Who's At Risk? Ethnic Drinking Cultures, Foreign Nativity, and Problem Drinking Among Asian American Young Adults

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ABSTRACT. Objective: Despite the low overall prevalence of alcohol use among Asian Americans, rates of alcohol use disorder are high among Asian American young adults. The influence of ethnic drinking cultures on immigrants and their descendants has been overlooked in past research. We took an integrative approach to examine the influence of ethnic drinking culture, acculturation, and socioeconomic disparities on problem drinking among Asian American young adults. **Method:** This study was a nationally representative sample of 854 Asian American young adults extracted from the Wave 4 National Longitudinal Study of Adolescent Health data. About 48% of the sample was female and 52% male. Several multiple logistic regression models were fitted. **Results:** Controlling for other covariates, two dimensions of ethnic drinking culture were associated with alcohol outcomes only for the foreign born: (a) detrimental drinking pattern with frequent drunkenness and alcohol-abuse symptoms and (b) drinking prevalence with alcohol-dependence symptoms. Financial hardship was a significant predictor of symptoms of alcohol abuse and dependence only for the U.S. born. Asian language use was protective against alcohol-abuse symptoms and alcohol-dependence symptoms for the foreign born. **Conclusions:** Cultural and socioeconomic factors of problem drinking may be different for U.S.- and foreign-born Asian American young adults. Ethnic drinking cultures may significantly influence problem drinking of foreign-born Asian American young adults, independent of their acculturation into U.S. cultures. To inform effective interventions targeted at immigrants and their descendants, future research might further investigate the cultural and socioeconomic processes in immigrant communities that might significantly influence drinking. (*J. Stud. Alcohol Drugs, 74,* 532–541, 2013)

DESPITE THE LOW OVERALL PREVALENCE of alcohol use among Asian Americans, alcohol abuse and dependence among Asian American young adults is an important concern. Drinking prevalence among Asian American college students is comparable to or even higher than the national average (So and Wong, 2006); Asian American young adults have higher rates of alcohol abuse and dependence than all other racial groups but Whites and Native Americans (Grant et al., 2004). Problem drinking typically peaks in emerging adulthood and then begins to decline (Patrick and Schulenberg, 2011; Schulenberg and Maggs, 2002), but some young adults continue to engage in problem drinking for an extended period. Considering the well-documented heterogeneity in alcohol use across Asian American ethnic groups (Caetano et al., 1998; Doran et al., 2007; Lum et al., 2009; Price et al., 2002; Wong et al., 2004), some subgroups of Asian American young adults may be at a particularly high risk for problem drinking beyond college ages. In this study, we aimed to uncover factors associated with problem drinking beyond college ages by Asian American young adults in an effort to identify high-risk subgroups and to inform targeted prevention interventions.

The focus of this study is on cultural factors that may influence Asian American young-adult drinking. Drinking is a social affair; in many parts of the world, people drink together to enhance sociability and to foster or express social unity (Heath, 2000; Partanen, 1991). Alcohol use is influenced by a variety of cultural norms that specify where, how, and when it is appropriate to drink (Grønkjær et al., 2011; Heath, 2000). A culture-focused approach is thus appropriate for the investigation of drinking, especially among Asian Americans, given their cultural and ethnic diversity. More than 20 national Asian origins are represented in the United States alone (Zhou and Xiong, 2005), and they vary widely in drinking, rendering this approach especially pertinent.

Ethnic drinking cultures: An underexplored frontier in alcohol research

Our investigation of cultural influences on drinking is informed by transnationalism theories (or their sociocultural variants), which suggest that immigrants often maintain socioeconomic ties with their homelands and retain elements of their cultural heritage, some of which may also appeal to their U.S.-born descendants (Portes et al., 1999; Schiller et al., 1995). Inevitably, this approach shifts the focus away from the conventional expectations of immigrant assimila-

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tion (Portes et al., 1999) as implied by the standard acculturation paradigm (Rogler et al., 1991) and instead orients the focus toward immigrants' own cultures originating from their homelands. An important insight that transnationalism theories offer with respect to drinking is that ethnic drinking cultures, which we define as cultural norms and behavioral practices related to drinking that are pervasive in an immigrant's country of origin, may continue to influence health behaviors of immigrants and their descendants.

There is a paucity of research on the influence of ethnic drinking cultures on immigrant alcohol use. Although some alcohol researchers have maintained that drinking and other drug use patterns in immigrant communities are not simply a matter of acculturation to the "mainstream" and that cultural diffusion may flow in both directions (Room, 2005), the nature and content of ethnic cultures remain largely undefined (Hunt et al., 2004). Because much of the past research on drinking cultures has been qualitative or based on anecdotal evidence (Room, 2001; Room et al., 2002), little rigorous research effort has been directed toward investigating specifically the influence of ethnic drinking cultures on drinking behaviors. Models of the influence of ethnic drinking cultures on immigrants have rarely been tested. The current study is an effort to fill these gaps.

Heterogeneity in drinking patterns and outcomes across ethnic groups is highlighted in recent studies that use ethnicity as an implicit proxy of underlying (and undefined) cultural and/or socioeconomic conditions that are likely to vary across ethnic groups and that may have an influence on immigrant drinking (Caetano et al., 2009; Eitle et al., 2009; Wahl and Eitle, 2010). Still, efforts to identify what specifically constitutes such cultural or socioeconomic conditions and to shed light on undercurrents that may lead to subgroup heterogeneity have been lacking. The two dimensions of ethnic drinking cultures we lay out below represent an effort to clarify some of these conditions.

Dimensions of drinking cultures: Drinking prevalence and detrimental drinking pattern

Given the paucity of research on ethnic drinking cultures, we aimed to improve the conceptualization of ethnic drinking culture by identifying and operationalizing its dimensions using available international data. Specifically, we operationalized ethnic drinking culture by teasing out its two dimensions, drinking prevalence and detrimental drinking pattern (DDP) in the country of origin, both of which may govern immigrants' drinking behaviors after migration.

Drinking prevalence refers to the extent to which alcohol consumption is integrated into a society as an ordinary occurrence involving a large segment of the population. In a society where such a lifestyle is prevalent, a greater volume of alcohol is likely to be consumed (Babor et al., 2010). The drinking prevalence measure, thus constructed as a combination of drinking rates and the average volume of alcohol consumed in a society, is based on the well-known notion of "wet" versus "dry" cultures, with the former characterized by high per capita consumption and more liberal drinking norms and the latter by a strong temperance tradition resulting in low per capita consumption (Room and Mäkelä, 2000). Drinking prevalence is a country-level contextual factor that may affect informal social pressures to reduce drinking (Holmila et al., 2009; Joosten et al., 2009). A somewhat simpler measure including only per capita alcohol consumption volume also has been found to moderate the influence of alcohol policies on adolescent drinking (Paschall et al., 2009) and, in our own recent study, to be associated with drinking frequency and volume for Asian American adults (Cook et al., 2012).

Concerning the social and cultural practices that influence drinking, DDP characterizes prevailing drinking patterns in a society that may affect the negative health impact of a given amount of alcohol consumed (Rehm et al., 2004). The DDP scale is based on information on country-level drinking patterns, centering on the extent to which frequent heavy drinking, drunkenness, festive drinking at community celebrations, drinking with meals, and drinking in public places are common in a society (Rehm et al., 2003a). Central to the DDP scale is the specific manner in which alcohol is consumed in a society, which may be considered normative in some societies but not in others. For example, drunkenness, which often may be exhibited in public places, may be more tolerated in a society with a more detrimental pattern of drinking.

Drinking prevalence and DDP thus represent two distinct dimensions of drinking culture, the former primarily concerning the extent to which drinking is pervasive, and the latter the pattern of consumption commonly exhibited or socially accepted in a society. International epidemiologic research points to important yet diverse health implications of these two dimensions. For example, drinking volume is a known risk factor for major chronic conditions including cancer and alcohol dependence, whereas DDP is a risk factor for chronic conditions such as heart diseases (Rehm et al., 2003b) and acute conditions like injury (Cherpitel et al., 2003, 2004). Using these measures, we aim to identify and evaluate the facets of drinking culture integrally embedded in the immigrant experience that may significantly influence drinking.

Bringing acculturation back in: Nativity status and Asian language use

Even with our focus on ethnic drinking cultures, we also embrace the acculturation approach. We note that the influence of ethnic culture and acculturation may represent qualitatively different yet complementary processes that significantly shape immigrant health behaviors, and that

these behaviors may not be fully understood by an approach that focuses exclusively on one or the other. In this study, we thus took an integrative approach to consider them simultaneously.

Special attention with regard to acculturation is given to foreign nativity as a contextual factor that may modify the influence of ethnic drinking cultures on drinking. In past research, nativity has been found to be an important moderator of the effects of various ecological factors (such as school, family, and peers) on drinking (Gil et al., 2000; Maldonado-Molina et al., 2011; Prado et al., 2009; Vega and Gil, 1998). We build on this line of inquiry. In the context of transnationalism theories that inform the current study, an investigation of foreign nativity as a contextual factor has another important theoretical implication. A central thesis of transnationalism theories is that immigrants' cultural heritage will be passed down to be honored and practiced by U.S.-born descendants of immigrants. This thesis has yet to be investigated empirically in research on drinking cultures. It may very well be the case that the influence of ethnic drinking cultures is relatively short lived. Firmly rooted in immigrants' cultural heritage, ethnic drinking cultures may have a stronger influence on foreign-born immigrants than on U.S.-born descendants of immigrants who began acquiring U.S. cultural practices at a very young age. Untested in past research, this conjecture informs one of the research questions posed in the current study.

In addition to nativity, we also consider language use, which has been used extensively as a proxy measure of acculturation in a number of studies (Allen et al., 2008; Caetano et al., 2008; Maldonado-Molina et al., 2011; Unger et al., 2000). Alcohol use increases with a greater use of English (indicating language assimilation); inversely, ethnic language use (indicating a low level of acculturation) has been found to be protective against alcohol use (Epstein et al., 2001; Nielsen and Ford, 2001; Vega et al., 1993; Welte and Barnes, 1995). Informed by this research, we explored whether Asian language use with family and other close relatives is associated with problem drinking and, perhaps more importantly, whether ethnic drinking cultures are independently associated with problem drinking after accounting for Asian language use.

Current study

The main objective of the current study, therefore, was to examine whether the two dimensions of ethnic drinking culture are significant predictors of problem drinking and whether they influence drinking behaviors of U.S.-born Asian American young adults as well as their foreign-born counterparts. The following research questions are addressed: (a) Are drinking prevalence and detrimental drinking pattern associated with an increased risk of problem drinking, as indicated by frequent drunkenness, alcohol-abuse symptoms, and alcohol-dependence symptoms? (b) Is Asian language use inversely associated with problem drinking? (c) Are the two dimensions of ethnic drinking culture and Asian language use significantly associated with problem drinking for both foreign-born and U.S.-born Asian American young adults?

Given the increasingly large body of research reporting that low socioeconomic status—for example, low income or economic hardship—is a significant predictor of problem drinking (Khan et al., 2002; Kost and Smyth, 2002; Mossakowski, 2008; Mulia et al., 2008), we also controlled for indicators of socioeconomic status in our multivariate models. These models additionally adjusted for age and gender.

Method

Data

An Asian American sample was extracted from the National Longitudinal Study of Adolescent Health (Add Health). Add Health consists of data collected from a nationally representative sample of adolescents who were in grades 7–12 during the 1994–1995 school year and then followed into adulthood. We used in-home survey data collected from young adults in 2007 and 2008 from the Wave 4 interviews. Although Add Health data are publicly available, we used more extensive restricted-use data to generate a sample of 854 Asian American young adults who were ages 24–32 years at Wave 4. The current study was conducted under approval of the Institutional Review Board of the Public Health Institute, Oakland, CA.

Measures

Drinking outcomes. Three problem drinking outcomes were considered: frequent drunkenness, alcohol-abuse symptoms, and alcohol-dependence symptoms.

Frequent drunkenness is a dichotomous variable indicating whether the respondent was drunk or very high on alcohol at least three times in the past year. Alcohol-abuse symptoms were assessed using a dichotomous variable indicating the recurrence of at least one of the four symptoms listed in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV), criteria for alcohol abuse (American Psychiatric Association, 1994). Because there was no information in Add Health about whether these symptoms had occurred within a single 12-month period (the time frame required to meet the DSM-IV clinical definition of alcohol abuse), our measure indicates the presence of alcohol-abuse symptoms, not clinically defined alcohol abuse.

Alcohol-dependence symptoms were assessed using a dichotomous indicator of whether the respondent had ever experienced at least three of the seven symptom domains

specified in the DSM-IV for alcohol dependence. Although there was information in Add Health on whether they had occurred in the past 12 months, we chose to examine the presence of three or more dependence symptoms over the lifetime rather than 12-month dependence per se. This decision was made in consideration of power limitations, largely informed by the approaches used in past research to address similar issues (Mulia et al., 2008; Zemore et al., 2011), as only a small number (n = 30) in our sample met the clinical definition of past-year alcohol dependence.

Ethnic drinking culture. Two measures of ethnic drinking culture were used: a drinking prevalence index and a DDP scale, both referencing the country of origin (COO). The COO was identified using self-identified Asian ethnicity for both foreign-born and U.S.-born respondents. In Add Health, the respondent was allowed to indicate more than one ethnicity; those indicating two or more specific Asian ethnicities, about 4.6% of the Asian American sample, were not included in our analysis because of the lack of information in the data set about which ethnic culture has a stronger influence on such individuals.

The drinking prevalence index was constructed using two sets of international data compiled by the World Health Organization (WHO): per capita alcohol consumption estimates (in liters of ethanol consumed) and abstinence rates, both for adults ages 15 or older (WHO, 2011). To construct this index, we created a three-category ordinal variable of each (reverse coding abstinence rates to indicate prevalence of drinking) and then summed their values. This measure has been used in past international research as a proxy of pervasiveness of drinking in a country and is associated with the prevalence of informal social pressures to drink less (Holmila et al., 2009; Joosten et al., 2009), suggesting its utility as a measure of country-level drinking culture (Holmila et al., 2009; Joosten et al., 2009; Selin et al., 2009).

Ranging from 1 for the least risky pattern to 4 for the most risky, the DDP scale is based on aggregate alcohol consumption data and key informant surveys conducted by researchers working with the WHO on drinking practices prevalent in a society. It includes six specific areas, such as frequent heavy festive drinking and drunkenness, drinking with meals, and drinking in public places (Rehm et al., 2003a). The DDP scale has been validated using population survey data in 13 countries, with good correspondence between DDP scores and individual-level consumption (Gmel et al., 2007). Further international epidemiologic research has found DDP to be a predictor of country-level differences in the prevalence of chronic conditions such as heart disease (Rehm et al., 2003b) and acute conditions like injury (Cherpitel et al., 2003, 2004), demonstrating the validity of the DDP scale as a summary measure of country-level drinking patterns with important health implications.

Covariates. Nativity was assessed using the question of whether the respondent was born in the United States. Financial hardship was measured by recoding and summing responses to six yes/no questions on whether respondents experienced any of the following conditions because of a lack of money in the past 12 months: (a) being without phone service, (b) not being able to pay the full amount of rent or mortgage, (c) not paying the full amount of a utility bill, (d) being evicted from dwelling, (e) having utilities turned off, and (f) worrying whether food would run out. Cronbach's α for this construct was .74, suggesting good reliability. In our bivariate analyses, this construct had significant inverse associations with two indicators of socioeconomic status, education level and annual household income, suggesting that it is a valid indicator of hardship stemming from low socioeconomic status.

Asian language use is a dichotomous variable indicating whether the respondent spoke an Asian language with family and other close relatives. In addition to being used as a major component of dimensional acculturation measures, language use also has served as a stand-alone proxy of acculturation in a number of studies (Alaniz et al., 1999; Epstein et al., 1996a, 2001; Unger et al., 2000). In the alcohol field, studies exclusively using language use have produced results consistent with studies using more comprehensive, multidimensional acculturation measures (Zemore, 2007). An analysis of data from the National Alcohol Survey also showed that, when entering separate dimensions of acculturation, language use is the strongest and most reliable predictor of alcohol outcomes (Zemore, 2005).

Statistical analysis

Analyses were conducted using STATA's (StataCorp LP, College Station, TX) survey estimation procedure and survey weights to accommodate all design, ratio, nonresponse, and poststratification adjustments. We first conducted univariate and bivariate analyses to understand sample characteristics and to examine associations between potential predictors and drinking outcomes. Those variables that were not significantly associated with any of the outcomes in the bivariate analyses—including personal and household incomes—were not included in our multivariate models. We fitted a series of logistic regression models to address our research questions regarding the associations of ethnic drinking culture and acculturation with problem drinking outcomes, controlling for other covariates. For ease of interpretation, per capita alcohol consumption was transformed so that an increase of 1 in the transformed covariate corresponds to an increase in consumption of 100 liters per capita. Because an important focus of this study was to explore nativity as a contextual factor that may modify cultural influence on drinking, we conducted analyses stratified by nativity.

Results

Demographic, socioeconomic, and cultural characteristics of U.S.- and foreign-born Asian American young adults

Asian American young adults in our sample tended to be highly educated; slightly more than half (51.3%) of the sample had a 4-year college or more advanced degree. About 55% of Asian American young adults in our sample reported annual household incomes of $75,000 or more, but 17.2% reported financial hardship. About half (51.0%) were foreign born, and 15.9% reported speaking Asian languages with their family and other close relatives.

Table 1 shows the results of bivariate analyses of the associations between nativity status and other covariates to evaluate whether the U.S.- and foreign-born young adults in our sample differed significantly in their demographic, socioeconomic, or cultural characteristics. The foreign born were slightly older than the U.S. born and were more likely to speak an Asian language with family and other relatives. There were no significant differences between the U.S. and foreign born with respect to income, education, or financial hardship.

Data on COO per capita annual alcohol consumption (Table 2) show the diversity of Asian ethnic drinking cultures. On average, Asian Indians consumed the smallest volume of alcohol, followed by the Vietnamese and Chinese/Taiwanese. Koreans were estimated to consume the largest volume of alcohol among all Asian people, followed by the Japanese. To a large extent, alcohol abstinence rates mirrored the distribution of per capita consumption estimates in an inverse manner, with the countries with higher per capita consumption having lower abstinence rates. With the exception of Japan and China/Taiwan, all the countries of origin included in our sample had a relatively high DDP score.

Multivariate analyses: Predictors of problem drinking among Asian American young adults

In our analysis using the entire sample (Table 3), COO DDP was significantly associated with increased risks of frequent drunkenness and alcohol-abuse symptoms; COO

Table 1. Demographic characteristics and alcohol outcomes by nativity ($N = 854$)

Demographic characteristics	Foreign born *M* or %	U.S. born *M* or %	*F*
Gender			$F(1,667) = 3.7$
Female	41.9%	58.1%	
Male	53.6%	46.5%	
Age, in years, mean	27.3	26.6	$F(1, 667) = 14.2$****
Age group			$F(1.7, 1121 = 12.9)$****
24–26 years	31.8%	68.2%	
27–29 years	53.3%	46.7%	
30–32 years	88.6%	11.4%	
Education			$F(2.4, 1629) = 1.4$
High school graduation or less education	15.7%	84.3%	
Some college education	34.4%	65.7%	
4-year college or advanced degree	50.0%	50.0%	
Annual household income			$F(3, 1999) = 1.0$
<$40,000	46.3%	53.7%	
$40,000–$74,999	40.9%	59.1%	
$75,000–$99,999	55.8%	44.2%	
≥$100,000	49.7%	50.3%	
Financial hardship, mean	0.25	0.26	$F(1, 667) = 0.01$
Ethnicity			$F(4.8, 3216) = 4.6$***
Asian Indian	53.9%	46.1%	
Vietnamese	62.9%	37.1%	
Filipino	53.9%	46.2%	
Chinese	39.3%	60.7%	
Japanese	4.4%	95.6%	
Korean	52.2%	47.8%	
Asian language use with family and close relatives	74.5%	25.5%	$F(1, 667) = 15.4$***
Alcohol outcomes			
Frequent drunkenness, 3 or more times a year	12.8%	28.6%	$F(1, 667) = 11.2$***
Alcohol-abuse symptoms	12.1%	20.6%	$F(1, 667) = 3.6$
Alcohol-dependence symptoms	17.9%	32.4%	$F(1, 667) = 7.4$***

***$p < .001$; ****$p < .0001$.

Table 2. Per capita alcohol consumption and detrimental drinking pattern in country of origin

Ethnic group	Per capita annual alcohol consumption,[a] in liter × 100	Lifetime alcohol abstinence rate,[b] %	Detrimental drinking pattern[c]
Asian Indian	2.59	79.2	3
Vietnamese	3.77	67.1	3
Filipino	6.38	49.5	3
Chinese/Taiwanese	5.91	28.2	2
Japanese	8.03	9.4	1
Korean	14.8	12.8	3
M (*SD*)	6.77 (2.50)	40.01 (16.747)	2.60 (0.61)

[a]Per capita alcohol consumption estimates (2005) were based on alcohol production and sales and general population survey data to include both recorded and unrecorded consumption; [b]abstinence rates were compiled from 2001 to 2003; [c]estimates and detrimental drinking pattern scores are from the World Health Organization's (2011) Global Information System on Alcohol and Health database.

drinking prevalence was not a significant predictor of any alcohol outcome. U.S. nativity was associated with frequent drunkenness, and Asian language use was inversely associated with alcohol-dependence symptoms. Financial hardship was positively associated with alcohol-abuse symptoms.

Different predictors emerged as significant for the two nativity groups in our stratified analyses (Table 4). Among the foreign born, COO DDP was associated with greatly increased risks of frequent drunkenness (odds ratio [OR] = 4.90) and alcohol-abuse symptoms (OR = 10.58), and COO drinking prevalence was significantly associated with alcohol-dependence symptoms (OR = 2.23). Asian language use was inversely associated with alcohol-abuse and -dependence symptoms among the foreign born. In view of the large confidence intervals for the associations of DDP with frequent drunkenness and alcohol-abuse symptoms, we checked for potential methodological issues, such as multicollinearity and problems associated with our treatment of DDP. However, bivariate effects of DDP were similar to those produced in multivariate models, suggesting that multicollinearity was not a problem. Exploratory analyses suggested that associations between DDP and both drunkenness and abuse were largely driven by the difference between the highest and lower DDP levels (i.e., 3 vs. 1 and 2), but using DDP as an ordinal variable (i.e., recoding 3 to *high* and 1 and 2 to *low*) generated adjusted ORs and confidence intervals similar to those produced when DDP was treated as a continuous variable.

Among the U.S. born, neither of the two COO variables nor Asian language use was significant for any outcome. However, having a 4-year college or more advanced degree was associated with an increased risk of frequent drunkenness, and financial hardship was associated with increased risks of alcohol-abuse and -dependence symptoms.

Discussion

We found that the two dimensions of ethnic drinking culture were associated with alcohol outcomes among Asian young adults, but only among the foreign born: COO DDP predicted frequent drunkenness and alcohol-abuse symptoms, and COO drinking prevalence predicted alcohol-dependence symptoms. Similarly, a lower level of acculturation, as indicated by Asian language use, was protective

Table 3. Predictors of problem drinking among Asian American young adults (n = 719)

Predictors	Frequent drunkenness AOR [95% CI]	Alcohol-abuse symptoms AOR [95% CI]	Alcohol-dependence symptoms AOR [95% CI]
Male	1.97* [1.07, 3.65]	1.87 [0.93, 3.75]	1.79 [0.99, 3.23]
Age	0.91 [0.76, 1.08]	0.87 [0.72, 1.06]	0.91 [0.76, 1.09]
U.S. born	2.37* [1.22, 4.59]	1.63 [0.78, 3.41]	1.53 [0.79, 2.96]
College degree or more	1.61 [0.87, 2.98]	1.18 [0.62, 2.25]	0.74 [0.40, 1.36]
Financial hardship	1.13 [0.85, 1.49]	1.55** [1.18, 2.04]	1.31 [0.98, 1.74]
COO DDP	1.73* [1.03, 2.92]	1.91* [1.09, 3.35]	1.21 [0.75, 1.97]
COO drinking prevalence	1.10 [0.80, 1.51]	1.20 [0.83, 1.74]	1.41 [1.00, 1.99]
Asian language use	0.36 [0.13, 1.01]	0.39 [0.14, 1.10]	0.29** [0.12, 0.70]
F(8, 660)	2.87**	3.97***	4.48****

Notes: AOR = adjusted odds ratio; CI = 95% confidence interval; COO = country of origin; DDP = detrimental drinking pattern.
*p < .05; **p < .01; ***p < .001; ****p < .0001.

Table 4. Predictors of problem drinking among Asian American young adults, stratified by nativity

	U.S. born			Foreign born		
Predictors	Frequent drunkenness AOR [95% CI]	Alcohol-abuse symptoms AOR [95% CI]	Alcohol-dependence symptoms AOR [95% CI]	Frequent drunkenness AOR [95% CI]	Alcohol-abuse symptoms AOR [95% CI]	Alcohol-dependence symptoms AOR [95% CI]
Male	1.50 [0.72, 3.13]	1.37 [0.59, 3.15]	1.81 [0.87, 3.78]	4.04* [2.27, 12.83]	3.12 [0.88, 10.99]	1.89 [0.71, 5.06]
Age	0.90 [0.72, 1.13]	0.85 [0.67, 1.07]	0.92 [0.73, 1.16]	0.85 [0.61, 1.18]	0.89 [0.62, 1.28]	0.91 [0.68, 1.23]
College degree or more	2.44* [1.12, 5.30]	0.96 [0.44, 2.07]	0.80 [0.38, 1.67]	0.77 [0.28, 2.14]	2.00 [0.63, 6.35]	0.54 [0.20, 1.49]
Financial hardship	1.19 [0.83, 1.71]	1.82** [1.22, 2.72]	1.51* [0.99, 2.28]	1.09 [0.69, 1.72]	1.35 [0.85, 2.16]	1.11 [0.67, 1.85]
COO DDP	1.69 [0.90, 3.19]	1.76 [0.96, 3.23]	1.01 [0.58, 1.76]	4.90** [1.48, 16.21]	10.58** [2.02, 55.37]	1.40 [0.44, 4.47]
COO drinking prevalence	1.13 [0.73, 1.75]	1.21 [0.80, 1.83]	1.17 [0.76, 1.79]	1.07 [0.62, 1.85]	1.10 [0.55, 2.20]	2.23** [1.27, 3.92]
Asian language use	0.29 [0.06, 1.35]	0.73 [0.17, 3.17]	0.52 [0.13, 2.10]	0.39 [0.09, 1.71]	0.34* [0.12, 0.97]	0.18** [0.06, 0.56]
Test statistics	$F(7, 766) = 1.55$	$F(7, 766) = 2.13$*	$F(7, 766) = 1.53$	$F(7, 751) = 1.99$	$F(7, 751) = 2.18$*	$F(7, 751) = 2.22$*

Notes: AOR = adjusted odds ratio; CI = confidence interval; COO = country of origin; DDP = detrimental drinking pattern.
*$p < .05$; **$p < .01$.

from alcohol-abuse and -dependence symptoms only for the foreign born.

Our findings that the two dimensions of ethnic drinking culture were significantly associated with alcohol outcomes for the foreign born even when acculturation was controlled for are highly significant, as they suggest a potential effect of ethnic drinking culture on problem drinking independent of acculturation levels. In suggesting that ethnic drinking culture may influence foreign-born children of immigrants but not their U.S.-born counterparts, these findings also lend partial support to the transnationalism thesis that ethnic culture endures among immigrants in their adopted land. Also important, our findings point to the utility of these two dimensions as underlying cultural dimensions associated with divergent drinking outcomes across ethnic groups, which might help contribute to the further development of theories concerning cultural influences on drinking.

It is also worth noting that the two dimensions of ethnic drinking culture predict different types of problem drinking outcomes, with each type logically related to its predictor as suggested in the current literature. COO drinking prevalence, for one, was positively associated with an increased risk of alcohol-dependence symptoms for the foreign born, which is consistent with the findings of international epidemiologic research that average drinking volume (a component of our drinking prevalence index) is significantly associated with higher risks of alcohol use disorders and other chronic conditions (Rehm et al., 2003b). Similarly, the alcohol outcomes significantly associated with DDP—that is, frequent drunkenness and alcohol-abuse symptoms, the latter mainly involving alcohol-related social and legal problems—concern behaviors consistent with drinking patterns characterized by DDP, including frequent heavy drinking and drunkenness often displayed in public places.

It has been argued that drinking-related behaviors may be culturally conditioned rather than pharmacologically determined, because cultural norms, likely varying across societies, may differentially sanction drinking-related behavior generally considered acceptable (Room, 2001). For example, whereas drunkenness everywhere makes people clumsy, its effects in terms of bad behavior (or drunken comportment, conceptualized as a "time out" from normal sober behavior) differ greatly from society to society (Room, 2001). In other words, drunkenness or other drinking behaviors that may lead to various social and legal problems may be more tolerated in more detrimental drinking cultures where frequent heavy drinking or intoxication in public places is more common, which may continue to influence emigrants. As noted above, past research has found DDP to be a risk factor for chronic conditions such as coronary heart disease as well as acute conditions like injuries (Astudillo et al., 2010; Cherpitel et al., 2004, 2005; Rehm et al., 2003b). If the influence of ethnic drinking culture extends beyond national borders, as transnationalism theories and our findings suggest, then persons emigrating from countries where more harmful drinking cultures are prevalent may be at a higher risk for developing alcohol-related health conditions. It is crucial to understand the mechanisms through which ethnic drinking culture influences drinking in order to develop effective interventions to prevent problem drinking.

Our findings that Asian language use was inversely associated with two outcomes are consistent with past research that a lower level of acculturation, as indicated by Asian language use, is protective against alcohol use for adolescents and young adults (Epstein et al., 1996b, 2001). Still, it is unclear precisely how Asian language use reduces problem drinking in Asian American young adults. Clues gleaned from the literature suggest various protective mechanisms related to the use of native language by immigrant children with their parents, including close and cohesive relationships with the parents (Tseng and Fuligni, 2000) and a greater sense of belonging to the ethnic group that enhances psychological well-being (Phinney et al., 2001). This may have positive developmental outcomes for children of immigrants (Phinney et al., 2001) and thus shield them from risk behaviors such as problem drinking (Windle and Windle, 2012).

Although not central to our study, our finding that financial hardship was significantly associated with alcohol-abuse and -dependence symptoms only for the U.S. born is noteworthy as well. This result is well aligned with research on health disparities reporting that low socioeconomic status and other indicators of socioeconomic disadvantage—for example, low income, economic hardship, or racial discrimination—are significant predictors of problem drinking (Mossakowski, 2008; Mulia et al., 2008; Zemore et al., 2011). We do not have enough information to venture an explanation as to why financial hardship is a risk factor for problem drinking only for the U.S. born. There may be complex interplays between cultural and socioeconomic factors that may selectively influence some subgroups of U.S.- or foreign-born Asian American young adults, a topic future research might explore.

We acknowledge several limitations of the current study. First, key variables needed for this study were missing in earlier waves; therefore, we were limited to the use of cross-sectional data from young adulthood. Thus, caution is urged in inferring causal relationships. Further research exploring the mechanisms of influence of ethnic drinking culture on developmental trajectories of alcohol use throughout adolescence and early adulthood would be informative. Second, in operationalizing ethnic drinking culture, we were unable to assess specific values, norms, and behaviors related to drinking and thus used proxies, which is a limitation imposed by the paucity of data available and comparable across societies. Instruments to accurately assess various dimensions of ethnic drinking cultures need to be developed and tested in future research. Third, because of insufficient information and low statistical power, we were unable to investigate factors that may moderate or mediate the effects of ethnic drinking culture. For example, questions about the respondent's own and significant others' views on heavy episodic drinking were asked in an earlier interview, but only a small subset of the Asian American sample responded to these questions. Similarly, there was a question in an earlier interview about drinking in intimate networks (i.e., number of close friends who drank "at least once a month"), which we deemed inadequate for predicting problem drinking outcomes in Wave 4. Another limitation related to statistical power is the inclusion in our "U.S.-born" subgroup of multiple immigration generations (i.e., the first generation with no U.S.-born parents, the second generation with at least one U.S.-born parent, and the third-plus generation with both parents born in the United States; Wahl and Eitle, 2010). Although there is information in Add Health on immigration generational status, we did not have sufficient power for more fine-grained analyses evaluating whether ethnic drinking culture influences at least one of the U.S.-born generations (e.g., the second generation may be more exposed to their cultural heritage than the third-plus).

Despite these limitations, the current study has a number of important strengths. Weighted representativeness of the data is one of them. Also, by shedding light on cultural processes that may be integral to immigrant experiences but unexplored in the acculturation paradigm, this study helps advance the field significantly. Rigorous research on ethnic drinking cultures is rare. To our knowledge, our recent study (Cook et al., 2012) is the first one that has operationalized ethnic drinking cultures to find robust associations of COO drinking prevalence with drinking frequency and volume for Asian American adults. The current study of young adults further elaborates the dimensions of ethnic drinking culture and validates their utility for predicting problem drinking, providing a ground on which further research on drinking cultures may be built.

This study also addresses another documented limitation of acculturation research, which is that aspects of culture typically examined (e.g., those included in acculturation measures) do not have clear bearings on the specific health issue at hand (Abraído-Lanza et al., 2006), which makes it difficult to elucidate specific mechanisms through which acculturation influences health behavior (Salant and Lauderdale, 2003). Our focus on drinking cultures, which are directly relevant to the specific health behaviors under investigation, is another important contribution to the literature that may help advance research on cultural influences on drinking.

Finally, by simultaneously considering cultural influences and socioeconomic disparities, we were able to identify predictors of problem drinking that may operate differently for U.S.- and foreign-born Asian Americans. Future research might explore specific mechanisms through which ethnic drinking cultures and financial hardship influence problem drinking, as well as cultural and psychosocial processes within immigrant communities that might protect young adults from problem drinking.

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