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Age at First Drink, Drinking, Binge Drinking and DSM-5 Alcohol Use Disorder among Hispanic National Groups in the U.S.

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Abstract

Background—This paper examines age at first drink and adult drinking, binge drinking and DSM-5 alcohol use disorder (AUD) among U.S. Hispanic national groups.

Methods—Respondents come from two independent studies. The Hispanic Americans Baseline Alcohol Survey used a multistage cluster sample design to interview 5,224 individuals 18 years of age and older selected from the household population in: Miami, New York, Philadelphia, Houston and Los Angeles. Respondents in the border area (N=1,307) constituted a household probability sample of Mexican Americans living on U.S. counties that border Mexico. In both surveys, data were collected during computer assisted interviews conducted in respondents' homes. The HABLAS and the border sample response rates were 76% and 67%, respectively.

Results—U.S. born Hispanics begin drinking at a younger age than those who are foreign born, independent of national group. Among foreign born Hispanics, age of arrival in the U.S. is not associated with age at first drink. Results support the hypothesis that a younger age at first drink is associated with a higher mean volume of drinking, a higher probability of bingeing and a higher probability of DSM-5 AUD. But the results do not show a clear pattern by which a particular national group would consistently show no associations or stronger associations between age at first drink and the alcohol-related outcomes under consideration.

Conclusions—An earlier age at first drinking is positively associated with heavier drinking patterns among U.S. Hispanics. However, as in other areas of alcohol epidemiology, here too there is considerable variation in age at first drink and drinking across Hispanic national groups.

Keywords

U.S.-Mexico Border; Hispanic national groups; age at first drink; epidemiology; survey

1. Introduction

Although the legal drinking age in the U.S. is 21, most people begin drinking earlier. According to the 2011 National Survey on Drug Use and Health, among people 12 to 49 years of age who began drinking in the past 12 months, the average age of first drinking was

17.1 years (Substance Abuse and Mental Health Services Administration [SAMHSA], 2012). Among those 12 and older who began drinking before age 21, the mean age at first drink was 15.9 years. Further, of the 4.7 million people who began drinking in the past 12 months, 82.9% began drinking before age 21 and 61% began drinking before age 18. There is reason for concern about these statistics because there is by now a relatively extensive literature on the positive association between age at first drink and a variety of alcohol-related outcomes. For instance, people who begin drinking before age 14 are three times more likely to consume 5 or more drinks in a day at least once a week than those who began after age 21 (Hingson et al., 2006). Drinking at early ages also substantially increases risk for lifetime, current and recurrent alcohol use disorders (DeWitt et al., 2000, Grant and Dawson, 1997, Hingson et al., 2006). For example, among people drinking before age 14, rates of alcohol dependence across the lifetime (47%) and past year (13%), were substantially higher than among those who started drinking after age 20 (9% and 2%, respectively); (Hingson et al., 2006). These types of effects remain after adjustment for parental factors and adverse childhood events (DeWitt et al., 2000) and appear to be at least partially explained by subsequent increases in drinking. Dawson et al. (2008) reported that individuals who started drinking between ages 15 and 17 had increased adult incidence of alcohol abuse for men and women and increased incidence of dependence for women only. However, once the effect of volume of consumption was controlled for, these associations became non-significant. The authors interpreted this latter finding as an indication that the increased risk of AUD among early drinkers was associated in part with the fact that these individuals engaged in heavier drinking patterns during adulthood, which was associated with impaired executive function. Early experiences of drunkenness in particular – rather than drinking per se – also predict later problem behaviors among adolescents (Kuntsche et al., 2013).

Characteristics of disinhibitory or externalizing psychopathology have often been linked to early drinking onset. For example, early onset of drinking predicts increased risk for later problems characterized by disinhibitory behavior, including alcohol-related injury, involvement in fights after drinking, driving after drinking, involvement in motor vehicle crashes, and unplanned/unprotected sexual activity (Hingson et al., 2000, Hingson et al., 2001, Hingson et al., 2002, Hingson et al., 2003). These effects remain after adjusting for heavy drinking and alcohol dependence, as well as other substance use and parental characteristics. Manifestations of disinhibitory behavior and psychopathology (e.g., oppositionality, hyperactivity/impulsivity, inattentiveness) are present before the first drink of alcohol, and in line with this, McGue et al. (2001a, 2001b) reported that drinking alcohol at an early age is a familial trait linked to a genetic risk for disinhibitory psychopathology in males (although shared environmental factors appear to be involved among girls). Familial-based vulnerability has also been shown to explain the association between early drinking age and increased risk for alcohol abuse and dependence (Prescott and Kendler, 1999). Other risk factors for early drinking onset include childhood sexual abuse (Sartor et al., 2006), attention deficit disorder, conduct disorder, familial history of alcohol dependence, and male gender. Additionally, Sartor et al (2007) reported that, the progression from first drink to alcohol dependence was faster in the presence of nicotine dependence, marijuana use, generalized anxiety disorder or conduct disorder.

Gender and ethnic differences in age of drinking onset, and in its effect on subsequent alcohol problems, have also been documented. Hawkins et al. (1997) found that White students began to drink at a younger age than students in other ethnic groups and had a higher risk of alcohol misuse later at age 17–18. Peleg-Oren et al. (2009) found that 11th and 12th graders who began drinking before 13 were more likely to have problems with school performance and to report delinquent behavior such as carrying a gun, carrying a weapon at school and using marijuana. Whites were also 1.5 times more likely than Blacks to use marijuana in the past 30 days. Chartier et al. (2009) reported that Blacks had later onset of regular drinking than Whites. Also, conduct problems were associated with an earlier age of regular drinking (age started drinking at least once a month for 6 months or more) onset for Blacks, and positive expectancies about the effects of alcohol had a similar effect on Whites and Hispanics. Alvanzo et al. (2011) using data from the National Epidemiologic Survey on Alcohol and Related Conditions reported that White men and women started drinking earlier than Blacks and Hispanics, had a younger mean age of onset of alcohol dependence, and progressed faster from first drink to dependence when compared to Black and Hispanic men and women. On the other hand, Grant and Dawson (1997) noticed little variation in risk across sex and race subgroups of the population. However, they also found that reduction in risk of dependence associated with a later drinking onset was lower among Blacks than non-Blacks. In contrast, Komro et al. (2010) did not find any substantial differences between White, Black and Hispanic adolescents patterns of alcohol use between ages 12 and 14 and marijuana use, violent behavior and delinquent behavior at age 14. Altogether, the evidence from these previous papers appears to be mixed, and no ethnic group has been convincingly identified as beginning drinking earlier than others.

For Hispanics in the United States, three other factors are relevant that have received less attention in the literature. First, U.S. Hispanics come from (or have cultural ties with) countries where the legal drinking age is 18. Foreign-born Hispanics who immigrated late in adolescence (or after) might therefore have an earlier age of first drink, and thus an increased risk for problem development later in life. Interestingly, the U.S.-Mexico border is an area where this expectation might be less likely to hold: Due to the close proximity to Mexico and ease of cross-border travel, it is easy to cross the border to take advantage of the lower drinking age in Mexico (18 years) (Lange et al., 2002, Caetano et al., 2013). Consequently, late age of immigration (or foreign versus U.S. birth) might predict earlier age of drinking onset and subsequent problems among most Hispanics, but these variables may be less relevant for Hispanic residents in the border region. Second, alcohol availability theory suggests that increased availability leads to increased drinking. The Latin countries where U.S. Hispanics come from traditionally have not had strong policies enforcing alcohol control laws such as legal drinking age, hours of sale and the number of alcohol outlets in communities. This increased availability could therefore also lead to an earlier age at first drink. Third, an alternative, contrasting hypothesis draws upon the large literature concerning the impact of the acculturative process Hispanics experience in transitioning to life in the United States. Exposure to more liberal drinking norms and attitudes in the U.S., particularly for women, has been linked to increased risk for drinking and associated problems (e.g., Mills and Caetano, 2012, Caetano et al., 2008c). Hispanics who are either

born in the U.S. or who immigrate early would therefore be exposed to these norms for a longer period of time, and therefore might be at risk for earlier drinking onset.

The objective of this paper is to examine associations between age at first drink, nativity, immigration age, and alcohol outcomes (mean number of drinks consumed per week, binge drinking and DSM-5 alcohol use disorder/AUD) in adulthood among five major Hispanic groups in the U.S. These include four major national groups – Puerto Ricans, Cuban Americans and South/Central Americans and Mexican Americans – and given the importance of the border context noted above, we further distinguish between Mexican Americans living on and off the U.S.-Mexico border. As mentioned above, some attention has been paid to the effect of ethnicity on early drinking and the development of alcohol problems, but few papers have focused specifically on Hispanic subgroups. Examining the effects of early drinking among U.S. Hispanics is particularly important for at several reasons. Some Hispanic national groups (Mexican Americans and Puerto Ricans in particular) have a high rate of binge drinking and AUD in adult life, attesting to the substantial heterogeneity in drinking that exists across these groups (Caetano et al., 2008b, Ramisetty-Mikler et al., 2010). These two groups may have an earlier age at first drink than Cuban Americans, who drink less and have a lower rate of AUDs. More generally, Hispanics are an important demographic group in the U.S.: They were 16% of the U.S. population in 2010 and are expected to be 30% by 2050 (Ennis et al., 2011, U.S. Census Bureau, 2008).

Guided by previous findings in the literature, the paper will test the following hypotheses: a) Hispanics born abroad (meaning in a Latin country South of the U.S. Mexico border) will have a lower age at first drink than the U.S. born; b) among Hispanics born abroad, those with an earlier age of arrival in the U.S. will have a higher age at first drink; c) an earlier age at first drink will be positively associated with a higher mean number of drinks per week, a higher rate of binge drinking, and a higher prevalence of DSM-5 AUD.

2. Materials and Methods

2.1 Sample and data collection

Interviews were conducted with 1,307 Mexican Americans in the U.S.-Mexico border counties of California (Imperial County: N=365), Arizona (Cochise, Santa Cruz, and Yuma Counties: N=173), New Mexico (Dona Ana County: N=65), and Texas (Cameron, El Paso, Hidalgo and Webb Counties: N=704) between March 2009 and July 2010. Mexican Americans from non-border areas were respondents of the 2006 Hispanic American Baseline Alcohol Survey (HABLAS) sample (N=1,288), as were Puerto Rican, Cuban American and South/Central American. HABLAS respondents were sampled in Los Angeles, Houston, New York, Philadelphia, and Miami. Both the border and the HABLAS surveys used the same multistage cluster sampling methodology, with the only exception being that the border methodology also involved stratifying by county, with all primary sampling units coming from urban areas (in order to make both samples comparable as urban samples). Weighted response rates for the border and HABLAS were 67% and 76%, respectively (out of all possible people selected into the study, whether reached or not). Both studies sampled the adult population 18 years or older and determined Hispanic ethnicity via

self-identification. The 2 studies also used an identical questionnaire, which was pre-tested in English, then translated into Spanish, then back-translated to English. Trained bilingual interviewers conducted Computer Assisted Personal Interviews at the respondents' home that lasted about 1 hour. In both studies, respondents received a \$25 incentive for participation and provided written informed consent. Both surveys were approved by the Committee for the Protection of Human Subjects of the University of Texas Health Science Center at Houston.

2.2 Measurements

Age at first drink—Respondents were asked, “About how old were you when you first started drinking alcoholic beverages, not including small tastes?” The age identified was reported. Respondents could also report they “never had more than small tastes”, or “did not know the age”. Those who reported that they only have had small tastes were considered lifelong abstainers and are not included in this analysis.

Drinkers—All respondents who reported drinking any alcohol in the past 12 months.

Binge drinking—This was defined as drinking 4 (women) or 5 (men) standard drinks per occasion (within 2 hours) in the past 12 months. Respondents were divided into 2 groups: those who reported binge drinking in the past 12 months and those who did not report this type of drinking (reference group).

Average drinks per week—This was assessed by combining the self-reported frequency and quantity of drinking any type of alcohol in the past 12 months.

Alcohol use disorder—Based on DSM-5 criteria for alcohol use disorder (American Psychiatric Association, 2013). This was operationalized with questions taken directly from the Composite International Diagnostic Interview – Substance Abuse Module (CIDI-SAM) (Cottler et al., 1989). Although developed for DSM-4, the CIDI-SAM retained an item on craving, the new indicator of alcohol use disorder in DSM-5. This operationalization covers the 11 DSM-5 criteria for alcohol use disorder, including (1) recurrent alcohol use resulting in a failure to fulfill major role obligations, (2) recurrent alcohol use in physically hazardous situations, (3) continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by alcohol (4) tolerance, (5) withdrawal, (6) alcohol use in larger amounts or over a longer period than intended, (7) a persistent desire or unsuccessful efforts to cut down or control alcohol use, (8) a great deal of time spent obtaining, using, or recovering from the effects of alcohol, (9) giving up or reducing important social activities because of alcohol use, (10) continued alcohol use despite knowledge of a persistent physical or psychological problem likely to have been caused or exacerbated by alcohol, and (11) craving or a strong desire or urge to use alcohol. Respondents who reported 2 or more criteria in the past 12 months were considered positive for alcohol use disorder. The instrument in both English and Spanish (Alegría et al., 2009, Haro et al., 2006) has demonstrated adequate concordance in clinical reappraisal studies with the Structured Clinical Interview for Axis I Disorders (SCID) ($\kappa=.51$; specificity=.82 for lifetime substance use disorders and .67 for major depressive episode)

Age of arrival in the U.S.—Foreign born respondents were asked for how long had they had been living in the U.S. This information in years was then subtracted from their age at the time of the interview to calculate the age in which they had arrived in the U.S. This variable had four categories: 0–12, 13–17, 18–20, 21 and older. Because they have American passports and have free entry in the U.S., Puerto Ricans were not asked the question about years of life in the U.S.

Sociodemographic variables: National Origin—This was based on self-identification. Respondents were asked “Which of these groups best describes your own ethnic identification: Puerto Rican, Cuban, Cuban American, Mexican, Mexican American (including Chicano/a), Dominican, South American, Central American”. In this paper, Dominicans are grouped with South/Central Americans. *Age*. The age of respondents was used as a continuous variable. *Income*. Respondents were asked to identify the category into which their total household income fell from a list of 12 categories, beginning with <\$4,000 ending with a highest category of >\$100,000. As described elsewhere (e.g., Caetano et al., 2008a), 20% of income data was missing in the HABLAS sample. Consequently, multiple imputation was used to impute 10 log-transformed income values using the Markov Chain Monte Carlo method (Schafer, 1997) and available data on respondents' education, employment status, marital status, household size, age, metropolitan area of residence, whether the respondent was born in the U.S. and duration of U.S. residence, acculturation, whether the respondent had driven an automobile in the past year, and annual wage and salary data (for employed respondents). Missing data rates on income in the HABLAS also motivated targeted modifications to interviewer training procedures regarding how income was queried in the subsequent border sample. These changes had the desired effect, reducing the rate of missing income data to 10%. Imputed income values were transformed back to the 12 categories, and all reported analyses that include income as a covariate use these 10 imputed income values. *Employment status*. Respondents were categorized into 6 employment categories: a) Employed part- or full-time (reference group); b) Unemployed (unemployed, looking/not looking for work); c) Retired; d) Homemaker; e) Disabled; f) Other (never worked/something else). *Level of education*. Respondents were categorized into 4 education categories: a) less than high school; b) completed high school or GED; c) some college or technical or vocational school; d) completed 4-year college or higher (reference group). *Birthplace*. Respondents were divided into 2 categories based upon self-reported birthplace: U.S.- or foreign-born. *Marital status*: Respondents were grouped into 3 categories: (i) married, living with spouse, living with someone; (ii) married and not living with spouse, separated, divorced, widowed; and (iii) never married, never lived with someone. *Religion*: Respondents were grouped into 3 categories: (i) Protestant; (ii) Catholic; and (iii) Jewish, something else, no preference.

2.3 Statistical analyses

To take into account the multistage, multicluster design used in the HABLAS and the border survey sampling frame, all analyses were conducted using Stata 11.2 (StataCorp., 2011). Analyses were conducted on data weighted to correct for unequal probabilities of selection into the sample. In addition, a post-stratification weight was applied, which corrects for nonresponse and adjusts the sample to known population distributions on certain

demographic variables (education, age, gender, and ethnicity). Bivariate analyses included chi-square and t-tests to detect statistically significant associations between dependent and independent variables. Ordinary least squares regression and logistic regression were used to examine the association between age at first drink and alcohol outcomes while controlling for the effect of sociodemographic variables. The logistic regression with AUD as an outcome was also run while controlling for sociodemographic variables and volume of drinking.

3. Results

Mean age at first drink by birthplace and age of arrival in the U.S

Among men, U.S. born Mexican Americans, Cuban Americans and South/Central Americans had a lower age at first drink than foreign-born males (Table 1). Among women, foreign-born respondents had a higher mean age at first drink than U.S. born women if they were located on the border only and if they were Puerto Rican or Cuban American. Among non-border Mexican American women, there were no significant differences in mean age at first drink between the foreign-born and the U.S born.

Age of arrival in the U.S. was not associated with age at first drink among males (data not shown). Among women, age at first drink generally increases as age of arrival in the U.S. increases for Cuban Americans and South/Central Americans. Among Cuban Americans, the mean age at first drink for those who arrive in the U.S. between 0–12 years of age is 18.7, rising to 22.4 among those who arrived at age 21 and older ($p<.01$). Among South/Central Americans, the mean age at first drink is 20.6 among those who arrived between 13–17 years of age, 18.0 among those who arrived between 18–20 years of age, and 21.0 among those who arrived at age 21 and older (with the latter two estimates differing significantly, $p<.05$).

Mean number of drinks per week and binge drinking by age at first drink and gender

Among men, Puerto Ricans have the highest mean number of drinks for those who arrived up to age 14 and at age 21 and older. For those who arrived at ages 15 to 17 and 18 to 20, Puerto Ricans and border Mexican Americans have similar and the highest mean number of drinks (Table 2). There also is a clear association between age at first drink and the mean number of drinks consumed per week across all national groups. The means are higher for those who began drinking at age 14 or younger and decrease steadily as age at first drink increases. Puerto Ricans have the highest portion of respondents reporting binge once a month or more, with the exception of the 15 to 17 and 18 to 20 year groups. In general, the proportion of binge drinkers in this category also decreases with increasing age at first drink, with the exception of non-border Mexican Americans.

Among women, Puerto Ricans also have the highest mean number of drinks, especially among those who began drinking at age 14 or younger. As with men, in all national groups the mean number of drinks decreases as the age at first drink increases with the exception of Cuban American women, among whom the decline is seen only among those who arrive at age 21 and older. Among women, bingeing at least once a month is highest among Puerto

Ricans, followed by South/Central Americans. Bingeing among women decreases as age at first drinks increases.

Twelve month prevalence of DSM-5 alcohol use disorder by age at first drink and gender

Among men, the prevalence of DSM-5 AUD decreases as age at first drink increases for border Mexican Americans, Puerto Ricans and Cuban Americans (Table 3). This decrease is statistically significant. Among women, this trend holds for border Mexican Americans and Puerto Ricans only.

Mean age at first drink as a predictor of mean number of drinks per week and binge drinking

In general, a younger age at first drink was associated with a higher volume of consumption in adulthood among all Hispanic national groups, although the strength of the association varies across national groups (Table 4). Also, both among border and non-border Mexican Americans drinking onset at age 18 and older was not associated with drinking volume. This is also true for age of drinking onset at age 15 and older among Puerto Ricans and South/Central Americans.

The mean age at first drink was inversely related to binge drinking: The younger the age at first drink the higher the odds of binge drinking (Table 4). Among non-border Mexican Americans, those who begin drinking before age 18 are two times more likely to binge than those who start drinking at age 21 or later. Among border Mexican Americans, drinking at age 15 or later is not associated with binge drinking, but drinking at age 14 or earlier doubles the likelihood of binge drinking compared to those who started drinking at age 21 or later. Among Puerto Ricans and Cuban Americans, those who started drinking at age 14 or earlier are about 2 and 3 times more likely, respectively, than those drinking at age 21 or older to report binge drinking. Cuban Americans who started drinking at age 15 to 17 were also about 2.5 times more likely than those who started drinking at age 21 and older to report binge drinking. Finally, among South/Central Americans, those who started drinking at or before age 14 are almost 3 times more likely to binge drink than those who started drinking at the legal age of 21 or later.

Mean age at first drink and DSM-5 alcohol use disorder

Age at first drink was not associated with DSM-5 AUD among non-border Mexican Americans and South/Central Americans (Table 5). Among border Mexican Americans, Puerto Ricans and Cuban Americans those who start drinking at age 17 or younger were 2 to 4 times more likely to report DSM-5 AUD in adulthood than those who start drinking at age 21 or older. Controlling for the volume of alcohol consumed reduces the strength of these associations among Border Mexican Americans and Puerto Ricans; however, the associations remain statistically significant (with the exception of Cuban Americans, in which the relationship was largely attenuated).

4. Discussion

This study tested three hypotheses. First, we expected that Hispanics born abroad would have a lower age at first drink than the U.S. born. We expected this relationship because Hispanics born in the U.S. would have spent a greater part of their adolescence in a country with a higher legal drinking age, which should lead them to start drinking later. The first hypothesis was not confirmed. In spite of coming from countries where the legal age to drink is lower than the U.S. (18 versus 21), all Hispanic national groups (with exception of South/Central American women) had a higher mean age at first drink than U.S. born Hispanics. Second, we expected that, among Hispanics born abroad, those with an earlier age of arrival in the U.S. should have a higher age at first drink. This second hypothesis was not confirmed. In fact, results show that for Cuban Americans and South/Central American females, those arriving in the U.S. at an older age have a higher age at first drink.

There are several points to take into account in regard to these findings. First, there is considerable heterogeneity among Hispanic national groups regarding age at first drink. This is not surprising. The existing evidence shows that these groups are different from one another in volume of alcohol consumption, rates of binge drinking and the prevalence of alcohol abuse and dependence. Mexican Americans and Puerto Ricans consume more alcohol, have higher rates of binge drinking and higher rates of abuse and dependence than other groups (Caetano et al., 2008b, Alegria et al., 2007, Caetano et al., 2012). These groups also come from countries with different cultures and different attitudes and norms regulating drinking. The fact that immigrants have a higher mean age at first drink than U.S. born Hispanics, even though they come from cultures with a lower legal drinking age, can be associated with selective migration or perhaps working conditions in the U.S. Selective migration assumes that those who migrate are healthier, which would explain the positive health indicators found among U.S. Hispanic immigrants, i.e., the “Hispanic paradox” (Markides and Coreil, 1986, Akresh and Frank, 2008, Vega et al., 2009). Working conditions in the U.S. may not allow immigrants to use alcohol early because of little disposable income. Also, some immigrants may be undocumented and may not want to engage in underage drinking for fear of being arrested by police. Finally, age at first drink appears to vary considerably in Latin America. It is 14 in Brazil (Pinsky et al., 2010) and 17.8 in Mexico (Medina-Mora et al., 2012). This older age at first drink in Mexico is very similar to that of Mexican Americans born abroad (in Mexico) in Table 1. Altogether, this seems to suggest that an earlier legal drinking age (18) does not seem to automatically lead to earlier drinking among adolescents across all Latin American countries. Other factors in the culture of these countries must also influence the age at which adolescents begin drinking.

The third hypothesis proposed that, as in previous studies in the U.S. population (Hingson et al., 2002, Hingson et al., 2003), an earlier age at first drink would be positively associated with a higher mean number of drinks per week, binge drinking and a higher prevalence of AUD. Results partially support this hypothesis, as age at first drink was associated with volume of drinking in all national groups, although in some (border and non-border Mexican Americans, Puerto Ricans and South/Central Americans), those who began drinking at age 18-20 were not different from those who began drinking at age 21 or later. Similarly, an

earlier age at first drink was associated with binge drinking in all groups, but the age cut off point at which this happened differed for different groups. The association between age at first drink and DSM-5 AUD is also observed for some national groups but not others. Further, the magnitude of the odds ratios in table 5 varies substantially, from 1 to 8 (Cuban Americans whose age at first drink was 14 years of age and younger). Most of the associations disappear once volume of drinking is controlled for in the analysis. As suggested by Dawson et al. (2008), this would indicate that the elevated effect for AUD outcomes among early drinkers was a result in part of heavier alcohol consumption among these early drinkers.

These results do not show a clear pattern by which a particular national group would consistently show no associations or stronger associations between age at first drink and the alcohol-related outcomes under consideration. The association between age at first drink and volume of drinking and binge drinking in these results is not very different across national groups with heavier (e.g., Mexican Americans, Puerto Ricans) or lighter (e.g., Cuban Americans) patterns of drinking. Unfortunately, the alcohol epidemiological literature does not offer clear reasons to explain the differences observed across these groups. This may be because systematic research seeking to understand alcohol use among different Hispanic national groups is recent and therefore not extensive. Adding to this is the complexity of the association between age at first drink and these adulthood alcohol outcomes. As seen by the review of the literature in the introduction to this paper, age at first drink is associated with familial vulnerability (Prescott and Kendler, 1999), traits associated with disinhibitory psychopathology (McGue et al., 2001a, McGue et al., 2001b) and other factors that can be confounders or effect modifiers of the association between age at first drink and later drinking.

4.1 Strengths and limitations

This study has several strengths. First, the dataset used for this study was comprised of comprehensive information on alcohol consumption and alcohol use disorders from representative samples of Mexican Americans living on border and non-border areas, as well as samples of Puerto Ricans, Cuban Americans and South/Central Americans. Therefore, we were able to evaluate national group differences in alcohol-related outcomes. Second, face-to-face interviews were conducted in English or Spanish, allowing for the selection of respondents who were not English-speakers and for the collection of detailed data on a variety of areas. The design also has limitations. About a quarter of the selected respondents in non-border areas refused to be interviewed. This proportion was higher on the border, 33%. The data under analysis are cross-sectional in nature, and do not allow for considerations of temporal ordering between variables. Self-reports of age at first drink can be affected by memory, and respondents may have under-reported some of the behaviors under analysis. For instance, there is evidence that self-reported alcohol consumption in surveys does not cover all the alcohol sold in the U.S. according to sales statistics (Peranen, 1974, Midanik, 1982, 1988, Rogers and Greenfield, 1999). If under-reporting is higher in a particular group than in others, this could affect the relationships discussed in this study. Finally, not all potential confounders of the association between age at first drink and drinking, binge drinking and AUD in adulthood were controlled for in the analyses. This is

the case, for instance, with some of the familial genetic traits associated with early drinking mentioned above.

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Table 1
Mean age at first drink by birth place among U.S. Hispanic national groups

		Foreign-born mean \pm SE (N)	U.S.-born mean \pm SE (N)
Males	Mexican Americans		
	Non-Border*	17.92 \pm 0.29 (346)	16.80 \pm 0.40 (122)
	Border*	18.25 \pm 0.45 (203)	17.22 \pm 0.26 (222)
	Puerto Ricans	17.19 \pm 0.39 (231)	16.90 \pm 0.35 (243)
	Cuban Americans***	19.35 \pm 0.45 (405)	16.84 \pm 0.47 (39)
	South/Central Americans***	18.49 \pm 0.21 (405)	17.03 \pm 0.32 (67)
Females	Mexican Americans		
	Non-Border	19.94 \pm 0.71 (149)	18.75 \pm 0.45 (115)
	Border***	22.62 \pm 0.92 (162)	19.98 \pm 0.48 (193)
	Puerto Ricans***	21.51 \pm 0.65 (171)	18.60 \pm 0.37 (169)
	Cuban Americans***	21.49 \pm 0.54 (227)	18.36 \pm 0.47 (37)
	South/Central Americans	20.54 \pm 0.42 (299)	20.07 \pm 0.98 (37)

Notes: Sample includes current and ex-drinkers; Weighted means, N's are unweighted sample sizes for each group; SE = Standard error;

* p < 0.05;

*** p < 0.001.

Table 2
Mean number of drinks per week and binge drinking by age at first drink among U.S. Hispanic national groups

	14 years mean \pm SE (N)	15–17 years mean \pm SE (N)	18–20 years mean \pm SE (N)	21+ years mean \pm SE (N)
Males				
Mexican Americans				
Non-Border				
Mean # drinks per week \pm SD *	16.73 \pm 3.66 (62)	12.76 \pm 1.72 (188)	8.19 \pm 1.52 (140)	7.45 \pm 1.68 (78)
Binge 1+ times a month *	34.40 (62)	28.46 (182)	29.17 (136)	25.53 (76)
Border				
Mean # drinks per week \pm SD	15.63 \pm 2.63 (73)	14.44 \pm 1.68 (160)	11.87 \pm 2.50 (138)	8.91 \pm 3.83 (57)
Binge 1+ times a month	10.65 (72)	9.03 (156)	5.58 (134)	2.72 (57)
Puerto Ricans				
Mean # drinks per week \pm SD **	28.11 \pm 4.00 (104)	14.10 \pm 2.12 (175)	11.14 \pm 2.48 (112)	10.78 \pm 2.87 (84)
Binge 1+ times a month **	48.73 (101)	24.31 (174)	23.01 (107)	24.50 (77)
Cuban Americans				
Mean # drinks per week \pm SD	17.53 \pm 4.22 (44)	7.20 \pm 1.11 (136)	6.56 \pm 1.45 (160)	6.17 \pm 1.46 (105)
Binge 1+ times a month ***	44.00 (43)	16.07 (130)	25.87 (154)	11.42 (98)
South/Central Americans				
Mean # drinks per week \pm SD ***	15.97 \pm 3.13 (43)	10.44 \pm 1.39 (171)	5.55 \pm 0.93 (164)	4.84 \pm 1.04 (95)
Binge 1+ times a month	37.77 (41)	29.16 (166)	19.38 (159)	16.67 (86)
Females				
Mexican Americans				
Non-Border				
Mean # drinks per week \pm SD	3.66 \pm 1.53 (29)	3.66 \pm 2.11 (60)	1.56 \pm 0.77 (83)	1.19 \pm 0.50 (92)
Binge 1+ times a month *	13.22 (26)	12.92 (58)	3.52 (78)	7.62 (91)
Border				
Mean # drinks per week \pm SD **	12.72 \pm 3.86 (27)	5.17 \pm 1.58 (74)	2.08 \pm 0.37 (104)	1.72 \pm 0.46 (150)
Binge 1+ times a month *	7.45 (27)	3.46 (73)	0.91 (101)	0.49 (148)
Puerto Ricans				
Mean # drinks per week \pm SD	31.79 \pm 13.45 (36)	6.08 \pm 1.35 (81)	4.74 \pm 1.50 (102)	4.58 \pm 1.12 (120)
Binge 1+ times a month **	53.86 (35)	36.98 (79)	17.18 (95)	9.81 (114)
Cuban Americans				
Mean # drinks per week \pm SD	2.42 \pm 1.30 (14)	5.75 \pm 3.18 (52)	2.88 \pm 1.02 (89)	1.10 \pm 0.28 (107)
Binge 1+ times a month	10.00 (14)	13.92 (50)	7.49 (85)	2.98 (105)
South/Central Americans				
Mean # drinks per week \pm SD	13.84 \pm 6.24 (24)	4.32 \pm 1.45 (65)	2.17 \pm 0.56 (113)	2.12 \pm 0.50 (134)
Binge 1+ times a month	37.23 (23)	12.89 (62)	11.48 (110)	9.57 (128)

Notes: Sample includes current and ex-drinkers; Weighted means, parentheses are unweighted sample sizes for each group; SE = Standard error;

*
 $p < 0.05$;

**
 $p < 0.01$;

 $p < 0.001$.

Table 3
Prevalence of DSM-5 alcohol use disorder by age at first drink among U.S. Hispanic national groups

	14 years % (N)	15–17 years % (N)	18–20 years % (N)	21+ years % (N)
Males				
Mexican Americans				
Non-Border	38.76 (58)	40.39 (179)	30.40 (129)	29.70 (69)
Border **	63.46 (68)	44.43 (149)	27.41 (127)	25.57 (50)
Puerto Ricans **	56.28 (98)	50.15 (162)	28.56 (103)	25.40 (76)
Cuban Americans **	35.93 (43)	19.41 (128)	10.47 (147)	6.80 (96)
South/Central Americans	29.79 (39)	34.02 (157)	20.14 (149)	21.05 (86)
Females				
Mexican Americans				
Non-Border	27.64 (25)	23.57 (50)	5.89 (64)	8.69 (76)
Border ***	39.94 (24)	34.03 (68)	8.11 (92)	10.75 (109)
Puerto Ricans **	69.34 (33)	22.46 (63)	21.11 (83)	15.65 (87)
Cuban Americans	24.04 (13)	13.60 (45)	5.26 (80)	2.01 (92)
South/Central Americans	16.68 (21)	16.53 (60)	8.97 (86)	3.37 (109)

Notes: Sample includes current drinkers; Weighted percentages, N's are unweighted sample sizes for each group;

** p < 0.01;

*** p < 0.001.

Table 4
Results from linear regression predicting log of drinks per week and logistic regression predicting binge drinking from age at first drink among U.S. Hispanic national groups

	Linear Regression: Drinks per week		Logistic Regression: Binge drinking	
	Coefficient	95% CI	OR	95% CI
Mexican Americans				
Non-Border				
0-14 years	0.97*	0.15-1.80	2.55*	1.19-5.48
15-17 years	0.81*	0.08-1.53	2.62**	1.38-4.96
18-20 years	0.15	-0.38-0.68	1.35	0.74-2.48
Border				
0-14 years	0.97***	0.45-1.50	2.32*	1.05-5.14
15-17 years	0.50**	0.18-0.83	1.69	0.92-3.12
18-20 years	0.23	-0.07-0.53	1.28	0.65-2.51
Puerto Ricans				
0-14 years	1.82**	0.78-2.85	2.96**	1.39-6.31
15-17 years	0.79	-0.02-1.59	1.69	0.88-3.23
18-20 years	-0.08	-0.85-0.69	1.00	0.53-1.91
Cuban Americans				
0-14 years	1.70***	0.78-2.62	3.14*	1.00-9.82
15-17 years	0.77*	0.14-1.40	2.54*	1.21-5.34
18-20 years	0.69*	0.13-1.26	1.75	0.84-3.62
South/Central Americans				
0-14 years	1.38**	0.43-2.33	2.77*	1.26-6.09
15-17 years	0.37	-0.20-0.94	1.15	0.66-2.03
18-20 years	-0.38	-0.94-(-0.17)	1.22	0.67-2.24

Notes: Controlling for gender, age, marital status, employment status, education level, religion, and income. The reference group for early age of initiation is 21 or older.

* p<.05,

** p<.01,

*** p<.001

Table 5
Logistic regression predicting DSM-5 AUD in the past 12 months from age at first drink
among U.S. Hispanic national groups

	No adjustment for volume consumed		Adjusted for volume consumed	
	OR	95% CI	OR	95% CI
Mexican Americans				
Non-Border				
0–14 years	1.96	.76–5.05	1.48	.55–3.97
15–17 years	1.85	.86–3.97	1.48	.70–3.12
18–20 years	1.01	.51–2.40	.93	.49–1.76
Border				
0–14 years	3.93**	1.70–9.11	2.41*	1.07–5.45
15–17 years	2.20*	1.08–4.48	1.91	.91–3.98
18–20 years	.74	.35–1.57	.65	.29–1.47
Puerto Ricans				
0–14 years	4.61***	2.08–18.19	3.04**	1.41–6.56
15–17 years	2.28*	1.15–4.51	2.26*	1.15–4.45
18–20 years	1.36	.64–2.85	1.33	.61–2.91
Cuban Americans				
0–14 years	8.03***	2.81–22.99	3.94	.92–16.96
15–17 years	3.17*	1.11–9.22	2.02	.70–5.82
18–20 years	1.74	.60–5.33	1.48	.43–5.83
South/Central Americans				
0–14 years	2.12	.91–4.97	1.11	.39–3.99
15–17 years	1.70	.83–3.47	1.44	.64–3.28
18–20 years	1.03	.48–2.23	1.05	.46–2.40

Notes: Controlling for gender, age, marital status, employment status, education level, religion, and income. The reference group for early age of initiation is 21 or older.

*
p<.05,

**
p<.01,

p<.001