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# Examining the Relationships Between Acculturation Orientations, Perceived and Actual Norms, and Drinking Behaviors of Short-Term American Sojourners in Foreign Environments

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## Abstract

As little research has examined factors influencing increased and heavy drinking behavior among American sojourners abroad, this study was designed to examine how acculturation orientations (i.e., separation versus assimilation), host country per capita drinking rates, and perceptions about the drinking behavior among other sojourners and natives in the host country predicted alcohol risk abroad. A sample of 216 American college students completing study abroad programs completed a pre-abroad questionnaire to document their pre-abroad drinking levels, followed by a post-return questionnaire to assess drinking while abroad, acculturation orientations and perceived norms of drinking behavior within the foreign environment. A dichotomous variable was created to compare United States (U.S.) per capita drinking rates with those of the host country. Hierarchical repeated-measures ANOVAs examined the changes in drinking from pre-abroad to abroad levels. Participants studying in countries with higher drinking rates than the U.S. and those with higher perceptions about the drinking behavior in the country increased their drinking to a greater extent. Those with higher separation acculturation orientations and greater perceptions drank at heavier levels while abroad. Participants with a greater assimilation orientation and higher perceptions about native drinking, as well as those with a greater separation orientation and higher perceptions about other students' alcohol use drank the heaviest while abroad. These findings have implications for future preventive work with American students and other sojourning groups to promote pre-abroad knowledge of more accurate drinking norms and greater engagement in the culture to potentially prevent increased and heavier drinking.

### Keywords

Alcohol; Sojourners; Acculturation; Perceived norms; Study abroad



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It is estimated that nearly 6 million American individuals (including students studying abroad, military personnel, expatriates, international business professionals, and foreign aid workers) are living overseas in foreign countries (Association of Americans Resident Overseas 2010; Department of Defense 2010; Institute of International Education [IIE] 2009). While some Americans establish long-term residencies abroad, many are considered temporary residents (i.e., sojourners) who return to the U. S. once studies or services are finished. Rates of alcohol abuse among some sojourner groups abroad may be greater than rates among individuals living in the U. S. (e.g., Bray and Hourani 2007; Cardozo and Salama 2002; Office of Applied Studies 2008). Longitudinal studies have also documented that drinking may increase at dramatic rates among sojourners while living abroad, particularly among American students (Pedersen et al. 2010b) and among young military personnel in combat arenas (e.g., Bremner et al. 1996; Jacobson et al. 2008). Understanding factors associated with heavy and increased drinking among sojourners while abroad can help researchers develop prevention and intervention strategies to target these risky behaviors.

## Acculturation Orientations

For persons living in foreign environments, one's level of "acculturation" may impact negative health behaviors. The acculturation process, albeit relatively brief for sojourners, involves the changes that take place when an individual comes into contact with a culture that is discrepant from his or her own (Berry 1997, 2003). Due to criticisms that one-dimensional measures of acculturation (e.g., length of time living in the new country, language proficiency) may be biased or flawed (Hunt et al. 2004), Berry (1980, 2003) and others (e.g., Ryder et al. 2000; Salant and Lauderdale 2003) proposed that assimilation into foreign cultures does not operate on a single continuum of home culture identification to host culture identification; but rather, individuals retain aspects of their home culture while adopting aspects of the host culture on two separate continua. Berry (1998) outlined four acculturation styles or orientations: (1) individuals who are *integrated* adopt elements of the receiving culture while maintaining many aspects of their culture of origin; (2) *assimilated* individuals adopt many of the receiving culture practices, values, and beliefs while shedding many of their own; (3) those who are *separated* maintain their culture of origin and do not adopt elements of the receiving culture; and finally, (4) *marginalized* individuals have neither the elements of their culture of origin nor the receiving culture.

### Acculturation and Drinking

Literature on acculturation generally suggests that increased acculturation into a foreign environment can serve as either a protective factor or a risk factor for increased or heavy drinking. The research is quite mixed when specific immigrant groups are examined (Chun et al. 2003; Zenmore 2007). Increased acculturation can associate with greater levels of drinking for some Asian-American immigrant groups to the U.S. (e.g., Hahm et al. 2003, 2004; Hendershot et al. 2005; Sue et al. 1979) and factors such as lower levels of home culture ethnic identity and lower age at immigration (possible indicators of a separation orientation) have predicted alcohol dependence (Gong et al. 2003). Little research attention has focused on examining Americans abroad and the relationship between acculturation and drinking. Among non-immigrant groups (e.g., sojourners, international students), those who assimilate (i.e., value positive relations and place more emphasis on connecting with the host culture but are not as concerned with retaining their own cultural heritage) into the host culture are at the least risk for sociocultural and psychological adjustment difficulties during temporary residencies in foreign countries (Brien and David 1971; Church 1982). These adjustment difficulties have been suggested to associate with engagement in deviant behaviors or mental health issues (Mori 2000; Mumford 1998; Taft 1977). Although there is little doubt that heavy alcohol use constitutes a common deviant behavior engaged in by

non-immigrant groups abroad (particularly for American college students), empirical support for the link between acculturation and drinking within these groups is lacking in the literature.

## Culture of Origin and Drinking Norms

The relationship between acculturation and alcohol use among different ethnic groups may vary depending on culture of origin and receiving culture characteristics. A particularly salient factor that has emerged in the literature is varying drinking norms among nations. Researchers have suggested that when individuals acculturate into a society where risk behavior is less prevalent than in the home country (e.g., heavier drinking Korean males acculturating into U.S. culture), increased acculturation can protect individuals from these behaviors; on the other hand, when individuals acculturate from a lesser drinking culture into a heavier drinking culture (e.g., Chinese acculturating into U.S. culture), the risk for heavier drinking may emerge (Abraido-Lanza et al. 2005; Hendershot et al. 2008; Makimoto 1998). A similar effect has been suggested to explain why Hispanic/Latina women who become more acculturated into the U.S. may experience greater rates of increased drinking than less acculturated women (Caetano and Medina Mora 1988), while evidence has been more mixed for male Hispanic/Latino immigrants (e.g., Neff et al. 1991). This effect is perhaps attributable to the idea that cultural norms for female alcohol consumption are stricter in Latin America than they are in the U.S., while there are more lenient norms for male drinking in both Latin American countries and the U.S. Thus, it appears increased acculturation can be a risk or protective factor for alcohol use, depending on whether alcohol use is more prevalent and acceptable in the culture of origin compared to the host culture. It is possible that through active acculturation processes (e.g., spending time with local people), one learns that drinking is more or less acceptable and normative and then adopts the drinking patterns of the host culture.

## Perceptions of Drinking Within the Foreign Environment

Drinking may be considered normative in some cultures and deviant or taboo in others (Amodeo and Jones 1997; Oetting et al. 1998), and these beliefs correspond to disparate drinking rates among nations (WHO 2004). Due to their limited time abroad, it is likely that the sojourner lacks a thorough understanding of the actual drinking behavior of the country's inhabitants; rather, he likely has an idea (i.e., perceived norm) about the drinking patterns of the particular country. Social norms theory (Perkins 2002; Perkins and Berkowitz 1986) suggests that individuals are influenced to engage in behaviors based on their perceptions of how others are behaving or how accepting others are of the behavior. Much research has examined how college students who (incorrectly) believe that other college students are drinking heavily report heavier levels of drinking behavior themselves (Borsari and Carey 2003; Neighbors et al. 2007; Wood et al. 2001). For individuals with limited exposure to a specific culture, especially one in which alcohol is glorified in social media or thought to play a central role in everyday life, normative beliefs about the host culture could influence drinking rates among sojourners abroad.

Using samples of American college students studying abroad, Pedersen and colleagues (2009, 2010b) found that predeparture perceptions of the drinking behavior of other American study abroad students in general (i.e., all students studying abroad at the time) and within one's host country (e.g., how a student studying in Italy perceived the drinking behavior of other study abroad students in Italy) predicted increased drinking for the students while abroad. While predeparture norms may influence one's beliefs prior to going abroad, it is possible that acculturation orientations, such as making little attempt to engage the culture while abroad (i.e., *separation*) could interact with perceptions of drinking within

the environment to further exacerbate risk for heavy drinking while abroad. For example, if an individual travels to Germany and believes Germans drink heavily yet makes little effort to actively learn that drinking is less prevalent than perceived by making attempts to engage and learn about the culture (i.e., *assimilation*), then they will never fully realize that their misperceptions are incorrect. Their behavior will be influenced by a misperceived norm rather than an actual one. These interactions between perceptions and acculturation have received little research attention.

## The Present Study

Using a sample of American college students studying temporarily in foreign countries, the current longitudinal study was designed to help understand how acculturation orientations, culture of origin drinking level in comparison to host culture levels, and perceived environment-specific drinking norms predict increased drinking behavior for American sojourners while living abroad. Using a hierarchical process, we examined how drinking behavior changes when sojourners enter countries with higher drinking rates than their country of origin (U.S.), as well as how level of acculturation and one's perceptions of drinking within the environment relate to these observed changes. We chose the two acculturation orientations of *assimilation* and *separation* specifically, hypothesizing that those individuals who placed more emphasis on the host culture while abroad (assimilation) would drink to a lesser extent than those who disengaged from the culture and placed more emphasis on the home U.S. culture (separation). We examined perceptions about the drinking behavior among two reference groups, including American peers from one's university who were studying abroad in the host country and local young adults native to the host country. We examined the interaction between the two targeted acculturation orientations and perceived drinking norms to determine how acculturation styles interacted with applicable perceived reference group norms within the environment to exacerbate potential for risk. We hypothesized that those with greater assimilation into the culture and higher perceived norms about native drinking behavior (i.e., those who made attempts to learn about the drinking behavior of natives and who believed natives drank heavily), as well as those with greater separation from the culture and higher perceived American peer drinking norms (i.e., those who spent most of their time with American students and who also believed these students drank heavily), would drink at the heaviest rates. It was also hypothesized that students studying in heavier drinking countries than the U.S. would increase their drinking to a greater extent than those who studied in countries with lower drinking rates. However, given the strong relationship between perceived norms and behavior among young adults in general and among sojourners (Neighbors et al. 2007; Pedersen et al. 2009, 2010b), we hypothesized that individuals' perceptions about country-specific drinking would exude a greater influence on changes in drinking behavior over and above actual drinking rates and acculturation orientations while abroad.

## Method

### Participants

American college students from one northwestern university who were signed up for study abroad programs were recruited via advertisement through the university's study abroad office website. Two-hundred and eighty-seven participants completed a predeparture online survey before leaving for their trip. Of these participants, 216 provided complete non-missing data on a post-return online survey after returning home from their trip, comprising the final sample used in analyses (75% retention). There were no differences in pre-abroad drinking levels between study completers and non-completers. Participants reported a mean age of 21.77 ($SD$=3.66) and were primarily of junior or senior class year status (77%). Participants were mostly female (80%) and Caucasian (71%), with 20% identifying as Asian

American/Pacific Islander, 1% identifying as African American/Black, 5% identifying as "mixed ethnicity," and 3% identifying as "other ethnicities." Participants studied abroad for a mean of 10.65 (*SD*=8.53) weeks in 39 different countries (61% in European countries).

## Procedure and Measures

All procedures and consent forms were approved by the Human Subjects Review Board at the university where the study took place. Approximately 2 weeks prior to leaving for their study abroad trip, participants completed a brief online predeparture survey delivered via email and accessible by a randomly generated personalized identification number assigned to the specific participant. This survey assessed demographic information such as age, sex, ethnicity, and the host country of the study abroad trip. On the predeparture survey, participants also indicated how much alcohol they typically consumed during each night of a typical week in the past month using the Daily Drinking Questionnaire (DDQ; Collins et al. 1985), which allowed for calculation of typical weekly *pre-abroad drinking*.

Participants received a post-return survey via email approximately 1 month after returning from their trips abroad. They indicated their typical drinking during the first and last months abroad respectively using separate DDQs. Typical weekly drinking during these 2 months was highly correlated ($r$=0.77); thus, we averaged the two variables to yield a typical weekly *drinking while abroad* variable used for parsimony in examining outcomes. Participants also completed two Drinking Norms Rating Forms (DNRF; Baer et al. 1991) to assess for perceptions of typical weekly drinking for (1) other university-specific students studying within the participants' host country and (2) age-matched young adults native to (i.e., those who were born in and live in) the host country. The DNRFs asked students to consider drinking among these groups during the same time period they were abroad. These two measures yielded the *perceived study abroad peer norms* and *perceived native norms* variables for typical drinks per week. Perceived norms were assessed after the trip to capture the perception one had while living in the environment; that is, participants had a chance to observe the behavior of others before establishing a perception about drinking behavior. Theory suggests proximity to observed groups is an essential component of social influence (Latane 1981) and perceived norms of proximal groups (i.e., students and natives studying/living around the participant) may be more impactful on behavior than perceived norms of distal groups (i.e., one's perceptions of individuals prior to departure) (e.g., Borsari and Carey 2003).

Finally, participants completed the eight-item Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA; Unger et al. 2002); which was modified specifically to assess Berry's (1998) four acculturation styles. The measure asked participants to consider their time abroad and to indicate which of four options most clearly represented the acculturation orientation they identified with most for each of the eight items ("Host country" = assimilation, "United States" = separation, "Both" = integration, "Neither" = marginalization). Example items include "The people I fit in with best were from…" and "My favorite music was from…" The separation score was generated by summing the number of items the participant endorsed "United States," while assimilation was calculated by summing the number of "Host country" responses. Thus, assimilation represented an acculturation orientation that focused more on the host culture, while separation represented an acculturation orientation focused more on the home culture (i.e., the U.S.).

# Results

## Analytic Plan

To determine whether individuals studied in comparatively heavier or lighter drinking countries than the U.S., the per capita drinking rate obtained from the World Health Organization's Global Status Report (WHO 2004) for each of the 39 countries was inputted into the data file. We then compared the U.S. per capita drinking rate to the host country per capita drinking rate to yield a *country drinking rate comparison* variable. This dichotomous variable was identified with values of "0" indicating the U.S. had a higher per capita drinking rate than the host country with "1" indicating the host country had a higher per capita drinking rate. Sixty-five percent of participants studied in countries with higher drinking rates than the U.S.

Next, hierarchical linear regression analyses were performed using a repeated-measures design predicting drinking levels at two different times (pre-abroad and abroad). We specified four steps to analyses. On Step 1, the country drinking rate comparison was entered to examine the impact of varying national drinking rates on increased drinking while abroad. On Step 2, we entered the two acculturation orientations of separation and assimilation. On Step 3, we entered the normative perception variables for university-specific peers living in the host country and for young adults native to the host country. Finally on Step 4, we entered the two product terms of hypothesized relationships between the acculturation styles and perceived norms (separation X perceived peer norms, assimilation X perceived native norms). All variables were mean centered prior to regression analyses to assist with interaction interpretation. Within-subjects effects were interpreted at each step to determine how factors predicted changes in drinking over time. In addition, we interpreted the parameter estimates predicting drinking while abroad to determine the unique effects of variables on abroad-specific drinking behavior.

## Predicting Changes in Drinking Over Time and Drinking While Abroad

Table 1 contains means and standard deviations of all variables used in analyses, as well as the correlation matrix of variables. Repeated-measures main effects are presented in text, while Table 2 contains the parameter estimates for variables on each step predicting drinking while abroad. On Step 1, there was a main effect for time, $F(1, 216)=63.43$, $p<.001$, with participants increasing drinking by more than four drinks per week while abroad. There was also a main time X drinking rate comparison effect, $F(1, 216)=13.91$, $p<.001$. Participants living in countries with higher per capita drinking rates than the U.S. increased their drinking to a greater extent than those participants living in countries with lower drinking rates than the U.S. (see Fig. 1). Drinking while abroad was significantly predicted by the drinking rate comparison variable such that an individual who lived in a country with a higher drinking rate was expected to drink approximately 4.5 more drinks per week than an individual living in a country with a lower drinking rate than the U.S.

On Step 2, the time X drinking rate comparison effect was slightly reduced but still significant, Wilk's $\Lambda=0.95$, $F(1, 214)=12.43$, $p=.001$. There was no time X separation effect and no time X assimilation effect for changes in drinking. Looking at drinking while abroad, separation acculturation style predicted drinking while abroad such that a higher score on separation acculturation orientation predicted heavier consumption per week abroad (see Table 2).

On Step 3, perceived study abroad peer norms and perceived native norms were entered into the model. The time X drinking rate comparison effect was greatly reduced and reached non-significance, $F(1, 212)=2.19$, $p=.14$. This suggested that the addition of perceived norms at least partially explained the effect of the drinking rate comparison on changes in

drinking over time. There was a significant time X perceived native norms effect, $F(1, 212)=20.82$, $p<.001$, and a non-significant trend for the time X perceived study abroad peer norms effect, $F(1, 212)=2.94$, $p=.09$. Both perceived native norms and perceived study abroad peer norms had a unique positive impact on drinking while abroad (see Table 2).

Finally, on Step 4 we entered the hypothesized two-way interactions between (1) separation and perceived study abroad peer norms and (2) assimilation and perceived native norms. There was a significant time X separation X perceived peer norms interaction effect, $F(1, 210)=7.35$, $p=.007$, and a non-significant trend for time X assimilation X perceived native norms, $F(1, 210)=2.77$, $p=.10$. In addition, the two-way interaction terms both predicted drinking while abroad (see Table 2). The three-way interactions were graphed such that low values of continuous variables represented one standard deviation below the mean and high values represented one standard deviation above the mean (Cohen et al. 2003). Figure 2 (bottom) suggests that those with a high separation acculturation style who perceived drinking by other study abroad peers to be high drank at the heaviest levels while abroad. The impact of perceived peer norms appeared similar for those participants with a low separation acculturation style. For pre-abroad drinking (Fig. 2, top), drinking among those with varying separation levels and perceived peer norms were similar.

While the three-way time X assimilation X perceived native norms interaction was non-significant, the two-way interaction was significant and graphed as nested within the three-way interaction to fit consistent with Fig. 2. Participants with low and high perceptions of native norms drank at similar pre-abroad levels regardless of assimilation level (see Fig. 3, top). Figure 3 (bottom) suggests that those with higher assimilation acculturation orientation scores who perceived drinking in the host country to be high reported heavier levels of drinking abroad than those who believed drinking to be lower. Participants with a low assimilation acculturation orientation who perceived heavier drinking by natives evidenced the greatest consumption level (Fig. 3).

## Discussion

This study examined the factors predicting drinking among American sojourners abroad using a sample of American college students studying temporarily in foreign countries. Those studying in heavier drinking countries than the U.S. increased their drinking to a greater extent than those studying in countries with lower drinking rates than the U.S. This effect was partially mediated by acculturation orientations; in particular, participants who separated themselves from the host culture reported heavier levels of drinking while abroad. Perceptions about the drinking behavior of both American peers abroad and host country native young adults were associated with increased drinking behavior, such that heavier drinking rates than the U.S. no longer explained a significant amount of variance. Thus, perceptions about what others in the environment drink may be more impactful on behavior than actual drinking behaviors in the host country. These perceptions were associated with higher levels of drinking behavior during the abroad experience, even after controlling for acculturation orientations. Finally, those who believed peers drank the most while abroad and who also separated themselves from the host culture (e.g., made little attempt to interact with local people) drank the heaviest. Perhaps these students spent much of their time with other Americans drinking in pubs and restaurants rather than engaging the culture while abroad. Conversely, participants with both low and high assimilation styles who believed drinking in the host country to be high reported heavier drinking levels. However, the greatest risk was evident for those who reported low levels of assimilation into the host culture and who also believed native people drank heavily. Thus, these students may have believed drinking in their host country was high and were therefore indirectly influenced to drink heavily to match this perceived norm. They may not have made active attempts to

interact with local people to learn the actual drinking habits. Participants may have been influenced by a perceived norm that they never made an effort to learn was accurate or not.

Theory suggests that individuals may choose environments and social networks that are compatible with their own personality traits (Buss 1987; Robins et al. 2001) and heavier drinkers may seek out peers and environments that support continued heavy use (Kahler et al. 2003; Thombs et al. 1993). While not all sojourning groups have the option to choose their foreign environment, it is possible that heavier drinking students traveled to countries they believed supported heavier drinking. Indeed, heavier student drinkers report greater intentions to study abroad during college (Pedersen et al. 2010a) and American students who expected the study abroad environment to support drinking experienced a greater rate of alcohol-related consequences while abroad (Hummer et al. 2010). Perceptions initiated prior to departure and perpetuated by observing overt drinking behaviors in the environment may contribute to risky behavior abroad.

As the risks for increased and problematic drinking among American students abroad are clear (Hummer et al. 2010; Pedersen et al., 2010b), it is important to develop preventative approaches that help reduce alcohol risk among these groups. Qualitative research indicates that American students struggling to adopt to the foreign environment may seek out American peers for social contact (Citron 1996) and research with international students suggests that higher acculturative stress, as characterized by loss of familiar social support, homesickness, decreased self-esteem, and language barriers can lead to loneliness, depression, anxiety, and other mental health complications (Mori 2000; Poyrazli et al. 2002). Thus, students less connected with the environment abroad may establish relationships with other American peers through activities involving alcohol (e.g., bars, parties, and clubs) or may use alcohol as a means to cope with negative feelings related to poor adjustment. Classic research suggests that “culture shock” may be marked by withdrawal from others and by compulsive behaviors (Kohls 1979). Preventing the development of increased patterns of alcohol use by helping students engage their foreign environment in a meaningful way could have lasting effects on individuals while abroad and perhaps once returning home. Efforts with the goal of fostering cultural sensitivity/understanding and cultural curiosity/interest directly may lead to appropriate behavior in a culture. The more sensitive a person is to the norms of a culture, the greater the likelihood they may behave in culturally-appropriate ways while also reducing risk.

Promotion of cultural immersion goals for American students studying abroad may help reduce negative drinking incidents (Harley 2001; Kitsantas 2004) and predeparture attitudes/intentions towards cultural immersion, though lacking empirical investigation, have the ability to promote cultural immersion goals among sojourners (e.g., Wilkinson 1998). Kitsantas (2004) suggests that predeparture programs can help American students establish goals of cultural understanding and social interaction with local people, find ways to reinforce these goals, and help students refocus social gathering goals related to spending the majority of time with other American students while abroad. Thus, during predeparture programs, program leaders can promote a “temporary assimilation,” which could help individuals engage the culture and reveal that natives may not drink as much as they perceived. Subsequent group discussions could then focus on observed customs, norms, and behaviors surrounding alcohol use and other relevant phenomenon. This discussion could also be used to keep the individuals’ motivations for traveling to the new country front and center; such as gaining more personal development from their experience abroad, learning how to view the world through a different lens, learning a new language as a way to glean insights into a culture, seeking out research opportunities and fruitful international jobs, or simply engaging a new cultural heritage and identity.

In addition to promoting assimilation goals and reducing separation felt by students abroad, correcting misperceptions of peer norms prior to departure may help sojourners better attend to the actual norms (rather than perceived norms) while living abroad. Presentation of normative information about peer drinking is ubiquitous among successful interventions targeting heavy drinking college students (Larimer and Cronce 2007; Walters and Neighbors 2005; White 2006). A simple approach utilized with college students involves a brief assessment of the student's drinking behavior followed by an inquiry about how the student perceives the drinking of peer referents. This misperception can than be presented alongside the actual norm (obtained from representative data from survey). When used with students living in the U.S. regarding their perceptions of students on campus, this approach has successfully helped correct students' misperceptions of peer alcohol use and reduced drinking in multiple studies with college students (Kyrpi et al. 2004; Lewis et al. 2007). Similar types of interventions could be implemented during required predeparture programs offered by the study abroad program office.

## Limitations

Limitations to this study include the modest sample size from one site and the limited gender variability. With the exception of small variations, ethnicity was adequately represented while females were slightly overrepresented in the current sample compared to national American study abroad student data (IIE 2009). Due to the limited number of males in the study, we were not able to evaluate gender as a moderator. Future research can explore in greater detail how acculturation orientations, home versus host culture differences, perceived drinking norms, and personality characteristics interplay to predict drinking behavior while living abroad among men and women, as well as among a wider variety of study abroad programs and among non-academic individuals (e.g. expatriates, business professionals). Furthermore, while the sample consisted of American students studying abroad, the study assumed that the "home culture" for these participants was the U.S. culture. While this is a potential confound, all participants were U.S. citizens, with only 11% reporting birth outside the U.S. There were also no differences on perceived norms and acculturation orientations between the two groups. Likewise, participants may have interacted and socialized with students studying abroad from a range of countries (e.g., Canadian students studying abroad in the participant's host country) and the bridging of other cultures within the foreign environment may have impacted the observed finding. This idea warrants further exploration. In addition, while the assessment of perceived peer and native drinking norms occurred at the end of the trip, it is possible that perceived norms may change from their pre-abroad perceptions due to actual experience observing behaviors in the environment. Finally, the current study did not assess reasons for drinking. Caetano and Medina Mora (1990) found that more acculturated individuals tended to report social reasons for drinking alcohol, while those less acculturated reported more coping reasons (e.g., to forget worries). It is unclear in the present study if the positive relationship between separation and drinking was mediated by coping reasons for drinking (e.g., drinking because of homesickness or feeling out of place within the host environment).

Future research can determine if the observed relationships in the acculturation literature with immigrants is also applicable to the diverse groups of sojourners. A greater understanding of factors associated with heavy and increased drinking among sojourners while abroad and creative empirically based preventative programming can help ensure international sojourners' experiences can be even more successful and risk reducing, thus having a more profound effect on their personal, academic, and/or professional lives.

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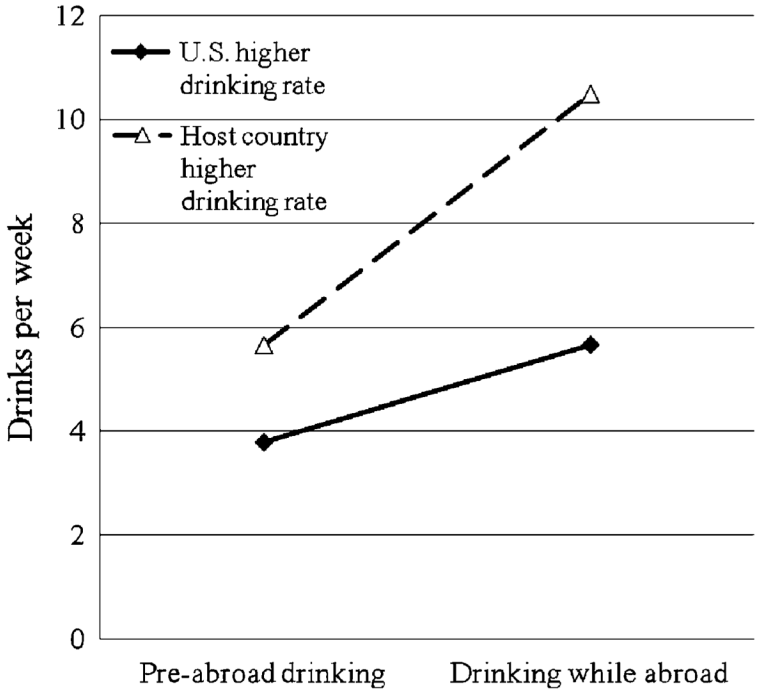


**Fig. 1.**
Increases in drinking while abroad predicted by country drinking rate compared to the U.S.

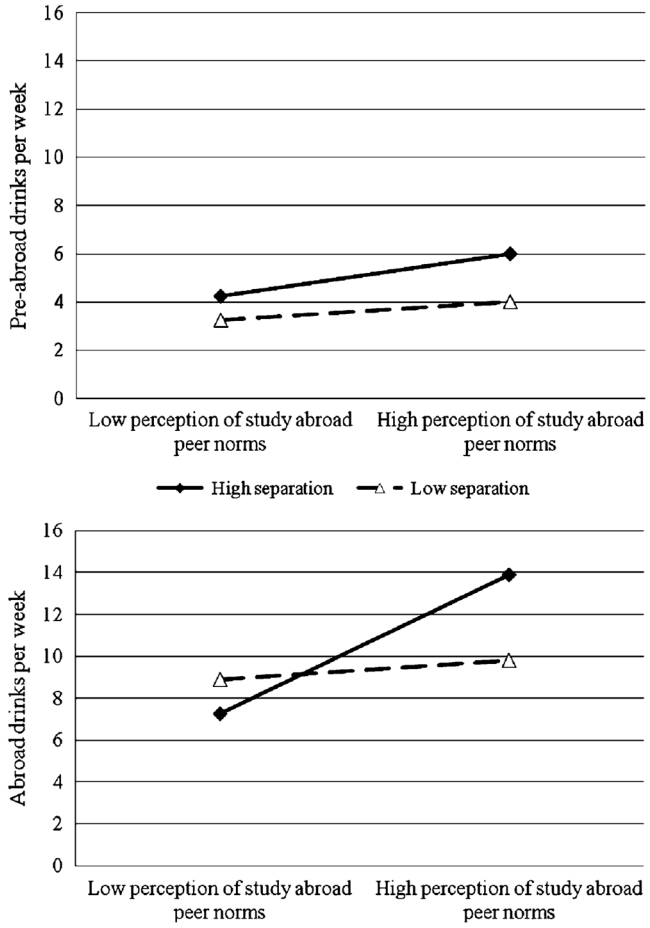


**Fig. 2.**

Three-way interaction of time X separation acculturation style X perceived peer drinking predicting typical drinks consumed per week

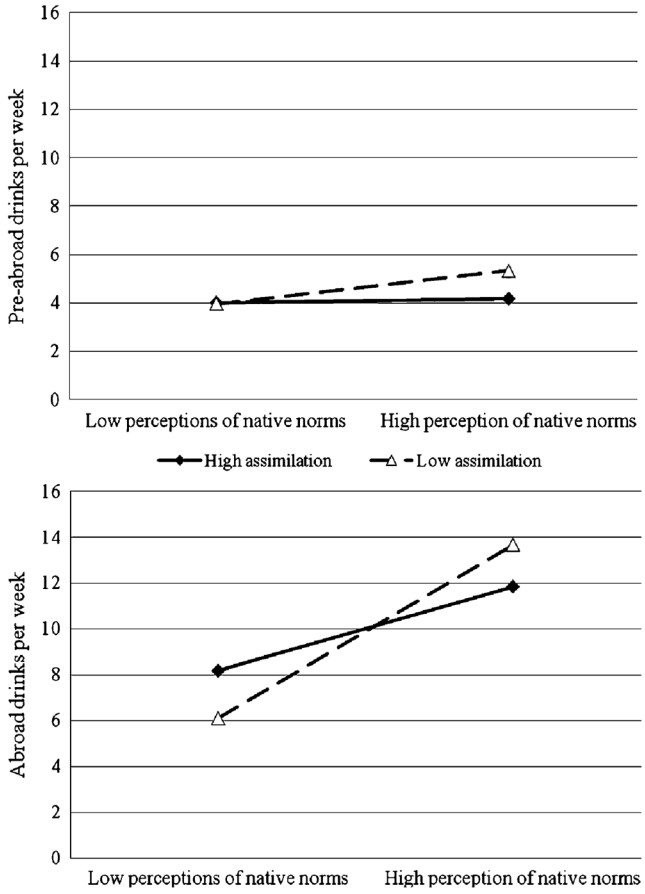


**Fig. 3.**

Three-way interaction of time X assimilation acculturation style X perceived native drinking predicting typical drinks consumed per week

**Table 1**

Correlation matrix of variables used in analyses with means and standard deviations

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | Drinking while abroad | – | | | | | | |
| 2 | Drinking prior to abroad | 0.42* | – | | | | | |
| 3 | Country drinking rate comparison[a] | 0.29* | 0.08 | – | | | | |
| 4 | Separation | 0.24* | 0.19* | 0.21* | – | | | |
| 5 | Assimilation | 0.04 | −0.04 | −0.06 | 0.03 | – | | |
| 6 | Perceived study abroad peer norms | 0.44* | 0.16* | 0.17* | 0.13* | 0.13* | – | |
| 7 | Perceived native norms | 0.54** | 0.15* | 0.35* | 0.17* | 0.16* | 0.57* | – |
| | Mean | 8.78 | 4.32 | 0.65 | 2.26 | 1.05 | 15.82 | 13.73 |
| | Standard deviation | 7.60 | 5.14 | 0.48 | 2.17 | 1.27 | 10.27 | 9.57 |

*$p<.05$

[a]Country drinking rate comparison is coded “0 = U.S. higher per capita drinking rate than host country” and “1 = host country higher per capita drinking rate than U.S.”

## Table 2

Hierarchical regression results evaluating typical drinks per week abroad

| | b | SE | t | p |
|---|---|---|---|---|
| Step 1 | | | | |
| Country drinking rate comparison[a] | 4.54 | 1.03 | 4.38 | .000 |
| Step 2 | | | | |
| Separation | 0.63 | 0.23 | 2.74 | .007 |
| Assimilation | 0.30 | 0.39 | 0.77 | .441 |
| Step 3 | | | | |
| Perceived study abroad peer norms | 0.14 | 0.05 | 2.82 | .005 |
| Perceived native norms | 0.31 | 0.06 | 5.33 | .000 |
| Step 4 | | | | |
| Separation X perceived study abroad peer norms | 0.06 | 0.02 | 3.40 | .001 |
| Assimilation X perceived native norms | −0.08 | 0.03 | −2.50 | .013 |

*$p<.05$,

**$p<.01$

[a]Country drinking rate comparison is coded “0 = U.S. higher per capita drinking rate than host country” and “1 = host country higher per capita drinking rate than U.S.”