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College Alcohol Citations Result in Modest Reductions in Student Drinking

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Abstract

College students who are cited for violating campus alcohol policy are often fined or sanctioned to complete an intervention or public service. While some interventions have been found efficacious for mandated students, it is possible that being cited for an alcohol-related incident alone may be sufficient to reduce alcohol consumption. The purpose of this study was to investigate the course of alcohol consumption patterns following a citation for an alcohol policy violation. Participants were college students ($N = 445$) who received a citation for a campus alcohol policy violation at a small northeastern liberal arts college. Participants completed a Timeline Follow-Back (TLFB) indicating their daily alcohol use 2 weeks prior to the citation through 2 weeks after the citation. Results indicated that participants decreased their alcohol use following a citation event. However, the reduction in alcohol consumption was modest, suggesting that the citation event itself has a very temporary influence on the drinking of college students. Additional research is needed to reconcile these findings with those from other studies that found a more meaningful citation effect.

1. Introduction

College student drinking and its consequences has been identified as a national concern (U.S. Department of Health and Human Services, 2000). Approximately 40% of college students consuming alcohol at the heavy episodic level (defined as consuming 4 or more drinks for women or 5 or more for men on one drinking occasion in the past two weeks) (O'Malley & Johnston, 2002; Wechsler, Dowdall, Davenport, & Rimm, 1995). This pattern of heavy drinking has been associated with numerous personal and secondhand consequences (e.g., Wechsler, Austin, & DeJong, 1996; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Because of the deleterious impact of heavy episodic alcohol use on the drinker and college environment, campus administrators have made increased efforts to reduce heavy episodic drinking in recent years by citing students who are caught

violating their campus alcohol policy (e.g., Barnett & Read, 2005). Common alcohol violations include possession of alcohol, being in the presence of alcohol, behavioral problems while intoxicated, and alcohol-related medical complications (Barnett, et al., 2008). Most colleges require students who are found to violate the campus's alcohol policy to complete either public service or an alcohol intervention, with the expectation that participation in these activities will reduce the likelihood of future heavy drinking episodes (Wechsler, et al., 2002).

Although several interventions for mandated students have evidence of efficacy (see Larimer & Cronce, 2007 for review), research suggests that receiving an alcohol-related citation alone may influence future drinking behavior. Indeed, a majority (70%) of students report having already made behavioral changes following a medical evaluation for alcohol intoxication or an alcohol-related disciplinary violation before they received a mandated intervention (Barnett, et al., 2004). We are aware of two studies that investigated whether students reduced their alcohol use following a citation for an alcohol policy violation. In both of these studies, comparisons of drinking 30 days before and 30 days after the event indicated that, on average, students reduced their alcohol use by approximately 1.6 drinks per week after receiving a citation (Carey, Henson, Carey, & Maisto, 2009; Morgan, White, & Mun, 2008). These findings highlight the importance of investigating the effect of the citation on drinking. However, one limitation of these studies is that researchers explicitly asked students about their drinking before and after the citation, potentially motivating students to provide socially desirable responses.

The purpose of this study was to examine the course of alcohol use in mandated college students following an alcohol policy violation. Understanding the course of alcohol use following a campus alcohol citation is important because any behavioral changes made are often attributed to the mandated intervention(s), while the citation itself could be a contributing factor. In this study, we compared alcohol use at both the day-level (alcohol use on the same day of the week as the citation and heaviest drinking day in the week) and aggregate-level (total number of drinks per week). To address possible social desirability, we used an assessment strategy that did not explicitly call for participants to report on use before and after the citation event. We hypothesized that students would report drinking significantly less alcohol at the day-level and aggregate-level following an alcohol citation. Finally, previous research with mandated college students suggests that following an alcohol policy violation women are more motivated to reduce their alcohol consumption (Barnett, Goldstein, Murphy, Colby, & Monti, 2006; Carey & DeMartini, 2010) and demonstrate a greater decrease in their alcohol use than do men (Fromme & Corbin, 2004). Therefore, we hypothesized that women would reduce their alcohol use following a citation more than men.

2. Materials and Method

2.1. Participants and Recruitment

Participants ($N = 445$) were undergraduate students who violated campus alcohol policy over the course of three academic years at a private liberal arts university located in the Northeast. Campus policy at this university dictates that first-time offenders are fined $50 and mandated to complete an alcohol intervention. Students were invited to participate in the research study as an alternative to the mandated intervention during their appointment (see Borsari, Tevyaw, Barnett, Kahler, & Monti, 2007). Participants completed a 30-minute baseline assessment immediately prior to receiving a brief intervention. Participants were paid $15 for their baseline assessment. The university Institutional Review Board approved all procedures.

2.2. Measures

2.2.1. Demographic information—Gender, age, level of education, and race were assessed using a questionnaire.

2.2.2. Alcohol Use—Daily alcohol use was collected using a Time Line Follow-Back interview (TLFB), working backwards for 60 days prior to the baseline appointment (Sobell, Brown, Leo, & Sobell, 1996; Sobell, Maisto, Sobell, & Cooper, 1979). These face-to-face interviews were conducted by peer counselors. Consistent with this approach, participants were guided through the previous 60 days of consumption, and were encouraged to use personal calendars and/or events (e.g., birthdays, exam schedules, etc.) to help them reconstruct their drinking, but the day of the citation incident was never mentioned by the peer counselor.

Three indices of alcohol consumption were obtained from the TLFB. First, to compare drinking that occurred on the same day of the week as the citation, we measured the number of standard drinks obtained on day 1 (two weeks before the citation [BC]), day 8 (1 week BC), day 15 (the citation day), day 22 (one week after the citation [AC]), and day 29 (two weeks AC). Second, peak drinks per week was defined as the maximum number of standard drinks consumed on any one day in each of the four weeks (each week consisted of seven days). Third, the number of drinks per week was obtained by summing the total number of standard drinks consumed on each of the four weeks. The citation day was excluded when peak drinks and number of drinks per week were obtained in order to compare drinking that occurred before and after the citation.

2.3. Analysis Plan

We investigated the citation effect on alcohol consumption in mandated students in two ways. First, we examined alcohol use at the day-level with the following two dependent variables: (a) drinking on the same day of the week as the citation, and (b) peak drinks in each week from the day of the heaviest use. For these analyses, we ran separate generalized estimated equations (GEE) (Hardin & Hilbe, 2003) accounting for repeated measures over time using an exchangeable correlation matrix and specifying a negative binomial distribution for count data. One advantage of GEE is that we are able to include all available data. Models included terms for time (coded 1 = 2 weeks BC , 2 = 1 week BC, 3 = 1 week AC, 4 = 2 weeks AC for peak drinks and total drinks per week; for the day-level analysis, 1 = 14 days BC, 2 = 7 days BC, 3 = the day of the citation, 4 = 7 days AC, 5 = 14 days AC), gender, and a time by gender interaction to test for gender differences in rates of change over time.

The number of days between the citation event and the baseline appointment was a primary cause of missing data. Therefore, the number of days between the citation and the baseline interview was covaried in all analyses. Rate ratios were used to quantify differences in drinking rates between time points and between male and female participants. For drinking on the same day, we compared drinking on the citation day to drinking that occurred on the same day of the week for each of the two weeks pre- and post- citation. For peak drinks per week, we compared the heaviest drinking episodes for the two weeks proceeding and following the citation. Second, we conducted an aggregate analysis to evaluate whether the citation had an overall effect on alcohol use. For this analysis, we compared weekly alcohol consumption (total number of drinks per week) for each of the four weeks. All analyses were conducted using SAS 9.1.3 for Windows (SAS Institute, Cary, NC).

3. Results

3.1. Sample Characteristics

Participants were 65.4% male, 95.7% Caucasian, and 71% freshman with a mean age of 18.67 ($SD = 0.81$). They were cited for possession of alcohol (80.0%), being in the presence of alcohol (10.8%), alcohol-related behavior (5.6%), and alcohol-related medical complications (3.6%).

3.2. Preliminary Analysis

Of the 445 participants who completed the baseline survey and the TLFB, 272 participants (61%) had 14 days of complete data before and after the citation (29 days of TLFB data). Of the remaining 173 students, 116 did not have a full two weeks of TLFB data following the citation (these participants completed the baseline assessment less than 14 days after the citation), 35 did not have a full two weeks of TLFB data prior to the citation (because they completed the baseline assessment more than 46 days after the citation), and 22 had one or more days of missing data within the 29-day assessment window. All participants, including those with missing data, were included in these analyses. Participants with missing data were more likely to be male than those with complete data on demographic characteristics, $\chi^2(1, N = 445) = 6.65$, $p \leq 0.01$. No other differences in sample characteristics at baseline were detected when comparing those with missing data to those with no missing data[1] and these results did not differ by academic year.

3.3. Day-level Analysis

Figure 1 illustrates the average number of drinks consumed by gender for the day-level analysis. The average number of standard drinks consumed on the day of the citation was 5.08 ($SD = 5.25$). The average number of standard drinks pre-citation that were consumed on the same day of the week were 3.75 ($SD = 4.55$; Day 1) and 4.01 ($SD = 4.76$; Day 8), and the average number of standard drinks that were consumed post-citation were 3.48 ($SD = 4.31$; Day 22) and 3.14 ($SD = 4.29$; Day 29). The rate ratios for each of the six days were compared using 10 comparisons (i.e., number of comparisons = [k(k-1)]/2, where k = the number of groups) in order to explore difference in alcohol consumption by day using a Bonferroni-adjusted alpha of .005 to reduce the likelihood of Type I error. Results indicated that alcohol consumption on the day of the citation was significantly higher than all comparison drinking days (ps $\leq$ .0001). In addition, drinking that occurred 7 days BC was significantly higher than drinking that occurred 2 weeks AC ($p \leq$ .001). Drinking on the remaining non-referral event days were not significantly different, and the overall slope did not differ between male and female participants ($p = .35$).

The average number of peak drinks that was consumed for the two weeks BC was 6.83 ($SD = 4.49$; 2 weeks BC) and 7.61 ($SD = 4.71$; 1 week BC), and the average number of peak drinks consumed two weeks AC was 6.83 ($SD = 7.55$; 1 week AC) and 6.18 ($SD = 4.88$; 2 weeks AC) as presented in Figure 2 along with the means per week by gender. Pairwise comparisons of the rate ratios for each week, using a Bonferroni-adjusted alpha of .008 to adjust for the 6 comparisons, indicated that the peak number of drinks consumed the week BC was significantly higher than the preceding week (two weeks BC; $p \leq$ .001) and each of the weeks AC (ps $\leq$ .008). Peak drinks for the remaining weeks were not significantly different, nor was the time x gender interaction ($p = .26$).

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[1]We evaluated whether the results presented in this manuscript were affected by missing data in a supplemental analysis for each of the three drinking indices using only participants with complete data. The results obtained using participants with complete data were identical to the results presented in this manuscript that included participants with varying degrees of missing data.

3.4. Aggregate Analysis

The average number of drinks per week for the two weeks BC was 15.58 (*SD* = 14.57; 2 weeks BC) and 17.47 (*SD* = 15.41; 1 week BC), and for the two weeks AC was 15.51 (*SD* = 14.66; 1 week AC) and 15.17 (*SD* = 12.95; 2 weeks AC) as presented in see Figure 3 along with the means per week by gender. Pairwise comparisons of the rate ratios for each week, using a Bonferroni-adjusted alpha of .008, indicated that the total number of drinks consumed one week BC was significantly higher than both of the weeks AC (*ps* ≤ .001). Drinks per week for each of the remaining weeks were not significantly different, nor was the time x gender interaction (*p* = .26).

4. Discussion

This study examined the course of drinking before and after an alcohol-related citation in order to evaluate whether an alcohol policy citation reduced drinking. On average, participants modestly reduced their typical week drinking following the citation, where the week before the citation was the heaviest drinking week and participants consumed approximately two drinks more that week than during each of the comparison weeks. Drinking that occurred two weeks before the citation was not significantly different than the drinking that was reported during the two weeks following the citation event. Similar results were observed with respect to peak number of drinks, where participants modestly decreased their peak number of drinks consumed by less than one drink immediately following a citation for an alcohol policy violation, providing modest support for the citation effect on the heaviest drinking day. Despite the decrease in peak drinking following the citation event, peak drinking occasions in the weeks following the alcohol policy violation were still above heavy episodic levels, indicating the average decline in drinking was not a drastic one. One interpretation of this lack of considerable change in drinking may be that students perceived their drinking prior to the citation as atypical and therefore do not feel that a major change in everyday drinking patterns was necessary. In addition, findings indicated that participants on average showed a "ramp up" of drinking prior to the citation event.

Results from this study complement and extend previous research by Morgan et al. (2008) and Carey et al. (2009), which found that alcohol use decreased following a citation. Specifically, our data reflected a shorter assessment window than previous studies which allowed us to detect the escalation in drinking one week prior to the citation and the return to regular drinking patterns following the citation event. Our approach also allowed used to compare self-reported drinking that occurred on the same day of the week as the citation. Results indicated that drinking on the day of the citation was significantly greater than drinking on the same day of the week, both before and after the alcohol-related citation. This suggests that drinking on the day of the citation is atypically higher than average consumption that occurs on the same day of the week for participants in this study. It is important to note that the average amount of peak drinks consumed per week during the time period in this study exceeded the average number of drinks consumed on the citation day. However, our data indicates that drinking that occurred on the citation event was the heaviest day of drinking in the two weeks before and after the citation event for 43% of our participants.

Unexpectedly, the magnitude of change in drinking rates did not differ by gender following the alcohol-related citation. These findings conflict with previous reports that women report greater motivation to reduce their alcohol use following a citation (Barnett, et al., 2006; Carey & DeMartini, 2010) and are more likely to modify their alcohol consumption following an alcohol-related citation (Fromme & Corbin, 2004). Differences from prior findings may be due to differences in the seriousness of the incident, as these previous studies examined students who were medically evaluated for intoxication (Barnett, et al.,

2006) and referred for public intoxication (Fromme & Corbin, 2004). In contrast, the majority of students in our study were referred for possession of alcohol. It is possible, therefore, that women were more responsive than men to more serious alcohol citations, such as medical evaluation due to alcohol intoxication, but not to less serious citations. An alternative explanation is that participants in this study reported drinking less on the citation day than studies that found a gender difference. Specifically, participants in this study reported consuming approximately 5 drinks on average while participants in Barnett et al. (2006) reported consuming approximately 9 drinks on average. Thus, the level of drinking reported by students in the study may not be extreme enough to demonstrate a significant gender difference.

4.1. Clinical Implications

The lack of a sustained citation effect has direct clinical implications. Although drinking on the day of the citation may not represent typical drinking patterns, many of the students reported typical rates of alcohol use that place them at significant risk for alcohol-related consequences. This indicates both that campus authorities are capable of identifying students who were drinking uncharacteristically, and that these students are appropriate targets for interventions aimed at reducing risky drinking as the citation alone does not appear to motivate students to drastically reduce their drinking. That said, an intervention that focuses on the severity of the alcohol consumption on the day of the citation may not fully address the student's typical level of alcohol-related risk. Therefore, feedback based on an assessment of the student's typical drinking may be more relevant (e.g., Dimeff, Baer, Kivlahan, & Marlatt, 1999). This is not to say, however, that the event should be disregarded during the intervention. Indeed, students who find the citation event more aversive may be more receptive to an intervention aimed to reduce alcohol use than those who do not see the citation as a serious event (see Barnett, et al., 2008). Embedding feedback about drinking that occurred prior to the citation within the context of other measures of drinking (e.g., typical drinking, peak drinking) might help engage the mandated student during a brief intervention.

4.2 Limitations

This study is not without limitations. First, we used self-report data and did not collect collateral verification. However, self-report data is generally used as a valid proxy for actual alcohol use (Laforge, Borsari, & Baer, 2005), as collateral reports and self report have not been found to be significantly biased (Borsari & Muellerleile, 2009). Second, findings may not generalize to schools with different demographic characteristics and/or campuses with different alcohol policies and enforcement strategies. Third, this study represents a non-experimental investigation into the course of drinking for the two weeks before and after a citation event so we are unable to detect cause and effect relationships between the citation event and drinking. A controlled evaluation of the course of drinking would require a comparison group of students who were not cited. Fourth, the methods used in this study prevent us from determining whether self-reported alcohol use obtained using the TLFB enhanced the validity of self-report by excluding reference to the citation event. Future studies are needed to compare TLFB reports that do not include mention of the day of the citation to TLFB that explicitly refers to the citation as an anchor for reporting. Fifth, we do not have data on whether the citation was related to a celebratory occasion (e.g., Halloween). A large number of students receiving a citation on a celebratory event might explain the "ramp up" observed in this study. Finally, students in this study may have been cited for relatively minor events compared to previous studies (Barnett, et al., 2006; Morgan, et al., 2008), so our results may not generalize to students who are cited for more severe events.

4.3 Conclusion

Findings did not indicate the presence of a "citation effect." Instead, alcohol use on the day of an alcohol citation appears to be atypically high when compared to average consumption that occurs on the same day of the week for the majority of mandated students. Furthermore, the modest decrease in alcohol use observed following the citation may be an artifact of atypical drinking preceding the citation event rather than an explicit attempt to reduce alcohol use by the individual. Therefore, the risky drinking exhibited by most mandated students before and after a citation event make them appropriate candidates for alcohol interventions. Furthermore, these results suggest that observed drinking reductions in treatment studies for mandated students may be more likely an effect of the intervention than a sequelae of a citation for a campus alcohol policy violation.

Acknowledgments

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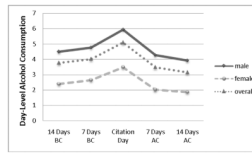
Figure 1.
Average number of standard drinks consumed at the day-level before and after alcohol policy violation for male ($n = 291$) and female ($n = 154$) college students. BC = before citation event (alcohol policy violation). Incident Day = the day of the citation. AC = after citation event.
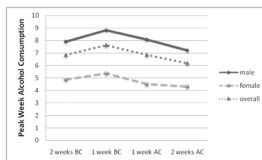
Figure 2.
Average number of peak drinks consumed before and after alcohol policy violation for male (*n* = 291) and female (*n* = 154) college students. BC = before citation event (alcohol policy violation). AC = after citation event.
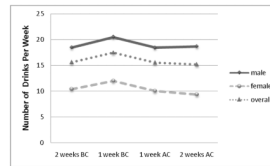
Figure 3.
Average number of drinks consumed per week before and after alcohol policy violation for male (*n* = 291) and female (*n* = 154) college students. BC = before citation event (alcohol policy violation). AC = after citation event.