Do Students Mandated to Intervention for Campus Alcohol-related Violations Drink More than Non-Mandated Students?

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Abstract

It is often assumed that "mandated students" (i.e., those who violate campus alcohol policies and are mandated to receive an alcohol intervention) drink more than students from the general population. To test this assumption empirically, we compared alcohol use levels of a sample of students mandated for alcohol violations (*n*=435) with a representative sample of non-mandated students from the same university (*n*=1876). As expected, mandated students were more likely to be male, younger, first-year students, and living in on-campus dorms; and they reported poorer academic performance (i.e., grade point averages). With respect to alcohol use, they reported more drinks per week than those in the general university sample but they did not report drinking heavily more frequently than non-mandated students. Within the mandated student sample, there was considerable variability in drinking level; that is, the frequency of heavy drinking covered the full range from never to 10+ times in the past month and there was a larger standard deviation for drinks per week among mandated students than among those in the general sample. These results challenge the assumption that mandated students drink heavily more often but do provide empirical support for the assumption that students who violate alcohol policies drink at higher quantities, justifying the need for an alcohol use reduction intervention.

Keywords

mandated college students; alcohol use

Alcohol misuse among college students is a significant public health concern, with a myriad of negative consequences to students and their peers (Hingson, Zha, & Weitzman, 2009; Johnston, O'Malley, Bachman, & Schulenberg, 2010). One group of students that is viewed

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as being at especially high risk for excessive drinking are those students who have been mandated to receive an alcohol intervention, typically for violating one or more campus alcohol policies. Although many mandated students exhibit a pattern of heavy drinking that leads to these violations, others may be light- or even non-drinkers who were simply in the "wrong place at the wrong time," violating campus policies as an isolated instance (e.g., Barnett et al., 2008). Thus, there is heterogeneity among the group of mandated students with respect to drinking behavior as well as other factors that might influence their subsequent alcohol use and their response to intervention.

To better understand the population of mandated students, a small number of studies have explicitly compared these students to non-mandated students. In the earliest of these studies, higher quantity-frequency scores were observed among 31 mandated students as compared to 31 gender, age, and residence-matched controls (Flynn & Brown, 1991). A more recent study showed that, relative to 32 age- and sex-matched non-mandated students, 32 mandated students reported more heavy drinking days in the past month (Barnett et al., 2004). A third study (Fromme & Corbin, 2004), which compared 124 students mandated for treatment to 452 students who volunteered through campus-wide recruitment, observed a trend toward higher weekly consumption among the mandated students, but no differences in frequency of heavy drinking. Though this study had a larger sample size than the previous ones, only 52% of mandated students took part in the assessment, potentially biasing survey findings. A fourth study (LaBrie, Tawalbeh, & Earleywine, 2006) found that mandated students (n = 68) reported drinking more days per month, more average drinks per drinking occasion, greater maximum drinks at one time, greater total drinks per month, and more episodes of binge drinking when compared to a convenience sample of 86 non-mandated students. However, this study was limited to a sample of only first year male students.

Collectively, these studies provide general support for the commonly held belief that mandated students are riskier drinkers. However, two limitations restrict confidence in this conclusion. First, prior research has generally relied on small, convenience samples that may not be representative of the larger population of mandated students and/or the university as a whole. Second, extant research has not examined whether observed differences in drinking between mandated and non-mandated students hold when controlling for demographic factors known to predict drinking and also known to differ between mandated and other students (e.g., age, gender, year in school). Thus, while most of the available research indicates that mandated students are riskier drinkers, the methodological limitations of these studies leave open the possibility of confounding "third" variables. In addition, prior studies have paid little attention to the potential *variability* in drinking patterns among mandated students.

Yet, it is important to better understand how mandated students differ from the general student body and the extent to which they are a heterogeneous group because receipt of alcohol-related sanctions is a primary pathway for college student drinkers to receive alcohol risk reduction interventions. Primary level research and meta-analyses show that interventions typically reduce drinking behavior in the short-run but effect sizes tend to be small and transient, with decay over longer-term follow-ups (Carey, Carey, Henson, Maisto, & DeMartini, 2011; Carey, Scott-Sheldon, Elliott, Garey, & Carey, 2012). Improving such

interventions, and preparing university officials to meet the needs of mandated students, hinges upon a better understanding of the characteristics of this group.

To address the limitations of prior work, and advance our understanding of mandated drinkers, we use data from two separate surveys to determine how students who received an alcohol-related sanction differ from the larger student body. We tested whether participants in a representative sample of mandated students drink more in volume (quantity), and/or drink heavily more often (heavy frequency), when compared to the general student population. Additionally, we explore the *variability* in drinking behavior within a large mandated student sample. Our study improves upon previous efforts by comparing the alcohol use levels of students mandated for alcohol violations with a large representative sample of students at the same university, and by examining potential differences in drinking after controlling for demographic variables.

Method

Participants and Procedure

Participants in the present study come from two samples, one sampled from the general student population and one consisting of students mandated for alcohol intervention. Both samples were from the same public university in the northeastern U. S. Participants in these samples were administered different surveys but each survey contained a subset of highly similar items, permitting these samples to be compared directly.

General student sample—In March 2011, students (*n*=1,876) completed the online Core Alcohol and Drug Survey – Long Form. The 39-item survey was developed by the Core Institute at the Southern Illinois University at Carbondale with funding from the U.S. Department of Education. This survey has been administered throughout the U.S. and allows for comparison of students' attitudes, perceptions and consequences of alcohol and other drug use across college campuses. Students completing the Core survey were demographically similar to the larger student body in terms of gender (41% female in Core vs. 49% female in 2012 student body), race/ethnicity (22% non-White in Core vs 23%), and year in school (24% freshmen in Core vs 19%).

Mandated student sample—All students who had violated campus alcohol policy between 2011-2013 and were required by the Office of Community Standards to receive an alcohol intervention were given the option of participating in an ongoing research study to fulfill their sanction. Reason for referral was not available to the research team for purposes of confidentiality. The majority of eligible students (94%; *n*=435) consented to the research. Participants attended three appointments to fulfill their sanction requirements, including a baseline survey, a Brief Motivational Interview, and a 1-month follow-up survey session. Only the data from the baseline survey were used in the present analyses. All procedures were approved by the university's Institutional Review Board.

Measures

Demographics—In both samples, gender, year in school, and age were assessed in the same manner. Other demographic variables were assessed differently and were recoded to make them comparable. Race and ethnicity were assessed with separate items in the mandated student sample, but with a single item in the general student sample. Responses were recoded in both samples such that 1 = non-Hispanic White and 0 = race/ethnicity other than non-Hispanic White. In the general student sample, grade point average (GPA) was assessed on a scale from F=1 to A+=13, but was recoded to fit the 6 category scale used to assess GPA in the mandated sample (0 = GPA 1.5, 1 = 1 – 1.6-2, 2 = 2.1-2.5, 3 = 2.6-3, 4 = 3.1-3.5, 5 = 3.6-4). Finally, living situation in the general student sample was assessed with three items (on vs. off campus, type of housing, with whom) but was recoded to fit the 6-point scale used in the mandated student sample (1 = On-campus dorm, 2 = non-dorm university housing, 3 = off campus house or apartment, 4 = fraternity/sorority house, 5 = with family, 6 = other). Additional codes were created for on- versus off-campus housing, and for living with versus living without family.

Alcohol use—Examination of variables assessed in both data sets revealed two alcohol use variables that were equivalent and could be examined across samples – weekly drinks and heavy drinking frequency. In the general student sample, participants were asked to enter the "average number of drinks you consume a week." In the mandated student sample, students completed a modified version of the Daily Drinking Questionnaire (Collins, Parks, & Marlatt, 1985), entering the number of drinks they have on each day of the week. Daily drinks were summed to calculate the typical drinks per week. In both samples, an identical item assessed heavy drinking frequency. The item read "Think back over the last two weeks. How many times have you had five or more drinks at a sitting?" and response options ranged on a 6 point scale (0=None, 1=Once, 2=Twice, 3=3-5x, 4=6-9x, 5=10+ times).

Data Analytic Plan

First, weekly quantity (i.e., the continuous outcome variable) was examined for normality. In a data set combining both samples, weekly quantity scores were significantly skewed and kurtotic. Twenty-nine outliers (i.e., > 3 standard deviations from the mean) were recoded to one unit greater than the next most extreme value in the distribution (Tabachnick & Fidell, 2007), reducing skewness and kurtosis (Kline, 2005).

Second, we examined whether the mandated vs. general student groups differed on age, gender, year in school, race/ethnicity, living situation, and GPA.

Third, we examined whether the groups differed on two drinking variables of interest – weekly quantity and frequency of heavy drinking. *t*-tests and χ^2 tests compared group differences in continuous variables and categorical variables, respectively. Variability in drinking within each group also was examined.

Fourth, we examined whether demographic variables that differentiated the samples were also associated with drinking outcomes, using analyses of variance (ANOVAs), χ^2, and/or

Pearson product-moment correlations in order to determine appropriate covariates in the multivariate prediction of drinking outcomes by group membership.

Finally, multiple regression was used to predict drinking by group (mandated vs. general student sample) after inclusion of these identified covariates.

Results

Univariate Tests: Demographic and Drinking Differences between Samples

As displayed in Table 1, students in the mandated sample were younger, more likely to be male and underclassmen, and less likely to have a GPA in the A range. Groups also significantly differed by living situation. Follow-up tests revealed that whether students lived with family (4%, n=92) versus without family did not differentiate the samples (χ^2= 1.89, p=.17); however, there was a greater proportion of students living in on-campus dorms without family (69%, n=1593), versus other housing, in the mandated student sample (χ^2= 44.20, p<.001). The samples did not differ on race/ethnicity. Each of these demographic differences between the mandated and general student sample were maintained even in supplementary models that controlled for weekly drinking.

Regarding alcohol use, individuals in the mandated sample reported significantly more drinks per week and the effect size of this difference was medium to large (Cohen's d = .73); however, the frequency of heavy drinking did not differ by group. As such, multivariate tests (below) were conducted only on drinks per week.

Variability in Drinking Behavior

As can be seen in Table 1, frequency of heavy drinking covered the full range from never in the past month to 10+ times in the past month, in both the mandated and general student samples. In the mandated sample, 35% reported no past month heavy drinking episodes, and 22% reported just one. Thus, 57% of the mandated sample reported one or fewer heavy drinking episode in the last month. On weekly drinks, the large standard deviations in both samples suggest substantial variability in drinking behavior. However, the standard deviation of weekly drinks among mandated students was significantly higher than among the general student population (F=1.25, p=.003). Figure 1 depicts drinks per week separately by sample, with a range of 0-65 in the mandated sample and 0-90 in the general student sample (raw data). Figure 2 depicts heavy drinking frequency separately by sample.

Multivariate Test: Differences in Weekly Drinks and Demographics between Samples

In order to determine appropriate covariates in a multivariate test of group differences in drinks per week, we first examined which of the demographic variables that were associated with group status were also associated with drinks per week. Higher weekly quantity was significantly associated with male gender (t=- 14.23, p<.01), fewer years in college (F=2.49, p=.04), lower GPAs (F=10.80, p<.01), and younger ages (r = -.04, p=.04). In addition, weekly quantity was associated with living situation, with lower weekly quantity among those living in campus dorms (F=16.94, p<.01). Significant demographic variables were included as covariates in the next step. However, given the high overlap between age and

year in school (r=.56, p<.001) and the greater level of variability and precision in age, only age was included in the final model.

Results of the model predicting weekly quantity by group are shown in Table 2. The overall model was significant (F=76.54, p<.001, Adjusted R^2 =.14), and after controlling for significant demographic variables, mandated students still had significantly higher levels of drinks per week than those in the general student sample[1].

Discussion

Our analyses revealed a complex pattern of drinking behavior among mandated students. Contrary to expectation, mandated students did not report more frequent "binge" episodes (i.e., 5 drinks per occasion) than the general student population. However, mandated students reported higher quantities of drinks per week. Taken together, this pattern of results may suggest that mandated students drink higher quantities when they engage in heavy drinking, and/or drink more frequently at non-binge levels (i.e., < 5 drinks per occasion). Regardless, compared to the general student sample, mandated students reported twice the number of drinks per week. The effect size of this difference was medium to large (Cohen's d =.73). We conclude that the pattern of drinking reported by mandated students is more hazardous.

Comparing the patterns we observed to those reported previously is challenging due to methodological differences (e.g., non-equivalent measures of drinking quantity and frequency, smaller sample sizes) across studies. Nonetheless, we can observe that our findings contrast with those obtained by Barnett et al. (2004) who demonstrated a difference in heavy drinking days (albeit with a much smaller sample), but corroborate those obtained by Fromme and Corbin (2004) who observed a difference in weekly drinking, but not in heavy drinking.

We also found significantly more variability in drinking levels in the mandated student sample than in the general student sample. This finding highlights the fact that mandated students are not uniformly heavy drinkers; indeed, they differ from one another as much as they differ from students who are not mandated. Notably, 7% of the mandated students reported that they typically do not consume *any* drinks per week. Although this percentage is lower than that of non-drinkers in the general sample, it indicates the need for sanctions to be tailored to drinking level, with interventionists to be prepared to work with students exhibiting a range of drinking patterns. Additionally, in supplemental analyses that excluded non-drinkers, we found that there were actually a greater proportion of students who do not report heavy drinking in the mandated student sample (31%) than in the general student body (21%). Again, the presence of non-heavy drinkers among those mandated students that

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[1]We conducted supplemental analyses after excluding non-drinkers from both samples (7% [N=31] in the mandated sample, 25% [N=468] in the general sample). Excluding these non-drinkers did not change the pattern of results for weekly quantity. However, there was a significant group difference in heavy frequency (χ^2(5)=23.08, p<.001) that was not observed when all cases were analyzed. Interestingly, there were a greater proportion of drinkers who did not report any episodes that met the threshold for heavy drinking (5+ drinks) in the mandated student sample (31%) compared to the general student sample (21%). Group (mandated vs general) remained a significant predictor of heavy drinking frequency even after controlling for variables identified both to differ between the groups and be associated with heavy frequency (gender, year, GPA, living situation).

do drink further speaks to the variability in the topography of drinking among these students who may be referred for brief interventions.

As expected, demographic variables strongly predicted mandated group membership and quantity of drinking. Students in the mandated sample were younger and in earlier class years, more likely to be male, living in on-campus dorms, and had lower GPAs. Although some studies have found race/ethnicity to be associated with drinking (e.g., Fromme & Corbin, 2004; LaBrie et al., 2006), in our sample from a northeastern U.S. campus, race/ethnicity did not differentiate mandated students from the larger student body (at least when race/ethnicity was coded as non-Hispanic White vs other). Other findings are consistent with other mandated samples, which have tended to be more heavily represented by males (Fromme & Corbin, 2004; O'Hare & Sherrer, 2000), younger students (Fromme & Corbin, 2004; O'Hare & Sherrer, 2000), and those with lower GPAs (Barnett et al., 2004) who live on campus (O'Hare & Sherrer, 2000). While living on campus may increase the likelihood that a student will get in trouble for drinking and thus be included in our mandated student sample, the violations received by students in this study included those on campus and in the surrounding community and not just in the residence halls.

A unique contribution of our research is that the difference in weekly drinks between the samples was still evident even after controlling for living situation and other demographic differences that were also related to alcohol use levels (i.e., gender, age, GPA). Therefore, we can more confidently conclude that although mandated students tend to be younger, male, living on campus and, to have lower GPAs, these characteristics alone do not fully account for their heavier drinking.

Strengths of this study include use of large and representative samples of both mandated and non-mandated students, and controls for demographic differences that could influence conclusions about alcohol risk. Future studies can improve upon the current effort by measuring a wider range of drinking variables and recruiting samples from multiple campuses. Participants in the two separate samples in this study did not complete the same battery of measures, precluding comparison in drinking frequency, peak drinking, or consequences for example. Further, there is significant heterogeneity in campus referral and enforcement policies and drinking differences observed in a single site study could be a function of enforcement practices at that site (e.g., a school with more lax enforcement may be expected to have more severe mandated students because only the most severe students might cross the threshold for receiving a mandate). As such, future work could be conducted across multiple sites represented by a range of enforcement practices. Though response rates for the campus-based sample was not available, response rates from Core surveys have tended to be somewhat low, limiting generalizability of our findings. In addition, we cannot determine the overlap between students in our mandated and campus-based samples. It is possible that some students were included in both samples, but unlikely given that the mandated students were predominantly underclassmen and recruited in the two years after the Core survey. However, the presence of mandated students in the larger student sample would have only dampened the differences observed between samples. Finally, mandated students were recruited throughout the academic year whereas the general student sample was recruited only during the Spring semester. This may have resulted in differential

response patterns related to temporal patterns in drinking over the academic year (Del Boca, Darkes, Greenbaum, & Goldman, 2004).

In summary, students who violate alcohol policies drink twice as many drinks per week as those in the general study body. Thus, when students who violate campus alcohol policies are referred for alcohol intervention, it can be safely assumed that many will be heavier drinking students in need of intervention. However, the variability we observed in drinking levels among mandated students also suggests that interventionists for these students must be prepared mindful of the range of drinkers (and even perhaps non-drinkers). The ability to predict which students will violate campus alcohol policies and potentially cause problems for campus communities can be helpful to college administrators seeking to develop and target interventions to reduce risk.

Acknowledgments

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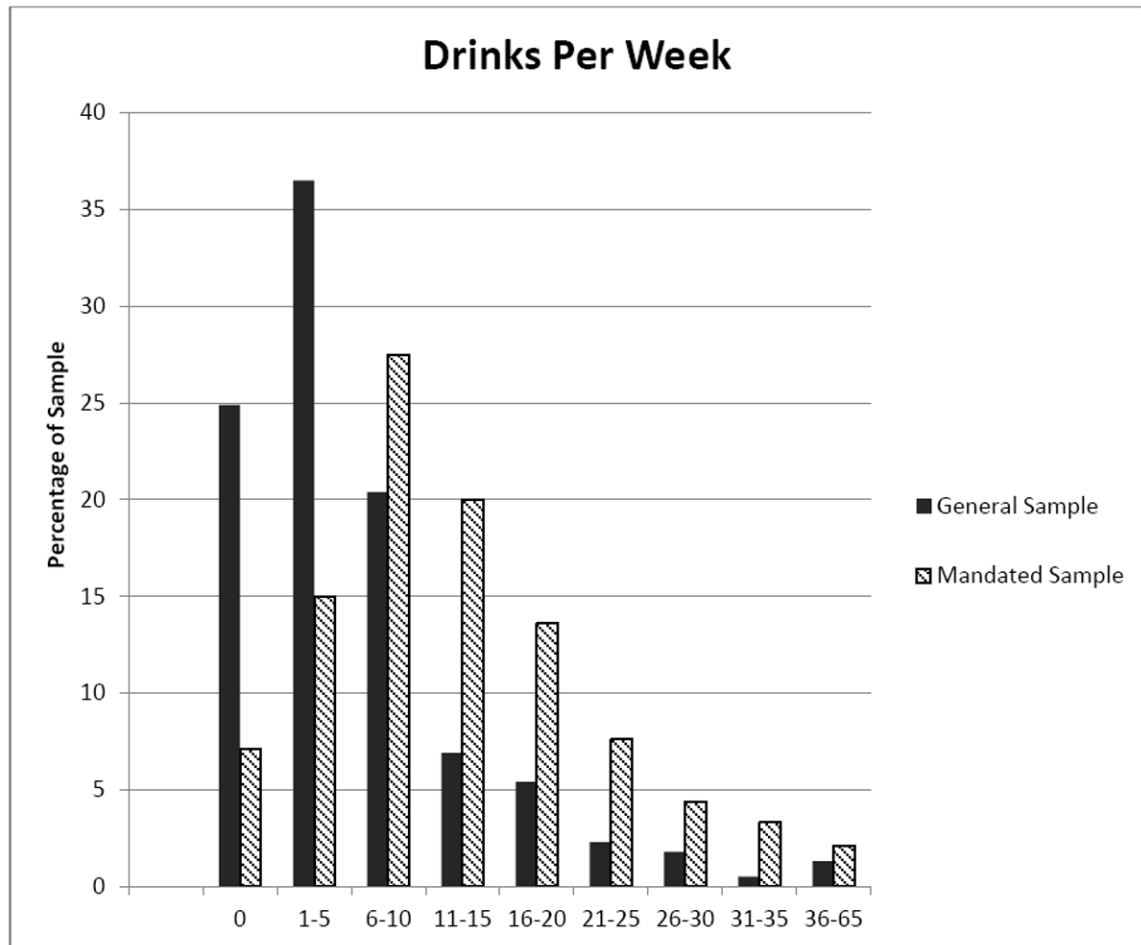Tabachnick, BG.; Fidell, LS. Using multivariate statistics. 5. Boston, MA: Allyn & Bacon/Pearson Education; 2007.

Figure 1. Variability in Weekly Quantity Separately by Student Sample (Raw Data)
Note: While outliers were recoded for statistical analysis, raw data are depicted here.
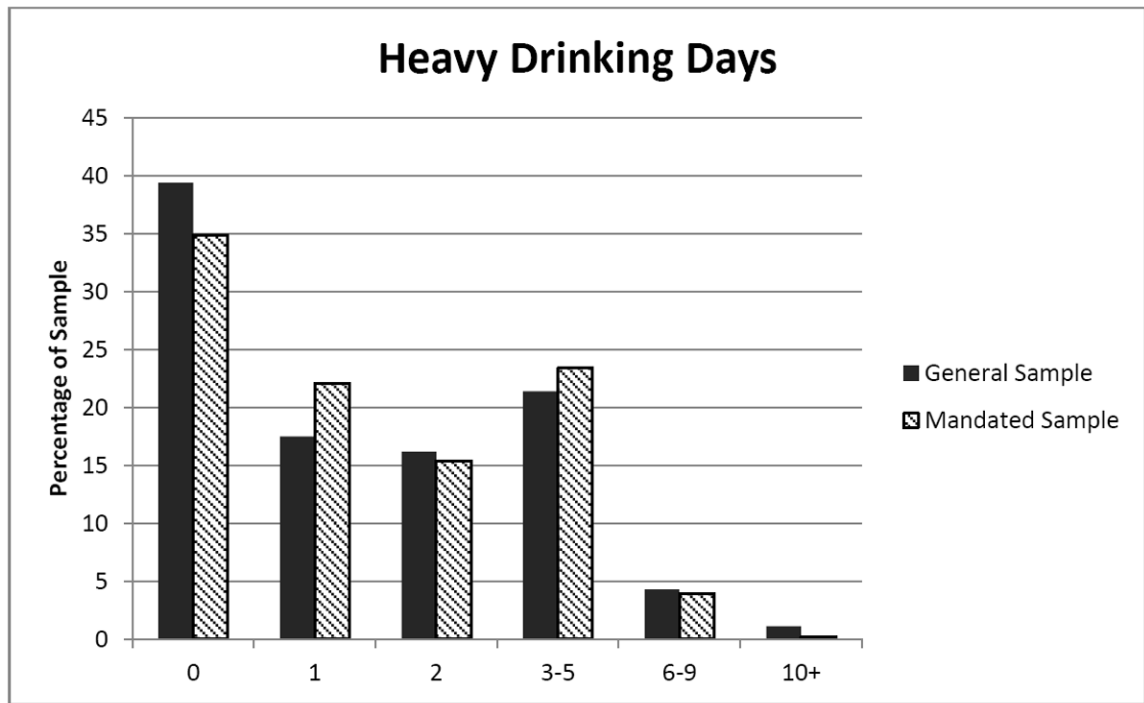
Figure 2. Variability in Heavy Drinking Frequency Separately by Student Sample

Table 1

Demographic and Drinking Variables by Student Sample

	Mandated Student Sample (*n*=435)	General Student Sample (*n*=1876)	*t* or χ²	*df*	*p*
Demographics					
Age	*M*=19.24 (*SD*=1.11)	*M*=20.29 (*SD*=2.62)	*t* = −13.03	2289	<.001
Gender (% male)	73%	41%	χ²=146.15	2311	<.001
Year in School			χ²=83.94	2311	<.001
Freshmen	35%	24%			
Sophomore	36%	25%			
Junior	18%	28%			
Senior	9.4%	23%			
Other	0.5%	0.1%			
Race/Ethnicity			χ²=1.77	2311	.10
Non-Hispanic White	81%	78%			
Other	19%	22%			
Living Situation			χ²=44.20	2311	<.001
On-campus dorm	82%	66%			
Other	18%	44%			
Non-dorm university housing	4.6%	11%			
Off campus house/apartment	9.3%	18%			
Frat/Sorority house	0.5%	1%			
With family	3.0%	4.5%			
Other	0.2%	0.0%			
Grade Point Average (letter grade)			χ²=39.75	2311	<.001
1.5 (D, F)	0.5%	0.5%			
1.6-2.5 (C)	10%	8.3%			
2.6-3.5 (B)	70%	57%			
3.6-4 (A)	19%	35%			
Drinking Variables					
Weekly Quantity	*M*=12.27 (*SD*=8.60)	*M*=6.29 (*SD*=7.70)	*t* = 13.31	2301	<.001

	Mandated Student Sample (*n=435*)	General Student Sample(*n=1876*)	*t* or χ^2	*df*	*p*
Frequency of Heavy Drinking			χ^2 =9.66	2311	.09
None	35%	39%			
Once	22%	18%			
Twice	15%	16%			
3-5x	23%	21%			
6-9x	3.9%	4.3%			
10+ times	0.2%	1.1%			

Table 2

Final Model Predicting Drinks per Week by Student Sample

Predictor	β	p
Gender (male =1 vs. female=0)	.22	<.001
Age	-.05	.01
Grade point average	-.03	.10
Living (on-campus dorm=1 vs. other=0)	-.14	<.001
Sample (general=1 vs. mandated=0)	-.23	<.001