may underreport alcohol use and heavy episodic drinking in general [37].

Individuals who had used alcohol, tobacco or marijuana before the age of 21 were significantly more likely to have been involved in recent alcohol use and heavy episodic drinking. These results are consistent with previous studies that found trends in early age drinking as a predictor of heavy drinking after controlling for several other factors [10,38]. In addition, early alcohol use is one of the strongest predictors of young adults' alcohol abuse and related health problems such as homicides, sexually transmitted diseases, poor skills and absenteeism [39,40]. Such findings support the critical nature in delivering early prevention and education.

Specifically regarding early tobacco use, previous research has reported that tobacco use predicts elevated alcohol use and that approximately 98% of smokers drink alcohol [41]. Additionally, a study conducted by Woolard et al. [42] found that tobacco use was the strongest predictor of heavy episodic drinking among Hispanic young adults of Mexican border. Tobacco-enhanced alcohol use tends to be higher among young adults [29,42]. Furthermore, young adult smokers tend to drink alcohol in higher quantities than abstainers and alcohol use is frequently co-morbid with tobacco use [41,43,44]. Early tobacco use is a risk factor for alcohol use and has important implications for the development of prevention and intervention programs targeting alcohol use among young adults. Individuals who smoked cigarettes before age 21 had an elevated level of alcohol use among recent alcohol users [45]. The present study's results are consistent with the above mentioned literature and extend earlier research on

Hispanic young adults regarding early age at first encounter with tobacco.

Regarding marijuana use, Hispanic young adults who first used marijuana before age 21 were four times more likely to report recent alcohol use and four times more likely to engage in heavy episodic drinking. The present study is consistent with findings from Weiss and Dilks [46] who found that marijuana users were more likely than non-marijuana users to engage in excessive alcohol use. Other researchers have also linked early use of marijuana to risk factors for alcohol use [47]. Young adults who use marijuana also are more likely to participate in heavy drinking problems, such as blackouts, compared to their counterparts who abstain from marijuana [48]. Thus, prevention and early intervention programs are needed to educate youth on the connection between alcohol and marijuana use.

It is important to note the limitations of this study. This study was delimited to Hispanic young adults aged 18–25 years. Therefore, findings may not be generalizable to individuals of other racial/ethnic groups and ages. This study involved cross-sectional data and causal relationships could not be determined. This study involved survey research. Therefore, accuracy in self-reporting and recall could have resulted in under-reporting or over-reporting of responses. Finally, some participants may have attempted to offer socially desirable responses to sensitive questions.

This study was conducted to more thoroughly understand the social determinants to recent alcohol use and heavy episodic drinking among Hispanic young adults. Findings from this study can be used to assist health educators in designing programs and interventions to combat alcohol abuse among Hispanic young adults. Effective programs to combat alcohol abuse should address an array of factors [49–51]. Socially relevant competencies including family, peers, neighborhood climate, geographical location and association between alcohol and other substances, beliefs, attitudes, self-efficacy, and environmental factors need to be further explored regarding Hispanic young adults' involvement in alcohol use [41,52,53].

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