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The Slope of Change: An Environmental Management Approach to Reduce Drinking on a Day of Celebration at a U.S. College

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Abstract

OBJECTIVE—This research extends the literature on event-specific environmental management with a case study evaluation of an intervention designed to reduce student drinking at a university's year-end celebration.

PARTICIPANTS—Cornell University undergraduates were surveyed each May from 2001 through 2009. Sample sizes ranged from 322 to 1,973.

METHODS—Randomly sampled surveys were conducted after a large, annual spring campus celebration. An environmental management plan was initiated in 2003 that included increased enforcement of the minimum age drinking law (MADL).

RESULTS—In the short-term, drinking at the campus celebration decreased while drinking before the event increased. Over time, the intervention significantly reduced high-risk drinking on the day of the event, especially among those under the age of 21.

CONCLUSION—These findings are contrary to the argument that enforcement of MADLs simply lead to increased high-risk drinking, and therefore have implications for how colleges approach the challenge of student alcohol misuse.

College students have higher rates of alcohol abuse and high-risk drinking than the general population.¹ Compared to their same-age peers who are not in college, college students are significantly more likely to meet the criteria for alcohol abuse, and as a result report more problems at work, school, or home as a result of drinking.² This suggests that, more than any developmental factor, elements of the college environment support high-risk drinking. Indeed, the more traditional the college environment, the greater the likelihood of high-risk drinking; for example, students at four-year colleges are more likely to be high-risk drinkers

than students at two-year colleges.³ Similarly, students at residential colleges are more likely to be high-risk drinkers than students at commuter schools.³

In the college environment of high-risk drinking, certain events or time periods appear to lead to heavier drinking than others. Special occasions synonymous with heavy drinking include 21st birthdays, Homecoming, Spring Break, and end-of-semester celebrations, though the findings in the literature are not entirely consistent. Some data suggest that on special occasions, even students who rarely drink or who drink moderately are more likely to celebrate with alcohol.⁴ Celebratory drinking, regardless of motive (e.g. birthday or holiday), has been associated with significantly higher blood alcohol contents (BACs).⁵ Furthermore, celebratory drinking has been shown to become more pronounced among upperclass students.⁶ By contrast, one study found that drinking on typical weekends was higher than celebration drinking occurring during certain periods (e.g., beginning and end of the semester) and certain events (e.g., football games).⁷

To address patterns of high-risk student drinking, leaders in the field of college health have advocated for an environmental management approach.^{8,9} Building on public health principles and theories of ecosystems and social ecology, an environmental management approach calls for a range of strategies, at the micro, mezzo, or macro level to change the culture of college drinking. The environmental management approach offers guidance to institutions of higher education seeking to change drinking on special occasions on campus.^{10,11,12} Part of an environmental management approach, whether applied university-wide or specifically to a special event, includes increased enforcement of minimum age drinking laws. According to the National Institute on Alcohol Abuse and Alcoholism, “The minimum legal drinking age (MLDA) law is the most well-studied alcohol control policy. Compared to other programs aimed at youth in general, increasing the legal age for purchase and consumption of alcohol has been the most successful effort to date in reducing underage drinking and alcohol-related problems.”¹³ Despite this, some critics argue that the impact of the minimum legal drinking age of 21 has resulted in more rather than less alcohol-related harm.¹⁴

The present study adds to the literature on event-specific environmental management with a case study of the approach Cornell University took to change student drinking behavior on Slope Day, an end-of-semester celebration.

Slope Day at Cornell University

Cornell University's tradition of end-of-the-year celebrations dates back to 1901 when “Spring Day” (the name of the event that was eventually replaced by Slope Day) first marked the end of classes. From its beginning through the 1950s, this campus-wide event involved various forms of recreation and entertainment such as food, games, performers, and parades. After a hiatus during the 1960s and 1970s, the university reinstituted the event on the last day of classes in the spring of 1979¹⁵. The event was held on a large, open hillside below the main university library known as Libe Slope, which resulted in the name Slope Day.

Between 1979 and 1985, Slope Day included a concert featuring a national headline band, a dinner barbecue, and beer served by the university. The event occurred in the late afternoon after the conclusion of classes, and several thousand students attended each year. It was an atmosphere of celebration; student misconduct was not a central feature of the gathering. When the State of New York raised its minimum legal drinking age from 18 to 21 in 1985, the university eliminated the service of beer at Slope Day. Immediately students began bringing their own alcohol to the event, often in the form of mixed drinks poured into water or soda bottles. University police and health services staff encountered a rising number of

alcohol-related problems, including vomiting, fights, alcohol poisoning, and an overall decrease in civility. In response, in 1990 the university attempted to eliminate the event by withdrawing the concert and provision of food. Despite this attempt, students staged a “Take back the Slope” effort by showing up in the thousands, many with alcohol in hand (Office of Communications Strategy. Report of findings: Slope Day Strategy. Unpublished report, August 20, 1997).

Throughout the 1990s, Slope Day became a popular, unofficial student gathering marked by open violation of alcohol laws. Whereas the original Slope Day had started in the afternoon¹⁵, students began arriving on the Slope to drink at 8:00 a.m., with others attending pre-Slope parties during the morning. By 11:00 a.m., during the middle of the class day, attendance would often peak in excess of 8,000. The university attempted to reduce risk by providing a strong police presence, portable toilets, and a cadre of volunteers who patrolled the event to remove trash and identify students in need of medical assistance. The university health service, adjacent to the Slope, converted its waiting room to a sixteen-bed emergency treatment center. The health service and the local hospital annually treated as many as 46 students for acute alcohol intoxication during the event (Gannett Health Services. Slope Day Medical Emergencies, 1996-2006. Unpublished report, May 9, 2006).

In 1999, the university began to explore a range of new options for addressing Slope Day, which had become a major campus health problem. Attempting to ban the event was deemed to be neither feasible nor desirable. Law enforcement officials were mindful that alcohol-fueled riots had occurred within the past year on several campuses in response to new alcohol restrictions. Moreover, Slope Day was commonly cited by students as their favorite Cornell tradition, the only time in which most of the student body was gathered together one place. University administrators therefore decided that rather than try to eliminate the event, they would actively regain control of it through a multi-year environmental management strategy. The ultimate goal would be to convert Slope Day back to a well-regulated concert.

The first phase of the environmental change process involved introducing a festival with music, games, and food in a courtyard adjacent to the Slope. Beginning in 1999, the alcohol-free “SlopeFest” drew approximately half of Slope Day's attendees off of the Slope for at least a brief period. While the presence of the event did not reduce alcohol-related problems on the Slope, it began to increase student interest in having Slope Day involve more than drinking.

In 2001, Cornell's president established a President's Council on Alcohol and Other Drugs (AOD) to guide the university's approach to AOD prevention. The council included a Slope Day Steering Committee comprising students, staff, and faculty who were charged with developing a two-year plan for fundamentally restructuring Slope Day.

For the first time, Slope Day 2002 was co-sponsored by the university and the student government. The planning was politically contentious and resulted in a modest plan to limit the amount and form of alcohol that could be brought to the event. Since the university's health services staff found that almost all cases of alcohol poisoning at the event involved rapid consumption of large quantities of hard alcohol (N. VanFleet, R.N., M.S., oral communication, May 2001), a “cans only” policy was established in order to undermine the student practice of bringing hard alcohol to the Slope. Under this policy, students could bring up to six cans of any beverage to the event. The physically open nature of the location made it difficult to monitor the type of containers and the ages of those bringing them. Furthermore, the level of alcohol-related problems remained unchanged, and the Cornell University Police reported that the first person transported from the event for alcohol poisoning that year was a fifteen year-old youth.

In light of insufficient progress toward fulfillment of the charge using the “cans only” policy in 2002, the president decided that students would no longer be allowed to bring alcohol to Slope Day and charged the Steering Committee with developing a framework for commercial regulation of all alcohol on the Slope. As a result, the format of the Slope Day 2003 included a major restructuring of the event: (1) Access to the Slope was restricted by erecting temporary fencing around the approximately one mile perimeter; (2) A concert featuring national headline performers was held, with music beginning at 1:30 p.m.; (3) University dining services and local vendors provided a range of food; (4) SlopeFest's carnival games were relocated to the Slope; (5) Access to the event was limited to members of the Cornell community and their guests; (6) Limited quantities of beer and wine were sold to individuals possessing proper identification. This environmental management plan for the event remained essentially the same between 2003 and 2009 (though wine sales were eliminated due to insufficient demand and logistical challenges).

The authors hypothesized that this plan would have significant short and long-term impacts on student drinking on Slope Day. First, while we expected that fewer students would drink at the event in 2003, we also anticipated that more students would drink prior to the event (i.e., “pre-gaming”), compared to the years before the intervention. We expected these changes to be more pronounced for students under the legal drinking age. We also predicted an immediate reduction in high-risk alcohol consumption overall on Slope Day (i.e., the total before and at the event).

Over time, we predicted the environmental management plan enacted in 2003 would lead to a change in the culture of student drinking on Slope Day. Thus, we expected an overall decrease in the total number of drinks consumed on Slope Day, as well as decreases in the number of students who engaged in high-risk drinking behaviors, in particular for those who were underage.

Method

Participants

To measure undergraduates' drinking behavior on Slope Day, staff at the university health services conducted annual self-report surveys from 1999 to 2009. Participation in the surveys was voluntary and responses were anonymous. The research methodology was reviewed and approved by Cornell University's Committee on Human Subjects. Since data from 1999 and 2000 are unavailable, the present study is limited to 2001-2009. Random samples were developed using university registration information. All students 18 or older with Ithaca addresses were eligible for participation each year of the study. Beginning in 2004, to ensure even distribution by sex and class year, a stratified random sample was conducted by class year, and also by gender within class year. This ensured that the sample contained 25% per class year (first-years through seniors) and that, within class year, half were male and half were female (reflecting the approximate sex ratio in the population).

Surveys were timed to arrive the day after Slope Day in the case of mailed surveys or the evening of Slope Day in the case of web-based surveys. Two waves of reminders were sent to non-responders. Table 1 reviews survey distribution methods, sample size, number of respondents, and response rates by year. Response rates varied from a high of 42% to a low of 21%, with an average of 33% for all 11 years.

The annual survey included questions on basic demographics and characteristics (e.g. age, gender, ethnicity, class year, varsity and Greek membership), and the number of drinks consumed on Slope Day, both before and at the event. Dichotomous variables were created to represent the proportion students who drank before the event, drank at the event, engaged

in risky drinking behaviors, and were of legal drinking age. Risky drinking variables were calculated based on the total number of drinks consumed both before and at the Slope Day event. High-risk drinking was defined as five or more total drinks for males (four or more for females), and extreme ritualistic alcohol consumption (ERAC) was defined as 11 or more total drinks for males (8 or more for females).⁶ The total number of drinks for the day of the event was created from combining the number of drinks before and at the event.

Data Analysis

The analysis included undergraduate survey respondents who attended the Slope Day event during years 2001 through 2009. The primary outcomes were the proportion of drinkers who drank before the event and at the event. These main outcomes were evaluated with a Chi-square statistic. For comparisons of the intervention year to previous years, a significant Chi-square was followed with a planned linear contrast in logistic regression to determine if the observed difference was directionally consistent with the hypothesized prediction. In cases where the proportion of drinkers was examined over the entire nine years of data, a significant Chi-square statistic on the proportion of drinkers was followed by a contrast modeled in regression as a linear trend. Predicted interactions with legal age status were modeled in logistic regression. This analytic approach was used for the binary secondary outcomes.

Important secondary outcomes were the levels of alcohol consumed. Due to the number of “zeros” in the total number of drinks variable (corresponding to those who reported no drinking), the usual t-test and non-parametric Wilcoxon test are not applicable or particularly informative. Instead, a modification to Lachenbruch's method was used; the proportion of zeros and non-zero values were examined separately.¹⁶ In this case, a Bonferroni-adjusted p value of <.025 was used to determine statistical significance. The proportion of zeros was examined with a Chi-square statistic, and if significant, was followed by a contrast modeled in regression as a linear trend. The non-zero values were modeled in regression as a linear trend. Although logarithmic transformed non-zero values were used in the regression model, for ease of presentation and interpretability the means of the original measurement are presented. All regression models included gender and ethnicity. Analyses were performed using the Statistical Analysis System (SAS) software, version 9.2.

Results

Sample Demographics and Characteristics

The sample demographics and characteristics for the nine years of survey data is reported in Table 2. From years 2002 through 2009, females consistently responded to the survey more than did males. Although the average age of participants was approximately 20 years, the percentage of students below the drinking age varied by year, ranging from a low of 51% in 2003 to a high of 63% in 2009. The majority of students in each survey year were White, ranging from a low of 62% in 2005 to a high of 75% in 2003. The second largest ethnic group was Asians, ranging from a low of 16% in 2002 to a high of 24% in 2009. Information on class year, varsity athletic membership, and Greek membership are also reported in Table 2.

Short-term Effects

There were several short-term effects of the intervention. As expected, the number of students drinking at the event was significantly less in 2003 than in previous years (Figure 1: 2001=62%, 2002=57%, 2003=41%, $p<.0001$). Further analysis with a linear contrast showed that the alcohol usage rate was significantly greater in years 2001 and 2002

combined than in 2003 (OR=2.90 (1.81-4.66), $p<.0001$). While drinking at the event decreased, the proportion of students who drank before the event increased (Figure 1). Consistent with speculation that tighter drinking restrictions at the event might lead to more drinking before the event, students were significantly more likely to drink prior to arriving at the event in 2003 than in previous years; 2001=54%, 2002=63%, 2003=69% ($p<.0001$). A linear contrast showed that the alcohol usage rate before the event was significantly lower in years 2001 and 2002 combined than in 2003 (OR=.37 (0.23-0.59), $p<.0001$).

The interactions between legal age status and Slope Day drinking are displayed in Figure 2. Among students who drank at the event, there was a significant interaction between legal age status and time ($p<.0001$). As expected, underage students were much less likely than those of legal age to drink at the event in 2003 than in previous years. Underage drinking at the event decreased from 55% in 2001 and 48% in 2002, to 16% in 2003.

Among students who drank before the event, there was a significant interaction between legal age status and time (Figure 2, $p=.0270$). Pre-event drinking for both legal age and underage students increased, however it increased at a much higher rate for students 21 and older. Legal aged drinkers increased their pre-event drinking from 58% in 2001 and 62% in 2002, to 77% in 2003 (an increase of almost 20% since 2001).

Overall, risky drinking on Slope Day did not change over the three-year period (Figure 3). High-risk drinking rates rose slightly from 2001 to 2003 (2001=50%, 2002=54%, 2003=55%, $p=.2282$), but were not significant. ERAC rates also slightly increased from 2001 to 2003, although again, these differences were not statistically significantly (2001=19%, 2002=18%, 2003=21%, $p=.4466$).

When examined by legal age status, significant interactions occurred for both short-term high-risk and ERAC outcomes (Figure 4). The rates of high-risk drinking went in opposite directions for legal aged and underage students in year 2003, compared to the previous two years (interaction $p=.0008$). Among students who were of legal drinking age, high-risk drinking jumped from 56% in 2001 and 53% in 2002, to 68% in 2003. There were no statistically significant short-term effects for ERAC drinking.

Long-term Effects

We also examined the potential impact of the intervention initiated in 2003 over nine years of data (2001-2009), modeled as a trend analysis. Although the trend for increased pre-event drinking from 2001-2009 was significant ($p=.0303$), the yearly proportions somewhat leveled off after the intervention year of 2003 (Figure 1). A more dramatic change occurred over time with drinking at the event (Figure 1). There was a significant, steady decreasing linear trend in the proportion of students drinking at the event ($p<.0001$). In 2001, at the beginning of the study, 62% of students drank at the Slope Day event. This level dropped to 41% in 2003, and monotonically decreased to a low of 16% in 2009.

As predicted, this decrease in number of students drinking at the event was far more pronounced for underage student drinkers (Figure 2, interaction $p<.0001$). While the proportion of legal age students drinking at the event decreased steadily from a high of 71% in 2001 to a low of 37% in 2009, the percentage of underage student drinking at the event dropped steadily from a high of 55% in 2001 to only 4% in 2009.

Both measures of risky drinking significantly decreased from 2001-2009 (Figure 3). High-risk drinking rates dropped from 50% in 2001 to 45% in 2009 ($p<.0001$), while ERAC rates fell from 19% in 2001 to 12% in 2009 ($p<.0001$). These decreases were especially pronounced for underage drinkers (Figure 4). Legal age status significantly interacted with

time for both high-risk drinking ($p=.0059$) and ERAC ($p<.0001$). Among underage drinkers, the proportion of those engaging in high-risk drinking decreased from 46% in 2001 to 37% in 2009 and their rates of ERAC steadily decreased from 19% in 2001 to 6% in 2009.

Supporting the prediction of an overall change in the event drinking culture, there was a significant decrease in the total number of drinks consumed on Slope Day from 2001 to 2009 (Figure 5). The total number of drinks was analyzed in a two-step process with a Bonferroni adjustment; first the proportion of non-drinkers versus drinkers was tested and then followed by a regression analysis of non-zero values. There was a significant reduction in the proportion of students drinking, as well as a reduction in the number of drinks among those who drank on Slope Day. The proportion of those who drank on Slope Day, either before or at the event, modestly decreased from 69% in 2001 to 65% in 2009 ($p=.0028$). Among drinkers, the average number of drinks on that day significantly decreased from 7.16 in 2001 to 5.28 in 2009 ($p<.0001$).

Comment

Many institutions of higher education face the challenge of managing large-scale events marked by high-risk drinking. At Cornell University, Slope Day is an end-of-the-year celebration that has historically involved significant levels of alcohol consumption. In 2003 the university initiated a major policy change designed to fundamentally reduce the culture of student drinking at the event. The change involved converting this large, unregulated student gathering to a highly-regulated concert (with access restricted by fencing and alcohol sold to persons of legal age). This study reports on both the immediate impact of this intervention and on subsequent drinking patterns.

In order to assess the overall impact of this environmental intervention, it is necessary to determine the net effect based on multiple measures over time. When university officials proposed changing the structure of Slope Day, many students voiced objections, contending that restrictions on access to alcohol would actually increase problematic drinking because students would engage more high-risk, “pre-game” consumption before the event itself. What do the data suggest about this prediction that drinking would simply be displaced and done in more dangerous ways?

As both critics and university officials anticipated, the major changes to Slope Day led to an increase in the percentage of students who consumed alcohol before coming to the event. In particular, it was expected that since the policy change would restrict the sale of alcohol at the event to persons of legal age, the level of displacement to pre-event drinking would be greater for underage students. Counter to this prediction, however, the increase in pre-event drinking was more substantial among students of legal age. This finding may reflect what appears to be a growing trend of young adults, including those of legal drinking age, consuming alcohol prior to going out to bars, restaurants, and parties¹⁷. For many Cornell students, Slope Day marks their “last hurrah,” and the knowledge that alcohol sales will be highly regulated at the event (e.g., beer only, having to stand in line to purchase it) may lead to higher levels of pre-event drinking to ensure that these students meet their drinking objectives. Moreover, while many underage students (including all first-years) live on campus in highly-monitored settings, most students 21 and older live in private off-campus residences where access to alcohol is substantially greater.

Despite evidence of displacement of drinking at the event to drinking before the event, increases (both short-term and sustained) in certain measures of consumption, and differential impact on students by legal age, the overall effect of the intervention on the population appears to be a net decrease in high-risk drinking and drinking at dangerously

high levels (ERAC). This reduction appears to result from the large impact of the intervention on underage drinkers, particularly at the official event where the percentage that consumed alcohol decreased from 55% before the intervention to 4% after several years of implementation. The data suggest that the substantial decline in drinking at the event (among all students) was greater than the increases in drinking before the event.

The decrease in extreme ritualistic alcohol consumption on Slope Day indicates a potentially significant reduction in risk of related harm. As an example of the impact of this level of drinking, a 120 pound female consuming eight drinks in three hours would result in a BAC of approximately .30, nearly four times the legal limit for driving a motor vehicle. This level of intoxication creates severe impairment and risk of memory loss, illness, or injury. Indeed, alcohol poisoning with a BAC of .30 or greater is potentially life-threatening. Therefore, reducing the number of students who consume alcohol at this level is clinically meaningful. The reduction in the percentage of students drinking at extremely high levels (8 or more for women and 11 or more for men) from 19% to 12% suggest that, compared to before the intervention, approximately one-third fewer students consume alcohol at this dangerous level on Slope Day. This reduction in extreme drinking levels suggests a corresponding decrease in intoxication at levels that would warrant medical treatment. Although medical records from Slope Day (not presented in this study) are interpreted by university administrators with caution since they reflect only the cases that are identified, they suggest a trend consistent with the reduction in extreme drinking identified in the surveys. While medical emergencies continue to occur on Slope Day, they result almost entirely from pre-event consumption of hard alcohol.

Overall, the pattern of findings suggests that the interventions exerted their effects gradually over several years. Indeed, the initial increase in drinking levels during the years when the policy change was first implemented suggests that psychological reactance may have been operative. Reactance can occur when individuals feel that a policy is taking away or limiting their choices, consequently motivating them to engage in behaviors that are contrary to those intended by the intervention¹⁸. Within the cohort of students who first experienced the major changes to Slope Day, there may have been individuals who increased their drinking before the event as a response to having their previous freedoms restricted by authorities. By contrast, as succeeding cohorts of students were exposed to the same policies and practices at the event, fewer students experienced the event structure as a contrast to a previously unregulated gathering. Therefore, the continuing decrease over time in drinking levels among underage students may reflect the impact of the interventions minus the initial reactance. These findings suggest that when implementing policy changes, it may be important to monitor changes over a period of years and be cautious in interpreting initial data which may suggest that an intervention had no impact or even increased problematic drinking.

This study provides evidence of the effectiveness of comprehensive environmental management at a large-scale campus event with alcohol. In particular, the findings suggest that enforcement of the minimum legal drinking age was critical to reducing underage drinking, and in particular, high-risk drinking among students under age 21. The present findings run counter to arguments that restricting access to alcohol leads to more high-risk drinking by displacing consumption to unregulated locations. Overall, the results of this case study are consistent with the literature that points to the value of environmental approaches in the management of major campus events with alcohol. Moreover, the study adds to the literature by demonstrating that achievement of behavioral goals may require sustained implementation and evaluation of environmental strategies over a multiple years.

Limitations

This study is based on self-report surveys of undergraduate students which are subject to several potential sources of error. Response bias may result from participants inaccurately recalling their behaviors, particularly if the formation of those memories was influenced by the effects of alcohol. Some individuals may intentionally distort their responses, and the effects of social desirability may also contribute to inaccurate reporting. Nonetheless, the literature on the reliability and accuracy of self-reports of alcohol consumption suggests that subjects generally provide valid reports about their drinking.¹⁹

Low response rates suggest the potential for response bias, and the low number of respondents during the first three years of the study could have had an impact on the findings. Despite these limitations, the respondent demographics of the samples throughout the study reasonably represented the student body.

The analyses of key variables are limited by having only two years of pre-intervention data to compare with multiple post-intervention years. It is possible that the observed decreases in drinking reflect decreasing trends that pre-dated the intervention. Indeed, the extant data from 2001-2002 suggest that there may have been a small decrease in overall number of drinks consumed on Slope Day prior to the major intervention examined in this article. It should be noted, however, that during those years, the university was implementing environmental strategies at the event, albeit on a much smaller scale those introduced in 2003. While the changes in drinking described here could reflect general student population trends during the study period, there is no evidence from other institutional data sources of overall changes in drinking levels among Cornell students between 1998 and 2009.

The present study was limited to examination of an environmental management intervention at a particular event on a single campus. Future research will be required to determine whether the findings of the present study can be replicated with other events at other institutions. Cornell is located in the Northeast and has a substantial Greek system (approximately three out of ten students are members of fraternities or sororities). Both of these variables are associated with higher levels of student drinking. It is also a private institution with a public mission as the Land Grant University for the State of New York. Future studies will be needed to assess whether the findings of this study apply to events at schools that differ by size, geography, public/private status, Greek membership, and other demographic measures such as race/ethnicity. Furthermore, Slope Day is a unique event with a particular history and culture. Given the inherent variability in the nature of events on different campuses, it may be necessary to adapt the strategies employed in the present intervention to the context of a given campus environment.

Conclusion

Through a comprehensive, multi-year environmental strategy, Cornell University sought to fundamentally restructure the annual end-of-the-year event known as Slope Day. During the study period, the event became a highly-regulated community celebration, marked by significant decreases in high-risk student drinking, particularly for those under the legal drinking age. While challenges with the event remain, the present findings suggest that a sustained environmental approach to a major event with alcohol, emphasizing enforcement of minimum drinking age laws, can be an effective approach for colleges and universities seeking to modify the drinking culture for special events.

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Figure 1.
Trend in pre-event and at event drinking on Slope Day

Figure 2.
Trend in pre-event and at event drinking on Slope Day by legal drinking status

Note: High-risk drinking defined as 5+ drinks for males, and 4+ for females. Extreme ritualistic alcohol consumption (ERAC) defined as 11+ drinks for males, 8+ for females.

Figure 3.
: Risky alcohol consumption behaviors on Slope Day

Note: High-risk drinking defined as 5+ drinks for males, and 4+ for females. Extreme ritualistic alcohol consumption (ERAC) defined as 11+ drinks for males, 8+ for females.

Figure 4.

Risky alcohol consumption behaviors on Slope Day by legal drinking status

Figure 5.
Average number of drinks consumed among drinkers on Slope Day

Overview of Slope Day survey implementation

Table 1

Year	Method of Survey Delivery	Undergraduate Student Enrollment ¹	Number of Surveys Sent	Number of Responses	Response Rate (%)
2001	Mail	13,801	1,500	486	32
2002	Mail	13,725	1,500	322	21
2003	Mail	13,655	1,500	518	35
2004	Web-based	13,625	4,000	1,330	33
2005	Web-based	13,515	4,000	1,685	42
2006	Web-based	13,562	5,000	1,610	32
2007	Web-based	13,510	5,000	1,722	34
2008	Web-based	13,846	5,000	1,658	33
2009	Web-based	13,931	5,000	1,973	39

¹ Data on undergraduate enrollment from Cornell University Office of Institutional Research

Table 2

Slope Day Sample Demographics and Characteristics 2001-2009

Demographics and Characteristics	2001 n=486	2002 n=322	2003 n=518	2004 n=1330	2005 n=1685	2006 n=1610	2007 n=1722	2008 n=1658	2009 n=1973
<i>Gender</i>									
Females (%)	50.31	54.40	59.38	55.56	56.77	53.78	51.99	55.66	55.53
Males (%)	49.69	45.60	40.62	44.44	43.23	46.22	48.01	44.34	44.47
<i>Age</i>									
Age In years (mean, sd)	20.20 (1.50)	20.29 (1.73)	20.36 (1.31)	20.15 (1.61)	20.17 (1.69)	20.20 (1.67)	20.17 (1.73)	20.04 (1.66)	20.02 (1.46)
Under legal drinking age of 21 (%)	58.85	57.76	50.97	60.83	62.26	59.44	60.28	62.79	63.00
<i>Ethnicity¹</i>									
Asian (%)	17.28	16.15	17.76	19.47	22.43	*	18.52	22.07	23.67
Hispanic (%)	3.91	4.97	5.02	6.02	6.65	*	5.52	6.33	5.93
Black (%)	2.67	3.42	3.67	3.31	4.99	*	4.99	6.03	4.71
Native American (%)	0.62	0.62	1.16	1.28	1.19	*	0.75	1.45	0.81
White (%)	65.64	69.57	74.52	66.77	62.31	*	68.58	62.61	64.27
Other (%)	3.91	1.55	1.74	2.41	1.72	*	2.56	2.96	2.53
<i>Class Year</i>									
First-year (%)	NA	22.67	16.80	25.11	24.33	22.79	24.33	29.55	29.30
Sophomore (%)	NA	21.12	24.52	22.63	24.81	26.46	24.45	26.12	25.80
Junior (%)	NA	22.98	26.06	22.86	22.14	25.53	24.10	19.48	20.22
Senior (%)	NA	30.43	32.43	24.89	24.57	24.22	26.02	24.25	23.87
Missing data on class (%)	NA	2.80	0.19	4.51	4.15	1.06	1.10	0.60	0.81
<i>Varsity Athletic Membership (%)</i>	9.11	6.58	9.34	6.22	5.26	6.27	5.89	6.77	6.75
<i>Greek Membership (%)</i>	26.97	24.45	28.45	25.80	23.81	23.79	28.90	27.71	28.39

¹ Respondents were asked to check all ethnicity categories that apply, thus percentages may total more than 100%.

* Data on ethnicity for 2006 were unavailable.