



Published in final edited form as:

Addict Behav. 2016 January ; 52: 52–57. doi:10.1016/j.addbeh.2015.08.009.

Friends in Low Places: The Impact of Locations and Companions on 21st Birthday Drinking

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Abstract

The present research examined how various locations and companions were associated with hazardous drinking during 21st birthday celebrations. The sample included 912 college students (57% female) who completed an online survey to examine 21st birthday drinking. Locations included bars, friends' houses, restaurants, outdoor barbecues, homes, parents' homes, Fraternity/Sorority houses, and other. Companions included friends, family members, casual acquaintances, roommates, significant others, Fraternity/Sorority members, and none (alone). Participants consumed an average of 7.6 drinks and reached an average eBAC of .15 during their 21st birthday celebrations. Locations accounted for 20%/18% of the variance in number of drinks and eBAC, respectively, whereas companions accounted for 23%/20% of the variance. Drinking with romantic partners was associated with less drinking, whereas drinking with Fraternity/Sorority members was associated with more drinking. Stepwise regressions combining locations and companions suggested that, overall, celebrating in a bar setting and with Fraternity and Sorority members were the strongest variables associated with drinking. With the exception of a bar setting, companions were the most important contextual factors associated with 21st birthday drinking.

Keywords

21st birthday; alcohol use; college students; context; event-specific

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Contributors

Author A conducted all analyses, including tables, figures, and text, wrote the current study section, and managed the entire manuscript process. Author B helped write the discussion, Author C helped write the introduction with Author D. Author E wrote the methods section. Author F collaborated in data collection and presented pieces of the results in a symposium at the Association for Behavioral Cognitive Therapies in 2013. All authors contributed to and have approved the final manuscript.

Conflict of Interest

All authors declare that they have no conflicts of interest.

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1.1 Contextual Factors and Drinking

Drinking in college student populations is a prevalent and critical issue. The Monitoring the Future study found that 63.1% of college students reported drinking alcohol in the previous thirty days, and 40.2% reported being drunk during that time (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2014). The consequences of these behaviors can be extremely harmful to college students, including police involvement, property damage, assault, unsafe sex, health problems, drunk driving, injury, and death, among others (White & Hingson, 2013). However, how much students drink and how detrimental alcohol-related consequences are can vary based on contextual factors surrounding the drinker. These may include locations, companions, and details surrounding the specific event itself.

1.1.2 Location

One important aspect of the drinking context is the location in which drinking takes place. Greenfield and colleagues (2011) found that participants drank in a variety of locations, including at their own homes, others' homes, bars, restaurants, weddings/celebrations, and outdoors. Relatedly, a large New Zealand study of college student drinking found that 43% of the reported drinking episodes were at someone's home, 37% occurred at a bar, pub, or club, 8% at a residence hall, and 11% at another location (Kypri, Paschall, Langley, Baxter, & Bourdeau, 2010). Individuals' alcohol consumption patterns may vary depending on the location in which they are drinking (Clapp, Reed, Holmes, Lange, & Voas, 2006). For example, people tend to drink more at Fraternity and Sorority houses (Larimer, Turner, Mallet, & Geisner, 2004). Additionally, when a person is drinking in a place with large numbers of other intoxicated people, they are more likely to consume higher levels of alcohol (Clapp et al., 2006).

1.1.3 Companions

The people with whom one is drinking can also affect how much a person drinks (and subsequent alcohol-related consequences). For example, members of the Greek system tend to drink more than non-members (Capone, Wood, Borsari, & Laird, 2007; Larimer et al., 2004; Wechsler, Kuh, & Davenport, 2009; Weitzman, Nelson, & Wechsler, 2003). Generally, rates of alcohol use and related consequences tend to be higher when individuals drink with friends (Borsari & Carey, 2006; Connor, Cousins, Samaranayaka, & Kypri, 2014). Drinking alone has also been related to the experience of more negative consequences from drinking (Creswell, Chung, Clark, & Martin, 2014; Gonzalez & Skewes, 2013; Keough, O'Connor, Sherry & Stewart, 2015). On the other hand, alcohol rates tend to be lower when drinking with family (Keough et al., 2015). Research on how romantic partners are associated with drinking among college students is mixed. Some work suggests that romantic partners affect each other's heavy episodic drinking (Mushquash et al., 2013) as well as changes in drinking over time (Wiersma, Fischer, Cleveland, Reifman, & Harris, 2011). However, other work suggests that individuals believe romantic partners encourage them to engage in healthier behaviors, which include safer drinking patterns (Markey, Markey, & Gray, 2007). In conclusion, one's own drinking and related consequences depends on the specific companions with whom one is drinking.

1.2 21st Birthdays

Some specific events are also closely associated with drinking. One event that is strongly correlated with hazardous levels of alcohol use is a person's 21st birthday celebration (Day-Cameron, Muse, Haunstein, Simmons, & Correia, 2009; Neighbors, Oster-Aaland, Bergstrom, & Lewis, 2006; Neighbors et al., 2011). Part of what makes this event so dangerous is that a 21st birthday celebration is not only specific to an individual, but is a drinking rite of passage (Day-Cameron, Muse, Haunstein, Simmons, & Correia, 2009). Day-Cameron et al. (2009) describe a variety of perspectives taken towards 21st birthdays, including the prospect of an enjoyable evening with family and friends, the opportunity to experience alcohol as a legal consumer, or the chance to engage in risky behavior. Overall, it is clear that a high percentage of students consume more alcohol on their 21st birthdays than on a typical drinking occasion (Neighbors, Oster-Aaland, Bergstrom, & Lewis, 2006; Neighbors et al., 2011).

1.3 Present Research

Research has underscored the importance of contextual influences on drinking, but it is still unclear which specific contextual factors have the strongest associations with 21st birthday drinking. The present study expands previous research by examining how specific locations (e.g., bars, restaurants, home) and companions (e.g., friends, family, romantic partners) of 21st birthday celebrations are associated with alcohol consumption. Studying these contextual factors will provide unique insights into the potentially harmful characteristics of event-specific college student drinking. Further, a more comprehensive understanding of the factors related to hazardous drinking will provide a better foundation for the prevention and intervention of harmful consequences for college students. Based on previous research (e.g., Clapp et al., 2006), we expect to find that celebrating at bars, parties, and Fraternity/Sorority houses will be associated with greater levels of drinking, whereas celebrating at a parent's house will be associated with lower levels of drinking. We also expect that celebrations with friends and Fraternity/Sorority members will be associated with greater levels of drinking, whereas celebrations with family members will be associated with lower levels of drinking. There is not enough research on romantic partners to formulate a clear hypothesis, but based on previous work (e.g., Markey et al., 2007), we expect that celebrants will drink less when their significant others are present at the celebration. It is currently unclear which specific celebration locations or companions will emerge as showing the strongest associations with drinking and related consequences; this is one objective of the current research.

2 Methods

2.1 Participants and Procedure

Participants were recruited from 2113 undergraduates who were turning 21 years old between February and August 2008. The questionnaire assessed the participant's alcohol consumption on the days surrounding their 21st birthday. Invitations were sent to students four days after their birthdays and students were given seven days to complete the survey. A total of 1124 students (53.2% of the invited sample) completed the survey and were given \$30 for their participation. As this study examined how both locations and companions were

associated with drinking, we excluded participants ($n = 214$) who did not report drinking any alcohol on their 21st birthday. Thus, the results presented here include 912 participants (56.8% female) who had at least one drink on their birthday. This study was conducted at a large public university in the northwestern United States. The University's Institutional Review Board approved all study procedures.

2.2 Measures

2.2.1 Alcohol use—Alcohol use was measured by assessing the number of drinks participants reported consuming on their 21st birthday and by calculating estimated peak blood alcohol concentration (eBAC; U.S. Department of Transportation, 1994). This formula accounts for variation in gender, weight, quantity of alcohol consumed, duration of consumption, and rate of metabolism.

2.2.2 Contextual factors (locations and companions)—Participants were asked to indicate in which of the following locations (select all that apply) they celebrated their 21st birthday: a bar, restaurant, their own residence, friend's house, parent's house, party, Fraternity/Sorority house, and outdoor barbecue. Additionally, participants were asked with which of the following people (select all that apply) they celebrated their 21st birthday: their friends, family, roommates, romantic partner, casual acquaintances, Fraternity/Sorority members, and alone.

2.3 Analysis Plan

The aims of the current research were to evaluate how strongly various locations and companions were associated with drinking on 21st birthday celebrations. We first examined how many participants endorsed celebrating at the different locations and with different companions, as well as bivariate correlations among companions, locations, and drinking. We then utilized multiple regression models with the dummy-coded location and companion variables to evaluate associations between the various locations and drinking and the various celebration companions and drinking. Finally, stepwise regression models evaluated how all location and companion variables were associated with 21st birthday drinking.

3 Results

3.1 Descriptive Statistics

Table 1 presents descriptive information about 21st birthday celebration locations and companions. Approximately two-thirds (69.2%) celebrated at a bar, 59.5% celebrated at a restaurant, 29.1% celebrated at their home, 21.8% celebrated at a friend's house, and 15.8% celebrated at their parent's home. Almost eleven (10.9) percent celebrated at a party, 7.1% celebrated at a Fraternity/Sorority house, and 3.2% celebrated at an outdoor barbecue. Three-quarters of participants reported celebrating at more than one type of location ($M = 2.17$, $SD = 1.09$).

With regard to companions, most participants (87.9%) reported celebrating with friends on their birthday. Half of the participants (49.5%) reported celebrating with their family. Approximately one-third (37.9%) reported being with their romantic partner and 41.1%

reported being with their roommate. Some participants (26.2%) reported celebrating with casual acquaintances, and some (16.8%) reported celebrating with Fraternity or Sorority members. Approximately 0.8% of participants ($n = 7$) reported being alone on their birthday. The vast majority of students (83%) reported celebrating with more than one type of companion ($M = 2.60$, $SD = 1.15$).

Table 2 presents phi correlations between locations and companions as well as with drinking. Bar celebrations were positively associated with the presence of Fraternity/Sorority members, friends, roommates, and acquaintances. Parties were associated with friends, roommates, and acquaintances. Home celebrations were positively associated with parties, friends and roommates, and negatively associated with Fraternity/Sorority members. Celebrations at a friend's house were associated with parties, barbecues, friends, and acquaintances. Conversely, celebrations at a parent's house were associated with barbecues and family members. Restaurant celebrations were positively associated with family members and a romantic partner. Finally, Fraternity/Sorority house celebrations were positively associated with acquaintances and other Greek members and negatively associated with family members and a romantic partner. Thus, it appears that, to an extent, companions and locations clustered together. Birthday celebrations at bars and parties and those with Greek members also occurred with friends and acquaintances. Celebrations with parents and romantic partners largely occurred at restaurants and a parent's house.

Descriptive statistics on alcohol use showed that students drank, on average, 7.6 ($SD = 6.34$; range 1–34) drinks during their birthday celebration. The average eBAC reached was .15 ($SD = .14$). Examination of associations with number of drinks revealed that drinking at a bar, party, and Greek location, as well as with friends, roommates, acquaintances, and Greek members were positively associated with drinks, whereas drinking at a parent's house, with family, and with a romantic partner were negatively associated with drinks.

3.2 Influence of Locations on 21st Birthday Drinking and eBAC Levels

Multiple regression analyses were utilized to examine the influence of various types of celebratory locations on 21st birthday drinking (i.e., number of drinks and eBAC). Each location was dummy coded (i.e., 0 = not endorsed, 1 = endorsed) and included in the regression equation. Results from these analyses are presented in Table 3. Overall, locations accounted for 20% and 18% of the variance in number of drinks and eBAC, respectively. Results suggested that celebrating in a bar and Fraternity/Sorority house were associated with a higher number of drinks and higher eBACs. Non-Greek parties were significantly associated with more drinks and marginally associated with a higher BAC. Conversely, celebrating at a parent's house was associated with fewer drinks and a lower eBAC. All other locations were not significantly associated with drinking. Results were unchanged when gender was included in the models.

3.3 Influence of Companions on 21st Birthday Drinking and eBAC Levels

Multiple regression analyses were also utilized to examine the influence of different types of celebratory companions on 21st birthday drinking (also dummy-coded), with results presented in Table 4. Overall, companions accounted for 23% and 20% of the variance in

number of drinks and eBAC, respectively. Results suggested that drinking with Fraternity/Sorority members, friends, casual acquaintances, and roommates were associated with a higher number of drinks and higher eBAC. Conversely, drinking with romantic partners was associated with fewer drinks and a lower eBAC. Drinking with family and drinking alone were not significantly associated with drinking outcomes. Results were unchanged when gender was included in the models.

3.4 Stepwise Results: Locations and Companions

In order to identify the strongest unique influences of locations and companions, a stepwise multiple regression approach was used to evaluate all contextual factor predictors according to their statistical contribution in explaining 21st birthday drinking variance. Stepwise regression is designed to find the most parsimonious set of predictors that are most effective in predicting the outcome variable. Variables were added to the regression equation one at a time, using the statistical criterion of maximizing the R^2 of the included variables. A total of six models were run and results are presented in Table 5. Overall, celebrating with Fraternity or Sorority members and at a bar were the strongest variables associated with number of drinks and eBAC, though the strongest for drinks was Greek companions and the strongest for eBAC was a bar setting. This was followed by celebrating with casual acquaintances, romantic partners, friends, and roommates. All were associated with more drinking, except romantic partners, who were associated with less drinking. Thus, with the exception of a bar setting, companions were the most important contextual factors of 21st birthday drinking.

4 Discussion

The present investigation explored contextual factors associated with 21st birthday drinking to better understand how such factors relate to heavy drinking on this celebratory occasion. In the United States, 21st birthdays are unique in that they are viewed as a rite of passage through which an individual becomes legally able to purchase and consume alcohol. As such, 21st birthdays are associated with heavier drinking compared to typical drinking or drinking related to any other holiday or event (Lewis, Lindgren, Fossos, Neighbors, & Oster-Aaland, 2009; Neighbors et al., 2011). Thus, it is important to understand which factors are most strongly associated with drinking heavily on an individual's 21st birthday so that future interventions may target these factors to reduce risk. The current study extends the literature by specifically examining contextual influences of companions who attended the 21st birthday celebrations and locations where the celebrations occurred.

We first examined how different locations were associated with 21st birthday drinking. Results showed that participants reported celebrating their 21st birthday at bars, friends' houses, restaurants, outdoor barbecues, their homes, their parents' homes, Fraternity/Sorority houses, or other locations. Most participants celebrated at bars and restaurants. Furthermore, celebrating in a bar or at a Fraternity/Sorority house was associated with heavier drinking and higher eBACs compared to other locations. Furthermore, findings indicated that a bar setting was the single strongest contextual variable associated with eBAC during the celebration. This fits with past research that has also shown that, generally, bars, parties, and Fraternity/Sorority functions are commonly attended, especially for celebrations, and these locations tend to be associated with heavier drinking (Clapp et al.,

2006; Keough et al., 2015; Kypri et al., 2010; Larimer et al., 2004; Paschall & Saltz, 2007). Conversely, celebrating at a parent's house was associated with fewer drinks and a lower eBAC, suggesting that celebrating with family members may be protective against heavier drinking if the celebration occurs at a family member's home. This protective influence might be due at least in part to alcohol availability. Parents' homes generally have less available alcohol compared to bars, restaurants, and Fraternity/Sorority parties. Additionally, norms for drinking at a parent's house are likely lower compared to norms for drinking in bars, restaurants, and at parties. All other locations were not significantly associated with drinking.

There are several potential explanations for why heavier drinking occurs at bars and Fraternity/Sorority houses. One potential factor that could be associated with heavier drinking in bars concerns drink specials. Prior research by Thombs et al. (2008) found that undergraduates who took advantage of drink specials at bars had higher eBACs than those who did not. Such drink specials may be a mechanism through which individuals who celebrated their 21st birthdays at bars engaged in heavier drinking in the current study. Relatedly, at a bar, companions may be purchasing drinks for the celebrant, which might be associated with heavier drinking. Additionally, availability of alcohol and drinking norms are factors that may also be related to higher alcohol consumption at bars and Fraternity/Sorority houses, as these locations typically contain larger quantities of alcohol (e.g., kegs, punch) than might be found in a home as well as involve higher drinking norms. Lewis et al. (2011) found that undergraduates overestimated how much same-sex peers drank in a variety of contexts, with the greatest overestimations for drinking at Fraternity/Sorority parties. Thus, to the extent that students perceive others to be drinking heavily, they may engage in heavier drinking to match their peers. Future research may explore other factors related to heavier drinking in specific contexts during 21st birthdays and other special occasions.

We also examined with whom participants celebrated their 21st birthdays. Companions included friends, family members, casual acquaintances, roommates, significant others, and Fraternity/Sorority members. A very small percentage of participants (0.8%) reported spending their birthdays alone. As expected, most participants reported that they celebrated their birthdays with friends. Additionally, almost half of the participants reported celebrating with family members. With the exception of a bar setting, companions were found to be the most influential contextual factors associated with 21st birthday drinking.

Specifically, results suggested that celebrating with friends, roommates, acquaintances, and Fraternity or Sorority members were all associated with heavier drinking and higher eBACs, whereas celebrating with romantic partners were associated with less drinking. These findings fit with previous investigations which have found that celebrating a 21st birthday with Fraternity and Sorority members was associated with heavier drinking (Capone et al., 2007; Larimer et al., 2004; Rutledge et al., 2008; Wechsler et al., 2009; Weitzman et al., 2003), and that drinking with close friends is a risk factor for heavy drinking and experiencing harmful consequences (Borsari & Carey, 2006; Connor et al., 2014). Despite recent research evaluating contextual factors on typical drinking that has found negative associations between drinking with one's family members and alcohol use and related

problems (Keough et al., 2015) and findings from the current study which indicated that drinking at a parent's home was associated with less drinking on the 21st birthday, celebrating with family members was not protective against heavy drinking in our sample. Among the potential explanations for this finding include that this study considered 21st birthday drinking specifically, not typical drinking. In this context, family members may not have protected celebrants against heavy drinking because participants were in a heavy drinking environment. Another explanation for why celebrating with family members was not protective is that participants were asked to indicate all companions who celebrated their 21st birthday with them, thus the categories were not mutually exclusive. It is possible that individuals who celebrated exclusively with their family members drank less on their 21st birthday than did individuals who celebrated with family *and* friends.

Additionally, our results showed that celebrating with romantic partners was protective against heavy drinking. Although we did not include additional measures that could shed light on why this might be the case, there are several potential explanations. First, consistent with previous work showing romantic partners encourage healthier behaviors (e.g., Markey et al., 2007), perhaps significant others were associated with less drinking because they encouraged use of protective behavioral strategies or staying safe during the celebration. Also, given that previous work has found students sometimes drink more in attempts to have sex with new or casual partners (Cooper, 2002; Dermen & Cooper, 1994; Leigh, 1990; Lewis, Patrick, Mittman, & Kaysen, 2014; Patrick, Maggs, & Lefkowitz, 2015; Testa & Collins, 1997), it is possible that an already established romantic partnership and thus a lack of desire to pursue other sexual targets was protective against heavy drinking in our sample. Relatedly, it is also possible that a desire to engage in sexual activities later that evening with one's romantic partner was protective against particularly heavy drinking (Brown & Vanable, 2007; Patrick et al., 2015). Future research may wish to further explore romantic partners as an important contextual influence on drinking (e.g., why they are protective during this high-risk event, whether this is moderated by their typical level of alcohol use or concordance of alcohol use within the relationship).

Finally, although drinking alone has been generally associated with experiencing more alcohol-related problems (Creswell, Chung, Clark, & Martin, 2014; Gonzalez & Skewes, 2013; Keough et al., 2015), we did not find effects of drinking alone on one's 21st birthday. Because very few participants (0.8%) reported celebrating their birthday alone, these estimates should be interpreted with caution. Further, we did not ask participants to report who they typically drink with as we were particularly interested in drinking associated with 21st birthday celebrations.

4.1 Limitations and Future Directions

Although the present study was informative regarding which factors were associated with heavier drinking on 21st birthdays, it should be considered in light of its limitations. One limitation of the present research is that the data are retrospective. Another limitation is that only half of the invited sample responded to the survey, potentially allowing for selection effects. Additionally, the sample was composed of college students who may celebrate their 21st birthdays differently than their non-college peers, especially given their non-college

peers may not be celebrating at a Fraternity/Sorority house which was associated with heavier drinking in this sample. In the future, researchers may consider collecting social network data on 21st birthday drinking to more comprehensively understand the influence of combinations of contextual factors on the celebrants' and their companions' drinking. Finally, certain locations were correlated with certain companions (e.g., celebrating with Fraternity/Sorority members likely occurred at Fraternity/Sorority houses; celebrating with family likely occurred at the parents' house). Future research may examine how specific combinations of contextual factors influence drinking on one's 21st birthday or other potentially hazardous drinking occasions (e.g., Spring Break, other holidays).

4.2 Conclusion

The current study examined contextual factors including locations and companions associated with 21st birthday drinking. Results indicated that celebrating a 21st birthday in a bar setting and with Fraternity or Sorority members were the strongest variables associated with drinking. Additionally, individuals who celebrated with their romantic partners reported less drinking and those who celebrated with friends, roommates, and acquaintances reported more drinking. In conclusion, locations, companions, and other contextual factors are all connected and influence drinking behavior, particularly the hazardous behavior present during 21st birthday celebrations. Results may inform future interventions targeting contextual factors associated with high-risk drinking. Specifically, interventions may give personalized feedback to participants based on context-specific drinking to make them more aware of where and with whom they drink most heavily. This awareness may prompt them to further consider their drinking and how such situational factors influence their drinking. Of particular interest here would be utilization of social network data, wherein individuals could be shown specific individuals with whom they drink when they are most likely to experience drinking-related consequences. Interventions may also provide protective behavioral strategies specific to participants' identified risky drinking contexts such as strategies for setting limits for drinking, refusing drinks, or arranging sober rides home. Future investigations may also consider collecting social network data related to drinking to better understand reciprocal influences on drinking for 21st birthdays and other high-risk drinking events.

Acknowledgments

Role of Funding Sources

Not applicable.

References

- Borsari B, Carey K. How the quality of peer relationships influences college alcohol use. *Drug & Alcohol Review*. 2006; 25(4):361–370. [PubMed: 16854663]
- Brown JL, Venable PA. Alcohol use, partner type, and risky sexual behavior among college students: Findings from an event-level study. *Addictive Behaviors*. 2007; 32:2940–2952. [PubMed: 17611038]
- Capone C, Wood MD, Borsari B, Laird RD. Fraternity and sorority involvement, social influences, and alcohol use among college students: A prospective examination. *Psychology of Addictive Behaviors*. 2007; 21(3):316–327.10.1037/0893-164X.21.3.316 [PubMed: 17874882]

- Clapp JD, Reed MB, Holmes MR, Lange JE, Voas RB. Drunk in public, drunk in private: The relationship between college students, drinking environments and alcohol consumption. *The American Journal of Drug and Alcohol Abuse*. 2006; 32(2):275–285.10.1080/00952990500481205 [PubMed: 16595328]
- Connor J, Cousins K, Samaranayaka A, Kypri K. Situational and contextual factors that increase the risk of harm when students drink: Case control and case crossover investigation. *Drug and Alcohol Review*. 2014; 33(4):401–411. [PubMed: 24980886]
- Cooper ML. Alcohol use and risky sexual behavior among college students and youth. *Journal of Studies on Alcohol*. 2002; 14:101–117.
- Creswell KG, Chung T, Clark DB, Martin CS. Solitary alcohol use in teens is associated with drinking in response to negative affect and predicts alcohol problems in young adulthood. *Clinical Psychological Science*. 2014; 2(5):602–610.10.1177/2167702613512795 [PubMed: 25977842]
- Day-Cameron JM, Muse L, Haunstein J, Simmons L, Correia CJ. Alcohol use by undergraduate students on their 21st birthday: Predictors of actual consumption, anticipated consumption, and normative beliefs. *Psychology of Addictive Behaviors*. 2009; 23(4):695–701.10.1037/a0017213 [PubMed: 20025376]
- Dermen KH, Cooper ML. Sex-related alcohol expectancies among adolescents. *Psychology of Addictive Behaviors*. 1994; 8:161–168.
- Dumas TM, Graham K, Bernards S, Wells S. Drinking to reach the top: Young adults' drinking patterns as a predictor of status within natural drinking groups. *Addictive Behaviors*. 2014; 39(10): 1510–1515. [PubMed: 24968362]
- Glassman TJ, Dodd VJ, Sheu JJ, Rienzo BA, Wagenaar AC. Extreme ritualistic alcohol consumption among college students on game day. *Journal of American College Health*. 2010; 58(5):413–423. [PubMed: 20304753]
- Gonzalez VM, Skewes MC. Solitary heavy drinking, social relationships, and negative mood regulation in college drinkers. *Addiction Research & Theory*. 2013; 21(4):285–294.10.3109/16066359.2012.714429
- Greenfield TK, Yu Y, Nayak MB, Bond J, Kerr WC, Trocki K. Heaviest drinking locations and the most drunk there predict the likelihood of fighting and being assaulted. *Contemporary Drug Problems*. 2011; 38(2):213–236. [PubMed: 23335824]
- Johnston, LD.; O'Malley, PM.; Bachman, JG.; Schulenberg, JE.; Miech, RA. Monitoring the Future national survey results on drug use, 1975–2013: Volume II, college students and adults ages 19–55. Ann Arbor: Institute for Social Research, The University of Michigan; 2014. p. 424
- Keough MT, O'Connor RM, Sherry SB, Stewart SH. Context counts: Solitary drinking explains the association between depressive symptoms and alcohol related problems in undergraduates. *Addictive Behaviors*. 2015; 422:216–221.10.1016/j.addbeh.2014.11.031 [PubMed: 25486616]
- Kypri K, Paschall MJ, Langley JD, Baxter J, Bourdeau B. The role of drinking locations in university student drinking: Findings from a national web-based survey. *Drug and Alcohol Dependence*. 2010; 111(1–2):38–43.10.1016/j.drugalcdep.2010.03.018 [PubMed: 20537816]
- Larimer ME, Turner AP, Mallet KA, Geisner IM. Predicting drinking behavior and alcohol-related problems among fraternity and sorority members: Examining the role of descriptive and injunctive norms. *Psychology of Addictive Behaviors*. 2004; 18(3):203–212.10.1037/0893-164X.18.3.203 [PubMed: 15482075]
- Leigh BC. The relationship of sex-related alcohol expectancies to alcohol consumption and sexual behavior. *British Journal of Addiction*. 1990; 85:919–928. [PubMed: 2397319]
- Lewis MA, Lindgren KP, Fossos N, Neighbors C, Oster-Aaland L. Examining the relationship between typical drinking behavior and 21st birthday drinking behavior among college students: implications for event-specific prevention. *Addiction*. 2009; 104(5):760–767. [PubMed: 19344447]
- Lewis MA, Litt DM, Blayney JA, Lostutter TW, Granato H, Kilmer JR, Lee CM. They drink how much and where? Normative perceptions by drinking contexts and their association to college students' alcohol consumption. *Journal of Studies on Alcohol and Drugs*. 2011; 72(5):844–853. [PubMed: 21906511]

- Lewis MA, Patrick ME, Mittmann A, Kaysen DL. Sex on the beach: The influence of social norms and trip companion on spring break sexual behavior. *Prevention Science*. 2014; 15(3):408–418. [PubMed: 24464322]
- Markey CN, Markey PM, Gray HF. Romantic relationships and health: An examination of individuals' perceptions of their romantic partners' influences on their health. *Sex Roles*. 2007; 57(5/6):435–445.10.1007/s11199-007-9266-5
- Mushquash AR, Stewart SH, Sherry SB, Mackinnon SP, Antony MM, Sherry DL. Heavy episodic drinking among dating partners: A longitudinal actor partner interdependence model. *Psychology of Addictive Behaviors*. 2013; 27(1):178–183.10.1037/a0026653 [PubMed: 22149955]
- Neighbors C, Oster-Aaland L, Bergstrom RL, Lewis MA. Event-and context-specific normative misperceptions and high-risk drinking: 21st birthday celebrations and football tailgating. *Journal of Studies on Alcohol*. 2006; 67(2):282–289. [PubMed: 16562411]
- Neighbors C, Foster DW, Fossos N, Lewis MA. Windows of risk: Event and contexts associated with extreme drinking. *College student alcohol abuse: A guide to assessment, intervention, and prevention*. 2012:53–80.
- Neighbors C, Atkins DC, Lewis MA, Lee CM, Kaysen D, Mittmann A, Rodriguez LM. Event-specific drinking among college students. *Psychology of Addictive Behaviors*. 2011; 25(4):702. [PubMed: 21639597]
- Rutledge PC, Park A, Sher KJ. 21st birthday drinking: Extremely extreme. *Journal of Consulting and Clinical Psychology*. 2008; 76(3):511–516. [PubMed: 18540744]
- Testa M, Collins RL. Alcohol and risky sexual behavior: Event-based analyses among a sample of high-risk women. *Psychology of Addictive Behaviors*. 1997; 11:90–201.
- Thombs DL, Dodd V, Pokorny SB, Omli MR, O'Mara R, Webb MC, Werch C. Drink specials and the intoxication levels of patrons exiting college bars. *American Journal of Health Behavior*. 2008; 32:411–419. [PubMed: 18092901]
- U.S. Department of Transportation, National Highway Traffic Safety Administration. *Traffic Tech, NHTSA Technology Transfer Series*. Vol. 80. Washington, DC: 1994. Computing a BAC estimate.
- Wechsler H, Kuh G, Davenport AE. Fraternities, Sororities and binge drinking: Results from a National Study of American Colleges. *Naspa Journal (Online)*. 2009; 46(3):395–416.
- Weitzman ER, Nelson TF, Wechsler H. Taking up binge drinking in college: the influences of person, social group, and environment. *Journal of Adolescent Health*. 2003; 32(1):26–35.10.1016/S1054-139X(02)00457-3 [PubMed: 12507798]
- White A, Hingson R. Excessive alcohol consumption and related consequences among college students. *Alcohol Research: Current Reviews*. 2013; 35(2):201–218. [PubMed: 24881329]
- Wiersma JD, Fischer JL, Cleveland HH, Reifman A, Harris KS. Selection and socialization of drinking among young adult dating, cohabiting, and married partners. *Journal of Social and Personal Relationships*. 2011; 28(2):182–200.10.1177/0265407510380083

Highlights

- Examines how specific contextual factors are associated with 21st birthday drinking.
- Celebration locations and companions were used as predictors of drinks and eBAC.
- Drinking at a bar and with Greek members were most strongly associated with drinking.
- Celebrating with romantic partners were associated with lower birthday drinking.

Table 1Frequencies of Locations and Companions for 21st Birthday Celebrations

Locations	Frequencies Endorsing	
	N	%
Bar	630	69.2
Restaurant	541	59.5
Own Residence	265	29.1
Friend's Residence	198	21.8
Parent's Residence	144	15.8
Party (non-Greek)	99	10.9
Fraternity/Sorority	65	7.1
Outdoor BBQ	29	3.2

Companions	Frequencies Endorsing	
	N	%
Friends	800	87.9
Family	450	49.5
Roommate	374	41.1
Romantic Partner	345	37.9
Casual Acquaintances	238	26.2
Fraternity/Sorority	153	16.8
Alone	7	0.8

Table 2
Correlations among 21st Birthday Celebratory Locations, Companions, and Drinking

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. Bar	--															
2. Restaurant	.01	--														
3. Home	-.01	-.04	--													
4. Friend's House	-.01	-.03	-.06 [†]	--												
5. Parent's House	-.06 [†]	.01	.00	-.01	--											
6. Party	.01	.02	.08*	.07*	.02	--										
7. Greek Location	.13***	-.04	-.01	-.01	-.02	.01	--									
8. BBQ	-.01	-.05	.04	.10**	.11***	.04	-.01	--								
9. Friends	.24***	.05	.11***	.10**	-.05	.09**	-.05	.03	--							
10. Family	-.03	.21***	.07*	-.01	.37***	.00	-.07*	.05	-.06 [†]	--						
11. Roommate	.22***	.08*	.28***	-.03	-.08*	.12***	.03	.04	.23***	-.05	--					
12. Romantic Partner	-.07*	.13***	.06 [†]	.01	.05	-.01	-.08*	.04	-.01	.05	.03	--				
13. Acquaintances	.16***	.01	.05	.12***	.05	.20***	.15***	.11**	.15***	.01	.20***	-.01	--			
14. Greek Members	.19***	-.05	-.09***	-.05	-.07*	-.04	.53***	.00	.06 [†]	-.06 [†]	.04	-.11**	.07*	--		
15. Alone	.01	-.03	-.01	.01	-.04	.05	-.02	-.02	-.04	-.06 [†]	-.02	-.04	.06 [†]	-.04	--	
16. Birthday Drinks	.39***	-.05	-.01	-.01	-.09***	.07*	.14***	.03	.15***	-.07*	.17***	-.16***	.18***	.40***	-.04	--

* *Note.*

[†] $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Table 3

Influence of Locations on 21st Birthday Drinking and eBAC

Location	Number of Drinks $R^2 = .20$				eBAC $R^2 = .18$			
	<i>b</i>	SE(<i>b</i>)	β	<i>t</i>	<i>b</i>	SE(<i>b</i>)	β	<i>t</i>
Intercept	4.24	.46	--	9.27***	.09	.01	--	8.44***
Bar	5.01	.41	.37	12.15***	.11	.01	.36	11.68***
Fraternity/Sorority	4.60	.74	.19	6.23***	.07	.02	.14	4.50***
Parent's Residence	-1.24	.52	-.07	-2.38*	-.03	.01	-.08	-2.62**
Party (non-Greek)	1.27	.61	.06	2.08*	.02	.01	.06	1.80 [†]
Restaurant	-.61	.39	-.05	-1.58	-.01	.01	-.05	-1.62
Outdoor BBQ	1.39	1.09	.04	1.28	.01	.02	.02	.55
Friend's Residence	-.14	.46	-.01	-.31	-.01	.01	-.02	-.60
Own Residence	-.07	.42	-.01	-.17	.00	.01	.01	.01

* Note.

[†] $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Table 4

Influence of Companions on 21st Birthday Drinking and eBAC

Companion	Number of Drinks $R^2 = .23$				eBAC $R^2 = .20$			
	<i>b</i>	SE(<i>b</i>)	β	<i>t</i>	<i>b</i>	SE(<i>b</i>)	β	<i>t</i>
Intercept	4.22	.61	--	6.91 ^{***}	.077	.01	--	5.68 ^{***}
Fraternity/Sorority	6.34	.50	.37	12.58 ^{***}	.12	.01	.33	10.89 ^{***}
Friends	2.41	.59	.12	4.07 ^{***}	.06	.01	.13	4.25 ^{***}
Romantic Partner	-1.55	.39	-.12	-4.03 ^{***}	-.03	.01	-.11	-3.55 ^{***}
Casual Acquaintances	1.71	.44	.12	3.92 ^{***}	.03	.01	.11	3.45 ^{***}
Roommate	1.31	.39	.10	3.32 ^{***}	.04	.01	.14	4.39 ^{***}
Family	-.35	.37	-.03	-.94	-.01	.01	-.03	-.90
Alone	-2.17	2.14	-.03	-1.01	-.06	.05	-.04	-1.29

* Note

 $p < .001$

Table 5Stepwise Regression Results with Contextual Factors on 21st Birthday Drinking

Outcome	Model	Predictor	R ²
Drinks	1	Fraternity/Sorority Members	.156
	2	+ Bar	.262
	3	+ Casual Acquaintances	.273
	4	+ Romantic Partner	.283
	5	+ Friends	.289
	6	+ Roommate	.292
eBAC	1	Bar	.146
	2	+ Fraternity/Sorority Members	.226
	3	+ Roommate	.241
	4	+ Casual Acquaintances	.248
	5	+ Romantic Partner	.256
	6	+ Friends	.261