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Understanding Differences in Alcohol Consumption and Depressed Mood Between U.S.- and Foreign-born Asian and Caucasian College Students

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The number and proportion of foreign-born individuals in the U.S. population has increased in recent decades. From 1970 to 2007, the foreign-born population more than tripled to approximately 37 million (U.S. Census Bureau, 1997; 2008). Foreign-born students are a key sub-population of college students. About 23% of U.S. undergraduate college students in 2007–08 were either born outside of the U.S. (10%) or were children of at least one first-generation immigrant parent (13%; National Center for Education Statistics [NCES], 2012). Asian students constitute the majority of foreign-born (30%) undergraduates. Although foreign-born Asian students compose nearly one-quarter of the college population, limited research has examined how rates of alcohol use and depression differ between foreign-born and U.S.-born Asian college students (Gonzalez, Reynolds, & Skewes, 2011; Ralston & Palfai, 2012). The limited research is worrisome given their increasing rates of college enrollment (U.S. Census Bureau, 2011), alcohol consumption (Aud, Fox, & KewalRamani, 2010), alcohol abuse and dependence (Grant et al., 2004), and underutilization of mental health services (U.S. Department of Health and Human Services, 2001). Collectively, these factors point to the need for further research tailored to Asian college drinkers.

1.1. Alcohol use among U.S.- and foreign-born Asian college students

College student drinking is both a widespread and problematic phenomenon with high prevalence rates of alcohol misuse (Johnston, O'Malley, Bachman, & Schulenberg, 2005). Drinking is a prominent part of American college culture (Borsari & Carey, 2003; National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2007). Up to two-thirds of college students report consuming alcohol in the past year (Johnston, O'Malley, Bachman, & Schulenberg, 2013), and heavy alcohol use is more common among young adults who are attending college than those who are not attending (Timberlake et al., 2007). Issues of heavy drinking involve the areas of education, mental and physical health, interpersonal relationships, and behavior (Hingson, Heeren, Winter, & Wechsler, 2005). As such, excessive alcohol use among students has been identified as a major public health concern (NIAAA, 2002, 2007).

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Empirical research indicates that foreign-born Asian college students and young adults consume less alcohol and experience fewer alcohol-related problems than their U.S.-born counterparts (Lum, Corliss, Mays, Cochran, & Lui, 2009; Szaflarski, Cubbins, & Ying, 2011). According to a large national survey investigating variation in alcohol abuse patterns across racial and ethnic groups, lower rates of alcohol abuse (*Diagnostic and Statistical Manual of Mental Disorders-IV-TR*; American Psychiatric Association, 2000) were found in Asian foreign-born young adults (18–24 years old) compared to U.S.-born Asian young adults (Szaflarski et al., 2011). This study included a diverse sample of Asians/Pacific Islanders young adults who did and did not attend college. Alcohol use was less prevalent among foreign-born Asian college students than their U.S.-born counterparts (Lum et al., 2009).

Variations in alcohol use between U.S.- and foreign-born college students may be shaped by drinking cultures (Cook, Mulia & Karriker-Jaffe, 2012; Lum et al., 2009; Nichter, Nichter, Carkoglu, & Lloyd-Richardson, 2010). Skog (1985) theorized that individual drinking behaviors may be strongly shaped by drinking cultures pervasive in a population or subpopulation, as each culture has norms regarding acceptable frequency and quantity of alcohol use. Indeed, the strong influence of social norms on alcohol use has been demonstrated in the college drinking literature (Baer, Stacy, & Larimer, 1991; Larimer, Turner, Mallet, & Geisner, 2004; Perkins & Berkowitz, 1986). Similarly, a drinking culture specific to one's own racial or ethnic subgroup has also been demonstrated as a powerful influence (Cook et al., 2012). Relative to foreign-born Asian adults from countries characterized by low per capita alcohol consumption, those from countries characterized by higher per capita alcohol consumption were more likely to consume a higher amount of alcohol annually, to be current drinkers, and to drink with greater frequency (Cook et al., 2012). As a part of the drinking culture, stigma against alcohol use and problematic drinking has been a widely documented factor influencing drinking behaviors in the Asian population (Yang, Phelan, & Link, 2008). Furthermore, Buddhist teaching has been linked to abstinence from alcohol in Asia (Chamratrithirong et al., 2010) while Confucian and Taoist teachings emphasize moderate alcohol consumption (Yun & Park, 2008). In fact, the influence of the Buddhist, Confucian and Taoist teachings has been considered as an explanation for the low rate of alcohol consumption among Asian Americans. The particular emphasis on peace, congruence, and harmony may serve to moderate alcohol consumption. Such teachings may account for drinking differences between foreign-born and U.S.-born Asian college students.

1.2. Depression symptoms among U.S.- and foreign-born Asian college students

Depressed mood is another important health concern among college students (Gallagher, 2009; Kitzrow, 2003). A nationwide survey of college students found that 30% of students reported feeling "so depressed it was difficult to function" at some time in the past year (American College Health Association, 2009). Higher levels of depression have been associated with increased alcohol-related problems (Armeli, Conner, Cullum, & Tennen, 2010; Geisner, Mallett, & Kilmer, 2012). Depressed college students may engage in problematic drinking behavior in part because negative affect impairs short-term impulse

control and decision-making (Gonzalez et al., 2011) and drinking may alleviate negative affect (Dawson, Grant, Stinson, & Chou, 2005; Geisner, Larimer, & Neighbors, 2004).

Empirical research indicates differences in rates of depression between U.S.- and foreign-born persons both within an ethnic group and across ethnic groups (e.g., Alegria et al., 2007; Almeida, Subramanian, Kawachi, & Molnar, 2009; Cheung, Leung, & Cheung, 2011; Song, Ziegler, Arsenault, Fried, & Hacker, 2011; Sumner et al., 2010; Szaflarski et al., 2011; Williams et al. 2007). We are aware of only one study that examined college students (Szaflarski et al., 2011). This study found that foreign-born young adults experienced higher risk of clinical diagnosis of depression relative to their U.S.-born counterparts (Szaflarski et al., 2011). In ethnic-specific studies, foreign-born Asian high school students (grades 9–12) have two times greater likelihood of depressed mood compared to U.S.-born students (Song et al., 2011).

1.3 Drinking-to-cope tendency among U.S.- and foreign-born Asian college students

The issue of comorbidity of alcohol consumption and depressed mood in college populations remains largely unaddressed within foreign-born Asian populations (Ralston & Palfai, 2012). Perceived acceptability of drinking-to-cope with negative affect (i.e., "drinking-to-cope") may serve as a social force that influences the drinking behavior of all members of the network (Baer et al., 1991; Cook et al., 2012; Skog, 1985). Eshun and colleagues (1998) examined differences in drinking-to-cope with depressed mood between Ghana college students and U.S.-born Ghana college students in the U.S. Results indicate that students in the U.S. reported higher frequency of drinking-to-cope with depression on a coping questionnaire (Nolen-Hoeksema & Morrow, 1991) than did students in Ghana. An important limitation of this study is that it did not directly examine the relationship between depression and alcohol use. Furthermore, we are not aware of any study that has examined differences in drinking-to-cope tendency between U.S.- and foreign-born Asian college students.

1.4. Covariates in the current study

Differences in alcohol use, depression, and drinking as a coping strategy for depression between U.S.- and foreign-born Asian and Caucasian students may also be associated with age, gender, and students' living situations. Foreign-born Asian college students are more likely to live at home than their U.S.-born counterparts (Lum et al., 2009). Relative to students living with their parents, those living on or near a college campus may be more strongly influenced by the college drinking culture, and engage in a higher level of alcohol consumption (Hendershot, Dillworth, Neighbors, & George, 2007; Wong, Klingle, & Price, 2004; Yi & Daniel, 2001). Additionally, gender moderates the relationship between alcohol use and psychological distress, such that the relationship is significantly stronger for men than for women (Geisner et al., 2004). Finally, age is a significant predictor such that older college students drink more frequently (Baer et al., 1991; Larimer et al., 2000, Mooney, Fromme, Kivlahan, & Marlatt, 1987) and are more likely influenced by the accessibility of alcohol than younger students (Borsari & Carey, 2003; Larimer et al., 2004; Timberlake et

al., 2007). Taken together, age, gender, and place of residency are important factors to account for. Place of residency was not accounted for in prior studies (Pena et al., 2008; Szaflarski et al., 2011). To address this gap in the literature, we will control for age, gender, and place of residency in all analyses in the current study.

1.5. Current study aims and hypotheses

The current research aimed to examine quantity of alcohol use, depressed mood, and the relationship between drinking and depressed mood among a large sample of U.S.- and foreign-born Asian and Caucasian college students. To increase the rigor of the current research, we controlled for age, gender, and place of residency. Given the limited research on U.S.- and foreign-born Asian college students, we sought to replicate findings in prior research (Lum et al., 2009; Pena et al., 2008; Szaflarski et al., 2011) and we expect that foreign-born Asian students will report higher levels of depression and lower levels of alcohol use than U.S.-born Asian students. Similarly, consistent with prior research (Armeli et al., 2010; Geisner et al., 2012; Gonzalez et al., 2011), we expect there will be an overall positive association between depressed mood and alcohol use. A novel component of the study is to explore nativity as a moderator of the relationship between depressed mood and alcohol use. We hypothesize that the relationship between depressed mood and alcohol use will be weaker among foreign-born students relative to U.S.-born students.

Method

Participants

A randomly selected list of 3,824 currently enrolled undergraduates age 18–24 was obtained from the Registrar Office of a large public university in the Northwest. A total of 1,825 students (48%) had provided responses in this initial survey. Data from 222 students were excluded due to missing response from the nativity variable, leading to a sample of 1,603 students. Among the sample, the two largest groups consisted of Caucasian (57.2%) and Asian with (25.1%), which yielded the current sample of 1,320 students. Students were female (56.6%) and with an average age of 19.6 (SD = 1.54). The majors of participants, with an average of 2.37 years in school were split into Arts and Humanities (11%), Business (13.7%), Science, Math and Technology (39.6%), Social Sciences (13.4%), and Undecided or Other (22.3%). Of those individuals who were born in the United States (N = 1,121, 84.9% of total sample), 78.7% were Caucasian and 21.3% Asian. Of those individuals who were not born in the United States (N = 199, 15.1% of total sample), 77.9% were Asian and 22.1% were Caucasian with an average of 10.4 years in the U.S. Only 3.2% of foreign-born students were international students, here for the purpose of tertiary education. Housing status was assessed across the sample with 27.4% of participants reporting living on campus, 18% in a fraternity or sorority house, 13.7% with their parents, and 40.9% in off campus housing. Participants were compensated $10 for their participation. All procedures were approved by the university's Institutional Review Board and a federal certificate of confidentiality was obtained.

Procedures

Data for the present study was drawn from a larger study examining the effectiveness of web-based personalized feedback in reducing depressed mood and alcohol use in college students. Students were emailed an invitation to participate in a study on drinking and mood. The email included a description of the study as well as a link to the study website. A separate email was sent that included a personal identification number allowing participants to log on to a secure website containing the consent information and 15-minute online assessment.

Measures

Self-Report of Depression—Depressed mood was assessed using the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), a widely used 21-item self-report measure of depression. 21 questions (e.g., Sadness, Loss of Interest, Worthlessness, etc) in the form of multiple choice items each ranging from 0–3 (I do not feel sad to I am so sad or unhappy that I can't stand it) were summed to create a single composite score, with higher scores indicating more symptoms of depression (scores 0–13 indicating minimal depression; 14–19 mild depression; 20–28 moderate depression; 29–66 indicating severe depression; $\alpha = .89$)

Risky Alcohol Consumption—High level alcohol consumption, associated behaviors and related problems were assessed using the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The AUDIT is a 10-item self-report measure designed to screen for hazardous and harmful alcohol consumption. Multiple-choice items (each ranging from 0–4) were summed to create a single composite score ($\alpha = .82$), with higher scores indicating a greater likelihood of hazardous and harmful alcohol consumption. Generally, a cutoff score of 8 has been suggested for detecting at-risk drinking in adult populations (Saunders et al., 1993) as well as in college populations, with a recent study finding that at a score of 8 the AUDIT showed the best sensitivity and specificity in detecting at-risk drinking in a sample of college students (DeMartini and Carey, 2012).

Covariates—Reported age and gender ("0" coded as female) as well as place of residence (living with family, living with friends/peers, etc.) were used as covariates in the present analyses based on prior research that has found these factors to be associated with alcohol use (NIAAA, 2002; Geisner et al., 2004; Larimer, Anderson, Baer, & Marlatt, 2000). Among other demographic items, nativity was assessed with the question "Were you born in the United States?" A response of "no" (coded as 0), indicated foreign-born status.

Results

Descriptive Statistics

Overall, results indicated that individuals scored an average of 8.99 ($SD = 8.67$) on the BDI-II, while the average AUDIT score was 6.38 ($SD = 6.20$). Zero-order correlations, means, and standard deviations are presented in Table 1 and indicate that being older, male, born in the United States, living with peers (in dorms, fraternity/sorority houses, and off-campus

apartments with friends), and having greater levels of depression symptoms were positively correlated with greater alcohol use. However, being younger, female, and born outside of the U.S. were associated with greater levels of depression symptoms. It should also be noted that foreign-born students were significantly more likely to live at home with their parents instead of in residence halls or other living arrangements with friends ($F = 64.98$, $p < .001$)

Differences Between Foreign-born and U.S.-born Students on Depression and Alcohol Use

A series of independent sample t-tests were conducted in order to determine whether differences between foreign-born and U.S.-born students existed in depression and alcohol use. Among Asian participants, results indicated that foreign-born students reported significantly lower levels of drinking ($M\ (SD) = 3.33\ (4.75)$ vs $4.50\ (5.26)$, $t = -2.419$, $p < .01$) and higher levels of depression symptoms ($M\ (SD) = 11.76\ (10.47)$ vs $9.38\ (7.31)$, $t = 2.38$, $p < .001$) than U.S.-born Asian participants. However, among Caucasian participants, there was not a significant difference between U.S.- and foreign-born students on either drinking ($M\ (SD) = 6.73\ (5.21)$ vs. $7.43\ (5.40)$, $t = -0.73$, $p = .12$) or depression ($M\ (SD) = 10.88\ (8.72)$ vs $8.29\ (7.34)$, $t = 1.64$, $p = .10$).

Asian Participants

A linear regression was conducted in order to determine whether depression scores predicted alcohol use, and if this effect was moderated by nativity among Asian participants. All predictors were mean centered to facilitate interpretation of parameter estimates (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). Age, gender, and place of residence were entered as covariates. Results indicated that there were main effects of age, gender, and place of residence such that being older, male, and living with peers rather than family predicted greater alcohol use. Of note, the main effects of nativity and depression were non-significant. However, results yielded significant interaction between depression and nativity. See Table 2 for full regression results. Simple effects analyses (using one SD above and below the conditional mean) revealed that depression was a predictor of alcohol use for U.S.-born students ($\beta = 0.13$, $t = 4.99$, $p < .001$) but not for foreign-born students ($\beta = 0.04$, $t = .44$ $p > .10$). See Figure 1 for a graphical presentation of results.

Caucasian Participants

Results of a similar linear regression to above but with Caucasian participants indicated that there were main effects of age, gender, place of residence, and depression such that being older, male, and living with peers rather than family, and higher levels of depression predicted greater alcohol use. However, there was no main effect of nativity. Additionally, the interaction between depression and nativity was not significant. See Table 3 for full results.

Discussion

The current research aimed to examine depressed mood, quantity of alcohol use, and the relationship between drinking and depressed mood among U.S- and foreign-born Asian and Caucasian college students in a random sample of college students from a large public

university on the west coast. As predicted, age, gender, and place of residency were significant covariates. These findings replicate prior research (Lum et al., 2009; Pena et al., 2008; Szaflarski et al., 2011). Foreign-born Asian students reported higher levels of depression and lower levels of alcohol use than their U.S.-born counterparts. Consistent with prior research (Armeli et al., 2010; Geisner et al., 2012; Gonzalez et al., 2011), there was an overall positive association between depression and alcohol use across all students. As hypothesized, nativity was a significant moderator of the relationship between depression and alcohol use. The relationship between depression and alcohol use was found for U.S.-born Asian students but not for foreign-born Asian students. In addition, nativity among Caucasians yields no significant link between depression and drinking.

Greater symptoms of depression among foreign-born Asian students may be attributed to a wide array of stressors. As foreign-born Asian college students face the transition to adulthood, they may develop a greater awareness of their individual ethnic and American identities, and must negotiate both identities in different contexts in order to adjust to the college environment (Buddington, 2002; Unger, Trinidad, Weiss, & Rohrbach, 2004). Parental disapproval of the non-traditional identity and associated behaviors and conflicts with parents may occur and may cause distress for foreign-born college students (Lau, Jernewall, Zane, & Myers, 2002; Song et al., 2011). Furthermore, many foreign-born Asian students are the first in their family to attend college and face a tremendous amount of pressure to succeed (Buddington, 2002; Unger et al., 2004). Some may have to take care of their family and carry additional family responsibilities on top of coursework (Lau et al., 2002; Malecha, Tart, & Junious, 2012). Finally, foreign-born Asian students are in the lowest income group, whereas the reverse has been found for Caucasian students (NCES, 2012). Socioeconomic disadvantage may be a powerful predictor of depression among foreign-born Asian college students (Almeida et al., 2009). Taken together, the presence of these risk factors may exacerbate stress among foreign-born Asian students whom already have an increased sense of worry regarding academics (Song et al., 2011).

As hypothesized, the association between depression and alcohol use was moderated by nativity, such that the relationship was significant for U.S.-born Asian college students but not for foreign-born Asian college students. These differences may be attributed to foreign-born college students having better lifestyles before and immediately following migration as well as having more extensive social support relative to U.S.-born Caucasian college students (Cunningham, Ruben, & Narayan, 2008). Living at home with family may provide greater connection with family and material support (Lum et al., 2009) in addition to potentially being less exposed to a campus culture that promotes drinking (Larimer et al., 2004). Additionally, as a part of the drinking culture, there may be less social acceptance for drinking and drinking-to-cope among foreign-born Asian college students as stigma and religious and philosophical influences against alcohol use and problematic drinking have been widely documented factors influencing drinking behaviors in the Asian population (Chamratrithirong et al., 2010; Yang et al., 2008; Yun & Park, 2008). Furthermore, foreign-born Asian college students may be more likely to turn to different alcohol-free activities (e.g., being involved in ethnic student organizations) to alleviate mood symptoms, thus reducing the need for using alcohol to cope. Finally, living in a neighborhood with a high

foreign-born Asian concentration is associated with lower odds of binge drinking (Kimbro, 2009), suggesting that neighborhood characteristics may serve as protective factors.

Clinical Implications

Our sample of foreign-born students (15.1%) exceeds the national average of undergraduate college students born outside the U.S. (10%; NCES, 2012), indicating that foreign-born students were well represented in this study. Results of the current study may offer insight for the development of different alcohol and depression prevention and intervention approaches for U.S.- and foreign-born Asian and Caucasian college students. While clinicians need to pay attention to alcohol use when working with U.S.-born Asian college students presenting with depressed mood, drinking-to-cope may be a less relevant prevention target for foreign-born Asian college students. Studying the coping strategies of foreign-born Asian students may yield strategies that can be used for all college students. It is important to use multicultural models of counseling that explore students' multiple identities and how those link to alcohol use outcomes. Additionally, prevention and intervention efforts for depression in foreign-born Asian and Caucasian students should aim to promote students' ability to cope with stress.

Limitations

Limitations of this research must be mentioned. First, information regarding generation-status was not available, which would serve as further evidence of cultural norms for drinking. Additionally, the present study did not have data of socioeconomic status of the participants and was unable to include SES as a covariate. Second, the data were provided via self-report and, therefore, subject to bias. However, students submitted their responses via online surveys and were informed that their responses were completely confidential, so there is little reason to believe use of self-report data influenced the current findings. Third, the cross-sectional nature of the research prohibits an understanding of causality in the depressed mood/alcohol use relationship. Previous research has found that depression often temporally precedes alcohol use (Boden & Fergusson, 2011; Conner, Pinquart, & Gamble, 2009). However, based on a recent meta-analysis, the plausible causal association between depression and alcohol use is that alcohol use increases the risk of depression, rather than vice versa (Boden & Fergusson, 2011). Finally, the present study did not investigate the use of other substances to cope with depression. It is possible that some foreign-born Asian and Caucasian students may choose to use substances other than alcohol (e.g., cigarettes; Fosados et al., 2007). The prevalence of tobacco use is especially high in some Asian countries (e.g., China) as it is a more socially acceptable behavior in the culture (Ma et al., 2004; Otsuki, 2003).

Future Directions

Future research is needed to determine if these relationships are supported when examining the differences between U.S.-born college students and specific racial and ethnic groups of foreign-born college students. The number of years students have lived in the U.S. should be examined as a predictor as prior research has shown an inverse relationship between length of residency in the U.S. and smoking rates (Centers for Disease Control and Prevention, 1992). A decrease in smoking may be correlated with an increase in alcohol use among

Asians (Ma et al., 2004). Finally, future studies need to assess specific elements of the living situation among foreign-born students such as whether they live in a foreign-born community and/or with their family, as well as conducting analyses to separate international students from foreign-born students, as international students may experience unique stressors and may be influenced by drinking cultures differently (Cunningham et. al., 2008). Sample size of the international students was too small (i.e. 3.2% of foreign-born students) in this study to conduct such analyses. In addition, given that socioeconomic status is a powerful predictor of depression (Almeida et al., 2009), future studies are needed to further examine the effects of socioeconomic status disadvantage.

Conclusion

Despite these limitations, this study paves the way for understanding nativity as both a risk and protective factor among college students when examining comorbidity between alcohol use and depressed mood. This line of research is particularly important given the rising foreign-born college population in the U.S. in recent years and the need to examine potentially culturally-relevant factors in order to best understand behavior and inform the design of prevention and intervention programs.

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References

Aiken, LS.; West, SG. Multiple regression: Testing and interpreting interactions. Newbury Park, CA: Sage; 1991.

Alegria M, Chatterji P, Wells K, Cao Z, Chen C, Takeuchi D, … Meng X. Disparity in depression treatment among racial and ethnic minority populations in the United States. Psychiatric Services. 2008; 59(11):1264–1272. [PubMed: 18971402]

Almeida J, Subramanian SV, Kawachi I, Molnar BE. Is blood thicker than water? Social support, depression and the modifying role of ethnicity/nativity status. Journal of Epidemiology & Community Health. 2009; 65:51–56. [PubMed: 19910646]

American College Health Association. American College Health Association-National College Health Assessment II: Reference Group Executive Summary. 2009 Fall. Retrieved from http://www.acha-ncha.org/docs/ACHA-NCHA_Reference_Group_ExecutiveSummary_Fall2009.pdf

American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4. Washington, DC: Author; 2000. text rev

Armeli S, Conner TS, Cullum J, Tennen H. A longitudinal analysis of drinking motives moderating the negative affect-drinking association among college students. Psychology of Addictive Behaviors. 2010; 24:38–47. [PubMed: 20307111]

Aud, S.; Fox, M.; KewalRamani, A. US Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office; 2010. Status and trends in the education of racial and ethnic groups. NCES 2010–015

Baer JS, Stacy A, Larimer M. Biases in the perception of drinking norms among college students. Journal of Studies on Alcohol. 1991; 52:580–586. [PubMed: 1758185]

Beck, AT.; Steer, RA.; Brown, GK. BDI-II, Beck depression inventory: Manual. San Antonio, Tex: Psychological Corp; 1996.

Boden JM, Fergusson DM. Alcohol and depression. Addiction. 2011; 106:906–914. [PubMed: 21382111]

Borsari B, Carey KB. Descriptive and injunctive norms in college drinking: A meta- analytic integration. Journal of Studies on Alcohol. 2003; 64:331–341. [PubMed: 12817821]

Buddington SA. Psychological adjustment (stress, depression, self-esteem) and the academic achievement of Jamaican immigrant college students. International Social Work. 2002; 45:447–464.

Centers for Disease Control and Prevention. Cigarette smoking among Chinese, Vietnamese and Hispanics – California, 1989–1991. Morbidity and Mortality Weekly Reports. 1992; 41:362–368.

Chamratrithirong A, Miller BA, Byrnes HF, Rhucharoenpornpanich O, Cupp PK, Rosati MJ, … Chookhare W. Spirituality within the family and the prevention of health risk behavior among adolescents in Bangkok, Thailand. Social Science & Medicine. 2010; 71(10):1855–1863. [PubMed: 20926170]

Cheung M, Leung P, Cheung A. Depressive symptoms and help-seeking behaviors among Korean Americans. International Journal of Social Welfare. 2011; 20:421–429.

Cohen, J.; Cohen, P.; West, SG.; Aiken, LS. Applied multiple regression/correlation analysis for the behavioral sciences. 3. Mahwah, NJ: Erlbaum; 2003.

Conner KR, Pinquart M, Gamble SA. Meta-analysis of depression and substance use among individuals with alcohol use disorders. Journal of Substance Abuse Treatment. 2009; 37:127–137. [PubMed: 19150207]

Cook WK, Mulia N, Karriker-Jaffe K. Ethnic drinking cultures and alcohol use among Asian American adults: Findings from a national survey. Alcohol and Alcoholism. 2012; 47(3):340–348. [PubMed: 22378829]

Cunningham SA, Ruben JD, Narayan KM. Health of foreign-born people in the United States: A review. Health and Place. 2008; 14:623–635. [PubMed: 18242116]

Dawson DA, Grant BF, Stinson FS, Chou PS. Psychopathology associated with drinking and alcohol use disorders in the college and general adult populations. Drug and Alcohol Dependence. 2005; 77:139–150. [PubMed: 15664715]

DeMartini KS, Carey KB. Optimizing the use of the AUDIT for alcohol screening in college students. Psychological Assessment. 2012; 24:954–963. [PubMed: 22612646]

Eshun E, Chang EC, Owusu V. Cultural and gender differences in responses to depressive mood: A study of college students in Ghana and the U.S.A. Personality and Individual Differences. 1998; 24(4):581–583.

Fosados R, McClain A, Ritt-Olson A, Sussman S, Soto D, Baezconde-Garbanati L, Unger JB. The influence of acculturation of drug and alcohol use in a sample of adolescents. Addictive Behaviors. 2007; 32(12):2990–3004. [PubMed: 17618064]

Gallagher, RP. National Survey of Counseling Center Directors. Alexandria, VA: International Association of Counseling Services; 2009.

Geisner IM, Larimer ME, Neighbors C. The relationship among alcohol use, related problems, and symptoms of psychological distress: Gender as a moderator in a college sample. Addictive Behaviors. 2004; 29:843–848. [PubMed: 15219328]

Geisner IM, Mallett K, Kilmer JR. An examination of depressive symptoms and drinking patterns in first year college students. Issues in Mental Health Nursing. 2012; 33:280–287. [PubMed: 22545634]

Gonzalez VM, Reynolds B, Skewes MC. Role of impulsivity in the relationship between depression and alcohol problems among emerging adult college drinkers. Experimental and Clinical Psychopharmacology. 2011; 19:303–313. [PubMed: 21480733]

Grant B, Dawson D, Stinson F, Chou S, Dufour M, Pickering R. The 12-month prevalence and trends in DSM-IV alcohol abuse and dependence: United States, 1991–1992 and 2001–2002. Drug and Alcohol Dependence. 2004; 74:223–234. [PubMed: 15194200]

Hendershot CS, Dillworth TM, Neighbors C, George WH. Differential effects of acculturation on drinking behavior in Chinese- and Korean-American college students. Journal of Studies on Alcohol and Drugs. 2007; 69:121–128. [PubMed: 18080072]

Hingson R, Heeren T, Winter M, Wechsler H. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18–24: Changes from 1998 to 2001. Annual Review of Public Health. 2005; 26:259–279.

Johnston, LD.; O'Malley, PM.; Bachman, JG.; Schulenberg, JE. Monitoring the Future national survey results on drug use, 1975–2004. Volume II: College students and adults ages 19–50. 2005. NIH Publication No. 05–5728 Retrieved from: http://monitoringthefuture.org/pubs/monographs/vol2_2004.pdf

Johnston, LD.; O'Malley, PM.; Bachman, JG.; Schulenberg, JE. Monitoring the Future national survey results on drug use, 1975–2012. Volume II: College students and adults ages 19–50. 2013. Retrieved from http://www.monitoringthefuture.org/pubs/monographs/mtf-vol2_2012.pdf

Kimbro RT. Acculturation in Context: Gender, age at migration, neighborhood ethnicity, and health behaviors. Social Science Quarterly. 2009; 90(5):1145–1166.

Kitzrow MA. The mental health needs of today's college students: Challenges and recommendations. NASPA Journal. 2003; 41:165–179.

Larimer ME, Anderson BK, Baer JS, Marlatt GA. An individual in context: Predictors of alcohol use and drinking problems among Greek and residence hall students. Journal of Substance Abuse. 2000; 11:53–68. [PubMed: 10756514]

Larimer ME, Turner AP, Mallet KA, Geisner IM. Predicting drinking behavior and alcohol-related problems among fraternity and sorority members: Examining the role of descriptive and injunctive norms. Psychology of Addictive Behaviors. 2004; 18(3):203–212. [PubMed: 15482075]

Lau AS, Jernewall NM, Zane N, Myers HF. Correlates of suicidal behaviors among Asian American outpatient youths. Cultural Diversity and Ethnic Minority Psychology. 2002; 8(3):199–213. [PubMed: 12143098]

Lum C, Corliss HL, Mays VM, Cochran SD, Lui CK. Differences in drinking behaviors of Chinese, Filipino, Korean, and Vietnamese college students. Journal of Studies on Alcohol and Drugs. 2009; 70(4):568–574. [PubMed: 19515297]

Ma GX, Tan Y, Toubbeh JI, Su X, Shive SE, Lan Y. Acculturation and smoking behavior in Asian-American populations. Health Education Research. 2004; 19(6):615–625. [PubMed: 15199009]

Malecha A, Tart K, Junious DL. Foreign-born nursing students in the United States: A literature review. Journal of Professional Nursing. 2012; 28(5):297–305. [PubMed: 23006652]

Mooney DK, Fromme K, Kivlahan DR, Marlatt GA. Correlates of alcohol consumption: Sex, age, and expectancies relate differentially to quantity and frequency. Addictive Behaviors. 1987; 12:235–240. [PubMed: 3661276]

Murphy JG, Barnett NP, Colby SM. Alcohol-related and alcohol-free activity participation and enjoyment among college students: A behavioral theories of choice analysis. Experimental and Clinical Psychopharmacology. 2006; 14(3):339–349. [PubMed: 16893277]

National Center for Education Statistics, U.S. Department of Education. New Americans in Postsecondary Education: A profile of immigrant and second-generation American undergraduates. 2012. (NCES 2012–213). Retrieved from http://nces.ed.gov/pubs2012/2012213.pdf

National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, U. S. Department of Health and Human Services. High-risk drinking in college: What we know and what we need to learn. 2002. Retrieved from http://www.collegedrinkingprevention.gov/media/FINALPanel1.pdf

National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, U. S. Department of Health and Human Services. What colleges need to know now: An update on college drinking research. 2007. (NIH Publication No. 07–5010). Retrieved from http://www.collegedrinkingprevention.gov/1College_Bulletin-508_361C4E.pdf

Nichter M, Nichter M, Carkoglu A, Lloyd-Richardson E. Smoking and drinking among college students: "It's a package deal". Drug and Alcohol Dependence. 2010; 106:16–20. [PubMed: 19758771]

Nolen-Hoeksema S, Morrow J. A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. Journal of Personality and Social Psychology. 1991; 61:115–121. [PubMed: 1890582]

Pena JB, Wyman PA, Hendricks BC, Matthieu MM, Olivares TE, Hartel D, Zayas LH. Immigration generation status and its association with suicide attempts, substance use, and depressive symptoms among Latino adolescents in the USA. Prevention Science. 2008; 9:299–310. [PubMed: 18855139]

Perkins HW, Berkowitz AD. Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. International Journal of the Addictions. 1986; 21:961–967. [PubMed: 3793315]

Presley CA, Meilman PW, Leichliter JS. College factors that influence drinking. Journal of Studies on Alcohol. 2002; 14:82–90. [PubMed: 12022732]

Otsuki TA. Substance use, self-esteem, and depression among Asian American adolescents. Journal of Drug Education. 2003; 33(4):369–390. [PubMed: 15237863]

Ralston TE, Palfai TP. Depressive symptoms and the implicit evaluation of alcohol: The moderating role of coping motives. Drug and Alcohol Dependence. 2012; 122(2):149–151. [PubMed: 21968339]

Saunders JB, Aasland OG, Babor TF, de la Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption: II. Addiction. 1993; 88(6):791–804. [PubMed: 8329970]

Skog OJ. The collectivity of drinking cultures – a theory of the distribution of alcohol consumption. British Journal of Addiction. 1985; 80:83–99. [PubMed: 3856453]

Song SJ, Ziegler R, Arsenault L, Fried LE, Hacker K. Asian student depression in American high schools: Differences in risk factors. The Journal of School Nursing. 2011; 27(6):455–462. [PubMed: 21844218]

Sumner LA, Valentine J, Eisenman D, Ahmed S, Myers H, Wyatt G, … Rodriguez MA. The influence of prenatal trauma, stress, social support, and years of residency in the US on postpartum maternal health status among low-income Latinas. Maternal and Child Health Journal. 2010; 15:1046–1054. [PubMed: 20652383]

Szaflarski M, Cubbins LA, Ying J. Epidemiology of alcohol abuse among US immigrant populations. Journal of Immigrant Minority Health. 2011; 13:647–658. [PubMed: 20882346]

Timberlake DS, Hopfer CJ, Rhee S, Friedman NP, Haberstick BC, Lessem JM, Hewitt JK. College attendance and its effect on drinking behaviors in a longitudinal study of adolescents. Alcoholism: Clinical And Experimental Research. 2007; 31(6):1020–1030. DOI: 10.1111/j.1530-0277.2007.00383.x

Unger JB, Trinidad DR, Weiss JW, Rohrbach LA. Acculturation as a risk factor for smoking among Asian American adolescents: Is the association confounded by nationality? Journal of Ethnicity in Substance Abuse. 2004; 3(1):65–79.

U.S. Census Bureau. Statistical abstract of the United States 1997. 1997. Retrieved from http://www.census.gov/prod/3/97pubs/97statab/pop.pdf

U.S. Census Bureau. The 2009 statistical abstract: The national data book. 2008. Retrieved from http://www.census.gov/compendia/statab/2009/2009edition.html

U.S. Census Bureau. Statistical Abstract of the United States: 2012. 1312011. Retrieved from http://www.census.gov/compendia/statab/2012/tables/12s0279.pdf

U.S. Department of Health and Human Services. A supplement to mental health: A report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General; 2001. Mental health: Culture, race, and ethnicity.

Williams DR, Gonzalez H, Neighbors H, Nesse R, Abelson JM, Sweetman J, Jackson JS. Prevalence and distribution of major depressive disorder in African Americans, Caribbean Blacks, and Non-Hispanic Whites: Results from the National Survey of American Life. Archives of General Psychiatry. 2007; 64(3):305–315. [PubMed: 17339519]

Wong MM, Klingle RS, Price RK. Alcohol, tobacco, and other drug use among Asian American and Pacific Islander adolescents in California and Hawaii. Addictive Behaviors. 2004; 29:127–141. [PubMed: 14667425]

Yang LH, Phelan JC, Link BG. Stigma and beliefs of efficacy towards traditional Chinese medicine and western psychiatric treatment among Chinese-Americans. Cultural Diversity and Ethnic Minority Psychology. 2008; 14:10–18. [PubMed: 18229996]

Yi JK, Daniel AM. Substance use among Vietnamese American college students. College Student Journal. 2001; 35(1):13–23.

Yun SH, Park W. Clinical characteristics of alcohol drinking and acculturation issues faced by Korean immigrants in the United States. Journal of Social Work Practice in the Addictions. 2008; 8(1):3–20.

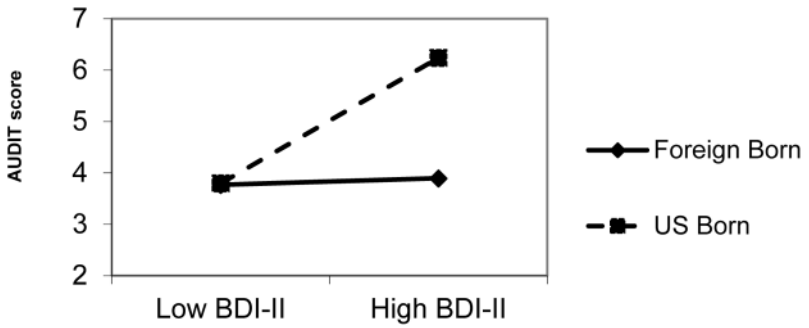

Figure 1. Interaction Between Nativity and Depression Predicting Alcohol Use Among Asians

Note. AUDIT = Alcohol Use Disorders Identification Test; BDI-II = Beck Depression Inventory-II; Student status was contrast coded (Foreign-born Student = 0, U.S.-born Student = 1).

High/Low = +/− 1 Standard Deviation above the mean.

Table 1

Correlations, Means, and Standard Deviations

	1	2	3	4	5
1 Age	-				
2 Gender	.05*	-			
3 Nativity	−.01	.06**	-		
4 Beck Depression Score	.06*	−.07**	−.11**	-	
5 AUDIT score	.12**	.15*	.17*	.24*	-
Mean	19.60	0.43	0.85	8.99	6.38
Standard Deviation	1.54	0.50	0.36	8.67	6.20
Range	1–26	0–1	0–1	1–34	1–60

Note: n = 1,320,

** p < .01,

* p < .05; gender coded as 0 = female, 1 = male; nativity status coded 0 = not born in the United States, 1 = born in the United States

Table 2

Regression Results for Asian Participants

Regression Criterion	Predictor	*B*	*SE B*	β	*t*
Alcohol Use	Age	0.602	0.370	0.100	4.40**
	Gender	2.203	0.480	0.160	6.660**
	Place of Residence	0.254	0.196	0.170	1.807**
	Nativity	0.166	0.046	0.016	0.231
	Depression	0.064	0.036	0.019	1.601
	Nativity x Depression	0.131	0.980	0.140	2.660**

Note:

*p < .05.

**p < .01. R^2 = .169

Table 3

Regression Results for Caucasian Participants

Regression Criterion	Predictor	*B*	*SE B*	β	*t*
Alcohol Use	Age	0.311	0.125	0.078	2.490**
	Gender	1.969	0.401	0.154	4.905**
	Place of Residence	0.258	0.187	0.170	8.040**
	Nativity	0.883	1.354	0.030	0.652
	Depression	0.217	0.089	0.282	2.443**
	Nativity x Depression	0.014	0.092	0.019	0.157

Note:

*p < .05.

**p < .01. $R^2 = .100$

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