Daily Variations in Spring Break Alcohol and Sexual Behaviors Based on Intentions, Perceived Norms, and Daily Trip Context

MEGAN E. PATRICK, PH.D.,^{a,*} AND CHRISTINE M. LEE, PH.D.^b

^a*Institute for Social Research, University of Michigan, Ann Arbor, Michigan*

^b*Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, Washington*

ABSTRACT. Objective: Given the known risks of alcohol use and sexual behavior for college students on Spring Break, this study was designed to document the behaviors and correlates associated with being on a Spring Break trip on a given day (controlling for average time on a trip). **Method:** Participants were undergraduate students ($n = 261$; 55% women) who reported that they planned to go on a Spring Break trip. Web-based survey responses before and after Spring Break documented perceived norms, intentions, and actual behavior on each of the 10 days of Spring Break. **Results:** Students who went on longer trips, who previously engaged in more heavy episodic drinking, or who had greater pre-Spring Break intentions to drink reported greater alcohol use during Spring Break. Similarly, students with greater pre-Spring Break intentions to have sex, greater perceived norms for sex, or more previous

sexual partners had greater odds of having sex. On days students were on trips, they had a greater likelihood of having sex, drinking to higher estimated blood alcohol concentrations, consuming more drinks, and reporting perceived drunkenness than on nontrip days, especially if they had intentions to have sex and drink alcohol (and, for models predicting sexual behavior and drunkenness, had greater perceived norms for sex and drinking). **Conclusions:** Students who went on Spring Break trips engaged in more risk behaviors. In addition, the context of being on a trip on a given day was associated with increased risk, especially if they had stronger intentions and, in some cases, higher perceived norms. Further research is needed to describe the contexts of Spring Break trips and how to intervene effectively. (*J. Stud. Alcohol Drugs*, 73, 591–596, 2012)

SPECIFIC EVENTS ARE CONTEXTS FOR increased alcohol use (Del Boca et al., 2004; Neighbors et al., 2011) and higher acute risk for experiencing harm compared with general drinking situations (Lee et al., 2009; Lewis et al., 2009, in press). These events often involve personal celebrations, academic breaks, vacations, or holidays (Neighbors et al., 2007) and are time-limited and perceived as respites from regular responsibilities. Research studies, popular culture, and media highlight college Spring Break as such an event characterized by high-risk drinking (Grekin et al., 2007; Lee et al., 2006; Neighbors et al., 2011). Spring Break is for many students the week with the highest average drinking annually (Beets et al., 2009; Goldman et al., 2011). Such high-volume drinking carries risks for acute and long-term consequences (Hingson et al., 2009).

Spring Break does not inherently increase risk, but certain situations (e.g., vacationing with friends) may create opportunities for risky behaviors. Going on a trip during Spring Break is identified as a risk factor for increased drinking and other drug use (Grekin et al., 2007; Josiam et al., 1998;

Lee et al., 2006; Smeaton et al., 1998); for drinking, Spring Break trip effects remain after controlling for drinking levels during the previous semester (Patrick et al., 2011).

Spring Break trips are also associated with increases in risky sex, including casual and unprotected sex (Maticka-Tyndale et al., 1998), and sometimes with sexually provocative atmospheres (Mewhinney et al., 1995). At least one study found no association between Spring Break trips and sex without a condom but did find that Spring Break behavior was related to understandings with friends about whether to have sex (Patrick et al., 2011).

Intentions and perceived norms

Extreme partying and engaging in casual sex are often reported as key characteristics of Spring Break vacations; many report having such intentions before Spring Break (Maticka-Tyndale and Herold, 1997). Spring Break behavior involves not only implicit rules (e.g., perceived norms) but also explicit understandings and agreements between friends. Patrick et al. (2011) found that about half of college students surveyed about Spring Break had explicit understandings with friends about drinking and sex-related risk and protective behaviors. Peer norms, or the perceived acceptance of casual sex among friends, were the strongest influence on men's intentions for casual sex during Spring Break (Maticka-Tyndale et al., 1998). Alcohol may also influence sexual decision making during Spring Break for many college students

Received: October 7, 2011. Revision: March 4, 2012.

Data collection and manuscript preparation were supported by National Institute on Alcohol Abuse and Alcoholism Grant R03AA018735 (to Megan Patrick) and Grant R01AA016099 (to Christine Lee).

*Correspondence may be sent to Megan E. Patrick at the Institute for Social Research, University of Michigan, 426 Thompson Street, Ann Arbor, MI 48106-1248, or via email at: meganpat@isr.umich.edu.

(Apostolopoulos et al., 2002; Sönmez et al., 2006). Intentions and perceived norms need to be better understood, especially as they relate to Spring Break behavior and trip context.

Variations in context and behavior during Spring Break week

Innovative research designs highlight daily variations in alcohol use across Spring Break week; they show that Spring Break trips are riskier than non-Spring Break weeks, and trips with friends particularly increase that risk (Grekin et al., 2007; Lee et al., 2006). To date, daily variation in Spring Break sexual behavior has not been studied, despite the evidence of increased risky sex during Spring Break. Daily variation in alcohol use and sexual behavior is important for differentiating whether it is the types of people who go on Spring Break trips that are at greater risk or whether the contextual risk of being on a trip that day is associated with behavioral differences. Other issues to be examined include whether the context of being on a Spring Break trip increases risk and what underlying individual characteristics may influence the selection of such risk environments.

The purpose of the present study is to explore whether certain characteristics of the Spring Break context (e.g., being on a trip) and/or of people (e.g., pre-Spring Break intentions, perceived norms) influence behavior during Spring Break. The present study investigates the following: (a) On Spring Break days college students are on trips, do they engage in more sexual behavior and alcohol use than on Spring Break days they are not on trips? (b) How do these associations differ for people with greater intentions to engage in and higher perceived norms for the Spring Break behaviors? We hypothesize that Spring Break trip days are associated with greater risk for engaging in sexual behavior and more alcohol use compared with non-Spring Break trip days and that these associations are stronger for people with greater intentions and higher perceived norms for Spring Break sex and alcohol use.

Method

Participants and procedures

Participants were undergraduate college students ($n = 261$; 55% women) who screened into the Spring Break Behavior and Health (SBBH) study through the Student Life Survey (SLS), an ongoing biennial survey with a random sample of undergraduate students at a large midwestern university (McCabe, 2008; McCabe et al., 2005, 2006). In 2011, SLS drew a random sample of 3,000 students from the registrar's office and obtained a 47% response rate. Based on data provided by students in the SLS, students were invited into the SBBH study if they (a) were between 18 and 21 years old (86% of the SLS sample), (b) planned

to go on a Spring Break trip with friends (29%), and (c) were willing to be re-contacted by researchers (86%). Eligible students ($N = 320$; 23% of SLS participants) were mailed a pre-notification letter and emailed a secure link to the Wave 1 SBBH survey. All surveys were web based. The Wave 1 survey occurred just before Spring Break and the Wave 2 follow-up immediately after Spring Break. Participants were offered \$25 and \$30 incentives for Waves 1 and 2, respectively. All procedures were approved by the university's Institutional Review Board and protected by a Federal Certificate of Confidentiality.

SBBH was designed to test the efficacy of a brief personalized feedback intervention to reduce high-risk alcohol and sexual behaviors during Spring Break. Students were randomly assigned to either intervention (online feedback before Spring Break) or control group. Both groups completed Wave 1 and 2 surveys. Main intervention findings are available elsewhere (Patrick et al., 2012). In the current study, intervention was tested as a control variable, entered as a main effect and as a moderator of being on a trip, to examine the extent to which the intervention affected the results presented.

Of the 320 SBBH-eligible students contacted, 270 (84.4% response rate) completed the Wave 1 survey. At Wave 2, 263 students (97.4% retention rate) completed the survey, although 2 had missing data on between-person variables of interest. With data from 261 students, daily analyses were performed with up to 10 days of Spring Break data from each participant ($N = 2,610$ days).

Measures

Within-person measures were available for each day of Spring Break (10 days total) and used as Level 1 predictors and dependent variables in the hierarchical linear models (HLMs).

To assess Spring Break trip, participants reported where they spent each night of Spring Break: "In (city name)/ Where you live now, At a family home or friend's family home, On vacation with family or a friend's family, On a Spring Break trip with friends, On a service project or volunteer work trip, Other." For each day, Spring Break trip with friends was coded as 1; all else was coded as 0.

Sexual behavior was assessed for each day: "During the 10 days of Spring Break, on which days did you have sex?" (engaged in sex = 1, not = 0). Students who previously reported not having sex at all during Spring Break received a 0 for each day.

Alcohol use included the number of hours spent drinking on each day of Spring Break and the number of standard drinks consumed (i.e., 12-oz. can/bottle of beer, 4-oz. glass of wine, 12-oz. bottle/can of wine cooler, or mixed drink or shot glass of distilled spirits). Students who previously reported not drinking at all during Spring Break received a 0

for each day. If participants reported drinking on a given day, they were asked if they got drunk (coded as yes = 1, no = 0). Total number of drinks consumed on each day was used as a dependent variable. Estimated blood alcohol concentration (eBAC) was calculated using a modification of the Widmark formula to account for the number of drinks consumed, time spent drinking, weight, and gender (Brick, 2006; Watson et al., 1981).

Between-persons (Level 2) predictors were assessed at Wave 1, including gender (male = 1, female = 0) and intervention group (intervention = 1, control = 0). The average number of Spring Break trip days calculated for each person controlled for characteristics of individuals who chose to go on trips for a longer period and therefore isolated the effects of being on a trip on a given day. Previous number of sexual partners in the past 12 months reported at Wave 1 was included for sexual behavior models. Previous heavy episodic drinking (five or more drinks in a row in the past 2 weeks) measured at Wave 1 was included for alcohol models, with response options of *none* (coded 0) to *10 or more times* (5).

Intentions for Spring Break behavior were assessed at Wave 1. Participants were asked if they intended or hoped to have sex during Spring Break and if they intended or hoped to drink alcohol during Spring Break (yes = 1, no = 0). Because the majority of students said they intended to drink, the variable used in alcohol analyses was based on the question, "When you drink during Spring Break, how many drinks do you think you will have total during the week?"

Perceived norms for sexual behavior and alcohol use were also assessed at Wave 1. Students were asked, "During

Spring Break, what do you think is the percentage of typical college students who have sex?" For alcohol use, they were asked, "When drinking during Spring Break, how many drinks do you think the typical college student has total during the week?"

Data analysis plan

We used four sets of HLMs to explore the associations between daily trip context and behaviors. HLM with a Bernoulli distribution (for dichotomous dependent variables) was used to predict whether participants engaged in sexual behavior and reported getting drunk on a given day; HLM with a Poisson distribution (for dependent variables that are positively skewed with a large number of zeroes) was used to predict the number of alcoholic drinks consumed and eBAC on a given day. For each set of HLMs, we conducted a series of three tests: (1) a model with neither intentions nor norms as predictors (control variables only), (2) covariates plus intentions, and (3) covariates plus perceived norms.

Between-persons predictors in all models were gender, intervention group, person-mean number of days spent on a Spring Break trip, and previous sexual behavior (i.e., penetrative sex partners in the past year at Wave 1) or previous heavy episodic drinking (i.e., heavy episodic drinking at Wave 1). As noted above, some models also included intentions or perceived norms. Within-person predictors were whether they were on a Spring Break trip that day as well as whether being on a trip that day was moderated by intervention condition (and, where applicable, intentions or norms).

TABLE 1. Multilevel model predicting sexual behavior during Spring Break, based on daily trip context, intentions, and perceived norms

Variable	Column 1: Control variables Odds ratio [CI]	Column 2: Intentions Odds ratio [CI]	Column 3: Norms Odds ratio [CI]
Average across days intercept, β_0	0.01 [0.004, 0.016]***	0.00 [0.001, 0.005]***	0.01 [0.003, 0.014]***
Male gender, γ_{01}	1.02 [0.436, 2.38]	0.30 [0.108, 0.864]*	1.20 [0.511, 2.83]
Intervention, γ_{02}	1.14 [0.470, 2.75]	1.04 [0.419, 2.61]	1.23 [0.497, 3.06]
Average trip days, γ_{03}	1.11 [0.302, 4.10]	0.84 [0.206, 3.42]	1.03 [0.280, 3.82]
Previous sexual partners, γ_{04}	1.28 [1.05, 1.57]*	1.02 [0.832, 1.26]	1.29 [1.06, 1.56]*
Intentions, γ_{05}	—	68.91 [23.3, 203.91]***	—
Norms, γ_{06}	—	—	1.04 [1.01, 1.06]**
Average variations with trip on a given day, β_1			
Intercept, γ_{10}	7.95 [2.42, 26.15]***	1.39 [0.171, 11.26]	6.19 [1.96, 19.54]**
Intervention, γ_{11}	0.21 [0.038, 1.14]†	0.25 [0.047, 1.33]	0.23 [0.041, 1.25]†
Intentions, γ_{12}	—	6.39 [0.844, 48.35]†	—
Norms, γ_{13}	—	1.02 [0.981, 1.06]	—

Notes: $N = 2,610$ days from $n = 261$ people. A series of three hierarchical linear models was conducted. The top section refers to between-persons predictors, thus a significant effect indicates greater likelihood of having sex across days. The bottom section refers to within-person prediction, or the effect of being on a trip on a given day; thus, a significant effect of intentions or norms indicates an interaction with being on a trip on a given day. Column 1 shows a model with neither intentions nor norms as predictors. Column 2 includes intentions for Spring Break sexual behavior as a Level 2 predictor and as a moderator of being on a Spring Break trip. Column 3 includes perceived norms for Spring Break sexual behavior as a Level 2 predictor and as a moderator of being on a Spring Break trip. CI = confidence interval.

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 2. Multilevel model predicting estimated blood alcohol concentration (eBAC) during Spring Break, based on daily trip context, intentions, and perceived norms

Variable	Column 1: Control variables	Column 2: Intentions	Column 3: Norms
	Event rate ratio [CI]	Event rate ratio [CI]	Event rate ratio [CI]
Average over days intercept, β_0	0.01 [0.011, 0.018]***	0.01 [0.010, 0.017]***	0.01 [0.011, 0.018]***
Male gender, γ_{01}	0.94 [0.713, 1.24]	0.86 [0.601, 1.23]	0.95 [0.720, 1.25]
Intervention, γ_{02}	0.88 [0.648, 1.20]	0.96 [0.680, 1.35]	0.90 [0.671, 1.21]
Average trip days, γ_{03}	3.76 [2.40, 5.90]***	2.54 [1.62, 3.99]***	3.66 [2.40, 5.60]***
Previous heavy episodic drinking, γ_{04}	1.99 [1.76, 2.26]***	1.79 [1.44, 2.23]***	1.97 [1.70, 2.29]***
Intentions, γ_{05}	—	1.01 [1.01, 1.02]**	—
Norms, γ_{06}	—	—	1.00 [0.993, 1.01]
Average fluctuations with trip, β_1			
Intercept, γ_{10}	3.77 [2.78, 5.13]***	4.27 [3.15, 5.78]***	3.59 [2.62, 4.93]***
Intervention, γ_{11}	0.95 [0.596, 1.52]	1.02 [0.645, 1.60]	0.98 [0.607, 1.57]
Intentions, γ_{12}	—	0.99 [0.992, 0.997]***	—
Norms, γ_{13}	—	—	1.01 [0.992, 1.02]

Notes: $N = 2,586$ days from $n = 261$ people. A series of three hierarchical linear models was conducted. The top section refers to between-persons predictors, thus a significant effect indicates greater likelihood of reaching a higher eBAC across days. The bottom section refers to within-person prediction, or the effect of being on a trip on a given day; thus, a significant effect of intentions or norms indicates an interaction with being on a trip on a given day. Column 1 shows a model with neither intentions nor norms as predictors. Column 2 includes intentions for total number of Spring Break drinks as a Level 2 predictor and as a moderator of being on a Spring Break trip. Column 3 includes perceived norms for Spring Break drinking as a Level 2 predictor and as a moderator of being on a Spring Break trip. CI = confidence interval.

** $p < .01$; *** $p < .001$.

Results

Descriptive information

Students were selected for participation based on their plans to go on a Spring Break trip. However, only 61% of participating students reported actually going on a trip, and 38% of all days of Spring Break were spent on a Spring Break trip. The average length of Spring Break trips among those who went on a trip was 6 days. Students reported having sex on 8% of Spring Break days and consumed an average of nearly two drinks each day. On days when students consumed alcohol, 46% were self-reported drunk days.

Sexual behavior during Spring Break

The first set of HLMs, shown in Table 1, predicts engagement in sexual behavior. On average across days (Level 2), gender (γ_{01}), intervention group (γ_{02}), and average trip days (γ_{03}) were not significantly associated with sexual behavior, except for men being less likely to have sex when intentions were also in the model. Number of sexual partners in the past year reported at Wave 1 (γ_{04}) was associated with greater odds of having sex during Spring Break, such that each additional previous partner was associated with 28% greater odds of having sex. Within person (Level 1), being on a Spring Break trip that day (γ_{10}) was associated with nearly 8 times the odds of having sex. This effect of being on a trip was mitigated by being part of the intervention group (γ_{11}).

Alcohol use during Spring Break

Table 2 shows the HLMs associated with eBAC. Results for models with number of drinks and perceived drunkenness (not shown) were similar. On average across days (Level 2), male gender (γ_{01}) was only significantly associated with consuming a greater number of drinks but not with reaching a higher eBAC or reporting drunkenness. A greater average number of trip days (γ_{03}) and more frequent heavy episodic drinking at Wave 1 (γ_{04}) were significantly associated with consuming more drinks, having higher eBACs, and reporting drunkenness. Within person (Level 1), being on a Spring Break trip that day (γ_{10}) was associated with greater alcohol consumption across all dependent variables.

Intentions and perceived norms

In subsequent models, intentions to have sex (γ_{05}) were added to the HLMs and were associated with nearly 70 times the odds of having sex during Spring Break. Intentions for total number of drinks during Spring Break were also a significant predictor of consuming a greater number of drinks, reaching a higher eBAC, and reporting drunkenness. For all outcomes, intentions (γ_{12}) also moderated the effect of being on a Spring Break trip that day. On trip days, students with intentions to have sex and drink more were more likely to have sex and drink more than those with fewer intentions.

Perceived norms of sexual behavior (γ_{06}) were added to the HLMs and were significantly associated with greater

likelihood of engaging in sexual behavior. Perceived norms of alcohol use were not associated with consuming a greater number of drinks or reaching a higher eBAC, although they were associated with a greater likelihood of self-reported drunkenness (event rate ratio: 1.01 [1.00, 1.03], $p < .10$). For the drunkenness model, perceived alcohol use norms moderated the effect of being on a Spring Break trip (event rate ratio: 1.03 [1.01, 1.06], $p < .05$) such that trip days were especially likely to be drunk days for students with higher perceived social norms. Norms did not moderate the effect of being on a trip for any other behavioral outcomes.

Discussion

Recent research has documented that risk behaviors occurring during college students' Spring Break trips are cause for concern (Grekin et al., 2007; Lee et al., 2006, 2009); however, the present study is among the first to examine both within- and between-person variation in alcohol use and sexual behavior during an entire college Spring Break week. Students who went on longer Spring Break trips, engaged in more frequent heavy episodic drinking previously, and had greater pre-Spring Break intentions to drink reported greater overall alcohol use during Spring Break. Similarly, students with more previous sexual partners, greater pre-Spring Break intentions to have sex, and greater perceived norms for sex had greater odds of having sex during Spring Break. These findings are consistent with theories of reasoned action and planned behavior (Ajzen, 1985; Ajzen and Fishbein, 1980) and prior research (Apostolopoulos et al., 2002; Patrick et al., 2011) indicating that Spring Break intentions and peer influences are powerful predictors of future behavior.

Overall, the present study shows both that college students who go on Spring Break trips engage in more risk behaviors during Spring Break than students who do not go on trips and that the context of being on a trip on a given day increases risk. More specifically, on trip days students had a greater likelihood of having sex, drinking to higher eBACs, consuming more drinks, and getting drunk. These findings were exacerbated by pre-Spring Break intentions to have sex and drink more alcohol and, to a lesser extent, by greater perceived norms for drinking. Intentions for sexual behavior had an especially strong association with actual behavior, and, after including intentions in the model, men were less likely to have sex than women. This suggests that men have greater intentions for sex, and women may be more likely to experience unintended or unplanned sex. In addition, previous behavior, especially alcohol use, was an important predictor of Spring Break-specific behaviors. These findings support the importance of tailoring intervention components by previous behaviors, intentions, and gender and are the first to suggest that this approach may be appropriate for addressing sexual behavior. Although we know that Spring

Break trips increase individual risk, several questions remain about the particular factors at work. Future research should examine additional contextual variables around Spring Break trips days (e.g., location of drinking, number of friends within a group on particular days, and pacts between friends to have sex or drink on each day; Patrick et al., 2011). Daily and handheld methodologies for collecting data in real time may facilitate gaining insight into these complex relationships.

Findings from this study support the need for development of effective event-specific strategies for reducing Spring Break drinking and risky sexual behavior. Generalizability of the study is limited by the use of a single university. However, Spring Break intentions and perceived norms appear to be worthwhile targets for behavior change and screening criteria for identifying students at risk. Related research focusing on 21st birthday drinking has found that a web-based intervention reduced eBACs compared with a control group, particularly for participants who had higher intentions to drink on their birthday (Neighbors et al., 2009). Support was also found for perceived norms as mediators of intervention efficacy.

Spring Break trips provide an interesting example of event-specific risk. First, the novelty of being on a Spring Break trip, outside the normal student context, on a given day presents risks for sexual behavior and alcohol use. The challenge for preventionists is harm reduction, which may include attempts to change expectations for Spring Break trips and efforts to prepare students for a context that facilitates risk behaviors. Second, Spring Break is 10 days long, potentially enough time for students to learn new strategies, try multiple types of behaviors, and form new group norms. In some ways, this challenge is very different from other event-specific risks, such as 21st birthdays, when students are often in a context more typical for themselves and engage in a briefer period of risk behavior. A deeper understanding of how students prepare for Spring Break trips and the ways in which intentions and norms change, even across the Spring Break week, would help us develop more effective interventions to promote public health during high-risk events.

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action-control: From cognition to behavior* (pp. 11–39). Berlin, Germany: Springer.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior* (pp. 54–60). Englewood Cliffs, NJ: Prentice Hall.
- Apostolopoulos, Y., Sönmez, S., & Yu, C. H. (2002). HIV-risk behaviours of American spring break vacationers: A case of situational disinhibition? *International Journal of STD & AIDS*, 13, 733–743.
- Beets, M. W., Flay, B. R., Vuchinich, S., Li, K. K., Acock, A., & Snyder, F. J., & the Tobacco Etiology Research Network. (2009). Longitudinal patterns of binge drinking among first year college students with a history of tobacco use. *Drug and Alcohol Dependence*, 103, 1–8.

- Brick, J. (2006). Standardization of alcohol calculations in research. *Alcoholism: Clinical and Experimental Research*, 30, 1276–1287.
- Del Boca, F. K., Darkes, J., Greenbaum, P. E., & Goldman, M. S. (2004). Up close and personal: Temporal variability in the drinking of individual college students during their first year. *Journal of Consulting and Clinical Psychology*, 72, 155–164.
- Goldman, M. S., Greenbaum, P. E., Darkes, J., Brandon, K. O., & Del Boca, F. K. (2011). How many versus how much: 52 weeks of alcohol consumption in emerging adults. *Psychology of Addictive Behaviors*, 25, 16–27.
- Grekin, E. R., Sher, K. J., & Krull, J. L. (2007). College spring break and alcohol use: effects of spring break activity. *Journal of Studies on Alcohol and Drugs*, 68, 681–688.
- Hingson, R. W., Zha, W., & Weitzman, E. R. (2009). 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, Supplement* 16, 12–20.
- Josiam, B. M., Hobson, J. S. P., Dietrich, U. C., & Smeaton, G. (1998). An analysis of the sexual, alcohol, and drug related behavioural patterns of students on spring break. *Tourism Management*, 19, 501–513.
- Lee, C. M., Lewis, M. A., & Neighbors, C. (2009). Preliminary examination of spring break alcohol use and related consequences. *Psychology of Addictive Behaviors*, 23, 689–694.
- Lee, C. M., Maggs, J. L., & Rankin, L. A. (2006). Spring break trips as a risk factor for heavy alcohol use among first-year college students. *Journal of Studies on Alcohol*, 67, 911–916.
- Lewis, M. A., Lindgren, K. P., Fossos, N., Neighbors, C., & Oster-Aaland, L. (2009). Examining the relationship between typical drinking behavior and 21st birthday drinking behavior among college students: Implications for event-specific prevention. *Addiction*, 104, 760–767.
- Lewis, M. A., Patrick, M. E., Lee, C. M., Kaysen, D. L., Mittman, A., & Neighbors, C. (in press). Use of protective behavioral strategies and their association to 21st birthday alcohol consumption and related negative consequences: A between- and within-person evaluation. *Psychology of Addictive Behaviors*. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/21553945>.
- Maticka-Tyndale, E., & Herold, E. S. (1997). The scripting of sexual behaviour: Canadian university students on spring break in Florida. *The Canadian Journal of Human Sexuality*, 6, 317–328.
- Maticka-Tyndale, E., Herold, E. S., & Mewhinney, D. (1998). Casual sex on spring break: Intentions and behaviors of Canadian students. *Journal of Sex Research*, 35, 254–264.
- McCabe, S. E. (2008). Misperceptions of non-medical prescription drug use: A web survey of college students. *Addictive Behaviors*, 33, 713–724.
- McCabe, S. E., Teter, C. J., & Boyd, C. J. (2005). Illicit use of prescription pain medication among college students. *Drug and Alcohol Dependence*, 77, 37–47.
- McCabe, S. E., Teter, C. J., & Boyd, C. J. (2006). Medical use, illicit use, and diversion of abusable prescription drugs. *Journal of American College Health*, 54, 269–278.
- Mewhinney, D. M., Herold, E. S., & Maticka-Tyndale, E. (1995). Sexual scripts and risk-taking of Canadian university students on spring break in Daytona Beach, Florida. *The Canadian Journal of Human Sexuality*, 4, 273–288.
- Neighbors, C., Atkins, D. C., Lewis, M. A., Lee, C. M., Kaysen, D., Mittemann, A., . . . Rodriguez, L. M. (2011). Event-specific drinking among college students. *Psychology of Addictive Behaviors*, 25, 702–707.
- Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N., & Walter, T. (2009). Internet-based personalized feedback to reduce 21st-birthday drinking: A randomized controlled trial of an event-specific prevention intervention. *Journal of Consulting and Clinical Psychology*, 77, 51–63.
- Neighbors, C., Walters, S. T., Lee, C. M., Vader, A. M., Vehige, T., Szigethy, T., & DeJong, W. (2007). Event-specific prevention: Addressing college student drinking during known windows of risk. *Addictive Behaviors*, 32, 2667–2680.
- Patrick, M. E., Lee, C. M., & Neighbors, C. (2012). Changing perceived norms but not alcohol use: Lessons learned from a web-based college student Spring Break intervention. Manuscript in preparation.
- Patrick, M. E., Morgan, N., Maggs, J. L., & Lefkowitz, E. S. (2011). “I got your back”: Friends’ understandings regarding college student spring break behavior. *Journal of Youth and Adolescence*, 40, 108–120.
- Smeaton, G. L., Josiam, B. M., & Dietrich, U. C. (1998). College students’ binge drinking at a beach-front destination during spring break. *Journal of American College Health*, 46, 247–254.
- Sönmez, S., Apostolopoulos, Y., Yu, C. H., Yang, S., Mattila, A., & Yu, L. C. (2006). Binge drinking and casual sex on spring break. *Annals of Tourism Research*, 33, 895–917.
- Watson, P. E., Watson, I. D., & Batt, R. D. (1981). Prediction of blood alcohol concentrations in human subjects: Updating the Widmark Equation. *Journal of Studies on Alcohol*, 42, 547–556.