

Differences in the Drinking Behaviors of Chinese, Filipino, Korean, and Vietnamese College Students*

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ABSTRACT. Objective: This study examined alcohol drinking behaviors across ethnic subgroups of Asian college students by gender, foreign-born status, and college-related living arrangements. **Method:** Univariate and ordinal logistic regression analyses were employed to explore male and female Asian subgroup differences in alcohol drinking behaviors. The sample included 753 male and female undergraduates between the ages of 18 and 27 years who self-identified as Chinese, Filipino, Korean, or Vietnamese and who varied in their foreign-born status. Participants completed a self-administered questionnaire on their alcohol drinking practices. **Results:** Ordinal regression analysis assessed risks

for increased consumption and found that Korean and Filipino students reported higher levels of alcohol consumption compared with other Asian subgroups. Students living in on-campus dormitories and in off-campus apartments reported higher alcohol consumption than did those living at home. Being born in the United States was a significant predictor of higher levels of alcohol consumption for women but not for men. **Conclusions:** Results of this study indicate the need for campus alcohol education and prevention programs capable of responding to specific Asian subgroup needs. (*J. Stud. Alcohol Drugs* 70: 568-574, 2009)

ACCORDING TO THE U.S. CENSUS BUREAU, between the years 2000 and 2010, the percentage of Asians in the United States is projected to increase by 33%, or from 3.8% to 4.6% (Census Bureau, 2004). States such as California, New York, Hawaii, and New Jersey have experienced especially large increases in their Asian populations (Campbell, 1996); in California, Asians constitute 12% of the population. Nationally, the U.S. Asian population includes more than 32 subgroups that differ in their native language, length of time in the United States, and religious customs and beliefs. One result of this population growth is the rapidly increasing participation of Asians in U.S. colleges, universities, and community colleges (Astin et al., 2002). According to a recent report by the American Council on Education (Cook and Córdova, 2006), college enrollment by Asian students increased by 44% between 1993 and 2003.

Recent studies and reports on college student drinking

behaviors have called for increased attention to their drinking practices because of the alarming levels of heavy drinking reported in the 1993, 1997, 1999, and 2001 National College Alcohol Study surveys (Boyd et al., 2004; Wechsler et al., 2002, 2004; Weitzman and Nelson, 2004). Findings showed that almost two of every five college students were heavy drinkers (defined as five or more drinks in one setting among men and four or more drinks in one setting among women; Wechsler et al., 2002).

A few epidemiological studies have identified an increased risk in alcohol misuse in Asians (Grant et al., 2004; Wechsler et al., 2002). One study reported that the prevalence of alcohol dependence (according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition [American Psychiatric Association, 1994]) among Asian men ages 18-29 increased between 1991 and 2002 from 4.09% to 10.22%, and for Asian women it increased from 0.74% to 3.89% (Grant et al., 2004). Researchers from the National

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College Alcohol Study reported Asian students showing an increase in heavy episodic drinking from 23% to 26% between 1999 and 2001 (Wechsler et al., 2002).

Differences in alcohol use of college-age Asian subgroups have been similar to those found in other non-college-age epidemiological studies of Asian subgroups (Doran et al., 2007; Hendershot et al., 2008; Luczak et al., 2001; Yi and Daniel, 2001). In two epidemiological studies comparing white and Asian subgroups, one examining a sample of adolescents and the other examining individuals ages 18 years or older, the prevalence of increased drinking behaviors ranked highest for whites, followed by the Japanese or Filipinos, Koreans, Chinese, and Vietnamese (Price et al., 2002; Wong et al., 2004). There were similar Asian subgroup differences in prevalences of heavy drinking behaviors found in two separate studies (Chi et al., 1988, 1989), both examining older adult Chinese, Korean, and Japanese subgroups, but one (Chi et al., 1988) also examining Filipinos. However, by including the Filipino group, the order for prevalence of heavy drinking differed in Japanese, followed by Filipinos; among the smallest proportions were Korean and Chinese men (Chi et al., 1988). Asian subgroup college drinking differences associated with genetic predisposition variances have been shown by two different studies in which white students reported having the highest rate of heavy drinking, followed by Korean and then Chinese students (Hendershot et al., 2008; Luczak et al., 2001). A third study similar to that of Luczak et al. (2001) did not find differences between Korean and Chinese college students (Doran et al., 2007).

There are limited findings regarding gender-specific drinking differences among college Asian subgroups. Differences have been reported in a noncollege sample between Japanese women, who were more likely to be light drinkers, and Chinese and Korean women, who were more likely to be abstainers (Chi et al., 1989). A noncollege sample of Filipino Americans found that more men were heavy drinkers than light drinkers, whereas the Filipino women were mostly abstainers (Lubben et al., 1988). Examining only Vietnamese college students, Yi and Daniel (2001) found that 42% of male students and 27.5% of female students reported current alcohol use.

One factor shown to contribute to alcohol drinking behaviors in college students is their place of residence (Page and O'Hegarty, 2006). Living environments characterized by less parental control (Gfroerer et al., 1997; Weitzman et al., 2003) and belonging to social networks that encourage alcohol consumption (Page and O'Hegarty, 2006) are associated with heavier drinking. In this regard, an early study on Asian college student alcohol consumption found that those with lower drinking levels perceived higher parental disapproval toward drinking and drunkenness (Sue et al., 1979). Yi and Daniel (2001) reported that Vietnamese college students living with their parents were less likely to drink than those living in other environments.

A second factor that may play a role in Asian college students' alcohol use patterns is acculturation. Acculturation is commonly defined as the process of either directly or indirectly coming into contact with another cultural group's behaviors and attitudes (Berry, 2002). The result of the acculturation process may involve positive or negative behavioral changes such as adopting new coping strategies (e.g., delinquency and substance abuse) to deal with the acculturative stress (Berry, 2002). Hendershot and colleagues (2008) found that lower levels of acculturation were associated with higher alcohol consumption in Korean American college students but not among Chinese American students. In contrast, when Doran and colleagues (2007) compared associations between acculturation and drinking, there were no significant relationships for either the Chinese American or Korean American students they studied. Foreign-born status can serve as a marker for acculturation. Yi and Daniel (2001) found that Vietnamese college students who were born and raised in Vietnam were less likely to drink than those born in the United States.

The ability to understand and predict alcohol problems in the various college student Asian ethnic subgroups is hampered by most studies on alcohol behaviors often reporting findings on Asian subgroups as one homogenous population. This happens most often because of difficulties in accessing a sample that is large enough to effectively analyze results on ethnic subgroups, which may be partly the result of geographic clustering of these populations and the tendency for many studies to be administered only in English. This lack of studies on Asian subgroups has potentially resulted in the masking of true rates and risks of alcohol use and problem use in the diverse ethnic Asian subgroups as well as rates of gender differences among the subgroups. The purpose of this study was, first, to examine possible differences in alcohol drinking patterns across specific male and female Asian ethnic subgroups of college students. Second, we sought to examine the role of such factors as foreign-born status and living arrangement during college years that might be associated with consuming a higher number of drinks during an alcohol drinking occasion. It is our hope that these new findings on drinking behaviors among male and female Chinese, Filipino, Korean, and Vietnamese college students will assist in the planning of alcohol education and prevention activities on college campuses.

Method

Participants

Participants for this study were various Asian ethnic subgroup college students drawn from colleges and universities in Los Angeles County. Because sample sizes specific to some gender and ethnic subgroups were too small for comparative statistical analysis, we excluded them. These

subgroups were Cambodians (9 female, 7 male), Hmong (6 female, 4 male), Indonesians (1 female, 6 male), Japanese (39 female, 40 male), Laotians/Miens (6 female, 1 male), Pacific Islanders (6 female, 4 male), South Asians (2 female, 7 male), Thai (5 female, 1 male), and Asians of mixed race (i.e., of two or more races; 29 female, 19 male).

The age ranges of the initially recruited sample were 18-63 years for women and 18-54 for men. In performing a univariate analysis of variance test to compare age differences among the Asian subgroups, we found significant differences, especially for those who were older than 27. We decided to eliminate the small sample of participants who were age 28 and older (20 men and 14 women) because our goal was to focus on traditionally college-age Asian subgroups (18- to 27-year-olds) as opposed to older nontraditional students. Consequently, our final analysis sample consisted of 753 students who identified themselves as Chinese (92 male, 142 female), Filipino (111 male, 140 female), Korean (63 male, 78 female), or Vietnamese (53 male, 74 female). The age of this sample ranged from 18 to 27 years, with the mean (SD) being 20.9 years (1.74). The majority of women were in their second (26%) or third year (26%) of college, and men were most likely to be in their second year (31.7%) (male and female range: 1-5 years in college).

Procedures

The Asian American Drug Abuse Program recruited undergraduate students for this study as part of a larger Los Angeles County study on substance use and HIV prevention in Asian ethnic subgroups. The recruitment took place at two large community colleges and two public universities in Los Angeles County. These schools were selected because of their large student bodies and an annual Asian enrollment rate of at least 20%.

Study recruitment for Asian students at these schools was conducted through visits to Asian ethnic study centers and classes, Asian foreign language and English as a Second Language classes, student organizations, and Asian gathering places around campus, such as cafeterias and outdoor study areas in which large groups of Asian students congregate. All recruiters were college-age Asian individuals who explained the purpose of the study to potential respondents in English, indicated that participation was anonymous, and said that participants could discontinue the survey at any time. Oral consent to participate was obtained from those indicating an interest in the study. Students were handed a six-page questionnaire, which they completed on their own time. The use of Asian American Drug Abuse Program data for this study was approved by the University of California, Los Angeles Institutional Review Board.

Data for this study were drawn from the self-administered questionnaire, which included questions on demographics, alcohol use, sexual behaviors, HIV/AIDS beliefs, and

campus life. For this study, we used only the sections on demographics and alcohol use.

Measures

Dependent variable: Drinking behavior. This self-report instrument, adapted from questions used in other college campus alcohol surveillance studies (Babor et al., 2001; Substance Abuse and Mental Health Services Administration, 2005), assessed participants' alcohol drinking behaviors by asking them what was their average number of drinks over the previous 3 months for each of the following possible drinking occasions: a weekend evening, weeknight, and the last time they socialized. For each question, the choices were 0, 1-2, 3-5, 6-9, 10-14, and more than 15 drinks. A "drink" was defined as equivalent to a 12-oz bottle of beer, a 4-oz glass of wine, a mixed drink, or one shot of distilled spirits. To form our drinking behavior outcome variable, we took each participant's response of the highest number of drinks consumed across the three drinking occasions, collapsing the top code to 10 or more drinks because of small cell sizes.

Independent variables. Our designation of foreign-born status followed the U.S. census definition, which defines someone as having foreign-born status if he or she is not a U.S. citizen at birth (Lollock, 2001). Consequently, respondents who indicated they were first-generation or first-and-a-half generation¹ immigrants were coded as having foreign-born status. Students who reported that they were second generation, or greater, were coded as having U.S.-born status. The ethnic background variable was derived from the students' self-identification of the Asian subgroup with which they most closely identified. Other variables included in the analyses were age, year in school, and current place of residence (defined as living off campus, in an on-campus dormitory, or at a parent's home).

Data analysis

Studies on alcohol use of Asian populations often stratify on gender because of the commonly found gender differences in alcohol consumption (Chi et al., 1989; Doran et al., 2007; Grant et al., 2004). To be consistent with these studies and to draw comparisons, we conducted our analyses separately by gender. A chi-square test was conducted to assess possible Asian subgroup differences in sociodemographic characteristics and between the various categories of the drinking behavior dependent variable. An analysis of variance test was used for the age differences across the Asian subgroups.

¹If children immigrate to a country when they are in their adolescence, they are called generation 1.5. This 1.5 generation is a group who are not children and not yet adults, literate but not yet fully intellectually formed; 1.5 members are old enough to be fluent in their home language and culture but have less difficulty adjusting to change compared with first-generation immigrants.

TABLE 1. Sociodemographic characteristics, living arrangements and foreign-born status, by gender across Chinese, Filipino, Korean, and Vietnamese college students (%)

Characteristic	Male					<i>t</i> or χ^2	Female					<i>t</i> or χ^2
	Chinese (<i>n</i> = 92)	Filipino (<i>n</i> = 111)	Korean (<i>n</i> = 63)	Vietnamese (<i>n</i> = 53)	Total (<i>n</i> = 319)		Chinese (<i>n</i> = 142)	Filipino (<i>n</i> = 140)	Korean (<i>n</i> = 78)	Vietnamese (<i>n</i> = 74)	Total (<i>n</i> = 434)	
Foreign-born status						8.41*						6.87
Yes	56.5	65.8	50.8	43.4	56.4		58.5	65.7	60.3	47.3	59.2	
No	43.5	34.2	49.2	56.6	43.6		41.5	34.3	39.7	52.7	40.8	
Place of residence						7.84						6.13
On-campus dorm	32.6	23.4	15.9	20.8	24.1		23.9	22.1	25.6	17.6	22.6	
Off-campus apartment	27.2	36.0	42.9	39.6	35.4		48.6	45.7	42.3	39.2	44.9	
Parent's home	40.2	40.5	41.3	39.6	40.4		27.5	32.1	32.1	43.2	32.5	
Age						2.37						1.34
Mean (SD)	20.9 (1.8)	20.8 (1.7)	21.5 (1.9)	21.3 (2.2)	21.0 (1.9)		20.7 (1.6)	20.8 (1.6)	21.0 (1.8)	21.1 (1.8)	20.9 (1.7)	
Range	18.1-26.3	18.1-24.8	18.6-26.4	18.2-26.7			18.1-26.3	18.1-25.9	18.4-26.2	18.5-25.8		
Year in school				13.8								12.9
First	19.6	26.1	19.0	17.0	21.3		19.7	22.9	26.9	17.6	21.7	
Second	41.3	26.1	25.4	34.0	31.7		32.4	22.9	24.4	21.6	26.0	
Third	17.4	24.3	36.5	28.3	25.4		25.4	26.4	25.6	27.0	26.0	
Fourth	10.9	15.3	11.1	13.2	12.9		13.4	20.7	16.7	17.6	17.1	
Fifth or greater	10.9	8.1	7.9	7.5	8.8		9.2	7.1	6.4	16.2	9.2	

**p* < .05

Ordinal logistic regression was used to examine associations of the independent variables with the dependent alcohol use variable. The independent variables were assessed for predicting differences of alcohol consumption in four different comparisons: 0 versus 1-2 drinks, 0 versus 3-5 drinks, 0 versus 6-9 drinks, and 0 versus 10 or more drinks. The gender-stratified model included foreign-born status, Asian subgroup, and current place of residence. The age and year in college variables were not included in the regression model because neither was statistically significant for either gender. We used the Chinese group as referent to be consistent with earlier Asian alcohol studies that have found lower reported alcohol use in this group compared with other Asian subgroups (Chi et al., 1989).

Results

Sample characteristics

Table 1 shows the sociodemographic characteristics of each Asian subgroup, separated by gender. A chi-square test of the sociodemographic variables revealed a significant difference ($\chi^2 = 8.41$, 3 df, *p* < .05; *n* = 319) for the male group between the Asian subgroup and foreign-born status variables. Among women, no Asian subgroup differences in sociodemographic characteristics were observed.

Asian subgroup differences in alcohol consumption

Table 2 shows the differences in levels of alcohol consumption among the Asian subgroups. Among men, significant differences in the number of alcohol drinks consumed between the Asian subgroups were observed ($\chi^2 = 44.1$, 3 df, *p* < .01; *n* = 319). Chinese men had the highest percentage

of not consuming any drinks, and Vietnamese men had the highest percentage of consuming one to two drinks. Filipino men had the highest percentage of consuming 3-5 and 6-9 drinks, and Korean men had the highest percentage of consuming 10 or more drinks. For the female group, there were also significant differences between the Asian subgroups in the number of alcohol drinks consumed ($\chi^2 = 58.1$, 3 df, *p* < .01; *n* = 434). Chinese women had the highest percentage of not consuming any drinks, and Vietnamese women had the highest percentage of consuming one to two drinks on any occasion. Filipino women had the highest percentage of consuming 3-5 drinks, and Korean women had the highest percentage of consuming 6-9 and 10 or more drinks.

Risk factors of increased alcohol consumption behaviors

Male Asian drinking patterns. Results of the ordinal logistic regression analysis are shown in Table 3. Individuals who were living in an on-campus dormitory or off campus were more likely than those living in a parent's home to evidence higher levels of alcohol consumption. Likewise, respondents who identified as Korean or Filipino were more likely than those respondents identified as Chinese to evidence higher levels of alcohol consumption.

Female Asian drinking patterns. Results for the female Asian subgroups indicate that U.S.-born female students reported higher levels of alcohol consumption compared with foreign-born students. Female respondents who were living in an on-campus dormitory or in off-campus housing were more likely than those living in a parent's home to report higher levels of alcohol consumption. Also, Korean and Filipino female students, as compared with Chinese women, reported higher levels of alcohol consumption.

TABLE 2. Percentage of alcoholic drinks consumed, by gender across Chinese, Filipino, Korean, and Vietnamese college students

Ethnicity	Alcoholic drinks, %									
	Male					Female				
	0	1-2	3-5	6-9	≥10	0	1-2	3-5	6-9	≥10
Filipino	15.3	16.2	27.9	27.0	13.5	25.7	22.9	37.9	9.30	4.29
Korean	23.8	12.7	15.9	11.1	36.5	20.5	29.5	12.8	21.8	15.4
Vietnamese	20.8	32.1	22.6	13.2	11.3	35.1	36.5	17.6	8.11	2.70
Chinese	32.6	15.2	26.1	17.4	8.70	42.3	23.9	22.5	9.15	2.11

Note: Significant differences in both male ($\chi^2 = 44.1$, 3 df, $p < .01$; $n = 319$) and female ($\chi^2 = 58.1$, 3 df, $p < .01$; $n = 434$) Asian subgroups.

Discussion

Prior research comparing alcohol-use behaviors of college Asian subgroups has been limited by small sample sizes of specific Asian ethnic subgroups. Our results identify important differences in alcohol-use patterns among the various Asian ethnic subgroups. Ethnicity, place of residence, and foreign-born status were all found to influence reported drinking behaviors. Korean and Filipino college students, whether male or female, evidenced higher rates of heavier alcohol use than did Chinese students. Among both men and women, living arrangements away from parental supervision were also associated with higher rates of drinking. Finally, among women, foreign birth was associated with lower levels of alcohol consumption.

Consistent with other alcohol drinking studies on Asian subgroups (Chi et al., 1988, 1989; Luczak et al., 2001; Price et al., 2002), our study shows that even among college Asian subgroups, Korean men had the highest level of alcohol consumption, followed by Filipino, Chinese, and Vietnamese men. However, contrary to one alcohol drinking study on a non-college-age control sample of Asian adults (Lee et al., 2003), we found that female college students who were Filipino or Korean had higher levels of alcohol consumption

than did other female Asian subgroups. Our finding that Korean women have increased risk of consuming more alcohol than Chinese women is contradictory to that of Chi and colleagues (1989), who found the opposite. The large differences in alcohol consumption between Asian subgroups found in this and other studies, coupled with the rising number of Asian subgroups attending college, highlight the importance of looking at Asian subgroups in future alcohol studies.

In two different studies, the impact of acculturation on the drinking behaviors of Asian subgroups of college students is mixed, possibly the result of differences in their measurement of episodes of heavy drinking (Doran et al., 2007; Hendershot et al., 2008). Our study extends the understanding of problem drinking in Asian college students in examining the role of acculturation by gender. Our results indicate that alcohol use was more prevalent among U.S.-born female Asian college students than among their foreign-born counterparts. Studies on alcohol-use and substance-use behaviors have suggested that acculturation (i.e., U.S.-born status) reduces indigenous protective factors in health behaviors (Gfroerer and Tan, 2003; Wong et al., 2007). One possible cultural protective factor may be the social stigma against people who drink or show signs of problematic alcohol behaviors. Stigma has been a widely documented factor influencing the

TABLE 3. Drinking behaviors, by ethnic subgroup, foreign-born generational status, and living arrangements among Asian male and female college students

Independent variable	Male		Female	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
Ethnicity				
Filipino	2.02 (1.23-3.34)	.006 [†]	2.04 (1.33-3.14)	.001 [†]
Korean	2.82 (1.57-5.06)	.001 [†]	3.54 (2.13-5.90)	<.001 [†]
Vietnamese	1.13 (0.62-2.08)	.689	1.35 (0.80-2.28)	.258
Chinese	ref.		ref.	
Foreign-born status				
No	1.05 (0.70-1.59)	.819	1.58 (1.10-2.27)	.014*
Yes	ref.		ref.	
Place of residence				
On-campus dorm	2.09 (1.23-3.54)	.006 [†]	1.99 (1.22-3.24)	.006 [†]
Off-campus apartment	2.25 (1.41-3.57)	<.001 [†]	2.37 (1.56-3.57)	<.001 [†]
Parent's home	ref.		ref.	

Notes: Difference estimated by ordinal logistic regression models, separated by gender. All independent variables were entered simultaneously into the model. Adjusted R^2 male = .090, female = .121. Ref. = reference group.

* $p < .05$; [†] $p < .01$.

health behaviors in Asian populations (Okazaki, 2000; Yang et al., 2008).

Furthermore, differences in Asian subgroup alcohol consumption may be associated with living situation factors (Hendershot et al., 2008). In one study, male and female Chinese and Filipino students who lived with their parents as compared with those who did not live with their parents showed lower alcohol consumption (Sue et al., 1979). The reasons for this are unknown but could be related to less parental control (Sue et al., 1979; Yi and Daniel, 2001) or coping responses related to greater academic stressors (Ang and Huan, 2006; Oishi and Sullivan, 2005). The differences may also be related to variation in acculturation related to living situation (Wong et al., 2007); for example, those living with roommates as opposed to their parents may be influenced by higher levels of drinking by their peers. Colleges and universities need to be aware of the potential differential risk for problematic alcohol use in U.S.-born female Asian subgroup drinkers. Studies of general samples of college students have found that higher levels of alcohol consumption among women are often associated with greater risk of date rape, lower grade-point average, and marijuana and tobacco use (Loiselle and Fuqua, 2007; Vickers et al., 2004). The significant finding of increased alcohol consumption among Asian subgroup college students who do not live with their parents is an important consideration for the development of college alcohol-intervention and prevention programs that target students' place of residence.

There are some limitations to our study. Our measure of acculturation was limited to the student's foreign-born status. Future studies examining acculturation and alcohol use might consider a more complete measure of acculturation including language used in the home; cultural attitudes, beliefs, and behaviors (Suinn et al., 1992); and age at migration and length of time lived in the United States (Rumbaut, 2004). In addition, students in our study were recruited through convenience sampling, which more than likely introduced "healthy volunteer" bias. Despite these limitations, findings reported here provide strong evidence of differences in drinking behaviors among the various Asian subgroup subpopulations.

In the past, the strategy of pooling all Asian subgroups allowed investigation into the drinking behaviors of Asians as a group. As evidenced by the present study and others, a growing body of data challenges this approach as an effective strategy for the design of alcohol-misuse treatment and prevention programs among Asian Americans. Thus, it is important for alcohol researchers to examine characteristics and patterns of risky alcohol use of particular Asian subgroups, as well as gender-specific and acculturation risks within those groups, to develop the most appropriate interventions.

Our results also suggest the need for attention to alcohol use behaviors by Asian college students in general, and in particular by Korean and Filipino students. Those working

with young adults, particularly those in student health and student development areas, have recognized that alcohol use can be a substantial public health problem that leads to negative consequences such as academic failure, poor problem solving, sexual and physical assaults (including date rape), unprotected sexual encounters, and alcohol-related fatalities (Dreer et al., 2004; Hingson et al., 2002; Murphy et al., 2006). With the predicted increases in Asian subgroup students in U.S. colleges and universities, programs that target their health education needs, particularly in the area of alcohol use and problem use, will assure campus officials that these students can derive the greatest benefit from their campus education.

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