

Cross-national comparison of perceptions to heavy episodic drinking and drinking behaviors among Korean and U.S. college students

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미국과 한국 대학생들의 음주와 폭음에 대한 인식 비교

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초 록

배경 및 목적 : 미국과 한국 양국의 대학생의 음주문제는 심각한 사회문제이며, 대학생의 음주문제를 예방하기 위한 다양한 노력들이 시도되고 있다. 본 연구는 미국과 한국대학생들의 음주와 폭음에 대한 인식 및 태도에 차이가 있는지를 비교 분석하기 위해 설계되었다.

방법 : 데이터는 2001년 미국의 하버드 보건대학원의 College Alcohol Study (CAS) 팀에서 미국의 120개 4년제 대학에서 10,904명에게서 조사한 원자료와 한국에서는 2003년 삼육대학교 보건복지대학원의 Korean College Alcohol Study (KCAS) 팀에서 전국의 60개 4년제 대학의 2,385명의 원자료를 함께 통합하여 사용하였다. 이 자료의 특징은 CAS에서 개발한 설문지를 한국과 미국 양측에서 공동으로 사용하여 양 국가를 대표한 4년제 대학생의 표본을 대상으로 음주와 관련된 조사를 수행한 점이다.

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결과 : 한국 남학생들이 폭음할 기회가 7.74배 더 많고 여학생의 경우는 3.36배 더 많다. 지난 한 달 동안 3회 이상 술 취한 경험율에서 한국 남학생들의 경험율이 34.3%로 미국의 20.4%보다 많고, 여학생의 경우도 24.6%로 미국 여학생의 11.1%보다 현저히 더 많다. 한국 대학생들의 폭음자 비율이 미국 대학생들의 폭음자 비율보다 많은 것과 같이, 한국 대학생들이 미국의 대학생들 보다 폭음이 안전한 것으로 인식하고 있으며, 음주에 있어서도 더욱 허용적인 태도를 가지고 있다. 한국 남학생의 78.4%와 여학생의 67.3%가 폭음 이상의 양을 안전하다고 인식하고 있다(미국은 남학생은 50.3%, 여학생은 34.1%). 폭음에 해당하는 음주량(남자는 5잔 이상, 여자는 4잔 이상)을 안전하다고 인식하는 정도에서 한국의 대학생들이 미국의 대학생들에 비해서 남학생은 4.06배, 여학생이 3.96배 더 높다.

결론 : 한국 학생들 중에서도 음주의 양이 더 많은 학생들이 다른 학생들보다 음주와 술 취함과 폭음에 관하여 더욱 허용적이고, 안전한 음주에 대해 더욱 둔감한 태도와 신념을 보이고 있다.

Key words: attitude, alcohol, college student, heavy episodic drinking, perception

I . INTRODUCTION

Heavy drinking among college students is a major public health concern in Korea, the United States and other countries (Dantzer et al., 2006). Heavy episodic drinking is associated with a number of adverse health, educational and social consequences including physical injury, high-risk sexual behavior, alcohol-impaired driving, psychological problems and anti-social behavior (Wechsler et al., 1994; Wechsler et al., 2000; Perkins 2002; Wechsler et al., 2002; Wechsler et al., 2003; Hingson et al., 2005).

Four in five U.S. college students drink alcohol (O'Malley and Johnston, 2002; Wechsler et al., 2002) and more than 40% of male university students in the U.S., Belgium, Columbia, Ireland, the Netherlands, Poland, and Slovakia were reported to have drunk heavily in the past 2 weeks. Female students from England, Iceland, Ireland, and the Netherlands reported prevalence rates of 30% or more for drinking heavily in the past 2 weeks (Dantzer

et al., 2006).

Among Korean college students, two of five students usually have seven or more drinks when they drink (Chun and Sohn, 2005) According to the Alcohol Disorder Identification Screening Test (AUDIT: cutting point of 12), 53.4% of male and 30.5% of female students suffered Alcohol Use Disorders (Chun and Sohn, 2005). The heavy episodic drinking prevalence proportion among Korean college students is much higher than U.S. students (Chun et al., 2006).

Asians living in the U.S. displayed the lowest level of heavy drinking among the major ethnic student groups in the U.S. (O'Malley and Johnston, 2002; So and Wong, 2006), and U.S. Asian-American students are less likely to have alcohol and related problems (Wechsler et al., 2002; SAMHSA, 2003; Weitzman et al., 2003). A few studies have investigated differences of alcohol use and related problems among countries (Ramstedt, 2001; Simpura and Karisson, 2001; Leifman and Österberg, 2002; Norström, 2002) and assessed

the cross-national robustness of various risk factors of college students (Kuo et al., 2002; Dantzer et al., 2006). Nevertheless, few studies use the same questionnaire to compare differences of perception to heavy drinking among international college students, making direct comparisons challenging.

The aims of this paper were to describe differences of prevalence of alcohol consumption and heavy episodic drinking among Korean and the U.S. college students and to examine differences in attitudes toward drinking and heavy episodic drinking between students in two countries.

II. METHOD

1. U.S. College Alcohol Study

Extensive data was available on U.S. students from the Harvard School of Public Health College Alcohol Study (CAS). These findings served as the comparison group for the Korean study, and wherever possible the same measures and data collection methods were used. The CAS sample of 10,904 students from 119 colleges represents a national cross-section of students enrolled at 4-year colleges in the U.S. The participating schools were located in 38 states and the District of Columbia (Wechsler et al., 2002).

Administrators at each participating school used the same procedure as that in conducting previous CAS surveys to provide a list of 215 randomly selected students from all full-time undergraduate students enrolled during the

2000-2001 school year. Sixty-nine percent of the responders attended public college and 31% attended private college, which approximates the U.S. national distribution of full-time 4-year college students, with 68% attending public and 32% attending private schools. Forty-seven percent of the responders attended large colleges (> 10,000 students), 23% were at medium-sized colleges (5001-10,000 students), and 29% were enrolled in small colleges (< 5,001 students). The US national distribution is 37%, 24%, and 40%, respectively (Wechsler et al., 2002). Sixty-nine percent of responders attended schools in large or medium-sized cities, compared with 71% of students nationwide (Wechsler et al., 2002). Thirteen percent of the students attended schools with a religious affiliation, compared with 16% nationwide (Wechsler et al., 2002); and 5% of the students attended all women's colleges. The 2001 sample consisted of 64% women, a rate higher than the national rate of undergraduate women, resulting in part from the inclusion of 5 women's colleges (Wechsler et al., 2002).

2. Korean College Alcohol Study

The Korean national samples were selected from the Korean Council on University Education's list of accredited 4-year colleges by using probability proportionate to size of enrollment, types, and districts. 60 colleges were selected randomly (Chun and Sohn, 2005). Ten of the 60 universities had enrollments of 10,000 or more students, 22 between 5,000 and 10,000 and 28 less than 5,000 students. Two of

60 universities were women's colleges, four were religiously-affiliated colleges, and four were education colleges (Chun and Sohn, 2005). The department and the current year in participating colleges were selected, and the number of students to the survey proportionally were assigned. The proportionally assigned questionnaires were sent to the registrars or faculty (range: 20 cases to 100 cases). The KCAS questionnaire was translated into Korean language from the CAS questionnaire. During the translation, some questions were modified to convey a more clear meaning. A cover letter was sent to students instructing them on their rights as human subjects. The survey responses were anonymous and confidential. The questionnaires (2,931) were mailed on May 12th 2003, and 2,399 questionnaire responses were returned by the cut off date of June 13th 2003. Due to the high 82% response proportion, the team didn't examine the selection bias of non-responders (Chun and Sohn, 2005). After 14 cases were excluded for insufficient information to conduct data analyses, 2,385 cases were used.

3. Respondent characteristics

There were several statistically significant differences between Korean and U.S. students in the proportions who were male and female, were 24 years or older, were never married, and were living in campus housing (Chun et al., 2009). In general, Korean college students tended to be older, were more likely to be unmarried, and were much more likely to be male and live off campus with their parents or

relatives. There were more male (52.2%) than female (47.8%) students in Korea, compared to fewer male (35.8%) than female (64.2%) in the U.S. sample (Chun et al., 2009). The mean age (21.3) of the Korean students were slightly older than that of the US students (20.8) because of two and a half years of military service for all males in Korea which is usually completed during their university studies (Chun et al., 2009). More than half of Korean students (60.0%) lived off-campus with parents or relatives, compared to just 18.5% of the U.S. students. Only one in seven (15.0%) Korean students lived in a university residence compared to two in five (41.5%) U.S. students (Chun et al., 2009).

4. Measures

The KCAS and CAS questionnaires asked the respondents to answer a series of questions about their alcohol use and associated problems, tobacco and other drug use, lifestyles, demographic and background characteristics. The questionnaire instructed participants to define a "drink" in equivalent amounts of alcohol: a 12oz (360-mL) bottle or can of beer, 4-oz (120-mL) glass of wine, a 12 oz (360-mL) bottle or can of wine cooler, a shot (1.25-oz or 37-mL) of liquor either straight or in a mixed drink. Soju, a type of spirit, is the most popular alcohol beverage in Korea and contains 25% of alcohol (11g per glass). Occasional heavy episodic drinking was defined as the consumption of at least 5 drinks in a row for men or 4 drinks in a row for women once or twice during the past 2

weeks before completion of the questionnaire (Wechsler et al., 2002). Frequent heavy episodic drinkers were students who had engaged in heavy episodic drinking 3 or more times in the past 2 weeks. We assessed student patterns of alcohol use by asking respondents who drank any alcohol in the past 30 days the following three questions: (a) how often they had a drink of alcohol in the past 30 days (response categories were 1 to 2 occasions, 3 to 5 occasions, 6 to 9 occasions, 10 to 19 occasions, 20 to 39 occasions, and 40 or more occasions); (b) how many drinks they usually consumed on the occasions when they drank alcohol in the past month (response categories ranged from did not drink in past 30 days to 9 or more drinks); and (c) how often they drank enough to get drunk in the past 30 days (meaning unsteady, dizzy, or sick to your stomach), with response categories identical to those in the first question. Students attitudes and beliefs about drinking were assessed with responses to the following four questions: (a) how important was getting drunk for them when they drank alcohol (response categories were very important, important, somewhat important and not at all important); (b) how many drinks they took to feel drunk (response categories were 1 drink to 10 or more drinks); and (c) for male students and (d) female students, what was the maximum number of drinks in a row that was safe to consume on a single drinking occasion (response categories were none to 10 or more drinks).

5. Data Analysis

The study compared the drinking behaviors and attitudes toward drinking between U.S. and Korean students by pooling the two surveys into a single data file containing 10,904 U.S. students attending 119 colleges and 2,385 Korean students attending 60 colleges. We analyzed the data using SPSS (version 12.0). Odds ratios (OR) were used to compare the likelihood of drinking behaviors between U.S. and Korean students. Multiple logistic regression models were used to control for age. Drinking “to get drunk” as a reason for drinking was assessed by comparing those who responded “very important,” “important,” or “somewhat important” with those who indicated it was “not important.” Although the heavy episodic drinking prevalence proportions of U.S. students were significantly associated with residence, marital status, and age at $p=.001$, respectively, they were not among Korean students. Nevertheless, we stratified gender and controlled for age (all age categories were controlled: 18 or less to 24 or older) in the analyses.

III. RESULTS and DISCUSSION

1. Patterns of alcohol use and prevalence of heavy episodic drinking

Patterns of alcohol use and drinking styles about drinking among college students in the two countries are shown in <Table 1>. Drinking styles were quite different between

Korea and the U.S. Among students who had a drink in the past year, more Korean male students (32.9%) reported that they drank on 10 or more occasions in the past 30 days, compared with U.S. male students (28.3%), but there was no difference among females ($p=.315$). More Korean than U.S. students reported that they usually engaged in heavy episodic drinking when they drank (84.0% vs. 45.8% for male, 72.5% vs. 42.6% for female), and Korean students were much more likely to do so than U.S. students (OR = 7.74 for males, OR = 3.36 for females) when adjusting for age. In contrast to the pattern of drinking at Korean colleges, U.S. students were more likely than Korean students to report that they had gotten drunk three or more times in the past month (34.3% vs. 20.4% for males, 24.6% vs. 11.1% for females). Overall, Korean students reported higher levels of alcohol consumption than U.S. students. Korean students had a significantly higher prevalence of heavy episodic drinking and frequent heavy episodic drinking.

<Table 2> displays the descriptive data for the heavy episodic drinking rate by age, residence, and marital status of Korean and US college students. Among Korean male students heavy episodic drinking reported highest in students aged 19 through 20 years (76.2%), 74.2% of those aged 24 or older, 72.6% of those aged 21 through 23 and 64.2% of those aged under 19 ($p=.000$). On the other hand among US male students heavy episodic drinking were found the highest among aged group 21 through 23 years (55.1%), 46.3% of those aged 19 through 20, 45.8% of those aged under 19 and 31.8% of those of aged 24 or older ($p=.000$). Korean female students reported that 58.1% of those aged 21 through 23, 57.5% of those aged 19 through 20, 52.9% of those aged under 19 and 39.6% of those aged 24 or older had heavy episodic drinking ($p=.000$). Also US female students reported that 45.6% of those aged 21 through 23, 41.6% of those aged 19 through 20 and 36.8% of those aged under had heavy episodic drinking

<Table 1> Patterns and drinking styles of alcohol use among Korean and U.S. students

Patterns and drinking style of alcohol use	Male			Female		
	Korea n=1,202	U.S. n=3,882	Korean v. U.S. OR (95% CI)	Korea n=1,049	U.S. n=6,883	Korean v. U.S. OR (95% CI)
Drank on 10 or more occasions in the past 30 days	32.9	28.3	1.28 (1.09, 1.51)	18.2	16.7	1.11 (0.92, 1.35)
Usually drinks in a heavy episodic manner when Drinking	84.0	45.8	7.74 (6.35, 9.44)	72.5	42.6	3.36 (2.84, 3.96)
Was drunk three or more times in the past month	20.4	34.3	0.55 (0.46, 0.65)	11.1	24.6	0.36 (0.29, 0.45)

Note. Drinking style variables exclude students who abstain from alcohol. Adj. OR controlled by age, U.S. is reference at Adj. OR.

<Table 2> Heavy episodic drinking rate by age, residence, and marital status

	Male		Female	
	Korea n=1,202	U.S. n=3,882	Korea n=1,049	U.S. n=6,883
Unit: %				
Age				
under 19	64.2	45.8	52.9	36.8
19-20	76.2	46.3	57.5	41.6
21-23	72.6	55.1	58.1	45.6
24 or older	74.3	31.8	39.6	27.3
Statistical Comparison	$\chi^2=4.555$ $p=0.000$	$\chi^2=94.681$ $p=0.000$	$\chi^2=6.738$ $p=0.000$	$\chi^2=92.028$ $p=0.000$
Residence				
On Campus	69.7	49.6	53.5	42.6
Off campus without parents or relatives	77.6	51.1	57.7	45.0
Off campus with parents or relatives	73.1	33.5	57.3	27.3
Statistical Comparison	$\chi^2=4.519$ $p=0.104$	$\chi^2=62.597$ $p=0.000$	$\chi^2=893$ $p=0.640$	$\chi^2=117.962$ $p=0.000$
Marital status				
Never Married	73.3	49.6	56.5	42.9
Ever Married	82.1	18.1	43.8	16.7
Divorces/separated/widowed	90.9	39.7	80.0	24.0
Statistical Comparison	$\chi^2=4.497$ $p=0.106$	$\chi^2=91.032$ $p=0.000$	$\chi^2=2.179$ $p=0.000$	$\chi^2=138.385$ $p=0.000$

($p=.000$). US male and female students on campus and off campus without parents or relative were more likely to engage in heavy episodic drinking than those off campus with parents or relatives ($p=.000$), but no similar differences were observed among Korean male and female students. Married students were less likely to engage in heavy episodic drinking among US male ($p=.000$), US female ($p=.000$) and Korean female students ($p=.000$). However, among Korean male students, there was no protective effect against heavy episodic drinking for married students.

2. Perception to drinking behavior

The perceptions about drunkenness and safe drinking were different ($p=.001$) between Korean and U.S. college students <Table 3>. Among students who had a drink in the past year, more Korean female students (52.1%) reported that getting drunk was an important reason to drink, compared to U.S. female students (42.6%). More Korean students perceived that they could get the feeling of drunkenness when they engaged in heavy episodic drinking (84.7% for male, 77.6% for female), compared to U.S. students (68.8% for

<Table 3> Comparison of U.S. and Korean college students' perceptions of drunkenness

Perception of drunkenness	Male			Female		
	Korea n=1,202	U.S. n=3,882	Korea vs. U.S. OR (95% CI)	Korea n=1,049	U.S. n=6,883	Korea vs. U.S. OR (95% CI)
Drinking to "get drunk" is an important reason to drink	56.6	53.9	1.31 (1.13, 1.51)	52.1	42.6	1.41 (1.23, 1.62)
Feeling drunk after 5 (male) or 4 (female) drinks	84.7	68.8	2.84 (2.36, 3.42)	77.6	61.4	2.12 (1.81, 2.48)
Believe that consuming 5 or more drinks for males safe	78.4	50.3	4.06 (3.48, 4.75)	80.3	41.8	5.69 (4.85, 6.67)
Believe that consuming 4 or more drinks for females safe	62.5	39.2	2.81 (2.44, 3.23)	67.3	34.1	3.96 (3.46, 4.53)

Note. Among students who drink alcohol only. Adj. OR controlled by age, U.S. is reference at Adj. OR.

male, 61.4% for female). The perception of safe drinking was also different among Korean and U.S. college students. Korean students were much more likely to perceive a large amount of drinking as safe compared to U.S. students. Among Korean students, 78.4% of males and 67.3% of females perceived that five (four for females) or more drinks in a row were safe compared to 50.3% and 34.1% of U.S. male and female students, respectively [male OR = 4.06 (3.48, 4.75), female OR = 3.96 (3.46, 4.53)].

3. Discussion

Drinking is a major health problem among college students in both countries, and heavy drinking patterns were more prevalent among Korean students than among U.S. students. Drinking to "get drunk" was an important

reason for drinking alcohol in both countries. However, Korean students were more likely to perceive that a large amount of drinking was safe and were more likely to feel that they had gotten drunk only after considerably more drinks on average, compared to U.S. students. Korean students needed to consume more alcohol to think that they were drunk compared to U.S. students and were less likely to believe they had gotten drunk in the past 30 days relative to U.S. students. The higher perceived threshold for safe drinking among Korean students was consistent with a greater likelihood engage in heavy episodic drinking than U.S. students. With the results of differences of perception the odds of heavy episodic drinking among Korean students were 3.22 times higher for males and 1.88 times higher for females than U.S. students, when

adjusted by age (Chun and Sohn, 2006).

An interesting finding was that the prevalence of getting drunk in the past 30 days was higher among U.S. students while more Korean students engaged in drinking at heavy episodic levels when they drank compared to U.S. students, which may be explained by differential perceptions about drinking. It is also possible that the meaning of the term “drunk” is interpreted differently by Korean and U.S. students, or that the translation of this term refers to a higher degree of intoxication in Korean compared to English. The apparent cultural influences on perceptions of drunkenness observed in this study deserve further research. Young people who reported that they were exposed to “wet” environments were more likely to begin heavy episodic drinking in college than their peers without similar exposures (Weitzman et al., 2003). Wet environments included friendship networks and affiliations where heavy episodic drinking is prevalent, endorsed by peers, socially influenced and widely consumed in proximal residential settings (Wechsler and Nelson, 2008). It also includes market surroundings in which alcohol is cheap and easily available (Kuo et al., 2003; Chun et al., 2006).

We expected that students living off-campus with their parents or relatives would be less likely to use alcohol and to be heavy episodic drinkers in both countries. A significant interaction effect between residence and heavy episodic drinking showed that the protective effect of living with parents was only present among U.S. students and not among Korean students. In a prior study comparing drinking

behaviors of Canadian and U.S. college students (Kuo et al., 2002), the higher prevalence of living off-campus with parents among Canadians, and the protective effect this afforded, appeared to account for some differences in drinking behavior between the two countries. This protective effect of parents did not appear to operate for Korean students. Similarly, there were no significant differences in heavy episodic drinking with residence and marital status among Korean male students, and with residence among Korean female students in contrast with findings among U.S. students (Wechsler et al., 2002).

The association between students’ alcohol consumption and their social and living arrangements may be the result of peer and family social influences (Wechsler et al., 2000). Alcohol use in college is a highly social behavior (Wechsler et al., 2000). Students who are heavy episodic drinkers have more friends (Wechsler et al., 2002) and are more likely to be members of fraternities, sororities (Wechsler et al., 2002) or athletic teams (Nelson and Wechsler, 2001). Permissive attitudes about drinking in Korea conveyed to students through social channels may promote heavy drinking among Korean students. For example, Koreans frequently engage in heavy alcohol use with their young adult children and spouses (Lee, 2004) and parental alcohol use and attitudes toward their children’s drinking are significantly associated with early onset of drinking, the uptake of heavy episodic drinking and getting drunk in college (Chun et al., 2006).

There is a broad social norm and cultural

divide between Korean and American college environments. A study on college-ready Korean American adolescents in California found that acculturation was not a significant factor in their alcohol consumption but peer influence, scholastic achievement and smoking were (Cook et al., 2009). This is notably different from Koreans living in Korea where the larger cultural environment and social norms plays a significant factor in alcohol consumption (Chun et al., 2006). The protective effect of parental disapproval regarding alcohol consumption is absent in Korea but present in U.S.

When Korean families immigrate to the U.S. they tend to become more religious. Up to 75% of first-generation Korean immigrants have church-related activities as a part of their lives and this may guard against harmful alcohol consumption for the college-bound Korean-American adolescent (Kwon et al., 2001). Still, peer influence on alcohol consumption is significant for Korean-Americans. Korean-American adolescents who have Korean-American peers that are non Korean influence them to drink more than those that associate with Korean-American peers (Cook et al., 2009). This variable may hold true for Korean-Americans in the U.S. college environment. In addition to the influence of drinking culture, Koreans have alcohol dehydrogenase (ADH) genetic polymorphisms which significantly increase the risk of alcoholism (Kim et al., 2008; Li et al., 2009). Koreans with an ADH1B Arg/Arg genotype represent in 34.1% of alcoholics.

Koreans who are vulnerable to genetic

effects on two loci (ADH1B His47Arg and ALDH2 Glu48/Lys) have a 91 times greater risk of alcoholism. Those with one vulnerable and one protective allele have 11 times greater risk of alcoholism. The attributable fraction of one or two genetic loci for alcoholism in alcoholic patients within in the Korean population is 86.5%. Clearly, alcohol misuse and its related problems are polygenic and involve complex environmental interactions (Kim et al., 2008).

The results of this study must be viewed within the context of its limitations. Both CAS and KCAS are subject to the limitations of any self-reported survey. However, such surveys have been considered generally valid in examining alcohol responses (Midanik, 1988). Previous findings have indicated that if a self-report bias exists, it is likely limited to the heaviest use group, which may not affect lower drinking thresholds used in the current study (Room, 1971). Another study limitation was that CAS and KCAS were not conducted during the same time almost 10 years ago. However, drinking behavior among U.S. and Korean college students and is quite consistent over time (Wechsler et al., 2002; Chun et al., 2008; Nelson et al., 2009). There are multiple sources of variation which may not be adequately considered using the Generalized Estimating Equation calculations. Furthermore, there may be larger, unmeasured cultural differences that were not assessed, including Korean-American college student alcohol consumption, alcohol control policies, price, and alcohol marketing. These factors should be examined in future research.

IV. Summary and Conclusion

This study is aimed at comparing patterns of drinking behaviors about drinking and drunkenness among U.S. and Korean students.

Nationally representative samples of 4-year college students in Korea and United States were involved in this cross-national comparison study. Data from the 2003 Korean College Alcohol Study (KCAS) and the 2001 Harvard School of Public Health College Alcohol Study (CAS) came from 60 colleges in Korea and 120 colleges in 38 U.S. states and the District of Columbia. Randomly selected 4-year college students from Korea(2,385) and the U.S. (10,904) participated in the study using self-reported alcohol use, drinking behaviors and perceptions of drinking as assessed by College Alcohol Study questionnaires.

As heavy episodic drinking is higher among Korean students than U.S. students, Korean students were more likely to perceive heavy episodic drinking as being safe and to have more permissive attitudes about alcohol use compared to U.S. students. Living with parents and being married did not appear to be protective factors for Korean students, in contrast to U.S. students.

Korean college students in Korea were more likely to drink heavily than U.S. college students, in contrast to the lower rates of heavy drinking among Asian students at U.S. colleges. Higher levels of drinking among Korean students were associated with more permissive attitudes and beliefs about safe drinking levels, drunkenness and heavy episodic drinking among peers and family.

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