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Binge Drinking and Alcohol-Related Problems among U.S-Born Asian Americans

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Abstract

Binge drinking (five drinks or more in a 2-hour sitting for men, or four or more drinks in a 2-hour sitting for women) and alcohol-related problems are a growing problem among Asian American young adults. The current study examines the socio-cultural (i.e., generational status and ethnic identity) determinants of binge drinking and alcohol-related problems across U.S.-born, young adult, Asian American ethnic groups. Data were collected from 1,575 Asian American undergraduates from a public university in Southern California. Chinese Americans consisted of the largest Asian ethnicity in the study followed by Vietnamese, Filipino, Korean, South Asian, Japanese, Multi-Asian, and “other Asian American”. Participants completed a web-based assessment of binge drinking, alcohol-related problems, ethnic identity, descriptive norms (i.e., perceived peer drinking norms) and demographic information. An analysis of variance was used to determine potential gender and ethnic differences in binge drinking and alcohol-related problems. Negative binomial regression was selected to examine the relationship between the predictors and outcomes in our model. There were no gender differences between Asian American men and women in regards to binge drinking, however men reported more alcohol-related problems. Japanese Americans reported the highest number of binge drinking episodes and alcohol-related problems, followed by Filipino, and Multi-Asian Americans (e.g., Chinese and Korean). Living off-campus, higher scores in descriptive norms, Greek status, and belonging to the ethnic groups Japanese, Filipino, Multi-Asian, Korean, and South Asian increased the risk of engaging in binge drinking. Quantity of alcohol consumed, Greek status, gender, Filipino, South Asian “Other” Asian, and lower ethnic identity scores were related to alcohol-related problems. Using one of the largest samples collected to date on socio-cultural determinants and drinking among U.S.-born Asian American young adults, the findings highlight the significant variability in drinking patterns between Asian American ethnic groups.

Keywords

Asian Americans; U.S-Born; binge drinking; alcohol-related problems

Rates of binge drinking (five drinks or more in a 2-hour sitting for men, or four or more drinks in a 2-hour sitting for women) and alcohol-related problems peak during young adulthood and are considered major societal problems impacting the safety and health of the

nation (Wechsler & Nelson, 2008). Binge drinking has been strongly linked to health problems such as an increase in the risk of sexually transmitted diseases, liver disease, and illicit drug use (Brown & Vanable, 2007; Hingson, Heeren, Winter, & Wechsler, 2005; Murray et al., 2002; Rehm et al., 2009). Binge drinking also heightens the risk of engaging in problem behaviors such as risky sex, driving under the influence, sexual assault and violence (Murray et al., 2002; Singleton, 2007). While it is clear that binge drinking and alcohol-related problems among college students pose significant public-health problems, little is known about the rates and socio-cultural determinants (i.e., generational status and ethnic identity) of problem drinking among U.S.-born Asian American ethnic groups. This lack of knowledge is critical given that Asian Americans represent one of the fastest-growing racial groups in the United States (Le, 2010) and are one of the largest and fastest growing ethnic minority groups on college campuses across the United States (Cook & Cordova, 2006). In addition to this rapid population growth, findings from epidemiological studies highlight that alcohol-related problems including alcohol-use disorders have significantly increased among Asian American young adults (18–25)(Grant et al., 2004). In order to advance theory and culturally-responsive prevention efforts, we investigated the rates and socio-cultural determinants of binge drinking and alcohol-related problems among a large sample of United States-born Japanese, Filipino, Korean, Chinese, Multi-Asian, Vietnamese, and South-Asian American young adult college students.

National studies on the drinking behavior of college students suggest that Asian Americans engage in significantly fewer episodes of binge drinking, and they experience less alcohol-related problems than other racial groups (The NSDUH Report, 2009; Wechsler, Lee, Kuo, & Lee, 2000). Given the lower rates of binge drinking and alcohol-related problems among this population, Asian Americans are perceived as a relatively low-risk group. However, aggregating Asian Americans masks the significant heterogeneity in substance use across Asian American ethnic subgroups (Hendershot, Stoner, George, & Norris, 2007). Conceptualizing Asian Americans as a homogenous group negates the within-group variability resulting from differences in such matters as immigration patterns, cultural values, and language (Kim, Yang, Atkinson, Wolfe, & Hong, 2001). Mounting evidence suggest immense within-group differences in the prevalence of binge drinking and alcohol-related problems among Asian American ethnic groups (Iwamoto, Corbin, & Fromme, 2010; Le, Goebert, & Wallen, 2009; Nishimura, Goebert, Ramisetty-Mikler, & Caetano, 2005; Thai, Connell, & Tebes, 2010; Wong, Klingle, & Price, 2004). These findings illustrate the significant within-group variability in binge drinking and alcohol-related problems among Asian Americans. In terms of ethnic-group differences, studies suggest that Korean Americans and Filipino Americans report the highest levels of problem drinking, while Chinese Americans and Vietnamese Americans report the lowest levels (Hendershot, Dillworth, Neighbors, & George, 2008; Luczak, Wall, Shea, Byun, & Carr, 2001). Two epidemiological studies in which the researchers examined Asian Americans 18 years or older found that Japanese Americans engaged in the highest levels of drinking followed by Filipino American and Korean American (Price, Risk, Wong, & Klingle, 2002; Wong et al., 2004). In fact Japanese Americans had nearly comparable rates and alcohol-related problems as White Americans. In another study with older Asian adults, Japanese Americans had the highest prevalence of heavy drinking followed by Filipino, Korean, and Chinese Americans (Chi, Lubben, & Kitano, 1988). These findings provide compelling evidence illustrating differences in drinking rates between Asian American ethnic groups. However, given the relatively small sample sizes (Hendershot et al., 2008), wide age range (Wong et al., 2004) and non-inclusion of certain ethnic groups such as Japanese and South-Asian Americans (i.e., Indian, Pakistani, Bangladeshi, etc.) in some previous studies with college students (Luczak et al., 2001; Lum, Corliss, Mays, Cochran, & Lui, 2009), the determinants and drinking patterns among U.S.-born young adult Asian American ethnic

groups remain unclear. Moreover, few studies have examined the role of factors in problem drinking among large samples of United States born Asian American college students.

One important socio-cultural factor that is overlooked in epidemiological studies (Grant et al., 2008; Johnston et al., 2007) that may further explicate within-group differences in alcohol use among Asian Americans is generational status. Generational status refers to whether the individual or individual's parents were born in or outside of the United States, and is often used as a proxy of acculturation (Abe-Kim, Okazaki, & Goto, 2001). Results demonstrate that second generation (i.e., individual was born in the U.S. and parents were born outside of the U.S.) Asian Americans, and individuals who spoke English at home were three times more likely to use alcohol compared to those less acculturated (Hahm, Lahiff, & Guterman, 2003). Second generation Asian American adults are at significantly higher risk of alcohol use than foreign-born Asian Americans (Breslau & Chang, 2006). Theory also suggests that after each successive generation (2nd generation or higher), individuals begin to develop drinking rates similar to their non-Asian counterparts. The converging drinking rates might be reflective of the individual's level of acculturation (Arcia, Skinner, & Correa, 2001; Castro et al., 2009). Thus generational status could be viewed as a good proxy of acculturation (Abe-Kim et al., 2001). Acculturation occurs when individuals or groups from different backgrounds and cultures come into contact with one another, and those values, practices, cultural beliefs, language, and behaviors that are different from their own may be adopted or learned (Redfield, Linton, & Herskovits, 1936; Yi & Daniel, 2001). Acculturated individuals may develop more individualistic ideology that encourages risky behavior (Castro, Stein, & Bentler, 2009; Le & Stockdale, 2005).

A similar factor closely tied to acculturation is ethnic identity (Zamboanga, Raffaelli, & Horton, 2006). Ethnic identity describes the cultural characteristics that are maintained by practices, values, acquisitions, and beliefs of an individual (Cokley, 2005). An individual's ethnic identity is developed through the connection the person feels within a group or culture, and it develops with time and through experiences (Phinney & Ong, 2007). Although the influence of ethnic identity on alcohol use has been well studied, the results have been inconsistent. For instance, ethnic pride has been associated with stronger traditional family values, which predicted greater avoidance of alcohol and cigarette smoking (Castro et al., 2009). Among Mexican American college students, higher ethnic identity was associated with heavier drinking among the men but not for women (Zamboanga, Raffaelli, & Horton, 2006). The findings suggest that Latino men who more ethnically-identified may consume a larger amount of alcohol because their values may be incongruent with those of the majority society. However the current literature examining ethnic identity and binge drinking has not fully explored such connections among Asian American college students.

While acculturation and ethnic identity appear to be salient socio-cultural factors linked to binge drinking among Asian Americans, descriptive norms and Greek status are two well-established determinants of alcohol-related problem drinking (Borsari, Murphy, & Barnett, 2007; Larimer, Turner, Mallett, & Geisner, 2004; Park, Sher, & Krull, 2008). Descriptive norms are considered one of the strongest determinants of heavy drinking among young adults (Neighbors et al., 2007). Descriptive norms are those that individuals perceive as those of their peer group. Young adults often overestimate the amount their peers drink, and this could be due to students often noticing peers who drink excessively rather than those who do not drink as often (Lewis, Rees, & Lee, 2009). College students not only overestimate how often their peers drink alcohol, but also the quantity of drinks they consume. Students who report higher descriptive norms also tend to report the highest levels of drinking (Borsari & Carey, 2000; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007).

Membership in the Greek system has consistently been shown to increase rates of binge drinking and alcohol-related problems (Larimer, Anderson, Baer, & Marlatt, 2000; Wechsler, Kuh, & Davenport, 1996). Individuals who affiliate with a fraternity or sorority often are found to have higher peer norms of alcohol use and greater access to alcohol (Park et al., 2008).

Another well-established predictor of binge drinking is place of residency (Lum et al., 2009; Page & O'Hegarty, 2006). The lack of parental monitoring and control in living arrangements, including students living in dormitories, off-campus or in environments that encourage heavy drinking, increases risk of engaging in problem drinking. Lum and colleagues (2009) found that Asian American students living in off-campus apartments compared to students who were living at their parent's home were over two times more likely to engage in heavier drinking.

Given the dearth of theory and empirical investigations about Asian American drinking behavior, our study advances the literature through our comprehensive investigation of sociocultural and risk factors of binge drinking and alcohol-related problems among a large sample of young adult Asian Americans college students born in the United States. This is important given that Asian Americans who are second generation or higher may be more acculturated and therefore we expect that their drinking may look similar to their non-Asian counterparts. First, we sought to examine the rates of binge drinking and alcohol-related problems among across Asian American ethnic groups. Second, we investigated the role of generational status, ethnic identity, and ethnicity, controlling for well-established predictors of binge drinking and related problems (descriptive norms, Greek status, living situation, and gender).

Method

Participants

The sample consisted of 1,575 Asian American undergraduates from a large public university in southern California. The study included 32.1% Chinese American (representing the largest ethnic group), 17.7% Vietnamese, 14.7% Filipino, 11.1% Korean, 8.1% South Asian (i.e., descendant of India), 6.9% Japanese, 5.3% Multi-Asian (for example, an individual who has one parent who is Chinese and another parent who is of Korean descent; or one parent who is of Japanese descent and another parent who is Filipino), and 4.0% categorized as "other Asian American" (e.g., Thai, Hmong, Cambodian, etc.). There were approximately 71.9% females ($n = 1,132$) and the average age of the sample was 19.85 ($SD = 1.38$). The majority of participants (87.3%) identified as second generation (first born in the U.S.), followed by 5.9% identified as third-generation and 6.8% as fourth-generation. In terms of academic standing, 28.1% of participants identified as seniors, 25.4% juniors, 22.5% sophomore, and 23.2% freshman.

Procedures

Approval from the University's Institutional Review Board (IRB) was obtained prior to conducting the study; once approved, the participants were informed that participation was voluntary. Participants who were not born in the United States were excluded from the study ($N = 318$). Participants completed a web-based assessment of alcohol use, alcohol-related problems, ethnic identity, descriptive norms, and demographic information. Web-based surveys were used since prior research has shown that they are more cost-effective, returned with more complete information, and respondents tended to be willing to give more information in their open-ended responses (Denscombe, 2006; Hoonakker & Carayon,

2009). Response rate was also found to increase in web-based surveys compared with traditional paper surveys among participants (Greenlaw & Brown-Welty, 2009).

Measures

Demographic Form—The demographic information included race/ethnicity, gender, affiliation with a fraternity or sorority, age and generational status.

The proxy of acculturation that was used in the study was generational status. *Generational status* was evaluated by asking the participant, “Who of the following members were first to be born in the United States?” Their response options included: No one in your family (1st generation), yourself or your sibling (2nd generation), your parents (3rd generation), your grandparents (4th generation), or your great grandparents (5th generation).

Living situation—We assessed living arrangement using a yes/no, one-item measure, “Do you live off-campus, with friends or alone?”

Ethnicity—The participants were asked to self-identify their ethnicity/race. The response choices included: Japanese American, Filipino American, Korean American, Chinese American, Multi-Asian American, Vietnamese American, Other Asian, American and South-Asian American. Multi-Asian was defined as having mixed Asian ethnic background, for example, having one parent who is Chinese and the other Korean. Other Asian included any other ethnicity not included in the response choices (e.g., Thai, Hmong, Cambodian).

Ethnic Identity (Phinney, 1992; Phinney & Ong, 2007)—The Revised Multigroup Ethnic Identity Measure consisted of six items that evaluate components of ethnic identity, including attachment, development of ethnic identity, and involvement in ethnic practices. The internal consistency estimates for the measure was $\alpha = .89$.

Descriptive Norms (Collins, Parks, & Marlatt, 1985)—The descriptive norms instrument is based on self-report responses from participants, which measures perceived peer norms for drinking behaviors. The measure was adapted from the Daily Drinking Questionnaire (DDQ) (Collins et al., 1985), to assess the quantity and frequency that participants believed their peer group members consumed alcohol each day in a typical week.

Binge Drinking—This one-item measure was used to assess the frequency an individual self-reports engaging in binge drinking. Men were asked, “During the last 3 months, how many times did you have five or more drinks in a two-hour sitting?” Women were asked, “During the last 3 months, how many times did you have four or more drinks in a two-hour sitting?” (Collins et al., 1985). *Quantity* of alcohol consumption was assessed using the Daily Drinking Questionnaire (DDQ; Collins et al., 1985). The DDQ quantity measure approximates typical drinking over the past 90 days. Specifically participants are asked to approximate their typical alcohol consumption for each day of the week over the past 90 days, similar to the Timeline Followback interview (Sobell & Sobell, 1992). The DDQ assess individual differences in drinking patterns to obtain peak alcohol consumption, number of drinks per week, and average number of drinks per week.

Rutgers Alcohol Problems Index (White & Labouvie, 1989)—The Rutgers Alcohol Problems Index consists of 23 items designed to measure the frequency of experiencing alcohol-related problems or negative consequences as a result of drinking. The measure evaluates how many of these negative consequences occur over the course of a year. The items cover a wide range, varying from social to health consequences due to problem

alcohol use. Sample items include, “missed out on other things because you spent too much money on alcohol” or “went to work high or drunk”. The reliability estimates for the RAPI in the current study was $\alpha = .93$.

Analyses

Correlation analyses between the variables in our model were conducted. Analysis of variance (ANOVAs) was performed to examine ethnic group and gender mean differences in binge drinking and alcohol-related problems. Post hoc Bonferroni multiple comparison tests of significance were performed to investigate which group means differ from one another. Bonferroni post hoc test was selected to control for Type I errors.

Prior to conducting the regression analyses, we inspected the distribution of the outcome variables, binge drinking and alcohol-related problems. The results revealed that binge drinking (Skewness = 4.47) and alcohol-related problems values (Skewness = 2.74) were skewed and there was overdispersion in the data, meaning that the variance was significantly greater than the mean (e.g., the variance for binge was 30.19, and the mean was 2.5). This type of skewed distribution is common for self-reported alcohol outcomes such as binge drinking and alcohol-related problems (Neal & Simons, 2007), especially in cases of count outcomes. Negative binomial (NB) regression was selected as the analytic procedure, given that alcohol outcomes were count variables (Neal & Simons, 2007) and were highly skewed and overdispersed (Lewis, Logan, & Neighbors, 2009). The NB regression includes a random component that accounts for dispersion, which provides more accurate standard errors for the regression coefficient (Elhai, Calhoun, & Ford, 2008). We entered all of the variables simultaneously and reported the incidence-rate ratios (IRR), which are the exponentiated regression coefficients (Cox & Bates, 2011), thus IRR can be interpreted as a one-unit increase in the predictor representing a one-unit increase binge drinking episode or alcohol-related problem. We also included self-reported quantity of alcohol consumption in the three months prior to the survey as a covariate in the alcohol-problem model, but self-reported alcohol consumption was excluded in the binge model given the co-linearity between the two variables ($r = .68$). Ethnic-group variables (e.g., Japanese, Filipino) were all dummy-coded, and the referent group was Chinese American to be consistent with previous studies that have found lower alcohol consumption in this group compared to other Asian American ethnic groups (Lum et al., 2009).

Results

Correlations

The results revealed that binge drinking was positively related to quantity ($r = .66, p < .01$), alcohol related problems ($r = .43, p < .01$), living off-campus ($r = .11, p < .01$), Greek status ($r = .19, p < .01$), descriptive norms ($r = .13, p < .01$). Higher quantity of alcohol consumption was related to more alcohol related problems ($r = .44, p < .01$), age ($r = .07, p < .05$), and being male ($r = -.07, p < .05$), living off campus ($r = .07, p < .01$), Greek status ($r = .22, p < .01$), and descriptive norms ($r = .22, p < .01$). Alcohol-related problems was positively related to age ($r = .07, p < .01$), being male ($r = .07, p < .05$), living off-campus ($r = .07, p < .01$), Greek status ($r = .20, p < .01$), and descriptive norms ($r = .09, p < .01$).

The ANOVA examining mean differences in binge drinking revealed differences between Asian American ethnic groups, $F(7, 1500) = 4.81, p < .001$. Post hoc analyses revealed that Japanese American students engaged in binge drinking more often than Chinese Americans (Table 1). The results of ANOVA examining differences in alcohol-related problems among Asian Americans suggest that mean groups differences were detected, $F(7, 1437) = 4.99, p < .001$. Filipino Americans reported more alcohol-related problems compared to Chinese

Americans and Vietnamese Americans. There were no significant differences in self-reported binge drinking by gender (men = 2.58, $SD = 5.37$; women = 2.26, $SD = 5.12$) however Asian American men reported more alcohol-related problems (men = 6.04, $SD = 10.32$) than women (women = 4.80, $SD = 8.08$). We also examined the extent to which non-Greek and Greek affiliated individuals differed on generational status and ethnic identity and found no differences between the two groups. Finally, we were interested in exploring possible differences in generational statuses between ethnic groups. Japanese ($\bar{X} = 3.4$, $SD = .85$) and Multi-Asian ($X = 2.45$, $SD = .75$) individuals reported significantly higher generational statuses compared to all of the other ethnic groups.

Negative Binomial Regression Models

Results of the negative binomial regression for the binge-drinking model suggest that the following were all positively associated with self-reported binge drinking (Table 2): living with friends off-campus (IRR = 1.47, $p < .001$); Greek status (IRR = 2.25, $p < .001$); descriptive norms (IRR = 1.30, $p < .001$); being Japanese (IRR = 2.25, $p < .001$), Multi-Asian (IRR = 2.15, $p < .001$), Filipino (IRR = 1.66, $p < .01$), Korean (IRR = 1.81, $p < .01$), and South Asian (IRR = 1.54, $p < .05$). That is individuals who live with friends off-campus, are involved in a Fraternity or Sorority, individuals with higher descriptive norms, and were of Japanese, Multi-Asian, Filipino, Korean, or South Asian descent were more likely to engage in binge drinking. Generational status was not significantly related to binge drinking.

The negative binomial regression model for alcohol-related problems included all the predictor variables in the binge-drinking model, with the exception of the inclusion of the quantity of alcohol consumption in the past three months as a covariate (Table 2). Controlling for the effects of quantity (IRR = 1.10, $p < .001$), Greek status (IRR = 1.68, $p < .001$), male gender (IRR = 1.35, $p < .05$), lower ethnic identity (IRR = .98, $p < .05$), being Filipino (IRR = 1.57, $p < .001$), South Asian (IRR = 1.53, $p < .001$), or being classified as Other Asian (IRR = 1.73, $p < .05$) were more likely to be associated with alcohol-related problems. Similar to the binge model, generational status was not significantly associated with alcohol-related problems.

Discussion

Our findings highlight that binge drinking and alcohol-related problems significantly differ across Asian American ethnic groups. Individuals of Japanese, Filipino, Multi-Asian, Korean, and South Asian descent were more likely to engage in binge drinking, while Filipino, South Asian and Other Asian groups were more likely to report alcohol-related problems. Specifically, Japanese and Filipino Americans reported binge drinking at high rates similar to those of other high-risk racial/ethnic groups (Corbin, Iwamoto, & Fromme, 2011; The NSDUH Report, 2009; Wechsler et al., 2000). These findings are consistent with the literature, in which individuals of Japanese, Filipino, and Korean descent are identified in the highest-drinking groups among Asian Americans (Hendershot et al., 2008; Lum et al., 2009; Wong et al., 2004). It is possible that groups such as Japanese and Filipino tend to be more acculturated (Chen, Unger, Cruz, & Johnson, 1999); thus, these individuals' behaviors, norms, and values look similar to their non-Asian counterparts. Furthermore, results revealed that Multi-Asians (i.e., having parents from different Asian ethnic groups) were at a significantly higher risk of engaging in binge drinking than other Asian American ethnicities. This finding is interesting given that this finding to our knowledge has not been reported in the literature. Multi-Asian young adults generally reported that their families have been in the U.S for multiple generations compared to the other groups (with the exception of Japanese Americans), thus these individuals may be more acculturated and their different ethnicity parents may have attitudes that are more reflective of American mainstream beliefs.

Ethnic identity was significantly associated with alcohol-related problems but not related to binge drinking. Specifically, lower levels of ethnic identity were related to more negative consequences due to alcohol use. Current literature supports this finding in that having a higher sense of ethnic identity results in lower alcohol use (Castro et al., 2009; Chae et al., 2008; Pugh & Bry, 2007). A stronger sense of ethnic identity may promote cultural traditions, such as stronger family values (Castro et al., 2009), or a more collectivistic worldview where the importance of the group is valued over individual desires (Pugh & Bry, 2007), factors which protect against alcohol-related problems (Castro et al., 2009). However, ethnic identity may not have been a significant predictor of binge drinking due to the university having a large percentage of Asian Americans, therefore potentially minimizing variation in ethnic identity.

Consistent with previous studies, living arrangement (White et al., 2006), descriptive norms (Borsari & Carey, 2003; Lewis et al., 2009), and Greek status were robust predictors of binge drinking and alcohol-related problems (Fairlie, DeJong, Stevenson, Lavigne, & Wood, 2010; Park, Sher, Wood, & Krull, 2009; Scott-Sheldon, Carey, & Carey, 2008). Individuals who lived off-campus were more likely to engage in binge drinking. Living environments, such as living with friends or alone in off-campus housing, may encourage binge drinking due to the lack of parental supervision and a heightened sense of personal freedom (White et al., 2006). In addition, students living with friends may have higher descriptive norms or may overestimate the occurrence and amount their peers engage in alcohol use (Borsari & Carey, 2003; Perkins, 2002). Lewis and colleagues (2009) suggested that descriptive norms for alcohol use may be high due to students often noticing their peers who drink excessively rather than those who don't drink as often. Individuals involved in a fraternity or sorority engaged in significantly more episodes of binge drinking and experienced more alcohol-related problems than non-Greek members (Fairlie et al., 2010; Scott-Sheldon et al., 2008). Although drinking tends to be a common social activity on college campuses, Greek members often have higher descriptive norms and more permissive attitudes towards alcohol use (Vaughan, Corbin, & Fromme, 2009). Binge drinking among Greek members may be due to the characteristics of the individual prior to joining (Park et al., 2009), as well as the fact that some Greek organizations promote drinking through easier access to alcohol, events that promote alcohol use (Larimer et al., 2000), and more permissive attitudes toward drinking (Wechsler, Kuh, & Davenport, 2009).

Interestingly, we found no gender differences in the number of binge-drinking episodes; however, men were more likely to report more alcohol-related problems. These findings parallel Iwamoto, Corbin and Fromme's (2010) longitudinal findings that demonstrated that U.S.-born Asian American women engage in binge drinking at similar rates compared to their male counterpart. More broadly, the trend of women's drinking being similar to that of males is consistent with some researchers who have documented a trend of young adult women "closing the gap" and reporting consuming alcohol at rates similar to men (Corbin, Vaughan, & Fromme, 2008; Keyes, Grant, & Hasin, 2008). This is disconcerting given the biological differences between men and women, which place women at greater risk of developing health-related consequences (Ham & Hope, 2003). One explanation for the higher self-reported drinking rates could be that behaviors such as binge drinking, once perceived as "masculine" behavior or norms, have become more acceptable among women (Lyons & Willott, 2008). More research is needed to examine how gender socialization, or the normative beliefs of what it means to be woman, relates to problem drinking.

Findings from this study can be used by clinicians in understanding the recent increase in binge drinking and in identifying "at-risk groups" across young adult Asian American ethnic groups. Clinicians need to be aware that some Asian Americans, especially those born in the U.S. and certain Asian ethnic groups (including Japanese and Filipino), also experience

negative consequences due to alcohol use. University health centers should consider prevention and intervention strategies to screen for well-established factors, including descriptive norms and Greek affiliation, but also integrate culturally-adapted methods that address and foster ethnic identity which may protect against alcohol-related problems (Resnicow et al., 2000).

Despite the many strengths of this study, certain limitations need to be considered when interpreting and generalizing the current data set to the larger population. The data were collected from a large public West Coast university and hence may reflect a regional difference. The particular university where participants were recruited from also has a large percentage of Asian Americans, which may create a unique environment compared to other regions or universities. Future studies should include community samples of Asian American young adults, as well as consider integrating both psychological and genetic determinants including aldehyde dehydrogenase—enzymes involved in alcohol metabolism (Hendershot et al., 2008). We also did not include potential protective factors including socioeconomic status, religiosity, or a measure of cultural values, thus future studies may consider including these variables to examine the extent to which they protect against binge drinking and related problems. Finally, the data set was cross-sectional and causal explanations could not be determined.

Although the rates of alcohol disorders have risen (Grant et al., 2004) among Asian American young adults, there is little theoretical understanding of why this might be occurring. This study extends the literature by providing a comprehensive understanding of the determinants of binge drinking and alcohol-related problems among one of the largest samples of U.S-born Asian American young adults examined to date. Significant differences in drinking patterns were found across Asian American ethnic groups with Japanese and Filipino Americans reporting comparable binge drinking rates to other high-risk young adult groups. The findings highlight the need to address the growing drinking rates across Asian American ethnic groups and the increasingly similar rates of binge drinking and alcohol-related problems among young adult women compared to men.

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Table 1
Demographic information, binge drinking and alcohol-related problems by ethnicity

Variable	Ethnicity							
	Japanese (n =109)	Filipino (n =232)	Multi-Asian (n =83)	South Asian (n =128)	Korean (n =175)	Vietnamese (n =279)	Other Asian (n =63)	Chinese (n =506)
Gender, % female	76.1%	73.3%	63.9%	75.8%	70.9%	70.6%	77.8%	70.9%
Age, mean (SD)	19.8(1.3)	19.9(1.3)	19.8(1.5)	19.7(1.3)	20.3(1.5)	19.8(1.4)	19.9(1.5)	19.7(1.3)
Generational status, %								
2 nd generation	24.8%	93.1%	71.1%	97.7%	97.1%	96.4%	88.9%	89.5%
3 rd generation or higher	75.2%	6.9%	28.9%	2.3%	2.9%	3.6%	11.1%	10.5%
Living Situation, %								
Off campus with friends	51.2%	53.2%	41.4%	43.5%	51.3%	29.3%	48.1%	48.9%
Drinking outcomes, mean (SD)								
Binge drinking	4.2(7.5)	3.2(6.3)	4.0(7.7)	2.7(5.8)	2.9(6.1)	2.0(4.3)	1.4(2.5)	1.8(4.4)
Alcohol-Related Problems	7.3(12.5)	7.3(8.8)	7.0(11.5)	5.2(8.6)	4.9(9.2)	4.2(8.3)	5.2(8.3)	3.9(7.0)

Note. Binge Drinking and Alcohol-Related Problems are self-reports in the past three months. Multi-Asian = defined as having mixed Asian ethnic background, for example having a one parent who is Chinese and the other parent who is Korean. Other Asian = included any other ethnicity not included in the response choices (i.e., Thai, Hmong, and Cambodian).

Table 2
Binge Drinking and Alcohol-Related Problems Negative Binomial Regression Models

Predictor	Binge Drinking				Alcohol-Related Problems			
	IRR	SE	Z	95% CI	IRR	SE	Z	95% CI
Age	1.03	.05	.57	.94-1.13	1.04	.04	1.29	.98-1.12
Gender	1.20	.14	1.52	.95-1.51	1.35	.16	2.51*	1.07-1.72
Off Campus	1.47	.18	3.11**	1.15-1.88	1.01	.10	.39	.86-1.24
Greek	2.25	.25	7.40***	1.82-2.79	1.68	.17	5.04***	1.37-2.06
Descriptive	1.30	.07	4.45***	1.12-1.41	1.00	.03	.27	.95-1.08
EthnicID	.98	.01	-1.73	.95-1.00	.98	.01	-2.63*	.96-.99
Generation	1.07	.05	.53	.86-1.33	.85	.04	1.75	.68-1.06
Quantity	---	---	---	---	1.10	.01	10.29***	1.07-1.12
Japanese	2.25	.50	3.67***	1.46-3.48	1.37	.29	1.47	.90-2.10
MultiAsian	2.15	.52	3.16**	1.34-3.47	1.43	.33	1.55	.91-2.27
Filipino	1.66	.28	3.09**	1.21-2.31	1.70	.23	3.98***	1.31-2.21
Korean	1.81	.36	3.01**	1.23-2.31	1.19	.25	.85	.79-1.80
South Asian	1.72	.31	2.98*	1.20-2.45	1.53	.30	2.21*	1.05-2.24
Vietnamese	1.13	.19	.73	.81-1.56	1.11	.16	0.48	.83-1.49
Other Asian	.92	.22	-.34	.57-1.48	1.73	.43	2.21*	1.06-2.82

Note.

* $p < .05$,

** $p < .01$,

*** $p < .001$.

IRR = Incidence Risk Ratio, SE = Robust standard error, Generation = generational status, Quantity was not included in the binge drinking model, Off-campus = living off-campus with friends, Descriptive = Descriptive Norms, EthnicID = Ethnic Identity.