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## Repository Citation

Hummer, Justin F.; Pedersen, Eric R.; Mirza, Tehniat; and LaBrie, Joseph W., "Factors Associated With General and Sexual Alcohol-Related Consequences: An Examination of College Students Studying Abroad" (2010). *Heads Up!*. 67.  
<http://digitalcommons.lmu.edu/headsup/67>

## Recommended Citation

Hummer, J. F., Pedersen, E. R., Mirza, T., & LaBrie, J. W. (2010). Factors Associated With General and Sexual Alcohol-Related Consequences: An Examination of College Students Studying Abroad. *Journal of Student Affairs Research and Practice*, 47(4), 421–438. <http://doi.org/10.2202/1949-6605.6134>

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Published in final edited form as:

*J Stud Aff Res Pract*. 2010 December ; 47(4): 421–438. doi:10.2202/1949-6605.6134.

## Factors Associated With General and Sexual Alcohol-Related Consequences: An Examination of College Students Studying Abroad

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### Abstract

This study contributes to the scarce research on U.S. college students studying abroad by documenting general and sexual negative alcohol-related risks and factors associated with such risk. The manner of drinking (quantity vs. frequency), predeparture expectations surrounding alcohol use while abroad, culture-related social anxiety, and perceived disparity between home and host cultures differentially predicted consequences abroad. The findings include important implications for student affairs professionals in developing study abroad-specific interventions and resources to maintain student well-being while abroad.

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Participation in study abroad programs is rapidly gaining popularity among U.S. college students. The decade prior to the 2006–2007 school year witnessed a 150% increase in individuals choosing to study abroad from less than 100,000 to almost 250,000 (Institute of International Education, 2008). With recently passed legislation, this number is expected to increase to one million students studying abroad annually in 10 years time (Commission on the Abraham Lincoln Study Abroad Fellowship Program, 2005; NAFSA, 2009). Given this upward trend, the scarcity of empirical research pertaining to study abroad experiences and their associated risks is remarkable (Luethge, 2004). Recent research documenting alcohol use risk among this population found that students substantially increased drinking while abroad (Pedersen, LaBrie, & Hummer, 2009; Pedersen, Larimer, & Lee, 2010). These documented increases, coupled with concerns from study abroad administrators and media about alcohol-related risks abroad (Epstein, 2005; Epstein & Rhodes, 2000; Poggioli, 2008), highlight the need for further research with this at-risk group.

### Alcohol-Related Consequences While Abroad

Among U.S. college students, it is well documented that heavy drinking is associated with serious negative outcomes including emotional, academic, physical, sexual, and legal problems (Hingson, Zha, & Weitzman, 2009; Muraven, Collins, Morsheimer, Shiffman, & Paty, 2005; Perkins, 2002; Wechsler & Nelson, 2006). Yet to our knowledge, there is little to no current empirical documentation of negative drinking consequences incurred while studying abroad. Novel environmental factors associated with heavy drinking in the foreign

and unfamiliar setting of a study abroad program may expose students to hazardous situations and undesirable outcomes. For example, increased availability of alcohol as a function of lower drinking ages, higher alcohol content of beverages abroad, and language and cultural difficulties in navigating drinking establishments may cumulatively contribute to increased alcohol consumption levels while abroad (Epstein & Rhodes, 2000; Pedersen, Larimer, et al., 2010). In addition, the novel experience of alcohol availability during orientation and other institution-sponsored social events (Epstein & Rhodes, 2000) may play a role in students developing misperceptions of normative consumption among cohort members (Pedersen et al., 2009) as well as set precedents for alcohol use influencing the ensuing study abroad experience. Furthermore, a lack of familiarity with the relative security of places visited, and of safety and escape measures, may pose additional risks that are amplified when drinking heavily.

### **Sexual risks while abroad**

Sexual risks related to alcohol consumption in the study abroad context are particularly noteworthy. Oswalt, Cameron, and Koob (2005), for example, found being under the influence of alcohol to be a principal reason for sexual regret, and others noted that it increases the odds of experiencing physical and sexual aggression (Howard, Griffin, & Boekeloo, 2008; Parks, Hsieh, Bradizza, & Romosz, 2008) and the perpetration of more serious sexual offenses by males (Parkhill, Abbey, & Jacques-Tiura, 2009). For example, Parks and Fals-Stewart (2004) reported that college women were 9 times more likely on heavy drinking days and 3 times more likely on nonheavy drinking days to experience sexual aggression compared to nondrinking days. Unfamiliar surroundings, impaired judgment of both the safety of immediate surroundings and the prudence of engaging in certain behaviors, and concurrent deficiencies in comprehending the nuances of local culture and legislation may further increase the potential for such negative outcomes. Previous researchers examined sexual consequences among college students during spring break trips (Lee, Lewis, & Neighbors, 2009; Sonmez et al., 2006), which hold many similarities to study abroad programs (e.g., travel to a foreign environment, decreased supervision, and increased independence). While this research can provide some insights, no study to our knowledge has examined the alcohol-related sexual consequences that students experience while studying abroad.

### **How drinking relates to consequences while abroad**

While extant research has extensively documented the negative outcomes college students face resulting from their alcohol consumption on U.S. campuses (e.g., Hingson et al., 2009; Perkins, 2002), evidence supporting the particular manner of drinking that accounts for these outcomes is mixed. Some studies note that the frequency of drinking episodes is associated with drinking-related problems (Borsari, Neal, Collins, & Carey, 2001; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Other studies highlight that greater average quantity consumed per drinking episode (measured by number of drinks or estimated blood alcohol level) correlates with increased undesirable consequences, including difficulties with the police, risky sexual behavior, injury, and emergency room visits (Turner, Bauerle, & Shu, 2004; Wechsler & Nelson, 2006). It is not only likely that college students will face comparable alcohol use risks while studying abroad but also plausible that they will experience several consequences more than others. The current study sought to identify the most frequent negative consequences of alcohol use while abroad and the manner of drinking (i.e., quantity of drinks per occasion or frequency of drinking occasions) associated with these. Such information may assist student affairs professionals in developing effective, empirically derived frameworks for conveying to students risks and healthier practices of alcohol consumption while abroad.

Although it is advantageous to understand how drinking behaviors relate to consequences in the study abroad context, it does not necessarily provide a complete picture. Research has found that substantial variance in the experience of alcohol-related problems by college students cannot be explained by drinking behavior alone (Bonin, McCreary, & Sadava, 2000; Larimer et al., 2001). For example, study abroad students with higher predeparture intentions to drink as well as higher perceptions of other students' alcohol use while abroad significantly increase drinking during their study abroad program (Pedersen et al., 2009; Pedersen, Larimer, et al., 2010). Particularly in the study abroad context, other relevant constructs, such as the ways students view alcohol as supplementing their experiences and how adaptive individuals are to their environment, may play important roles.

## Alcohol Expectations

According to expectancy theory, positive expectations about the effects of alcohol use, such as tension reduction or enhanced sociability, can lead to elevated consumption (Jones, Corbin, & Fromme, 2001). A significant body of research indicates that greater expectations surrounding alcohol use influence consumption levels and ensuing alcohol-related problems (e.g., Ham & Hope, 2003; Stein, Goldman, & Del Boca, 2000). The results of one study showed that alcohol expectancies played a role in increased drinking and resulting problems during the transition to college, a conceptually similar transition to studying abroad (LaBrie, Lamb, & Pedersen, 2009). As part of the many expectations regarding an upcoming study abroad trip, students may hold specific expectations regarding the role that alcohol will play in their experience. Although such expectations have never formally been studied, they are likely different from those pertaining to students' U.S. college campus and may play a role in alcohol-related consequences experienced while abroad.

## Social Anxiety in a Foreign Environment

Students may also experience a degree of anxiety in social situations while abroad, resulting from a lack of familiarity with the language and culturally rooted social norms in their host country. The social context of a foreign environment is challenging in that each day students are faced with social scenarios involving language barriers, meeting new people, and experiencing novel situations. Concurrently, students face decisions about alcohol use. Extant research identified social anxiety as a common motivator for problematic drinking among college students (Burke & Stephens, 1999; Neighbors et al., 2007) and revealed that it directly relates to consequences (LaBrie, Pedersen, Neighbors, & Hummer, 2008). Previous studies not only point to an association between social anxiety and increased drinking and consequence levels but also indicate that the experience of social anxiety with concurrent expectations of stress-reduction from alcohol use may place individuals at greater risk for more frequent risky alcohol use behaviors (Ham, Zamboanga, Olthuis, Casner, & Bui, 2010). This problematic drinking and culture-related social anxiety link warrants examination in a study abroad context.

## Current Study Aims and Hypotheses

The study discussed in this article examined changes in the quantity and frequency of alcohol consumption by a sample of U.S. college students studying abroad and the types of general negative alcohol-related consequences and alcohol-related sexual consequences that males and females differentially experienced. The study explored how predeparture expectations of alcohol use while abroad, the different consumption manner (quantity or frequency), the perceived degree of difference between the two cultures, and social anxiety in a foreign environment were related to drinking consequences experienced during the study abroad program. By empirically assessing the relative impact of these variables,

preventive initiatives can be more fully tailored to meet the goal of reducing alcohol-related risk among college students traveling abroad. We anticipated that students would increase the overall amount of alcohol use, compared to predeparture levels, but that the quantity of drinks consumed per occasion would be more strongly related to negative consequences than the frequency of drinking. We hypothesized that greater predeparture expectations of alcohol use while abroad, higher levels of social anxiety in the host culture, and greater perceptions of the host culture as very different from U.S. culture would positively relate to negative consequences. These patterns were expected for general, as well as for sexual, consequences.

## Method

### Participants

Data for this study were collected over two successive spring semesters at a medium-sized West Coast university. Recruitment occurred during each respective fall semester at a mandatory meeting sponsored by the Office of Global Affairs approximately one to two months prior to departure on the study abroad program. Across both years, researchers recruited 205 students to participate in the study. A total of 152 students (74% recruitment rate) completed an online baseline survey, and 121 participants completed a follow-up survey sent via email 10 weeks, or halfway, into their abroad experience. The study had a retention rate of 67%, with 102 participants completing both surveys. Minor discrepancies in degrees of freedom are the result of missing data. There were no significant differences between follow-up completers and noncompleters on pre-abroad drinking or demographics ( $p > .05$ ).

Participants consisted of 103 females (68%) and 49 males (32%) and had a mean age of 20.20 ( $SD = 0.96$ ) years. Ethnicity varied, with 66% categorized as Caucasian, 9% Hispanic/Latino, 9% Asian/Pacific Islander, 7% mixed ethnicity, and 9% other ethnicities. The majority of the sample was of junior class status (88%), and 85% studied abroad in European countries (including England, Germany, Italy, and Spain), 5% in Asian countries (including Korea and Japan), 3% in Australia, 3% at sea (i.e., predominantly living on board a ship, which traveled to various countries), and 4% in other regions (such as Central America and India). Participants were classified into two region categories for analyses (European vs. non-European countries). Compared to study abroad students throughout the country (Institute of International Education, 2008), the sample was representative of gender but overrepresentative of ethnic minorities and junior students.

### Design and Procedure

Four to 6 weeks prior to departure, participants received an email containing a link to the baseline survey, which included an electronic local institutional review board (IRB)-approved consent form. Ten weeks into the abroad experience, all participants who signed up for the study were emailed a link to a follow-up survey to be completed within 3 weeks. This survey also contained the electronic local IRB-approved consent form. An incentive of a raffle for one of three gift cards valued at \$52, \$100, and \$150 was offered each time. The baseline survey contained demographic questions assessing age, gender, ethnicity, class year, and country of study abroad program.

**Alcohol use**—The Daily Drinking Questionnaire (DDQ; Collins, Parks, & Marlatt, 1985; Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990) assessed alcohol use. At baseline, participants indicated the number of drinks they typically consumed on each day of a typical week during the fall semester. The DDQ was used to compute frequency (drinking days) and quantity (average drinks per occasion) of alcohol use in the past month. At follow-up, the

DDQ was read-ministered to assess typical alcohol use patterns during the 10 weeks prior to the study abroad experience.

**Expectations of the study abroad trip**—At baseline, participants completed 13 researcher-generated items regarding their predeparture expectations of the role alcohol would play in the study abroad trip. Items were rated on a scale from 0 (*strongly disagree*) to 4 (*strongly agree*). See Table 1 for a full list of the items and their means. Internal reliability of these items was adequate ( $\alpha = .84$ ). A mean composite variable for *predeparture expectations of alcohol use abroad* was created from the 13 items.

**Alcohol consequences abroad**—Negative alcohol-related consequences were assessed at follow-up with the Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ) (Kahler, Strong, & Read, 2005) that included 24 “yes” or “no” items assessing consequences within the past month while abroad (see Table 2 for a list of items). Composite scores reflect the number of items endorsed ( $\alpha = .90$ ).

**Sexual consequences**—Participants were asked six questions at follow-up about sexual consequences experienced while abroad (e.g., sexual regret, failure to use protection, and rape). See Table 3 for the full list of questions. Participants responded on a scale of 0 (*no, never*) to 6 (*6 or more times*), reflecting the number of times they experienced each item while abroad. This measure exhibited adequate reliability ( $\alpha = .86$ ).

**Culture**—Two questions at follow-up assessed participants’ perceived difference of and anxiety about the study abroad host culture. The items were “The culture in which I am studying is extremely different than my home culture” (i.e., perceived difference between cultures) and “I feel significantly more anxious in social situations in my host country’s culture than I did in my home culture” (i.e., culture-related social anxiety abroad). Items were rated from 0 (*strongly disagree*) to 4 (*strongly agree*).

## Results

### Pre-abroad and Study Abroad Drinking

Male participants reported drinking 2.38 ( $SD = 1.86$ ) days per week prior to study abroad trips and 2.92 ( $SD = 1.84$ ) days per week during study abroad trips. These participants also reported drinking 4.86 ( $SD = 2.25$ ) drinks per occasion prior to going abroad and 4.57 ( $SD = 2.54$ ) drinks per occasion during study abroad trips. Female participants reported drinking 1.81 ( $SD = 1.32$ ) days per week prior to study abroad trips and 2.76 ( $SD = 1.43$ ) days per week during study abroad trips. These participants also reported drinking 3.32 ( $SD = 1.69$ ) drinks per occasion prior to going abroad and 3.10 ( $SD = 1.51$ ) drinks per occasion during study abroad trips. A repeated measure analysis of variance revealed a main effect for time (Time 1: pre-abroad drinking; Time 2: drinking while abroad) regarding changes in drinking frequency,  $F(1, 89) = 21.38, p < .001$ , but no main effect for time regarding drinking quantity. There were no Time  $\times$  Gender interaction effects for either outcome. Changes in drinking were also nonsignificant when location of program (Europe or non-Europe) was added to the model. This finding suggests that males and females in both European and non-European countries increased their frequency at similar rates, while not changing their average amount consumed.

### Consequences While Abroad

Table 2 contains the 24 BYAACQ consequences and percentages of males and females who experienced each consequence during the past month abroad. Males were more likely to have said or done embarrassing things while drinking,  $\chi^2(1, N = 118) = 3.94, p < .05$ ;

woken up in an unexpected place,  $\chi^2(1, N = 118) = 8.72, p < .05$ ; spent too much time drinking,  $\chi^2(1, N = 118) = 5.76, p < .05$ ; and done impulsive things,  $\chi^2(1, N = 118) = 4.33, p < .05$ . Females were more likely to report less energy and feeling tired after drinking,  $\chi^2(1, N = 118) = 4.79, p < .05$ .

The percentages of male and female participants experiencing the six sexual consequences, as well as the mean number of times participants experienced them, are illustrated in Table 3. Males experiencing at least one sexual consequence while abroad drank a mean of 5.03 ( $SD = 3.13$ ) drinks per occasion over 3.50 ( $SD = 1.74$ ) days. Those with no unfavorable sexual consequences drank less, 3.65 ( $SD = 2.26$ ) drinks per occasion over 2.67 ( $SD = 2.01$ ) days. Similarly, females experiencing at least one negative sexual consequence while abroad drank more drinks per occasion, 3.42 ( $SD = 1.37$ ) versus 2.78 ( $SD = 1.46$ ), and more days per week, 3.45 ( $SD = 1.05$ ) versus 2.72 ( $SD = 1.55$ ), than those with no sexual consequences.

Two models predicting general alcohol-related consequences and sex-related alcohol consequences while abroad were examined using regression analyses with a Poisson distribution. Both general and sexual consequences composite variables were positively skewed with larger than acceptable kurtosis values (5.50 and 19.46, respectively). Count regression is preferable over data transformations in predictive analyses with positively skewed data (Atkins & Gallop, 2007).

**General alcohol-related consequences**—Using alcohol-related problems experienced in the past month as the dependent variable, we entered the demographic dichotomous variables of gender and location of program (Europe vs. non-Europe) as well as continuous variables of drinking days while abroad (frequency), average drinks per occasion while abroad (quantity), predeparture expectations of drinking while abroad, and the two culture items assessing perceived difference in cultures and culture-related social anxiety experienced while abroad as predictors. The overall model was significant, log-likelihood  $\chi^2(7) = 135.08, p < .001$ . Table 4 presents findings from the regression analysis. Exponentiated parameter estimates,  $\exp(\beta)$ , for continuous variables can be interpreted as the percentage of change in expected counts. For example, we can interpret the  $\exp(\beta)$  value of 1.20 for drinking days to mean that for every 1 unit increase in days drinking while abroad, we can expect a 20% increase in the rate of alcohol-related consequences while abroad. While sex and location of study abroad did not predict number of consequences, significant effects were found for frequency, quantity, expectations, perceived differences in cultures, and social anxiety in the culture.

**Sexual alcohol-related consequences**—Findings from the Poisson regression analysis predicting sexual consequences were similar to those of more general consequences. The model including gender, location of program, drinking days while abroad (frequency), average drinks per occasion while abroad (quantity), predeparture expectations of drinking while abroad, and the two culture items assessing perceived difference in cultures and culture-related social anxiety experienced while abroad was significant, log-likelihood  $\chi^2(7) = 19.63, p < .01$ . However, after holding gender and location of program constant, only average drinks per occasion, expectations, and culture-related social anxiety predicted sexual consequences (see Table 4).

## Discussion

The current study contributes to the sparse literature on alcohol-related risks and associated constructs among U.S. college students studying abroad. Results indicated that students increased their alcohol consumption while abroad and experienced a disconcerting number

of associated general and sexual negative consequences as a result. Moreover, not only did the manner of drinking influence the number of negative consequences, but also predeparture expectations of the role of alcohol in the study abroad experience, the degree of difference perceived between the two cultures, and social anxiety in a foreign environment played significant roles in determining the level of alcohol-related harm students experienced. These findings have significant potential to benefit student affairs professionals' efforts to maintain the health, safety, and well-being of U.S. students in the largely unexplored yet rapidly growing environment of education abroad.

### **Negative Alcohol-Related Outcomes**

Women were more likely to report fatigue from drinking, while men were more likely to behave impulsively in ways regretted later, spend too much time drinking, wake up in unexpected places (blackout), and engage in embarrassing behaviors. Furthermore, approximately one fourth of the overall sample reported drinking impulsively and taking foolish risks while drinking, and 44% of men and 37% of women had suffered at least one hangover in the prior month. These consequences are notable in that their severity lies also in their potential for exacerbation resulting from unique risks associated with the novelty of the study abroad environment. For example, blacking out in a foreign environment and taking foolish risks while drinking could hypothetically result in a greater likelihood of being robbed; experiencing a sexual assault; getting lost via public transportation; driving while impaired, leading to traffic accidents or tickets due to different local driving norms and laws; finding oneself in an unfamiliar and unknowingly dangerous part of town; offending someone due to language barriers; and so forth.

Nearly one third of the men and one fourth of the women reported that alcohol use resulted in sexual situations they later regretted. While not specifically defined, an endorsement of this consequence could include a wide spectrum of situations ranging in gravity (e.g., regretting a sexual encounter due to someone's looks, acquiring a sexually transmitted disease, having sex while still in a relationship with someone in one's hometown, sexual assault, or rape). Because they had been drinking, approximately 10% of men and women neglected to use birth control during sex or protect themselves from sexually transmitted diseases. Although the current study did not distinguish whether sexual partners were fellow program members or residents of the host country, these percentages are cause for concern, especially in light of the potentially higher emotional and physical risks of unsafe sex in an unfamiliar country. Discussing relational issues and heightening awareness of consequences associated with sexual behavior during abroad programs would be worthwhile components of predeparture health and safety-focused orientation sessions. Especially important would be discourse about how drinking affects decision making and how the more one drinks, the more opportunity for alcohol to impair judgment, resulting in a greater likelihood for alcohol-related harm, as was the case in the current sample.

### **Alcohol and Other Factors Associated With Negative Consequences Abroad**

The examination of drinking behaviors revealed that the frequency of drinking occasions among study abroad students increased significantly from predeparture levels, whereas the average number of drinks consumed per occasion did not. In the analytic model predicting general consequences, both frequency of drinking episodes and average drinks significantly predicted problems, after accounting for all other variables in the model. Yet in the model predicting sexual consequences, the quantity of alcohol consumed per occasion was a significant predictor, whereas frequency of drinking days demonstrated no relationship. Particularly noteworthy in these models were the associations between exploratory study abroad-specific variables and negative alcohol-related problems. As hypothesized, and over and above alcohol use, higher levels of culture-related social anxiety while abroad



significantly predicted both general and sexual negative alcohol-related consequences, while a greater perceived disparity between the host culture and culture of origin was predictive of general consequences. Similarly, predeparture expectations of the role that alcohol would play in the study abroad experience demonstrated a very strong predictive relationship with both types of consequences, even after controlling for drinking; however, this relationship was negative for sexual consequences. Perhaps those not expecting alcohol to play a large role in their experience abroad experienced consequences when faced with unanticipated sexual situations involving alcohol. Further exploration of the observed relationships between predeparture expectations and alcohol-related risk abroad is necessary.

The increase in frequency of drinking episodes during the study abroad experience likely involves increased availability of alcohol as a contributing factor. The ability to purchase and consume alcohol legally and the physical proximity to alcohol outlets in a densely packed city may cumulatively encourage frequent drinking episodes. It is also plausible that the observed increase in frequency is linked with many non-U.S. cultures, such as those of Europe, where alcohol use plays a more active role in daily life.

Of high interest in this study is that while the frequency of alcohol use increased across time and the average quantity consumed per occasion did not, results indicate that the quantity of drinks per occasion was more strongly associated with general consequences experienced and that quantity, and not frequency, was associated with sexual consequences. Students consuming alcohol in ways consistent with the local culture, such as a glass of wine with dinner, for example, are not likely to experience any resulting negative outcomes. However, consuming the same number of drinks per occasion as they typically would at their home college may lead to the number of negative consequences increasing. One possible explanation is that heavier alcohol use interacts with the unfamiliar study abroad environment in ways that produce unique risks (e.g., language barriers and social norms producing interpersonal conflict, transportation issues, knowing and navigating high crime areas). This result is especially interesting given recent research indicating that study abroad students are a self-selected, heavier drinking, biased sample of American college students (Pedersen, LaBrie, Hummer, Larimer, & Lee, 2010). Providing these students with environments conducive to risky drinking, where the potential for negative outcomes is multiplied and access to familiar coping strategies is restricted, creates a potentially deleterious combination.

### Implications for Student Affairs Administrators

Developing concrete strategies to minimize such impact on students studying abroad would be useful both for the students and institutional administrators involved. In the past, stricter monitoring of alcohol use was a common suggestion, as were measures to screen out students with a history of risky alcohol consumption patterns (Center for Global Education, n.d.; Epstein & Rhodes, 2000). Student affairs professionals have suggested institutional consequences for irresponsible or illegal (i.e., underage) drinking behaviors. Such sanctions may be difficult to implement in countries where American students fall within the legal drinking age and consequently the legal system cannot be leveraged as a deterrent. These may not be feasible on a practical level because greater numbers of students are pursuing study abroad programs and government initiatives encourage greater participation. Instead, a focus on promoting healthier drinking choices while abroad that minimize risks of alcohol-related problems may be more worthwhile.

For example, past research indicated that perceived behavioral alcohol norms predict drinking for students traveling abroad (Pedersen et al., 2009). Providing accurate norms of student drinking while abroad and countering other stereotypes would thus be beneficial. Similarly, Larimer and Cronce's (2007) update to the National Institute on Alcohol Abuse

and Alcoholism Task Force report on college drinking supports using brief motivational interventions for high-risk college student drinkers. They also recommend incorporating personalized normative feedback as well as blood alcohol content training and education about protective behavioral strategies for risk reduction. Student affairs professionals may wish to deliver this information as part of a preventive harm-reduction program for study abroad students, in either predeparture or on-arrival orientation sessions. Such interventions could also be modified to integrate study abroad-specific psychoeducational elements, pertaining, for example, to risk factors and negative consequences of alcohol consumption in the context of an unfamiliar environment.

In light of the strong predeparture expectations regarding the role alcohol will play while abroad, conversations about alcohol use in other cultures may help reduce cultural myths and the appeal of being able to drink legally, perhaps leading students to become well informed and safer drinkers. Improved accessibility to such information through web-based study abroad resource websites and affiliated online discussion forums is another worthy consideration.

Finally, greater culture-related social anxiety and, to a lesser extent, perceiving the host culture as very different from the home culture were directly predictive of negative consequences. These relationships suggest the importance of student affairs administrators collaborating to find effective ways of minimizing negative reactions to “culture shock.” Efforts should be made to ensure that students supplement familiar coping mechanisms no longer available to them with easy and sustained access to counseling or supportive services while abroad. Students may benefit from predeparture conversations about cultural adjustment and healthy techniques to handle stress and effectively manage anxiety while abroad. Finally, previous research has also indicated that students returning from study abroad trips exhibit elevated levels of alcohol use and related harm (Pedersen, LaBrie, et al., 2010). Therefore, it is important to offer coping and adjustment services to students upon return, focusing on “reverse culture shock” caused by the stress of reacclimation back into American university cultures.

### Limitations and Future Research

Limitations to this study include the relatively small sample size from one site, which limits generalizability and power to detect significant mean differences in reported behaviors. Future research should investigate alcohol use trends among a wide variety of study abroad programs as a way to increase the validity of observed results as well as explore in greater detail how drinking and negative consequences may vary as a function of specific countries and cultures. Future research might identify specific high-risk drinking episodes in the study abroad context. Another important avenue of research would involve differentiating variations in the experience of negative consequences between students while on study abroad experiences versus when on the home U.S. campus. The development of measures for consequences specific to the study abroad context will help enhance the understanding of the alcohol-related risks and risk-reducing strategies at play during the study abroad experience. Overall, such directions will help ensure that the resources devoted to the training of student affairs administrators on relevant programming, small group discussion material, and intervention protocol will have the greatest likelihood of efficacy.

Despite the need for extensive future research, the current study provides important groundwork for new directions in the exploration of an increasingly relevant issue of concern for American institutes of higher education. A particular strength of this research is that it not only focuses on the important outcome of consequences, it also broadens the understanding of consequences by exploring the contributing role of other study abroad-specific variables. Within this sample, results indicated that studying abroad presents

specific risks related to alcohol use, both general and sexual in nature. Our results lead us to speculate that preventive harm-reduction interventions pertaining to alcohol use have an important place in administration of study abroad programs. We also conclude that it would be worth while to disseminate information that enhances preparation for anxiety and stress resulting from culture shock and that helps foster awareness of alcohol-related resources available to students. This may facilitate a reduced likelihood of the minor and major negative outcomes experienced and consequently help ensure the safe enjoyment of culturally immersive experiences related to alcohol consumption that the students' host countries may have to offer.

## Acknowledgments

This research was supported by Grant Q184H070017 from the U.S. Department of Education and Grants R01 AA 012547-06A2 and 1F31AA018591-01 from the National Institute of Alcohol Abuse and Alcoholism (NIAAA).

## References

- Atkins D, Gallop R. Rethinking how family researchers model infrequent outcomes: A tutorial on count regression and zero-inflated models. *Journal of Family Psychology*. 2007; 21:726–727.10.1037/0893-3200.21.4.726 [PubMed: 18179344]
- Bonin M, McCreary D, Sadava S. Problem drinking behavior in two community-based samples of adults: Influence of gender, coping, loneliness, and depression. *Psychology of Addictive Behaviors*. 2000; 14:151–161.10.1037/0893-164X.14.2.151 [PubMed: 10860114]
- Borsari B, Neal DJ, Collins SE, Carey KB. Differential utility of three indexes of risky drinking for predicting alcohol problems in college students. *Psychology of Addictive Behaviors*. 2001; 15:321–324.10.1037/0893-164X.15.4.321 [PubMed: 11767264]
- Burke R, Stephens R. Social anxiety and drinking in college students: A social cognitive theory analysis. *Clinical Psychology Review*. 1999; 19:513–530.10.1016/S0272-7358(98)00058-0 [PubMed: 10467489]
- Center for Global Education. Health and medical care—. Drugs and alcohol. n.d. Retrieved from <http://www.globaled.us/irl/irlcb11.html>
- Collins RL, Parks GA, Marlatt GA. Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology*. 1985; 53:189–200.10.1037/0022-006+X.53.2.189 [PubMed: 3998247]
- Commission on the Abraham Lincoln Study Abroad Fellowship Program. Global competence and national needs: One million Americans studying abroad. 2005. Retrieved from [http://www.nafsa.org/uploadedFiles/NAFSAHome/ResourceLibraryAssets/CCB/lincolncommissionreport\(1\).pdf?n=6097](http://www.nafsa.org/uploadedFiles/NAFSAHome/ResourceLibraryAssets/CCB/lincolncommissionreport(1).pdf?n=6097)
- Epstein J. Last call for U.S. students studying abroad? Continuing concerns about alcohol use and abuse during study abroad. *SAFETI On-Line Newsletter*. 2005; 3(1) Retrieved from <http://globaled.us/safeti/v3n1epstein.html>.
- Epstein J, Rhodes G. A discussion about alcohol and student exchange. *SAFETI On-Line Newsletter*. 2000; 1(2) Retrieved from <http://globaled.us/safeti/v1n2rhodeseptstein.html>.
- Ham L, Hope D. College students and problematic drinking: A review of the literature. *Clinical Psychology Review*. 2003; 23:719–759.10.1016/S0272-7358(03)00071-0 [PubMed: 12971907]
- Ham L, Zamboanga B, Olthuis J, Casner H, Bui N. No fear, just relax and play: Social anxiety, alcohol expectancies, and drinking games among college students. *Journal of American College Health*. 2010; 58:473–479. Retrieved from <http://www.acha.org/Publications/JACH.cfm>. [PubMed: 20304759]
- Hingson RW, Zha W, Weitzman ER. Magnitude of and trends in alcohol-related mortality and morbidity among U.S. college students ages 18–24, 1998–2005. *Journal of Studies on Alcohol and Drugs*. 2009; 16(Suppl):12–20. Retrieved from <http://www.jsad.com>. [PubMed: 19538908]

- Howard DE, Griffin MA, Boekeloo BO. Prevalence and psychosocial correlates of alcohol-related sexual assault among university students. *Adolescence*. 2008; 43:733–750. Retrieved from [http://findarticles.com/p/articles/mi\\_m2248/is\\_172\\_43/?tag=content;coll](http://findarticles.com/p/articles/mi_m2248/is_172_43/?tag=content;coll). [PubMed: 19149143]
- Institute of International Education. Study abroad: US student profile. 2008. Retrieved from <http://opendoors.iienetwork.org/?p=131592>
- Jones B, Corbin W, Fromme K. A review of expectancy theory and alcohol consumption. *Addiction*. 2001; 96(1):57–72.10.1080/09652140020016969 [PubMed: 11177520]
- Kahler CW, Strong DR, Read JP. Toward efficient and comprehensive measurement of the alcohol problems continuum in college students: The Brief Young Adult Alcohol Consequences Questionnaire. *Alcoholism: Clinical and Experimental Research*. 2005; 29:1180–1189.10.1097/01.ALC.0000171940.95813.A5
- Kivlahan DR, Marlatt GA, Fromme K, Coppel DB, Williams E. Secondary prevention with college drinkers: Evaluation of an alcohol skills training program. *Journal of Consulting and Clinical Psychology*. 1990; 58:805–810.10.1037/0022-006.58.6.805 [PubMed: 2292630]
- LaBrie J, Lamb T, Pedersen E. Changes in drinking patterns across the transition to college among first-year college males. *Journal of Child & Adolescent Substance Abuse*. 2009; 18(1):1–15.10.1080/15470650802526500
- LaBrie JW, Pedersen ER, Neighbors C, Hummer JF. The role of self-consciousness in the experience of alcohol-related consequences among college students. *Addictive Behaviors*. 2008; 33:812–820.10.1016/j.addbeh.2008.01.002 [PubMed: 18258376]
- Larimer ME, Cronce JM. Identification, prevention, and treatment revisited: Individual-focused college drinking prevention strategies 1999–2006. *Addictive Behaviors*. 2007; 22:2439–2468.10.1016/j.addbeh.2007.05.006 [PubMed: 17604915]
- Larimer ME, Turner AP, Anderson BK, Fader JS, Kilmer JR, Palmer RS, Cronce JM. Evaluating a brief alcohol intervention with fraternities. *Journal of Studies on Alcohol*. 2001; 62:370–380. Retrieved from <http://www.jsad.com>. [PubMed: 11414347]
- Lee CM, Lewis MA, Neighbors C. Preliminary examination of spring break alcohol use and related consequences. *Psychology of Addictive Behaviors*. 2009; 23:689–694.10.1037/a0016482 [PubMed: 20025375]
- Luehge D. Perceived risk and risk reduction strategies in study abroad programs. *Journal of Teaching in International Business*. 2004; 15(4):23–45. Retrieved from <http://www.tandf.co.uk/journals/authors/wtibauth.asp>.
- Muraven M, Collins RL, Morsheimer ET, Shiffman S, Paty JA. One too many: Predicting future alcohol consumption following heavy drinking. *Experimental and Clinical Psychopharmacology*. 2005; 13(2):127–136.10.1037/1064-1297.13.2.127 [PubMed: 15943545]
- NAFSA: Association of International Educators. Senator Paul Simon Study Abroad Foundation Act. 2009. Retrieved from [http://www.nafsa.org/publicpolicy.sec/commission\\_on\\_the\\_abraham](http://www.nafsa.org/publicpolicy.sec/commission_on_the_abraham)
- Neighbors C, Fossos N, Woods B, Fabiano P, Sledge M, Frost D. Social anxiety as a moderator of the relationship between perceived norms and drinking. *Journal of Studies on Alcohol and Drugs*. 2007; 68(1):91–96. Retrieved from <http://www.jsad.com>. [PubMed: 17149522]
- Oswalt SB, Cameron KA, Koob JJ. Sexual regret in college students. *Archives of Sexual Behavior*. 2005; 34:663–669.10.1007/s10508-005-7920-y [PubMed: 16362250]
- Parkhill MR, Abbey A, Jacques-Tiura AJ. How do sexual assault characteristics vary as a function of perpetrators' level of intoxication? *Addictive Behaviors*. 2009; 34:331–333.10.1016/j.addbeh.2008.11.003 [PubMed: 19059731]
- Parks K, Fals-Stewart W. The temporal relationship between college women's alcohol consumption and victimization experiences. *Alcoholism: Clinical and Experimental Research*. 2004; 28:625–629.10.1097/01.ALC.0000122105.56109.70
- Parks KA, Hsieh Y, Bradizza CM, Romosz AM. Factors influencing the temporal relationship between alcohol consumptions and experiences with aggression among college women. *Psychology of Addictive Behaviors*. 2008; 22:210–218.10.1037/0893-164X.22.2.210 [PubMed: 18540718]
- Pedersen ER, LaBrie JW, Hummer JF. Perceived behavioral alcohol norms predict drinking for college students while studying abroad. *Journal of Studies on Alcohol and Drugs*. 2009; 70:924–928. Retrieved from <http://www.jsad.com>. [PubMed: 19895769]

- Pedersen ER, LaBrie JW, Hummer JF, Larimer ME, Lee CM. Heavier drinking American college students may self-select into study abroad programs: An examination of sex and ethnic differences within a high-risk group. *Addictive Behaviors*. 2010; 35:844–847. [PubMed: 20510524]
- Pedersen ER, Larimer ME, Lee CM. When in Rome: Factors associated with increased drinking among college students studying abroad. *Psychology of Addictive Behaviors*. 2010; 24(3):535–540. [PubMed: 20853940]
- Perkins HW. Surveying the damage: A review of research on consequences of alcohol misuse in college populations. *Journal of Studies on Alcohol*. 2002; 14:91–100. Retrieved from <http://www.jsad.com>.
- Poggioli, S. Study-abroad students gone wild in Italy? [Radio series episode]. In: Winkler, A., Producer, editor. *All Things Considered*. Washington, DC: National Public Radio; 2008 Mar 23.
- Sonmez S, Apostolopoulos Y, Yu CH, Yang S, Mattilla A, Yu LC. Binge drinking and casual sex on spring break. *Annals of Tourism Research*. 2006; 33:895–3917. Retrieved from <http://www.elsevier.com/wps/find/homepage.cwshome>.
- Stein K, Goldman M, Del Boca F. The influence of alcohol expectancy priming and mood manipulation on subsequent alcohol consumption. *Journal of Abnormal Psychology*. 2000; 109(1): 106–115.10.1037/0021-843X.109.1.106 [PubMed: 10740941]
- Turner JC, Bauerle J, Shu J. Estimated blood alcohol concentration correlation with self-reported negative consequences among college students using alcohol. *Journal of Studies on Alcohol*. 2004; 65:741–749. Retrieved from <http://www.jsad.com>. [PubMed: 15700512]
- Wechsler H, Davenport A, Dowdall G, Moeykens B, Castillo S. Health and behavioral consequences of binge drinking in college: A national survey of students at 140 campuses. *JAMA*. 1994; 272:1672–1677.10.1001/jama.271.21.1672 [PubMed: 7966895]
- Wechsler H, Nelson TF. Relationship between level of consumption and harms in assessing drink cut-points for alcohol research: Commentary on “Many college freshman drink at levels far beyond the binge threshold” by White et al. *Alcohol: Clinical and Experimental Research*. 2006; 30:922–927.10.1111/j.1530-0277.2006.00124.x

**Table 1**

## Predeparture Expectations of the Role of Alcohol in the Study Abroad Trip

Expectation	Males <i>M</i> ( <i>SD</i> )	Females <i>M</i> ( <i>SD</i> )
1 Alcohol will make my study abroad experience more fun.	2.41 (0.98)	1.81 (0.97)
2 I will drink more alcohol at each sitting than I drink now when/if I do drink.	1.67 (0.85)	1.31 (0.91)
3 I will drink alcohol more often abroad than I drink now.	2.15 (0.99)	2.01 (1.11)
4 I will interact with locals more often when I am drinking than when I am not drinking.	1.98 (1.11)	1.84 (1.03)
5 Alcohol will be present in the dorms and/or my host family's house.	2.30 (0.96)	1.99 (0.97)
6 My best memories abroad will involve drinking.	1.50 (0.98)	1.19 (0.86)
7 Alcohol will relieve stress when I am abroad.	1.67 (1.03)	1.26 (0.99)
8 My professors will drink with me while abroad.	1.80 (1.13)	1.44 (0.99)
9 While abroad, drinking alcohol will enhance the acculturation process.	2.04 (0.99)	1.60 (1.05)
10 Alcohol will be readily available in my host country.	3.26 (1.04)	3.16 (0.89)
11 It will be easy to buy alcohol abroad.	3.22 (0.96)	3.05 (0.77)
12 In my host country, students don't get in trouble for drinking.	1.72 (1.22)	1.65 (1.04)
13 My host country is a heavy drinking culture.	2.37 (1.04)	2.38 (1.05)

Note. Items were rated on a scale from 0 (*strongly disagree*) to 4 (*strongly agree*).

**Table 2**

## Percentages of Participants Experiencing Consequences During the Past Month Abroad

Consequence	Males (%)	Females (%)
1 I have had a hangover (headache, sick stomach) the morning after I had been drinking.	44	37
2 I have taken foolish risks when I have been drinking.	27	22
3 I have not been able to remember large stretches of time while drinking heavily.	16	9
4 The quality of my work or schoolwork has suffered because of my drinking.	9	3
5 I have had less energy or felt tired because of my drinking.	18	32
6 My drinking has gotten me into sexual situations I later regretted.	15	10
7 I often have ended up drinking on nights when I had planned not to drink.	27	23
8 My physical appearance has been harmed by my drinking.	5	8
9 While drinking, I have said or done embarrassing things.	33	19
10 I have felt very sick to my stomach or thrown up after drinking.	15	14
11 I have not gone to work or have missed classes at school because of drinking, a hangover, or illness caused by drinking.	13	7
12 When drinking, I have done impulsive things I regretted later.	18	8
13 I have been overweight because of drinking.	6	5
14 I have woken up in an unexpected place after heavy drinking.	7	0
15 I have spent too much time drinking.	15	4
16 I have felt badly about myself because of my drinking.	6	5
17 My drinking has created problems between myself and my boyfriend/girlfriend/spouse, parents, or other near relatives.	4	1
18 I have felt like I needed a drink after I'd gotten up (that is, before breakfast).	4	0
19 I have driven a car when I knew I had too much to drink to drive safely.	2	0
20 I have neglected my obligations to family, work, or school because of drinking.	7	4
21 I have often found it difficult to limit how much I drink.	11	4
22 I have passed out from drinking.	11	3
23 I have become very rude, obnoxious, or insulting after drinking.	9	3
24 I have found that I needed larger amounts of alcohol to feel any effect or that I could no longer get high or drunk on the amount that used to get me high or drunk.	13	12

**Table 3**  
 Percentages of Participants Experiencing Sexual Consequences While Abroad and Mean Times Experienced

Consequence	Males		Females	
	%	M	%	M
1 Has drinking gotten you into sexual situations that you later regretted?	32	1.58	23	1.61
2 Because you had been drinking, have you neglected to use birth control or neglected to protect yourself from sexually transmitted diseases?	11	1.50	9	1.43
3 Because you had been drinking, have you had sex when you didn't really want to?	8	1.67	4	2.00
4 Because you had been drinking, have you had sex with someone you wouldn't ordinarily have sex with?	13	1.20	9	1.29
5 Have you been pressured or forced to have sex with someone because you were too drunk to prevent it?	8	1.30	3	1.50
6 Have you pressured or forced someone to have sex with you after you had been drinking?	8	1.30	3	1.50



**Table 4**

Poisson Regression Results Evaluating Alcohol-Related Consequences as a Function of Gender, Location of Program, Drinking Days, Average Drinks, Expectations, and Culture Items

Parameter	$\beta$	$SE\beta$	$\exp(\beta)$	Wald $\chi^2$ ( $df = 1$ )
Model 1: General consequences				
Gender <sup>a</sup>	-0.13	0.12	0.88	1.07
Location of program <sup>b</sup>	0.10	0.17	1.11	0.37
Typical drinking days while abroad	0.18	0.04	1.20	18.19***
Typical drinks per occasion while abroad	0.13	0.02	1.14	27.87***
Predeparture expectations of drinking abroad	0.67	0.12	1.95	29.15**
Perceived differences in culture	0.15	0.05	1.16	7.77**
Culture-related social anxiety abroad	0.15	0.05	1.17	8.52**
Model 2: Sex consequences				
Gender <sup>a</sup>	-0.34	0.28	0.71	1.46
Location of program <sup>b</sup>	-0.78	0.46	0.46	2.88
Typical drinking days while abroad	0.02	0.09	1.02	0.06
Typical drinks per occasion while abroad	0.17	0.06	1.18	6.71*
Predeparture expectations of drinking abroad	-0.58	0.23	0.56	6.53*
Perceived differences in culture	0.05	0.12	1.05	0.15
Culture-related social anxiety abroad	0.33	0.11	1.39	8.35**

Note.  $\exp(\beta)$  = exponentiated regression coefficient.

<sup>a</sup>Gender coded 0 = male, 1 = female.

<sup>b</sup>Location of program coded 0 = *non-Europe*, 1 = *Europe*.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .