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Attendance at Alcohol-Free and Alcohol-Service Parties and Alcohol Consumption among College Students

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Abstract

Objective—To examine attendance at alcohol-service and alcohol-free parties among college students, and to compare alcohol consumption on nights of these parties.

Method—A random sample of 556 students (38.6% male) completed a web survey that measured past-semester alcohol use, alcohol-service party attendance, alcohol-free party attendance, and alcohol consumed on the nights of recent parties.

Results—Participants were twice as likely to attend alcohol-service parties as they were to attend alcohol-free parties (90% vs. 44%). First-year students and Black students were more likely than other students to attend alcohol-free parties. Alcohol use was higher in students who attended alcohol-service parties but there were no differences in levels of alcohol use between students who attended alcohol-free parties and those who did not. Pre-gaming was more prevalent, but number of drinks and intoxication were lower on nights of alcohol-free parties than on nights of alcohol-service parties.

Conclusions—The lack of association between attendance at alcohol-free parties and alcohol use indicates both heavy and light drinkers attend these parties. The lower drinking and intoxication on alcohol-free party nights suggests alcohol-free programming should be investigated to determine if it may reduce alcohol use on college campuses.

Keywords

COLLEGE ALCOHOL USE; ALCOHOL-FREE; PARTIES; PRE-GAMING

1. Introduction

College presidents rank alcohol abuse as the number one problem on campus (Wechsler, 1996), and concern about heavy drinking among college students has led to national initiatives to reduce the prevalence of this behavior (National Institute on Alcohol Abuse and Alcoholism, 2002; U.S. Department of Health and Human Services, 2007). Approximately 80% of college

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Contributors

Authors Wei and Barnett designed the study, wrote the protocol, conducted the statistical analyses, and wrote the manuscript. Author Clark contributed feedback to study design, statistical analyses and manuscript preparation. 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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students drink, and two out of every five are heavy episodic drinkers, defined as having had five or more drinks on an occasion in the past 2 weeks for men and four or more for women (O'Malley & Johnston, 2002). This pattern of heavy drinking puts students at risk for experiencing significant negative consequences (Ham & Hope, 2003; Hingson, Zha, & Weitzman, 2009). First year students in particular are overrepresented in alcohol-related injuries, disruptive behavior (Harford, Wechsler, & Muthen, 2003) and alcohol-related medical treatment (Bergen-Cico, 2000; Wright, Norton, Dake, Pinkston, & Slovis, 1998; Wright & Slovis, 1996).

1.1. College Parties

Drinking among college students typically occurs at fraternity/sorority parties, residence hall parties, and off-campus parties or bars (Clapp et al., 2000; Demers et al., 2002), with high rates of drinking and heavy drinking occurring at these events (Harford, Wechsler, & Seibring, 2002; Paschall & Saltz, 2007). In an investigation of party attendance behavior and alcohol use that included multiple measurement points, Wechsler and associates (Wechsler, Lee, Nelson, & Kuo, 2002) found no changes over time in student attendance at on-campus or dormitory parties across four surveys conducted from 1993 to 2001, but found a significant increase over time in any alcohol use (17.9% in 1993 and 22.3% in 2001), and consuming 5 or more drinks at these on-campus venues (7.4% in 1993 and 9.9% in 2001). The increase in risky drinking is a concern for campus administrators and reflects a need to develop methods for reducing the volume of college parties with alcohol and heavy consumption at these parties.

1.1.1. Alcohol-free parties—Alcohol-free events are promoted in the prevention literature as a way to reduce alcohol consumption on campus (DeJong et al., 1998; Vicary & Karshin, 2002; Wechsler et al., 2002), and most colleges provide alcohol-free events for students on nights and weekends (Mitchell, Toomey, & Erickson, 2005). The promotion of alcohol-free events as a prevention strategy is supported by behavioral economic theory, which stresses that availability and value of substance-free reinforcement are negatively related to substance use (Bickel & Vuchinich, 2000; Murphy, Correia, & Barnett, 2007), and by laboratory studies that show that self-administration of substances decreases when alternative reinforcers such as money are more available (see Higgins, Heil, & Lussier, 2004). There is also evidence that increasing the availability of alcohol-free social activities for students may substitute for alcohol use-related reinforcement (Correia, Benson, & Carey, 2005; Murphy, Barnett, & Colby, 2006) and that students who have social alternatives to drinking may reduce their drinking (Murphy, McDevitt-Murphy, & Barnett, 2005).

Despite the indications that alcohol-free events may be associated with a reduction in drinking, there are very few published reports of rates of attendance at alcohol-free events and alcohol events, whether attendance at these events is associated with lower alcohol use in general, and whether total consumption on the night of an alcohol-free event is different from consumption on the night of an event where alcohol is available. One program at Pennsylvania State reported that women were more likely to attend late night alcohol-free events than men, and that the proportion of minority students at these events was higher than in the student population (Maney et al., 2003). However, this evaluation used a sample of convenience, did not survey non-attendees, and did not report on the actual alcohol use of students. Evidence of an association between alcohol use and attendance at alcohol-free parties at a global level (i.e., showing a general relationship between alcohol use patterns and likelihood of attendance at parties) and at an event level (i.e., showing a relation between attendance and alcohol use on a specific day) would have implications for the utility of alcohol-free programming. It might be that students who are less likely to consume alcohol anyway are more likely to attend alcohol-free parties, in which case the potential for reducing alcohol use on campus by increasing the number of alcohol-free parties is limited. However, this assumption about

selective attendance has not been tested. Although a cross-sectional design does not provide direct evidence of the effect of alcohol-free parties, it is a reasonable first step prior to using experimental approaches.

One concern about alcohol-free parties is that they may increase the risk of “pre-gaming” among students. Pre-gaming, or pre-partying, is the practice of consuming alcohol prior to attending a social activity (DeJong & DeRicco, 2007), and has been associated with higher levels of drinking and intoxication (Pedersen & Labrie, 2007), particularly among first-year students (Paschall & Saltz, 2007) and women (Labrie & Pedersen, 2008). Since alcohol is not available at alcohol-free parties, students may be more likely to pre-game, and/or to drink more when they pre-game prior to attending an alcohol-free event. If this is the case, alcohol-free parties may unintentionally result in higher rates of a particularly risky drinking practice, but this has also not been empirically evaluated.

1.2. Study Purpose

The objective of this cross-sectional study was to measure attendance at alcohol-service and alcohol-free parties as well as alcohol consumption on nights of these parties over one semester in a random sample of undergraduate students. Specific goals were to: 1) collect self-reported rates of attendance at alcohol-service and alcohol-free events over the course of one semester; 2) establish whether attendance at alcohol-service and alcohol-free events has global associations with alcohol use; 3) establish whether there are gender, race/ethnicity, or class year differences in party attendance and in drinking behavior on nights of recent parties; 4) use event-level methodology to compare alcohol use, pre-gaming rates, and intoxication on the nights of recent alcohol-service and alcohol-free parties. In addition, because knowing how many of the two types of parties were held in the semester would provide a context for evaluating rates of party attendance, we also collected information about the number of alcohol service and alcohol-free events that were available on campus in the semester. We expected that students who reported attending alcohol-service parties would report greater consumption and alcohol problems than others and that those who reported attending alcohol-free events would report lower consumption and alcohol problems. We also expected first-year students and those living on campus would show greater attendance than other classes at both alcohol-service and alcohol-free events. We anticipated that alcohol use would be lower on nights that participants reported attending an alcohol-free party compared to nights they attended alcohol-service parties. However, we expected that consumption prior to parties would be higher on nights of alcohol-free parties when compared to nights of alcohol-service parties.

2. Material and Methods

2.1. Participants

Survey data were collected from undergraduate university students at a private mid-sized university in the Northeast during the fall semester, 2006. Approximately 80% of students (including all freshmen) live on campus. The sample was randomly drawn from all enrolled undergraduate students. Inclusion criteria were full-time students ages 18 or older not studying abroad that semester. Given the higher rates of alcohol use at parties reported among first-year students (Harford et al., 2002) and their apparent higher risk of consequences (Harford et al., 2003; Wright & Slovis, 1996), we oversampled first-year students to comprise almost one-half the sample. We used information from the college registrar about the number of juniors studying abroad to adjust the number of juniors sampled. The selected sample consisted of 1,239 students: 600 freshmen (48%), 202 sophomores (16%), 237 juniors (19%), and 200 seniors (16%).

2.2. Procedures

A commercially available web data collection service was used to distribute invitations and collect survey data in the 11th week (out of 13) of the semester. This timing was chosen to provide adequate time to complete the survey prior to final exams. Students were e-mailed invitations containing a brief description of the study and a link to the survey page that established eligibility and provided informed consent text. Students who agreed to participate were immediately linked to the survey, which took approximately 10 minutes to complete. Non-responders received reminder emails two days and two weeks after the first invitation. Participants who completed the survey had a 1 in 25 chance to win \$25. All study procedures were approved by the University Institutional Review Board.

2.3. Measures

2.3.1. Demographics, alcohol use, and alcohol problems—Gender, age, race/ethnicity, year in school, residence location (on/off campus) and self-reported weight were collected. Alcohol use was measured with a set of questions that included 1) number of days of drinking in the semester; 2) number of days drunk in the semester; 3) maximum number of drinks in a day in the semester; 4) number of drinks on a typical day of drinking, and length of time to drink that amount. A standard drink was defined as 12 oz. beer or wine cooler, 5 oz. of wine, or 1.5 oz. liquor in a shot or mixed drink. Gender, weight, typical number of standard drinks, and length of time spent drinking the typical number of drinks were used to estimate typical blood alcohol concentration (estimated BAC; Matthews & Miller, 1979). Alcohol-related consequences in the semester were measured with the 24-item Brief Young Adult Alcohol Consequences Questionnaire (B-YAACQ; Kahler, Strong, & Read, 2005). The B-YAACQ items are scored no (0) or yes (1), and summed for a total score ($\alpha = 0.85$ in this sample).

2.3.2. Party attendance and drinking on party nights—Frequency of party attendance was measured by asking participants how many times in the semester they had attended an on-campus party where alcohol was not available and how many times in the semester they had attended an on-campus party where alcohol was available. Participants who answered they had attended alcohol-service parties were asked how many drinks they had before, during, and after their most recent party, and how much time they spent drinking. For the most recent alcohol-free event, participants reported how many drinks they had before and after the party, and how much time they spent drinking. Estimated BAC was calculated for both types of events.¹

2.3.3. Parties on campus—It is a requirement of the university that on-campus parties and social events, including all parties that serve alcohol, are registered with the Office of Student Activities. This office also has a program that provides planning support and funds for student groups that hold alcohol-free social events on Friday and Saturday evenings. For information about the number of available parties on campus, student activities office records were reviewed for Friday and Saturday events that occurred in the evening or night (7 PM or later). All of the alcohol-service parties were held at these times. The activities office's records provide the best information about events on campus during the surveyed semester because events that were not registered with this office were not likely to be large or widely advertised.

2.4. Data Analyses

Data were reviewed and variables with nonnormal distributions were square-root transformed for analyses. Chi-square analyses were used for dichotomous outcomes, including McNemar

¹For typical drinking estimated BAC and for estimated BAC on nights of alcohol-free and alcohol-service parties, BAC was coded as .000 for participants who reported no drinking.

tests for within-subjects comparisons. Analysis of variance, independent *t*-tests or paired *t*-tests were used for continuous outcomes (SPSS 14.0). Planned comparisons were used to compare first-year students to other class years. Other pairwise comparisons were conducted only after a significant omnibus test.

3. Results

During the enrollment process, 12 students were determined to be ineligible because they were studying abroad. A total of 556 students (45.3%) consented from the remaining 1,227 invited. Of those who started the survey, 34 were dropped because they did not answer questions about party attendance, resulting in 522 students for the sample.² Most (88.1%) of respondents responded to the survey within the first week. The sample was 61.4% female, with an average age of 19.1 years (*SD* = 1.3; range 17–23; 82% under the age of 21). The sample closely reflected the class years of those who were initially invited; 51.5% freshmen, 16.2% sophomores, 15.3% juniors, and 17.1% seniors. The sample was 63.8% White, 18.1% Asian, 5.3% Latino, 3.1% Black, 0.5% Native American, and 9.2% Multiracial. Most participants (88.2%) lived on campus.

Sample demographics were fairly reflective of the university's undergraduate population. Women make up slightly over half of the undergraduate population (52%) at the university. The racial diversity of the survey participants is similar to that of the University undergraduate population, with Asian students slightly overrepresented and Black students underrepresented in our sample. Approximately 80% of students at this site live on campus; our overrepresentation of on-campus residents is a function of the oversampling of freshmen.

3.1. Alcohol Consumption and Problems

Most students (371; 80.0%) had consumed alcohol in the fall semester. On average, they drank 11.3 times (*SD* = 11.8) during the semester, and got drunk 6.2 times (*SD* = 9.0). The typical number of drinks was 2.7 (*SD* = 2.4), maximum number of drinks was 5.4 (*SD* = 4.8), and typical estimated BAC among drinkers was .065% (*SD* = .048). On a typical night of drinking, slightly less than one-third (30.4%, *N* = 51) of men and one-quarter (25.2%, *N* = 67) of women reported drinking at or above the heavy drinking threshold. The average B-YAACQ score was 4.4 (*SD* = 4.1) indicating participants had between 4 and 5 different alcohol-related consequences over the course of the semester. Of the drinking variables, gender differences were noted for typical drinks per day (*M* = 3.2, *SD* = 3.0 for men, *M* = 2.4, *SD* = 1.9 for women), *t*(432) = 3.20, *p* < .01, maximum drinks consumed in a day (*M* = 6.8, *SD* = 6.2 for men, *M* = 4.5, *SD* = 3.5 for women), *t*(432) = 4.30, *p* < .001, and estimated typical BAC (*M* = .059%, *SD* = .048 for men; *M* = .070%, *SD* = .052 for women), *t*(339) = 2.15, *p* < .05, but not for frequency of drinking, frequency of drunkenness, or alcohol problems.

Race/ethnic group differences were found on most drinking variables; White students were significantly more likely to drink in the semester (84.5%) than Latino (63.6%), Black (53.8%) and Asian (68.0%) students (statistics not presented). White participants drank more frequently (*M* = 12.7, *SD* = 11.4) than Black (*M* = 3.3, *SD* = 5.4) or Asian students (*M* = 7.2, *SD* = 8.8), and drank more on a typical drinking occasion (*M* = 3.0, *SD* = 2.4) than Latino (*M* = 1.8, *SD* = 2.5) or Asian participants (*M* = 1.9, *SD* = 2.0).

When class years were compared, drinking at all in the semester was significantly different between years, $\chi^2(3) = 22.21$, *p* < .001, with first-year students less likely to consume alcohol

²Some participants (*n* = 109) did not answer every item, including one or more demographic items. We determined that including all respondents would produce a more representative sample than eliminating participants who did not answer all items. This approach resulted in some missing values for most variables.

than other class years. Number of days drinking in the semester also was significantly different between class years, $F(3,430) = 4.72, p < .01$, with post hoc comparisons showing that seniors drank more frequently than freshmen.

3.2. Party Availability, Attendance, and Alcohol Consumption

In the semester under study, 59 registered parties were held. Of those, 36 (61.0%) served alcohol, and 23 (39.0%) did not.

3.2.1. Alcohol parties—Most participants (89.8%) had attended an alcohol-service party in the semester, with no gender differences in attendance (87.5% for men, 89.1% for women) or in number of alcohol parties attended ($M = 8.7, SD = 8.9$ for men, $M = 9.2, SD = 10.2$ for women), $t(431) = 0.08, ns$. Alcohol party attendance (i.e., the dichotomous indication of whether or not students attended) did not differ by race/ethnicity, although the number of alcohol parties attended was significantly different between subgroups, with White, Latino, and Multiracial students showing higher numbers than Asian and Black students (see Table 1 for group differences).

Alcohol party attendance (dichotomous) did not differ by class year, or between first-year and other classes, $\chi^2(1; N = 439) = 0.68, ns$, but seniors attended fewer alcohol parties than other classes. There were no differences in alcohol party attendance between students who lived on (89.2%) and off campus (84.0%), $\chi^2(1; N = 438) = 1.17, ns$, but students who lived on campus attended more parties ($M = 9.5, SD = 10.0$) than those who lived off campus ($M = 4.5, SD = 4.6$), $t(434) = 4.75, p < .001$. Participants who attended alcohol-service parties were more likely to have consumed alcohol that semester than those who did not attend (84.7% vs. 43.4%, respectively), $\chi^2(1, N = 464) = 49.91, p < .001$, and had higher levels of drinking and intoxication (see Table 3).

Information about alcohol use on the night of the most recent alcohol-service party is presented in Table 3. Of the students who reported attending an alcohol-service party, 74.7% reported drinking on that night. First-year students were less likely to drink than upperclassmen on the night of their most recent alcohol-service party (68.0% vs. 78.5%), $\chi^2(1, N = 389) = 5.45, p < .05$, but there were no gender differences in whether drinking occurred on the night of the most recent alcohol-service party (72.8% of men, 72.3% of women), $\chi^2(1, N = 385) = 0.01, ns$. Black students were less likely to drink on that night than all other race/ethnic groups (25.0% vs. 75.1%). The number of drinks consumed by participants was higher on the alcohol party night relative to their typical number of drinks, $t(399) = 15.9, p < .001$. Nearly half (44.5%, $N = 106$) of the women and half of the men (49.7%, $N = 73$) who attended an alcohol party had a heavy drinking episode on that night. Approximately 27% of the drinks consumed on that night were consumed before the reported party, 58% were consumed during the party, and 15% were consumed after the party. There were no gender differences, $\chi^2(1, N = 385) = 0.00, ns$, or class year differences, $\chi^2(3, N = 389) = 2.33, ns$, in whether alcohol was consumed *before* the alcohol party.

3.2.2. Alcohol-free parties—In the entire sample, 229 (43.9%) participants attended an alcohol-free party in the semester. There were no differences between men and women students in the proportion that attended an alcohol-free party (43.5% of men, 44.6% of women), $\chi^2(1, N = 435) = 0.05, ns$, or the number of alcohol-free parties attended (1.5 for men, 1.2 for women), $t(433) = 0.55, ns$. Black students were significantly more likely than other race/ethnic groups to attend an alcohol-free party, and attended more alcohol-free parties than all other groups (see Table 1). First-year students were significantly more likely to have attended an alcohol-free party than other classes (53.5% vs. 34.7%), $\chi^2(1, N = 439) = 15.70, p < .001$, and attended significantly more alcohol-free parties (see Table 2). Students living on campus were

marginally more likely to attend alcohol-free parties (46.1% vs. 32.0%), $\chi^2(1, N = 438) = 3.58$, $p < .06$, and attended more of these parties, $t(436) = 2.73$, $p < .01$.

There was no difference in any drinking (dichotomous) between students who attended an alcohol-free party (76.9%) and of those who did not (82.4%), $\chi^2(1, N = 464) = 2.17$, *ns*, and there were no differences in other alcohol consumption variables (see Table 3). However, students who attended alcohol-free events had significantly lower alcohol problem scores.

Information about alcohol use on the night of the most recent alcohol-free party is presented in Table 4. There were no class year differences, $\chi^2(3, N = 195) = 1.83$, *ns*, gender differences, $\chi^2(1, N = 192) = 1.06$, *ns*, or race/ethnicity differences, $\chi^2(4, N = 184) = 4.56$, *ns*, in whether or not subjects drank on the night of the most recent alcohol-free party. The number of drinks consumed by participants was lower on the alcohol-free party night relative to their typical number of drinks consumed, $t(204) = 6.42$, $p < .001$. One-fifth of men (20.5%) and women (20.2%) reported consuming at or above the heavy drinking threshold that night. Of all the drinks consumed, 85.0% were consumed before the party. There were no gender differences, $\chi^2(1, N = 192) = 1.40$, *ns*, class year differences, $\chi^2(1, N = 195) = 3.40$, *ns*, or race/ethnicity differences, $\chi^2(4, N = 184) = 5.40$, *ns*, in whether alcohol was consumed before the alcohol-free party.

3.2.3. Within-subjects comparison of drinking on the nights of alcohol-free and alcohol parties—Since alcohol use on the night of the most recent alcohol-free and alcohol-service parties was collected from all participants, we were able to compare the drinking on those two nights within subjects. Of students who reported attending both alcohol-free and alcohol-service parties in the past semester ($N = 211$; 40.4% of the sample), the proportion of participants who drank and the average number of drinks consumed were lower on nights of alcohol-free parties (see Table 5).³ The number of drinks consumed *before* the alcohol-free party was significantly higher than the number of drinks consumed before the alcohol-service party, but the estimated BAC on alcohol-free party nights was lower than the estimated BAC on alcohol-service party nights.

4. Discussion

In this large sample of undergraduates at one university we found rates of attendance at alcohol parties were twice as high as rates of attendance at alcohol-free parties, and that the number of alcohol-free parties attended was low, with most participants attending 0–3 alcohol-free parties over the course of the semester. Reports from the campus office that monitored parties indicated that the availability of alcohol-free parties was somewhat lower than alcohol-service parties, but the lower availability of alcohol-free parties would not explain the large difference in attendance rates at the two types of parties. Students who were more likely to attend alcohol-free events were freshmen, Black students, and those with lower alcohol problems. This is in contrast with our findings on alcohol party attendance, where there were highly significant differences several alcohol consumption variables between students who attended and those who did not. Our hypotheses then about the global relationships between alcohol use and party attendance were supported for alcohol-service parties, but only partially supported for alcohol-free parties, in that there were no differences in patterns of alcohol use between those who attended alcohol-free parties and those who did not. However, those who attended alcohol-free parties did show lower levels of alcohol problems.

³We asked participants whether the two (alcohol-service and alcohol-free) parties they attended occurred on the same night. Eliminating those cases ($n = 21$; 10.0%) and cases that were missing this item ($n = 24$; 11.4%) did not affect the significance of results.

Although only about half of the sample attended alcohol-free parties, those that did reported a lower number of drinks on the night of their most recent alcohol-free party relative to their typical drinking day. The opposite was true of alcohol party nights, on which the number of drinks consumed was higher than typical. Consistent with these findings and with our hypothesis, we found that among participants who attended *both* alcohol-free and alcohol-service parties, consumption and intoxication were lower on the night of the alcohol-free party. Ours was a cross-sectional study, so we are not able to conclude that attendance at alcohol-free parties resulted in lower alcohol use on those nights. However, the results are consistent with that possibility, especially since we did not detect global associations between attendance at alcohol-free parties and drinking levels. In other words, the lower alcohol use on nights of alcohol-free parties cannot be explained by individual differences in the alcohol use of students who chose to attend those parties.

Although attendance at alcohol-service events was very high, not all participants who attended these parties consumed alcohol. One out of every four participants reported they did not consume alcohol at the most recent alcohol-service party they attended. This may be related to the high number of underage participants in our sample. The attendance of students who did not drink also reflects a pull toward these events for social reasons, such as to be with friends or romantic partners. Alcohol parties may be larger and more exciting, and/or there may be a relatively lower number of competing alcohol-free events, so students have few alternate choices for entertainment. That many students do not drink at parties with alcohol may also indirectly reflect evidence of interest in attending parties that do not serve alcohol (since for these individuals alcohol may not be a motivating factor). Research that examines the motivations of drinking and nondrinking party attendees would provide important information about the development of alternatives to typical alcohol service events.

Pre-gaming was common before both types of parties, with approximately 40% of students reporting drinking prior to their most recent parties. As we expected, a higher number of drinks was consumed before alcohol-free parties than before alcohol parties, but the consumption of alcohol prior to alcohol-free parties did not translate into greater risk as reflected in estimated levels of intoxication; intoxication on these nights was significantly lower than on alcohol party nights. These findings should be replicated, but indicate that drinking prior to alcohol-free events does not appear to confer greater risk when compared to the risk associated with the overall higher level of drinking on alcohol-service party nights.

Our expectations about the attendance of first-year students were partially supported; we found that first-year students were more likely than other classes to attend alcohol-free events, and attended more of these events over the course of the semester. However, the same was not true of alcohol-service parties; freshmen showed similar attendance patterns as other class years other than seniors. Contrary to findings by others (Harford et al., 2002) our first-year students did not show higher consumption-related risk than other classes on either alcohol-free or alcohol-service party nights.

Ours is the first study to directly consider race/ethnic differences in party attendance, and despite the low number of participants in the non-White race/ethnicity categories, we found significant differences between groups. White, Latino, and Multiracial students attended the most alcohol parties, with several significant differences between groups. Black students attended the lowest number of alcohol-service parties and were the only group to significantly differ in alcohol-free party attendance, reporting attendance at more alcohol-free parties than every other group. These differences may reflect cultural differences in the importance of alcohol in social situations for Black students, or may suggest that the alcohol-free events were more attractive to this subgroup. Of note is that frequency of alcohol use in the semester was the lowest in Black students, and Black students were significantly less likely to drink at their

most recent alcohol-service party than other subgroups, which is consistent with the findings related to party attendance. In addition to the group differences, our results reflect the importance of using dichotomous and continuous measures; for alcohol service parties there were no race/ethnicity group differences in attendance, but there were in the number of parties attended.

We also found that men and women attended the different types of parties at similar rates, and reached similar levels of intoxication at those parties. That we did not find a difference in party attendance or intoxication indicates that men and women show similar responses to the availability of alcohol-free events. This is in contrast to Maney et al.'s finding that women were more likely to attend alcohol-free events (Maney et al., 2003). In addition, drinking before the party for either alcohol-service or alcohol-free parties did not differ by gender or class year, so our data do not support previous work that indicated underage drinkers and women are more at risk for pre-gaming (Labrie & Pedersen, 2008; Paschall & Saltz, 2007).

4.1. Limitations

The study was conducted at a private university in the Northeast that has a well publicized alcohol-free social event program with events that are intentionally held on Friday and Saturday nights. Programming on different campuses, drinking rates, and prevalence of specific practices such as pre-gaming are likely to vary across campuses, and results, including rates of attendance at alcohol events and race/ethnicity differences, may not generalize to other campuses. However, rates of abstaining (20%) and heavy drinking on this campus (Barnett, 2009) are similar to other private colleges (Wechsler, Lee, Kuo, & Lee, 2000). Our sample had a slight overrepresentation of females and some subgroups (e.g., Black students) were very small. However, this is one of the first studies to present information about party attendance across race/ethnic groups. There were important group differences despite the small subgroups, so we thought it important to present these data. As with any single site study with small subgroups, findings should be replicated.

There is evidence that drinking behavior differs by the location of the event (Paschall & Saltz, 2007), so findings might differ if off-campus venues were included. It is likely that not all parties were detected by our method of reviewing records for registered parties, and we do not have additional information about these parties to explore associations between alcohol service and other characteristics (such as type of entertainment or association with other events such as athletics). Nevertheless, our approach provided some context for understanding the availability of the two types of parties on this campus.

We did not define "party" for participants, which may have influenced party attendance reports. Although we consider drinking before the party to reflect the practice of pre-gaming, we did not ask participants if they "pre-gamed" which may have specific motives (DeJong & DeRocco, 2007) and timing relative to party attendance. We also did not ask about consumption that may have occurred *during* alcohol-free events, which must be remedied in future research since it is possible that consumption during these events occurs surreptitiously. We used one item to measure typical alcohol consumption which is not as optimal as using a typical week approach (see (Collins, Parks, & Marlatt, 1985), and we did not include a measure of frequency of heavy episodic drinking. Items measuring party attendance and drinking on party nights were developed for this study so validation on these items has not been conducted. In our event-level measures, we asked about alcohol consumption on the night of the most recent party; these reports may not be representative of drinking behavior in general at each type of party, and may be less accurate if the party was attended early in the semester. We did not ask participants the day of the week of their most recent parties; it is possible that some alcohol-free party nights were weekdays and that the lower drinking on these nights was a function of

the day of the week on which the party occurred. However, alcohol-free events on this and other campuses are primarily on weekend nights.

We were not able to compare the intoxication that occurred in the hours before the different types of parties, which would have addressed whether pre-gaming before different types of parties differs in level of intoxication. But in analyses comparing the number of drinks consumed and estimated BAC, we found that alcohol-free party nights were associated with lower drinking and intoxication, which provides compelling evidence that pre-gaming on these nights confers lower risk than the drinking that occurs on other party nights. However, our data are cross-sectional so causal interpretations about the relationship between alcohol use and party attendance should be avoided. Finally, it is likely there are other predictors of party attendance, including personality characteristics such as sensation seeking that we did not measure; additional work on such individual differences awaits future research.

4.2. Implications for Prevention and Future Research

This report is one of the few published studies to produce rates of attendance at alcohol-free events and alcohol events, and to evaluate whether attendance at specific events is associated with consumption of alcohol. It is the first to explicitly use an event-level approach to evaluate whether total consumption, pre-gaming, and intoxication differ on nights of alcohol-free and alcohol-service events. The representative random sample, web-based approach, timing of the survey to occur at the end of the semester, and the short response window are additional strengths.

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) Task Force on college student drinking recommended a number of strategies for preventing drinking among college students that have theoretical support but require more thorough evaluation (National Institute on Alcohol Abuse and Alcoholism, 2002). One such “Tier 3” strategy is to “adopt campus-based policies and practices that appear to be capable of reducing high-risk alcohol use” such as “implementing alcohol-free, expanded late-night activities” (NIAAA, 2002). Although we found that attendance at alcohol-free events over the course of the semester was not associated with lower alcohol use, when the most recent event was considered, lower alcohol use relative to other nights was found. Given the lower rates of alcohol consumption, heavy drinking, and intoxication associated with the most recent alcohol-free party, greater availability and attendance may lead to a decrease in high-risk drinking in the undergraduate population.

We found that approximately half as many participants attended an alcohol-free party in the fall semester as those who attended at least one alcohol party and the average number of alcohol-free parties was much lower than number of alcohol parties attended. Although alcohol-free alternatives were available on the campus we studied, they may not have been as appealing as the alcohol-service parties. An increase in the number and attractiveness of alcohol-free alternatives might result in students feeling less compelled to attend events with alcohol in order to socialize. First-year students in particular might benefit from an increase in alcohol-free events since they reported attending more of these events and were less likely to drink at alcohol parties. Consistent financial support of alcohol-free events can provide incentive for the creative development of alternatives and may lessen the emphasis on alcohol as an integral part of the college social experience.

Future research should determine factors related to interest in attending alcohol-free events, and how universities might enhance the appeal of, and awareness about, campus-based alcohol-free events. More fine-grained data collection procedures, such as a daily diary or ecological momentary assessment approach would better address the likelihood of attending alcohol-service and alcohol-free parties on the same night, and whether attendance at alcohol-free parties affects drinking on specific days of the week. Finally, drinking among college students

by nature is episodic (Del Boca, Darkes, Greenbaum, & Goldman, 2004), so individuals may attend alcohol-free events on some days without changing their overall level of consumption. Determining whether the availability of alcohol-free parties can reduce rates of alcohol use and alcohol-related harm on campus awaits controlled experimentation.

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Table 1

Party attendance in the semester by race/ethnicity

	Total	White (<i>n</i> = 264)	Asian (<i>n</i> = 75)	Latino (<i>n</i> = 22)	Black (<i>n</i> = 13)	Multiracial (<i>n</i> = 38)	Statistic
<u>Alcohol-Service Party</u>							
Attended <i>n</i> (%)	469 (89.8%)	237 (89.8%)	63 (84.0%)	19 (86.4%)	12 (92.3%)	33 (86.8%)	$\chi^2(4) = 2.26$
Number of parties attended <i>M</i> (<i>SD</i>)	9.38 (9.58)	9.29 (9.59) ^{a,c}	6.41 (7.54) ^{b,d}	12.95 (14.36) ^a	4.23 (3.32) ^{c,d}	10.16 (10.15) ^{a,c}	$F(4,409) = 2.79^*$
<u>Alcohol-Free Party</u>							
Attended <i>n</i> (%)	229 (43.9%)	105 (39.8%) ^a	37 (49.3%) ^a	13 (59.1%) ^a	12 (92.3%) ^b	16 (42.1%) ^a	$\chi^2(4) = 17.12^{**}$
Number of parties attended <i>M</i> (<i>SD</i>)	1.46 (2.74)	1.22 (2.77) ^a	1.59 (2.38)	1.27 (1.52)	3.00 (2.41) ^b	1.00 (1.51) ^a	$F(4,411) = 3.90^{**}$

Note. Total number, averages, and percents include participants who did not provide race/ethnicity information. Different subscripts indicate groups differ significantly.

* $p < .05$.

** $p < .01$.

Table 2

Party attendance in the semester by class year

	Total	Freshman (<i>n</i> = 226)	Sophomore (<i>n</i> = 71)	Junior (<i>n</i> = 67)	Senior (<i>n</i> = 75)	Statistic
<u>Alcohol-Service Party</u>						
Attended <i>n</i> (%)	469 (89.8%)	203 (89.8%)	65 (91.5%)	58 (86.6%)	63 (84.0%)	$\chi^2(3) = 2.79$
Number of parties attended <i>M</i> (<i>SD</i>)	9.38 (9.58)	9.96 (9.92) ^a	10.08 (11.20) ^a	9.06 (9.93) ^a	4.65 (5.04) ^b	$F(3,433) = 6.98^{***}$
<u>Alcohol-Free Party</u>						
Attended <i>n</i> (%)	229 (43.9%)	121 (53.5%) ^a	28 (39.4%) ^b	21 (31.3%) ^b	25 (33.3%) ^b	$\chi^2(3) = 16.70^{**}$
Number of parties attended <i>M</i> (<i>SD</i>)	1.46 (2.74)	1.81 (3.11) ^a	1.01 (1.55) ^b	0.75 (1.66) ^b	0.64 (1.20) ^b	$F(3,435) = 8.31^{***}$

Note. Total number, averages, and percentages include participants who did not provide class year information. Different subscripts indicate groups differ significantly.

**
 $p < .01$.

 $p < .001$.

Table 3

Alcohol consumption in the semester by party attendance

	Attended alcohol-service party (<i>n</i> = 469) <i>M</i> (<i>SD</i>)	Did not attend alcohol-service party (<i>n</i> = 53) <i>M</i> (<i>SD</i>)	Statistic	Attended alcohol-free party (<i>n</i> = 229) <i>M</i> (<i>SD</i>)	Did not attend alcohol-free party (<i>n</i> = 293) <i>M</i> (<i>SD</i>)	Statistic
No. of days drinking	12.30 (11.99)	3.44 (6.21)	<i>t</i> (440) = 6.95***	10.93 (11.39)	11.57 (12.17)	<i>t</i> (440) = 0.90
No. of days drunk	6.51 (8.13)	1.23 (3.59)	<i>t</i> (443) = 8.95***	5.50 (7.53)	6.24 (8.23)	<i>t</i> (443) = 1.46
Typical number of drinks	2.93 (2.43)	1.01 (1.54)	<i>t</i> (448) = 7.75***	2.48 (2.35)	2.90 (2.46)	<i>t</i> (448) = 1.81
Maximum number of drinks	5.86 (4.82)	1.92 (2.76)	<i>t</i> (448) = 8.64***	4.94 (4.58)	5.81 (4.94)	<i>t</i> (448) = 1.93
Typical estimated BAC	0.055 (0.051)	0.021 (0.038)	<i>t</i> (434) = 5.73***	0.047 (0.051)	0.055 (0.051)	<i>t</i> (434) = 1.52
Alcohol Problems Total	3.79 (4.11)	1.0 (2.06)	<i>t</i> (442) = 7.81***	3.02 (3.67)	3.84 (4.26)	<i>t</i> (442) = 2.19*
No. of alcohol-service parties	-	-	-	9.71 (9.97)	9.12 (9.27)	<i>t</i> (509) = 0.83
No. of alcohol-free parties	1.46 (2.74)	0.64 (1.13)	<i>t</i> (518) = 2.95**	-	-	-

Note. BAC = Blood Alcohol Concentration. Number of alcohol problems was measured by the Brief Young Adult Alcohol Consequences Questionnaire.

*
p < .05.

**
p < .01.

p < .001.

Table 4

Alcohol consumption at the most recent alcohol-service and alcohol-free parties

	Most recent alcohol-service party <i>M (SD) or n (%)</i>	Most recent alcohol-free party <i>M (SD) or n (%)</i>
Drank that night	345 (74.7%)	95 (41.7%)
Drank before the party	169 (40.0%)	87 (38.2%)
No. of drinks consumed that night	4.20 (4.39)	2.04 (3.64)
No. of drinks consumed before the party	1.19 (1.91)	1.60 (2.83)
Estimated BAC	.083 (.088)	.037 (.065)

Note. BAC = Blood Alcohol Content. Statistics comparing the two groups are not presented because the groups are not independent.

Table 5

Within-subjects comparison of consumption and estimated BAC on the night of the most recent alcohol-service and alcohol-free parties

	Most recent alcohol-service party <i>M (SD)</i> or <i>n (%)</i>	Most recent alcohol-free party <i>M (SD)</i> or <i>n (%)</i>	Statistic
Drank that night	149 (71.6%)	91 (43.3%)	$\chi^2(1) = 47.78^{***}$
Drank before the party	76 (39.4%)	81 (42.0%)	$\chi^2(1) = 0.29$
No. drinks consumed that night	3.91 (4.37)	2.22 (3.77)	$t(192) = 8.12^{***}$
No. of drinks consumed before the party	1.19 (1.89)	1.76 (2.95)	$t(192) = 2.30^*$
Estimated BAC	0.079 (0.088)	0.043 (0.068)	$t(178) = 7.24^{***}$

Note. BAC = Blood Alcohol Content. This table includes all subjects who reported attending at least one alcohol-free party and one alcohol-service party, whether they drank or not on the night of the party. Eighteen participants reported whether or not they drank but did not provide specific drinking data. Fourteen participants did not provide their weight for BAC calculations. Chi-square tests were McNemar. Since a break in drinking during alcohol-free parties could result in an underestimate of BAC on those nights (i.e., by making the drinking episode appear longer than it was), we eliminated 25 cases that reported a break in drinking (i.e., participants who reported drinking before and after a party but not during). Results were the same: $t(157) = 6.55, p < .001$.

*
 $p < .05$.

 $p < .001$.