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Demographic and Predeparture Factors Associated With Drinking and Alcohol-Related Consequences for College Students Completing Study Abroad Experiences

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Abstract

Objective: Study abroad students are at-risk for increased and problematic drinking behavior. As few efforts have been made to examine this at-risk population, we predicted drinking and alcohol-related consequences abroad from predeparture and site-specific factors.

Participants: The sample consisted of 339 students completing study abroad programs.

Method: Participants filled out online measures at predeparture, abroad, and at post-return.

Results: We found drinking and consequences abroad were predicted by a number of factors including demographics (e.g., younger age, male sex, Greek affiliation, White ethnicity), student factors (e.g. low GPA, major area of study), study abroad site factors (e.g., apartment living abroad, study in Europe), predeparture levels of drinking and consequences, sensation seeking, and goals related to social gathering.

Conclusions: Findings can be used to inform campus policies for admission to study abroad programs as well as assist in the development of interventions targeted toward preventing risk for students during abroad experiences.

Keywords

alcohol; alcohol-related consequences; risk behaviors; study abroad

During the 2011/2012 academic year, nearly 274,000 American students completed study abroad experiences in foreign countries.[1] During these experiences abroad, students typically live and study in a foreign country for a period of one month to one year to learn about the local culture, complete coursework that transfers back to their home institution, and gain valuable experience living in a foreign environment. However, American college students studying abroad in foreign countries represent a large and diverse population at-risk for increased and problematic drinking. College students more than double their weekly

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alcohol use while abroad and, even if most of them reduce their drinking upon return, those who drink the heaviest tend to return home drinking at higher levels.[2] In addition to increased drinking, a substantial portion of these American students face multiple negative alcohol-related consequences (e.g. taking foolish risks, getting into regretted sexual situations).[3,4] While concerning enough when experienced on campus, these consequences have the potential to ruin study abroad experiences for students and promote negative stereotypes of American students abroad. Compounding the negative experiences during the actual abroad trip, students on campus with previous study abroad experiences during college tend to be heavier drinkers and report more hazardous drinking than those who never studied abroad.[5,6] Even those students who intend to study abroad during college report heavier drinking and more consequences than those with no intention to study abroad.[5] Thus, American study abroad students represent a group at-risk for heavy and problematic drinking before, during, and after study abroad experiences. While some research does exist, there are still very few longitudinal research studies published on the topic. Further research efforts to help inform intervention programs with these students are necessary.

Factors Influencing Study Abroad Drinking Behavior

Demographic and student factors

Research with American study abroad students has identified demographic risk factors for drinking while abroad related to sex, ethnicity, and age. For example, Hummer and colleagues[3] found that although male and females demonstrated different drinking levels, both appeared to increase drinking frequency at similar rates while abroad. Pedersen and colleagues[5] reported that both White and non-White students with previous study abroad experience drank at heavier levels than their within-ethnicity peers who did not study abroad. In addition, age appears to be a factor related to drinking abroad. Students who were under the legal drinking age in the United States (i.e., age 21) were at greater risk for increased drinking abroad than students of legal age prior to departure, even though all students in the study completed study abroad programs in countries where they could legally drink.[2] While these studies help better understand who may be at risk abroad, larger samples of diverse male and female students are needed to further identify demographic factors influencing risk behavior abroad. For example, samples have been primarily female, age has not been examined as a continuous factor beyond legal drinking age vs. under legal drink age at predeparture, and comparisons between ethnic groups on drinking behavior abroad have yet to be examined.

Studies that look at demographic and student factors beyond sex, ethnicity, and age are lacking. Research with college students has identified risk factors for drinking on campus such as affiliation with fraternities and sororities on campus, GPA, major area of study, and income, and it is possible that these factors may continue to be associated with risk abroad. For example, heavier drinkers show lower GPAs and less involvement in college activities[7] and Greek-affiliated students are typically one of the heaviest drinking groups on campus.[8,9] Other studies have found that lower levels of monthly spending money associate with reduced risk for heavy drinking[10]and drinking may vary by academic major area of study; with business majors being the most at-risk for drinking.[11,12] In the study abroad context, it

may be those with lower grades and more money to spend are at increased risk. It may also be that students who are completing majors specifically focused on the cultural experience abroad (e.g., foreign language study, ethnic studies) are at lower risk compared to students in other majors, due to more focus on schoolwork and the cultural experience than on drinking with friends. Also, those with prior experience abroad may be less likely to drink heavily as the context is less novel for them.

Predeparture drinking and consequences

Research has also identified predeparture drinking behavior as influential of drinking behavior abroad for American study abroad students.[13,14] Greater predeparture frequency and quantity of drinking, as well as greater social-related expectations surrounding alcohol use abroad predicted drinking behavior and alcohol-related consequences while abroad.[3,15] Students' intentions of drinking abroad are also associated with heavier drinking behavior abroad.[2,13] Predeparture consequences as a factor predicting consequences abroad have not yet been examined in the literature.

Study abroad site factors

Studies have examined the association between study abroad site factors and drinking behavior and consequences for students abroad. Perceptions about the drinking behavior of other American study abroad student peers within one's host location and perceptions of same-age host country natives have been associated with reported heavier drinking abroad.[2,4,13] Researchers have also identified difficulties with adjusting to the new culture as influencing both drinking behavior and resulting consequences. For example, students who separated themselves from the host culture, perceived great differences between their home and host cultures, experienced more culturally-related social anxiety, and reported less positive sociocultural and psychological adjustment abroad were at greater risk for drinking and consequences abroad.[3,4,14] In regard to site location, students studying in Europe and in Australia or New Zealand experienced greater increases in drinking while abroad compared to those studying in other regions (Asia, Latin America, and others)[2] and students who studied in countries with higher drinking rates than those in the United States drank at heavier levels while abroad.[14]

To date, no studies have examined important site level factors such as primary language of host country, type of living environment abroad, setting of program (e.g., in an urban city or rural country), and type of program (e.g., university-affiliated, third-party, direct exchange program). Only one study has looked at language as a factor influencing alcohol use and consequences abroad; however the study focused on usage and development of foreign language skills rather than whether the natives in the host country spoke a language other than English.[4] Living environment has been found to be related to alcohol consumption by American university students, with those students living off campus with their family demonstrating the lowest rates of drinking compared to students in less controlled environments such as residence halls or apartments with peers[16] or fraternity/sorority houses.[17,18] Living environment might be especially relevant for study abroad students since they move out from their usual environment to a potentially less controlled one far from parents. Those who live with a host family likely drink less due to having to come home to

them at night, as well as not wanting to disrespect the "adopted family." Setting of program may be important abroad, as there is marked differences in drinking patterns by region among American university students in urban or rural settings.[19] Similar to type of living environment, type of abroad program may impact drinking. For example, students connected to their home university (e.g., having faculty present while abroad) may drink at a more moderate level given the faculty's connection to their home institution should they get in trouble for drinking.

Personality factors and goals

Little is known about other relevant factors such as students' personality characteristics and predeparture goals for the experience. Among personality factors, sensation seeking has been found to be correlated with risky behaviors and alcohol consumption in various populations, including college students, showing small to moderate effects in magnitude, with disinhibition (i.e., seeking social stimulation through impulsive behaviors) evidencing the largest mean effect sizes .[20-23] A small sample of female American students studying for three weeks abroad revealed that disinhibition in social settings correlated with drinking behavior.[15] Finally, for such a specific population, goals for studying abroad may vary and influence students' behavior while abroad. For example, a student whose focus is on creating social relationships with other American students abroad may drink differently while abroad than a student focused on gaining a meaningful cultural experience. Indeed, spending more time with other Americans abroad correlated with drinking and consequences.[4] Students' predeparture goals of social gathering (e.g., desire to be with friends in the program) did not correlate with enhanced cultural competence during trips,[24] and reduced cultural engagement is related to consequences abroad.[4] Thus, goals for cultural engagement may protect students from negative consequences while social goals may predict more drinking and problems.

The Present Study

The present study utilized longitudinal data to provide a further examination of the factors predicting drinking and related consequences for American study abroad students. First, we predicted drinking behavior and alcohol-related consequences from a variety of demographic factors (sex, age, ethnicity, Greek organization affiliation), student factors (GPA, spending money to use while abroad, previous study abroad experience, major area of study), and study abroad site factors (primary language of host country, location of program, type of program, living environment abroad). Given the research with study abroad students and with college students in general, we hypothesized that males, younger students, White students, and Greek-affiliated students would drink at the heaviest levels and experience the greatest amount of consequences. Additionally, we hypothesized drinking and consequences would be predicted by lower predeparture GPA, greater spending money abroad, limited previous study abroad experience, students in majors non-specific to cultural engagement/foreign language, studying in European countries and English-speaking countries, urban setting, non-university affiliated programs, and living outside a host family environment. Next, we predicted drinking and consequences abroad from predeparture drinking and consequences, as well as from sensation seeking personality characteristics and

predeparture goals related to the study abroad trip. We hypothesized that predeparture drinking, consequences, sensation seeking characteristics, and social gathering goals would predict drinking and consequences abroad, while cultural competency and subject interest goals would predict fewer consequences and less drinking.

Methods

Participants

Participants were part of a larger intervention study to prevent increased and problematic drinking for American college students studying in foreign countries.[25] The predeparture intervention focused on reducing students' misperceptions about drinking behavior in their host country and promoting cultural engagement goals during experiences abroad. The sample consisted of 339 students from one university in the northwest United States. The sample was primarily female and White (see Table 1 for demographic information). Participants mostly reported junior class status or above (85%). Approximately half (52.1%) were age 21 or older at time of predeparture. The majority (74%) studied abroad in European countries (e.g., Italy, United Kingdom, Spain), with the remaining 26% studying in countries located in Latin America, Asia, Oceania (i.e., Australia, New Zealand), the Middle East, and Africa. All students studied abroad in countries where they could legally drink alcohol. Compared to national data of American study abroad students, the sample was over representative of ethnic minorities and under representative of males.[1] However, the demographics were more closely representative of the population of study abroad students from the university where the study was conducted. All participants indicated consent on an online consent form and all procedures were approved by the university's institutional review board.

Procedures

Participants were recruited via an email sent by the university's study abroad office advertising the study. Students were eligible to participate if they were studying abroad in one country between 8 and 18 weeks during 2009-2010. Of the 848 students who signed up for the study, 431 (51%) met this criteria and were invited to participate. Participants were sent a predeparture survey via email approximately two weeks prior to their departure. Three-hundred and thirty nine students completed the baseline survey. They were then sent three online follow-up surveys during their study abroad trip at first month abroad, last month abroad, and equidistantly between the first and last month abroad surveys. Participants were also sent a post-return survey one month after their return home. Participants received $10 for each survey they completed. Retention rates were 87% at first month abroad, 78% at the middle month abroad, 75% at last month abroad, and 83% at post-return. For the purposes of these secondary analyses, we combined outcomes assessed at the three follow-up abroad time points into single outcomes of "abroad drinking" and "abroad consequences."

Measures

Demographics—On the predeparture survey, participants completed items related to age, sex, ethnicity, and Greek status (i.e., "are you a member of a fraternity or a sorority?").

Ethnicity was recorded into two dummy variables comparing (1) White students versus students indicating Asian ethnicity and (2) White students versus students indicating "other ethnicities."

Student factors—Participants also indicated GPA, spending money, prior study abroad experience, and major area of study on the predeparture survey. GPA was assessed on a scale from 1 "0.0 – 0.5" to 8 "3.5 – 4.0." Participants answered a question regarding anticipated spending money each month abroad (i.e., "approximately how much spending money [not devoted to bills, tuition, or housing] will you have each month during your study abroad trip?") with eight response options ranging from 0 "less than $100" to 7 " more than $700." Prior study abroad experience was assessed with a dichotomous yes/no option. Students typed in their major in school prior to departure. These majors were recoded for comparisons into "business" (e.g., marketing, finance), "liberal arts" (e.g., psychology, art history), "science" (e.g., biology, environmental studies), and "cultural studies/language" (e.g., ethnic studies, international studies, French).

Study abroad site factors—At post-return, participants completed questions regarding study abroad site factors. We created relevant items and response options based on discussions with study abroad personnel and students. Participants indicated whether English was the primary language where they studied abroad (yes/no), whether the location of the program was in an urban, rural, or suburban setting, and an open-ended response for location of the study abroad program. As students travelled to over 30 counties, we dichotomized this variable for analyses into European or non-European countries. Participants also selected whether their program was led by faculty at their American university, provided by a third party (i.e., non-home university faculty), or a direct exchange program with a foreign university or program. Finally, participants chose from a series of options regarding their living situation abroad: residence hall/dormitory with roommates, host family alone (i.e., family only hosted one student), host family with roommates (i.e., family hosted other study abroad students), apartment with roommates, and apartment alone. These options were combined into categories of living with a host family, residence hall with roommates, apartment with roommates, and "other" for comparison.

Drinking and alcohol-related consequences—Drinking was assessed at predeparture and follow-up assessments with the Daily Drinking Questionnaire (DDQ).[26] At each time point, participants indicated how many drinks they typically consumed on each of the seven days in a typical week in the past 30 days. Alcohol-related consequences were assessed with the Rutgers Alcohol Problem Index (RAPI)[27] at predeparture and at the three follow-up periods abroad.

Personality factors—Personality factors related to sensation seeking were assessed at predeparture with the eight item Brief Sensation Seeking Scale (BSSS).[28] The scale contains four subscales of experience seeking (e.g., "I would like to explore strange places"), boredom susceptibility (e.g., "I prefer friends who are exciting/unpredictable"), thrill and adventure seeking (e.g., "I like to do frightening things"), and disinhibition (e.g., "I like wild

parties"). Each subscale contained two items each, which were rated from 1 "strongly disagree" to 5 "strongly agree." Overall reliability of the scale was adequate ($\alpha = 0.80$).

Goals for study abroad trip—The Study Abroad Goals Scale (SAGS)[24] assessed predeparture goals related to three factors of cross cultural competence (e.g., "desire to enhance my understanding of the host country of the study abroad program;" 5 items, $\alpha = 0.90$), subject interest and competence (e.g., "desire to use/improve a foreign language;" 4 items, $\alpha = 0.67$) and social gathering (e.g., "desire to be with other friends that were participating in the study abroad program;" 4 items, $\alpha = 0.74$). Participants rated the importance of pursuing 13 goals while studying abroad on a Likert scale from 1 "not at all important" to 5 "very important."

Analytic Strategy

We ran two separate hierarchical Poisson regression models for drinking and alcohol-related consequences. A Poisson distribution was utilized due to positively skewed outcome data that were better represented by this non-normal distribution. Each model contained two steps to first look at demographic, student, and site factors; followed by previous use/consequences, personality, and goals. On step 1, we entered demographic factors (age, sex, ethnicity, Greek status), student factors (predeparture GPA, amount of spending money abroad, prior study abroad experience, major area of study), and study abroad site factors (English speaking host country, host country in European or non-European region, urban/suburban/rural setting of program, type of program, residence abroad). On step 2, we entered in the predeparture behavior (i.e., DDQ or RAPI) targeted in the model predicting either drinking or consequences abroad and the subscale scores for the BSSS and the SAGS. Data were assumed to be missing at random. We used multiple imputation in Stata version 11 to utilize all available data for regression analyses. All analyses controlled for intervention condition.

Results

Descriptive analyses

At predeparture, participants drank a mean of 6.90 (SD = 7.47) drinks per week and experienced a mean on the RAPI of 2.99 (SD = 4.31; range 0 to 26) problems. During the study abroad trip, participants drank a mean of 10.23 (SD = 8.72) drinks and experienced a mean of 2.71 (SD = 4.01; range – 0 to 34) problems on the RAPI. Participants reported a significant increase in their drinking behavior, F (1, 309) = 13.14; $p < 0.001$ and a non-significant change in their report of consequences, $p = 0.965$. Means and standard deviations for all predictor variables included in analyses are found in Table 1.

Alcohol use abroad

Table 2 contains results from the regression analyses predicting drinking while abroad. Predeparture factors entered on Step 1 of the model contributed to the overall model predicting drinking, F (22, 595.5) = 13.00, $p < .001$. Several of the demographic and student factors assessed at predeparture predicted typical drinks consumed per week abroad. Regarding demographics, participants who were younger, male, members of Greek

fraternities/sororities on campus, and White (compared to Asian and "other" ethnicities) drank more abroad. Regarding student factors, higher rates of drinking abroad were reported by those who reported lower predeparture GPAs, those who had more money to spend while abroad, and those with business or liberal arts majors (compared to those with majors related to cultural studies/language). Study abroad specific factors associated with heavier drinking included European site location, urban (compared to rural) setting of program, and living with roommates in an apartment (compared to living with a host family). The model on Step 2 was significant, F (30, 1349.2) = 21.39, $p < .001$. Over and above the factors indicated on Step 1, predeparture drinking levels, sensation seeking related to disinhibition, and goals related to social gathering for the study abroad trip predicted drinking while abroad.

Alcohol-related consequences abroad

Table 3 contains results from the models predicting alcohol-related consequences while abroad. The model on Step 1 was significant, F (22, 282.8) = 4.72, $p < .001$. Several demographic and student factors assessed at predeparture predicted consequences experienced during the study abroad experience. Younger students, males, those affiliated with Greek fraternities/sororities, and White students (compared to "other" ethnicities) reported greater rates of consequences abroad. Students with more money to spend while abroad and those with lower GPAs reported greater consequences abroad. During the abroad trip, students who reported living with roommates in an apartment (compared to living with a host family) experienced more consequences abroad. The model including predeparture consequences, personality factors, and goals on Step 2 was also significant, F (30, 614.3) = 11.21. Consequences at predeparture and sensation seeking related to thrill and adventure seeking predicted greater experience of consequences while abroad.

Comment

This study utilized a sample of American students studying abroad in foreign countries to examine the demographic, predeparture, and site-specific factors influencing heavy drinking and alcohol-related consequences abroad among this identified at-risk group. In general, participants who were younger, male, members of Greek fraternities/sororities, and White (compared to Asian and "other" ethnicities) drank more and experienced more consequences abroad. This is consistent with research over the past 20 years which has found that these students are generally the most at risk for heavy drinking on campus.[16,29] Higher rates of drinking and consequences abroad were reported by those with lower predeparture GPAs and more money to spend while abroad, which is also consistent with previous research among students back on campus.[7,10] Previous drinking behavior and consequences prior to the abroad trip, as well as sensation seeking personality traits, also predicted heavier drinking and more consequences abroad. This is also similar to research with students on campus where past behavior in high school predicts alcohol use and consequences during college and disinhibition and thrill-seeking associate with more risk.[22,30,31] Thus, many of the risks present for students on campus are also risks during the specific abroad context.

Unique predictors of study abroad drinking and consequences also emerged. Consistent with previous study abroad student research, students who studied in European countries drank

more abroad,[2,3] as did those who studied in urban settings compared to rural settings. Living with a host family and studying cultural studies or a foreign language protected students against heavy drinking, while predeparture goals related to social activities with other students predicted more drinking. Perhaps living with a native family where one is more likely to use a foreign language and feel a sense of accountability to them are important protective factors against heavy drinking abroad. In addition, drinking and consequences were not significantly different based on type of program abroad. Thus, there are no unique risks for specific study abroad programs; rather all programs likely contain students with some potential for increased and problematic drinking abroad.

Overall, as in previous work,[2] we found that students significantly increased their drinking abroad. However, in this first study to document changes in consequences from predeparture to abroad, we failed to find a significant change in consequences. Overall, RAPI scored decreased slightly from predeparture levels. It is important to recognize the context of these findings as this sample was involved in a broader intervention study. Three-fourths of the sample received an intervention and half of the sample received an intervention with some benefits in preventing consequences.[25] Though we controlled for intervention condition in analyses, students not receiving any program for alcohol use abroad may have looked different in terms of drinking, consequence, and factors influencing these outcomes. Also, there are factors we did not measure in this study that warrant further investigation. First, there is potential for students to experience a host of consequences that are unique to the abroad environment, such as legal problems with a foreign government, academic sanctions from both the home institution and the affiliated study abroad program, placing oneself in a dangerous situation with local people, social and personal consequences (e.g., missing flights or class excursions, offending or disrespecting host families or international program staff), and contributing to negative stereotypes of American students. Second, students may experience limited consequences from drinking in countries/contexts where alcohol use is socially acceptable/expected (e.g., in European countries). However, increased levels of drinking abroad could potentially be a risk factor for returning consequences as the cultural acceptance of drinking (e.g., drinking wine every night with dinner) may be different back home. This latter idea fits with research that heavier drinkers abroad come home drinking at increased rates[2] and may have particular trouble re-acculturating into their predeparture moderate drinking patterns.

Not surprisingly, we found prior drinking and consequences were strong predictors of abroad drinking and consequences. It may be important for institutions to identify students who have alcohol sanctions or who have experienced negative incidents with alcohol prior to departure and deliver specialized prevention efforts for these students. Rather than receiving limited or general alcohol information prior to departure, these students may necessitate more intensive empirically-supported interventions[32] to assist with reducing current heavy drinking patterns in preparation for the abroad experience. In addition, different factors of sensation seeking predicted either drinking (disinhibition) or consequences (thrill and adventure seeking), while other factors of experience seeking and boredom susceptibility displayed a non-significant association with drinking and consequences abroad. These latter two factors may be generally common traits among students who choose to study abroad; that is, these students like to take trips and explore

new places, as well as get restless with routine or predictability. Studying abroad likely attracts these students; however, it may also attract those who desire social disinhibition (e.g., partying and engaging in illegal behaviors) and thrill and adventure seeking (e.g., engaging in adrenaline inducing activities). It may be helpful to encourage these students to study in locations where their needs for social connection and thrill seeking may be met through challenging non-drinking activities, such as through program-sponsored events such as hiking, climbing, or backpacking trips; high ropes courses; or other activities that encourage social camaraderie and provide adrenaline rushes in safe and supervised environments.

Clinical and policy implications

Study abroad program directors and personnel working with study abroad students cite alcohol abuse as one of the major causes for concern for students abroad.[33, 34] Findings can be used to inform policies on campus for admission to study abroad programs as well as assist in the development of interventions targeted toward preventing risk for students during these experiences abroad. For example, it is clear from several studies that students drink more in European countries than they do in non-European countries; with preliminary evidence from a small sample that students actually decrease their use when studying in non-traditional locations such as the Middle East, Africa, South Asia, and West Asia.[2] Besides study in India, study abroad participation in these countries is decreasing,[1] but promoting experiences abroad in these locations may assist with prevention efforts. Encouraging study in rural locations focused on service or interaction with locals, rather than social gathering with other students, may also assist in the prevention effort. Also, research has established that those under the age of 21 are at increased risk[2] abroad and younger students in general also appeared at risk in our study. It may help to encourage study abroad during one's senior year (or at least until age 21). However, for many students in their senior year, they may be finishing up coursework and senior thesis projects; making junior year abroad (i.e., likely under 21) more typical.[1]

While this study identifies the profile of students that may be particularly at-risk, institutional policies regarding limiting study abroad engagement for White male students, wealthier students, Greek-affiliated students, younger students, or those with a GPA lower than a predetermined cutoff may be controversial. Indeed, there will undoubtedly be many students who fit the "at-risk profile" that will greatly benefit from the study abroad experience and engage in limited drinking abroad. Thus, rather than have strict rules about age, GPA, and other prerequisites, institutions need to create or adopt evidence-based predeparture programs for prospective students to target the factors that can be influenced abroad. Few programs targeting alcohol use abroad exist for students despite the fact that a large majority of personnel working with study abroad students report the need for risk reduction alcohol awareness programs that are supported by evidence.[34] Additionally, there are no published empirically-based programs to prevent alcohol use and consequences for these students. Promoting more cultural engagement abroad through predeparture intervention (e.g., strategies for social interaction with local people, preparation for expected homesickness and "culture shock") has been suggested to help reduce negative incidents abroad.[4] There is also some preliminary evidence that personalized feedback refocusing

social gathering goals and providing tips/strategies to reinforce goals of cultural engagement can prevent consequences abroad.[25] This may also be assisted by encouraging living with a local family rather than with other American students in apartments or dorms or by encouraging pursuit of an cultural studies or foreign language major (or minor) that might increase their positive experience with the culture abroad. Students may also be encouraged to utilize their supports abroad (e.g., advisors and staff on site, host families); seek and receive referrals for mental health resources abroad; and stay connected with family, friends, and host institution advisors back home using cell phones, the Internet, and free communication programs (e.g., Skype).

Limitations

Despite our attempt to include as many factors as made conceptual sense in our analyses, there are still many factors that are unexamined in the literature. For example, we did not examine short-term programs though 58% of students go abroad for just one month to eight-weeks.[1] Little is known about the drinking behavior of this group of students. Theory and research with young adults on spring break or in New Orleans for Mardi Gras events suggests that students in short-term programs may be at even greater risk due to limited time to fully engage the culture and seeing their time abroad as a “time out” from school work and everyday life back home.[35-37] Indeed, students on week-long spring break destination trips are at great risk for heavy drinking, resulting in negative consequences, and risky sex.[38,39] Likewise study abroad students on short trips may experience similar problems. In addition, while this study helps to better understand drinking for American students abroad, very little is known about international students from outside the U.S.; for example European students studying abroad in other European countries. The European Union has been running university exchange programs for the last two decades, and in 2011-2012, 230,000 European university students spent a period in a different European country. Limited data on young European travelers (i.e., not specifically identified as students) indicates that while abroad, both frequency of consumption and binge drinking behavior significantly increase along with other at-risk behaviors.[40-42] More research is needed in order to better understand study abroad European students’ drinking behavior and the degree of generalizability of current research to such populations. Finally, our sample was relatively small and included students from one university. The sample included a greater proportion of females and ethnic minority students than is representative of the national population of study abroad students, which may limit the generalizability of our findings to the broader population. We were unable to look at country-specific differences as we had too few N per country to examine meaningful differences. We also did not assess whether the focus of their foreign language or cultural studies majors were related to the country where they studied.

Conclusion

There is a burgeoning research base of evidence that college students who study abroad are at risk for heavy drinking and alcohol-related consequences. This study adds to that base by identifying those students who may be particular at-risk. These findings can help researchers and student affairs personnel better understand the factors related to drinking and problems for students abroad in efforts to establish predeparture interventions targeted toward

reducing risks for students abroad. Partnerships between campus health and wellness programs with study abroad departments are also warranted and may be necessary to address problematic drinking among this at-risk group. These partners can work together to deliver efficacious programs to students prior to departure and perhaps during the trips themselves. Unfortunately, empirically-supported interventions targeted toward reducing heavy use abroad are lacking with this group and future work is encouraged.

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Table 1

Means/percentages and standard deviations for variables included in regression analyses

Variable	Mean/percentage	Standard deviation
Demographic factors		
Age	21.14	3.11
Sex (male)	22%	
Ethnicity (Asian)	13%	
Ethnicity (Other)[1]	15%	
Ethnicity (White)	72%	
Greek status (member of fraternity or sorority)	30%	
Student factors		
GPA[2]	7.30	0.64
Spending money[3]	3.93	2.16
Study abroad before	24%	
Major (Business)	17%	
Major (Liberal Arts)	48%	
Major (Science)	15%	
Major (Cultural studies/Language)	20%	
Study abroad site factors		
English primary language in host country	20%	
European host country	74%	
Location (Suburban)	19%	
Location (Rural)	9%	
Location (Urban)	72%	
Program (Third party)	19%	
Program (Direct exchange)	12%	
Program (University program)	69%	
Residence abroad (Residence hall)	23%	
Residence abroad (Apartment w/ roommates)	39%	
Residence abroad (Other)	11%	
Residence abroad (Host family)	27%	
Personality factors[4]		
Experience seeking	3.92	0.83
Boredom susceptibility	3.55	0.86
Thrill and adventure seeking	3.09	1.16
Disinhibition	2.79	1.08
Goals[5]		
Cross cultural competence	4.49	0.66
Subject interest and competence	4.05	0.82

Variable	Mean/percentage	Standard deviation
Social gathering	2.80	1.11

Note:

[1] Non-White and non-Asian participants were 2% Hispanic/Latino(a), 2% African-American/Black, 7% identifying “mixed ethnicity,” and 4% “other” of the entire sample;

[2] GPA mean of “7” represents approximately 3.0 to 3.5 GPA;

[3] Spending money mean of “4” represents $300-$400.

[4] Scale from 1 “strongly disagree” to 5 “strongly agree.”

[5] Scale from 1 “not at all important” to 5 “very important.”

Table 2

Predictors of drinking while abroad

	Step 1			Step 2		
	Estimate	***SE***	***P***	***Estimate***	***SE***	***p-value***
Demographic factors						
Age	**−0.02**	**0.01**	**0.021**			
Sex[1]	**0.40**	**0.05**	**<0.001**			
Ethnicity (White vs. Asian)[2]	**−0.20**	**0.07**	**0.007**			
Ethnicity (White vs. other)[2]	**−0.26**	**0.06**	**<0.001**			
Greek status[3]	**0.13**	**0.04**	**0.003**			
Student factors						
GPA	**−0.11**	**0.03**	**<0.001**			
Spending money	**0.03**	**0.01**	**0.005**			
Study abroad before[4]	0.01	0.01	0.915			
Major (Cultural studies/language vs. Business)[5]	**0.20**	**0.06**	**0.001**			
Major (Cultural studies/language vs. Liberal Arts)[5]	**0.11**	**0.05**	**0.048**			
Major (Cultural studies/language vs. Science)[5]	−0.01	0.07	0.976			
Study abroad site factors						
English primary language[6]	**−0.02**	**0.01**	**0.70**			
European country vs. non-European[7]	**0.32**	**0.07**	**<0.001**			
Location (urban vs. suburban)[8]	0.06	0.07	0.461			
Location (urban vs. rural)[8]	**−0.37**	**0.13**	**0.013**			
Program (university program vs. third party)[9]	−0.13	0.11	0.297			
Program (university program vs. direct exchange)[9]	**−0.14**	0.08	0.097			
Residence (host family vs. residence hall)[10]	0.09	0.08	0.301			
Residence (host family vs. apartment w/ roommates)	**0.30**	**0.08**	**0.004**			
Residence (host family vs. other)[10]	**0.42**	**0.13**	**0.011**			
Predeparture drinking				**0.04**	**0.00**	**<0.001**
Personality factors						
Experience seeking				−0.01	0.03	0.786
Boredom susceptibility				0.01	0.03	0.817
Thrill and adventure seeking				−0.01	0.02	0.950
Disinhibition				**0.13**	**0.03**	**<0.001**
Goals						
Cross cultural competence				−0.03	0.04	0.431
Subject interest and competence				0.04	0.03	0.088
Social gathering				**0.05**	**0.02**	**0.019**

	Step 1			Step 2		
	Estimate	***SE***	***P***	***Estimate***	***SE***	***p-value***
Constant	2.87	0.32	<0.001	1.47	0.35	<0.001

Note for dichotomous variables:

[1] male = 1, female = 0;

[2] White is the reference group (coded 0);

[3] Greek affiliated = 1, non-Greek affiliated = 0;

[4] No = 0, Yes = 1;

[5] Cultural studies/language is the reference group (coded 0);

[6] Primary language of host country English = 1, Non-English = 0;

[7] European host country = 1; non-Europe = 0;

[8] urban is the reference group (coded 0);

[9] university program is the reference group (coded 0);

[10] host family is the reference group (coded 0)

Table 3

Predictors of alcohol-related consequences abroad

	Step 1			Step 2		
	Estimate	***SE***	***P***	***Estimate***	***SE***	***p-value***
Demographic factors						
Age	**−0.05**	**0.02**	**0.007**			
Sex[1]	**0.30**	**0.10**	**0.004**			
Ethnicity (White vs. Asian)[2]	−0.09	0.12	0.474			
Ethnicity (White vs. other)[2]	**−0.41**	**0.13**	**0.003**			
Greek status[3]	**0.19**	**0.08**	**0.024**			
Student factors						
GPA	**−0.43**	**0.06**	**<0.001**			
Spending money	**0.07**	**0.02**	**<0.001**			
Study abroad before[4]	**−0.11**	0.11	0.343			
Major (Cultural studies/language vs. Business)[5]	−0.04	0.14	0.785			
Major (Cultural studies/language vs. Liberal Arts)[5]	0.01	0.11	0.894			
Major (Cultural studies/language vs. Science)[5]	0.12	0.14	0.396			
Study abroad site factors						
English primary language[6]	0.16	0.11	0.167			
European country vs. non-European[7]	−0.06	0.16	0.723			
Location (urban vs. suburban)[8]	0.30	**0.15**	0.079			
Location (urban vs. rural)[8]	−0.30	0.31	0.372			
Program (university program vs. third party)[9]	−0.37	0.37	0.358			
Program (university program vs. direct exchange)[9]	0.13	0.18	0.488			
Residence (host family vs. residence hall)[10]	**0.17**	0.22	0.480			
Residence (host family vs. apartment w/ roommates)[10]	**0.62**	**0.19**	**0.011**			
Residence (host family vs. other)[10]	0.36	0.31	0.280			
Predeparture consequences				**0.11**	**0.01**	**<0.001**
Personality factors						
Experience seeking				0.01	0.06	0.980
Boredom susceptibility				−0.03	0.06	0.547
Thrill and adventure seeking				**0.16**	**0.05**	**0.001**
Disinhibition				0.08	0.05	0.149
Goals						
Cross cultural competence				−0.01	0.07	0.903
Subject interest and competence				0.02	0.06	0.712
Social gathering				0.06	0.04	0.165

	Step 1			Step 2		
	Estimate	***SE***	***P***	***Estimate***	***SE***	***p-value***
Constant	4.88	0.65	<0.001	2.33	0.76	0.002

Note for dichotomous variables:

[1] male = 1, female = 0;

[2] White is the reference group (coded 0);

[3] Greek affiliated = 1, non-Greek affiliated = 0;

[4] No = 0, Yes = 1;

[5] Cultural studies/language is the reference group (coded 0);

[6] Primary language of host country English = 1, Non-English = 0;

[7] European host country = 1; non-Europe = 0;

[8] urban is the reference group (coded 0);

[9] university program is the reference group (coded 0);

[10] host family is the reference group (coded 0)