Evaluation of an Online Alcohol Education Program for First-Time-in-College Students

Elayne Reiss

University of Central Florida

Alcohol use among college students has not only maintained its place in academic research, but also in American news outlets as a prevalent issue in higher education. A brief examination of recent news headlines demonstrated that collegiate drinking is not an issue to take lightly. In 2007, two students died at New Jersey's Rider University in separate incidents after abuse of alcohol (Boccella & Giordano, 2007). The following year, a freshman fraternity pledge at Wabash College in Indiana died as a result of a binge drinking episode (Johnson, 2008). Recently, a sophomore student at the State University of New York at Geneseo drank heavily for three days in an effort to become a member of an off-campus club, ultimately leading to his death (Dobbin, 2009).

In 2001, unintentional deaths from alcohol-related injuries among 18-to-24-year-old students totaled over 1,700. Death, however, was far from the only consequence of drinking. Over 500,000 students in the same population were injured unintentionally due to alcohol. In 2002, over 43% of all college students in this same age group (nearly 4 million) admitted to consuming at least five drinks in one sitting at some time over the past month. Nearly 3 million students in this population drove under the influence of alcohol in the past year (Hingson, Heeren, Winter, & Wechsler, 2005). These statistics demonstrate that the prevalence of students abusing alcohol does not lie solely within isolated incidents.

Although the use of alcohol among college students in the United States can be traced back to the colonial days (Warner, 1938), postsecondary alcohol education has only earned its presence in more recent years. In the early 1950s, college curriculum largely avoided the subjects of alcohol and drinking (Straus & Bacon, 1953). When the National Institute on Alcohol Abuse and Alcoholism (NIAAA, 1976) visited one postsecondary institution in each state, plus 12 minority and private institutions, only 15% provided activities or services incorporating alcohol

abuse or use education. Until the Department of Education Drug and Alcohol Abuse Prevention Rule (1990) threatened to take away federal funding from postsecondary institutions that did not provide students with minimum information regarding drug and alcohol use did alcohol education become a fully established part of the college landscape.

Many forms of alcohol interventions have since proliferated at American colleges and universities. These methods include purely educational approaches, alcohol awareness weeks, social-norms marketing, brief motivational interventions, policy, environmental approaches, protective behavioral strategies, and online programs, to name a subset of the available selection. Regardless of the program, campus administrators have struggled with the question of abstinence versus harm reduction approaches: how can students be told how to be safe, without encouraging drinking? Evidence shows that the abstinence-only approach does not work (Beck, 1998; Marlatt & Witkiewitz, 2002), yet the debate still continues today. What administrators can agree upon, however, is the fact that too many students are still drinking, many of them dangerously, and that the problem will proliferate until the right combination of actions are taken.

Statement of the Problem

Dangerous drinking among college students has persisted as a major issue at colleges and universities nationwide despite federal mandates for all colleges and universities to provide education designed to convince students to curb or reduce this behavior (Department of Education Drug and Alcohol Abuse Prevention Rule, 1990). Although students have often arrived at colleges having received large amounts of alcohol education, many of these same students have proceeded to engage in heavy binge-drinking behavior (Weitzman, Nelson, & Wechsler, 2003). In understanding that teaching abstinence-only approaches to alcohol often has not been effective (Beck, 1998; Marlatt & Witkiewitz, 2002; Moskowitz, 1989), postsecondary

institutions have elected to implement harm-reduction models. With nearly 40% of 12th grade students not seeing the danger in heavy daily drinking (Johnston, O'Malley, Bachman, & Schulenberg, 2009), colleges and universities have had a weighty task in helping to ensure the safety of incoming freshmen who believe that drinking irresponsibly is acceptable behavior.

Colleges have long recognized the fact that some students on their campuses are alcoholics and need treatment (NIAAA, 1976). More recently, the trend has been to provide students who face disciplinary sanctions due to breaking alcohol-related rules with mandatory interventions (Barnett et al., 2004; Hingson et al., 2005; Marlatt et al., 1998). The problem, however, is the fact that some students who are at risk do not learn how to better control their actions until these negative outcomes actually occur. Institutions using population-level approaches to alcohol education have an opportunity to "inoculate" classes of incoming college freshmen with skills and attitudes that will reduce their risk of facing health and academic issues in the future.

Purpose of the Study

Recent developments in alcohol interventional programming have included turning the focus away from an abstinence-only message and toward the use of protective behavioral strategies (PBS), which have been proven to help drinkers avoid some of the negative consequences of alcohol use (Araas & Adams, 2008; Martens et al., 2004, 2005; Martens, Pedersen, LaBrie, Ferrier, & Cimini, 2007). A programmatic development used to effectively deliver PBS-based interventions involves the use of a customizable online-based system, such as the AlcoholEdu program (Outside the Classroom, 2011).

The AlcoholEdu program has shown promise in effectively reducing negative consequences. The studies conducted thus far on the program, however, have either focused on

its general effects on a population or on certain demographic subgroups. Regarding efficacy in a

generalized population, a randomized controlled trial indicated that compared to a control

population, students in the AlcoholEdu group showed evidence of reduced alcohol use and

significant decreases in negative alcohol-related consequences (Hustad, Barnett, Borsari, &

Jackson, 2010). Other studies have explored efficacy of the AlcoholEdu program with an

additional emphasis on demographic subgroups such as gender and residence status, which hold

some relationship to drinking behavior but are not directly drinking-focused (Lovecchio, Wyatt,

& DeJong, 2010; Wall, 2005, 2007).

To date, no studies have addressed the efficacy of the AlcoholEdu program among FTIC

students while accounting for major demographic factors directly related to levels of alcohol use,

the use of protective behavioral strategies, or the presence of negative consequences. More

specifically, studies regarding this program have not provided a deeper look at the resulting

behaviors and attitudes of students in different drinker risk groups—light, moderate, and heavy

episodic drinkers. In determining whether the AlcoholEdu program can help students in different

drinker risk groups increase their willingness to utilize protective behavioral strategies regarding

drinking and subsequently reduce negative drinking-related consequences, institutions can better

devise alcohol intervention strategies that can work for a population of students with diverse

needs.

Significance of the Study

While no single population-level intervention can be expected to solve the issues of

irresponsible college student drinking alone, progress in the right direction is certainly welcome.

With colleges and universities beginning to understand that it is naïve to take an abstinence-only

approach to alcohol education, it is important to seriously consider alternatives that do not

encourage drinking nor completely eschew the practice, while equipping students with a toolbox of realistic strategies that they can use to stay safe. With the AlcoholEdu program reaching 36% of the nation's freshmen (Outside the Classroom, 2011), the intervention has grown far beyond a tool used at a handful of schools. In a time of economic difficulty across the nation's postsecondary system, any information that can be gathered about the true effectiveness of a program that comes at a monetary cost to the institution is imperative to ensure that the program is appropriately reaching its target audience. Recommendations can allow future versions of the AlcoholEdu program to have a greater impact upon the behaviors of less receptive students in the college freshman population.

Aside from the financial and programmatic benefits of conducting a more detailed analysis of the AlcoholEdu program, this study also contributed to the body of knowledge regarding behavioral change in college freshmen. This group of students was identified as "high-risk" in terms of alcohol use (Marlatt et al., 1998), simply because many of these students transitioned into a new environment largely devoid of the same levels of parental supervision or dependency to which they were previously accustomed. To capture the differences in consumption, presence of adverse alcohol-related repercussions, and protective behavioral strategy use both before they begin the semester and in the middle of their critical first semester at college, this research provided a direct look at freshmen behavioral change regarding alcohol. The results informed campus alcohol and other drug (AOD) administrators in charge of related programming with the realities that are critical to improving student well-being—academically, socially, and medically.

Research Question

This study was guided by a research question regarding the efficacy of the AlcoholEdu program in increasing the use of protective behaviors among incoming college freshman of different drinking risk groups. Specifically, the researcher sought to determine which drinker risk groups, if any, showed the greatest degree of willingness to change alcohol use habits in the areas of (a) consumption, (b) use of protective behavioral strategies, and (c) negative consequences, when gender, ethnicity, age of first alcohol consumption, and family history of alcoholism served as contributing variables.

Literature Review

Since the 1980s, the prevalence of alcohol use among college students has declined. The rate of students drinking at least once in the past year has dropped from 90% in 1980 to 81% in 2007. Likewise, monthly drinking has declined from 80% to 67% in the same time period (Johnston, O'Malley, Bachman, & Schulenberg, 2008). The argument can then be made that a cultural shift has occurred supporting a decrease in student drinking. However, as overall drinking rates have decreased, rates of dangerous, high-quantity drinking have remained constant, with binge-drinking rates among college students reaching a peak of 45% in 1984 and settling at 41% in 2007 with some fluctuation in between (Johnston et al., 2008). Likewise, the negative consequences of drinking still exist for both drinkers and non-drinking bystanders (Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995).

Specific subgroups of college students are affected as well. Men regularly drink more than women in quantity and frequency (American College Health Association, 2009) and are less likely to want to change their heavy drinking behavior (Barnett, Goldstein, Murphy, Colby, & Monti, 2006). White students have a higher risk of binge drinking than peers of other

ethnicities—and have a higher likelihood of beginning this behavior in college (Weitzman et al., 2003). Students who begin drinking prior to college have an increased likelihood of frequent college drinking, engaging in riskier behaviors after drinking, and meeting the criteria for clinical alcohol dependence (Hingson, Heeren, Zakocs, Winter, & Wechsler, 2003). Finally, individuals with a family history of alcoholism consume more per incident than peers without this history when placed in an environment with an emphasis on alcohol use, such as the university (Timberlake et al., 2007).

With all of these risk factors to consider, colleges have turned to the concept of prevention through information-based approaches. Although Moskowitz (1989) stated the weakness of purely educational approaches over two decades ago, institutions have only recently begun to break away from these programs. Along with information-only approaches, the focus on teaching abstinence from alcohol has proved ineffective as well. The preferred harm reduction approach, which focuses on ways to reduce negative consequences (including, but not requiring, abstinence), is ideal for college students who are often in a stage of disinterest in changing their drinking habits but still experience drinking-related problems (Marlatt & Witkiewitz, 2002).

Combinations of approaches to alcohol education have proven to be effective with college students by the National Institute for Alcohol Abuse and Alcoholism (NIAAA, 2002). The social norms approach allows students to learn that their peers may not drink as much as they think they do, but its success is highly dependent upon the fidelity of its implementation (DeJong et al., 2006). Brief motivational intervention approaches help students come to a realization of a need to change their habits through interaction, whether in person or online. The most effective versions of these interventions are combined with a feedback component, which provides students with information regarding their own drinking, including risks and norms

(Larimer & Cronce, 2002). Many of these approaches are combined with an emphasis on protective behavioral strategies (PBS). Martens et al. (2004) found that when students engage in certain protective behaviors while drinking, such as pacing drinks and avoiding drinking games, the risk of adverse alcohol-related consequences decreases.

AlcoholEdu, one such program that blends many of the aforementioned methods in a population-level approach, has demonstrated effectiveness in reducing negative consequences and frequent drinking (Wall, 2007). Aside from education, the AlcoholEdu program features challenges of positive alcohol expectancies, incorporates clarification of norms, and provides personalized feedback based upon a student's gender and drinker status (abstainer or drinker). High-risk drinkers receive a brief motivational intervention as well. Despite mixed evidence that those who go through the program may not make a significant difference in mitigating risky alcohol-related behaviors, the program should continue to be tested for its effectiveness as a population-level approach (Dowdall, 2009).

Methodology

Expanding upon the work of Wall (2005, 2007), who analyzed the effectiveness of an older version of the AlcoholEdu program on a general student population, the current study utilized a quantitative research methodology to address the efficacy of the AlcoholEdu program at UCF (University of Central Florida). Like Wall's study, the current research addressed the potential for increased PBS use and the reduction of negative consequences. However, the present study expanded the areas of interest to include the scope of students reached by the program as well as levels of alcohol consumption. Most notably, the program was evaluated as it applied to specific drinker subgroups among FTIC students in an effort to improve overall student well-being.

This retrospective analysis was conducted with a sample of incoming FTIC students at UCF who entered in the summer or fall 2008 terms and self-identified as 18 years of age or older as of the start of the program. Starting in the 2008-2009 academic year, all new FTICs were required to participate in the AlcoholEdu program. Considering UCF's status as a large comprehensive public research institution, this sample of enrolling students represented a diverse range of demographic qualities. No formal sampling methods were utilized to obtain the final group of students, since the use of AlcoholEdu records from all incoming UCF FTICs ensured sufficiently large subgroup sizes for various subset analyses.

The process implemented to obtain participation rates as close to 100% as possible involved a series of reminders. If students did not complete the pre-test by the first day of classes, they received one weekly e-mail message from a member of the UCF AOD staff. After one month passed, if students still did not respond to the notifications, holds were placed on their academic records, preventing registration for the following semester's courses among other activities. A staff member contacted these 188 students via telephone to provide them with opportunities to rectify the situation and have the holds removed. Other students who did not complete subsequent portions of the intervention were regularly notified via e-mail.

Considering that the purpose of this research was to evaluate the effectiveness of the AlcoholEdu program, it was deemed advisable to utilize the program's built-in surveys designed to measure program results. Students were required to complete matching comprehensive questionnaires which collected data regarding the attitudes and behaviors of the respondents on a variety of alcohol-related constructs. These areas included usage patterns, positive and negative expectancies, use of protective and care-taking behaviors, intended behaviors, and the occurrence

of negative consequences. Students were also asked to provide a variety of demographics. The survey items consisted of a mix of free-response, Likert-scaled, and multiple-choice questions.

Participants were required to take the first questionnaire prior to beginning any of the AlcoholEdu education modules to establish a set of baseline attitudes and collect demographics. After four to six weeks elapsed since the completion of the course, students were asked to complete a matching follow-up questionnaire. The current study referenced the items addressing the three major areas of interest: consumption levels, PBS use, and negative consequences. Pre-test and follow-up responses were matched using a proprietary identifier so that responses remained linked yet anonymous. Completion of both the pre-test and follow-up surveys was required for a student's responses to be considered for inclusion in the present study.

Statistical Procedures

All of the analyses were based upon a common set of demographic descriptive variables and a series of outcome-focused dependent variables. The demographic variables, which included gender, ethnicity, drinker status, drinker risk group, age of first alcohol consumption, and family history of alcoholism, were all collected from the pre-test survey. The follow-up drinker risk group was also used for a selected piece of analysis. Each of these variables was drawn directly from the demographic section of the survey designed to collect this type of information, while the drinker information was collected from other parts of the survey. Drinker status was represented by a variable with the possible values of abstainer (no alcohol consumption in the past year) or drinker. Drinker risk group further categorized drinker status with the options of light (at least one drink in the past year but not in the past two weeks), moderate (at least one drink in the past two weeks, but did not binge drink), or heavy episodic (binge drank at least once in the past two weeks). For the purpose of this study, the NIAAA's 5/4

definition was used to determine binge drinking status: five drinks over the period of two hours for males; four drinks over the period of two hours for females. All of the demographic variables were either dichotomous or categorical in nature.

The research question of interest examined the results of the AlcoholEdu implementation as they related to student outcomes, including consumption levels, PBS use, and occurrence of negative consequences. The analytical process necessary to address this research question was somewhat extensive and required the creation of sets of dependent variables (pre-test and follow-up) for each of the three types of alcohol-related student outcomes. The creation of these variables will be discussed in further detail.

To further explore changes in consumption between the pre-test and follow-up, a variable representing average weekly consumption was created. Both surveys asked students in the moderate and heavy episodic categories to enter their daily alcohol consumption in number of drinks over the two prior weeks. The totals for each of the two weeks was averaged to create the final consumption variable. Only students who began in the moderate or heavy episodic categories were used for this portion of the analysis, but if they moved into the light category as of the follow-up, they received a score of zero drinks for their follow-up consumption.

All non-abstaining students were asked to rate their use of PBS on the pre-test and follow-up through a question asking, "When you drink, to what extent do you do the following?" For each of 24 items identical on the pre-test and follow-up, respondents selected choices on a scale of 1 to 7, with *never* as the low value and *always* as the high value. To determine the conceptual groupings within these 24 items, exploratory factor analysis was performed utilizing the maximum likelihood extraction method with Promax rotation. All questions conceptually grouped within each identified factor were combined to form dependent variables.

The final set of dependent variables involved negative consequences. Students in the moderate or heavy episodic categories were asked, "During the past two weeks, to what degree did the following happen to you when drinking or as a result of your drinking?" The question featured 24 behaviors that matched between the pre-test and follow-up surveys, for which respondents were asked to provide a choice ranging from 1 = *never* to 7 = *always*. For these matching questions, an exploratory factor analysis featuring the maximum likelihood extraction method with Promax rotation was conducted to determine underlying constructs within the realm of negative consequences, and dependent variables were formed from the identified factors.

For the consumption variable, as well as each of the dependent variables identified and subsequently created through the factor analysis process for PBS and negative consequences, a repeated-measures ANCOVA with one between-subjects factor was utilized. The repeated measure, or within-subjects factor, was the factor of time represented by the pre-test at the start of the semester or the follow-up survey mid-semester. The independent variable was drinker group, which was represented by drinking behavior as of the pre-test. For all of the ANCOVA analyses, four variables served as covariates, or controlling factors. These variables consisted of gender, ethnicity, age of first consumption, and family history. Testing occurred at the $\alpha = .05$ significance level; effect sizes were calculated as well. The ultimate goal was to determine changes in the dependent measures over time between students in different drinker groups while accounting for demographics historically related to student drinking. Changes in consumption level were also analyzed descriptively to track movement among students between pre-test and follow-up between drinker risk groups, including the abstainer category.

Data Sources

Since the goal of this study was to assess student attitudes regarding alcohol before and after the administration of an online alcohol education program among an entire freshman class, and since data collection on this topic occurred extensively as a required part of the program, the responses previously collected through AlcoholEdu for incoming freshmen during the summer and fall 2008 academic terms by Outside the Classroom were utilized for this study. All required elements were present in this portion of the data collection process, including self-reported student demographics. Confidentiality of the student information was maintained. Outside the Classroom assigned non-identifiable, arbitrary identification numbers to all student participants so that the surveys could be linked without any knowledge by the researcher as to the actual identity of any student. The dataset, originating from a secure server at Outside the Classroom, was sent to the researcher upon request and was stored on a secure university server despite the anonymous nature of the data.

Results

Consumption

Change in levels of alcohol consumption among the student population between the pre-test and follow-up surveys served as an area of interest for this study. This change was measured using two methods. The first method involved examining the movement of students between different drinker groups (abstainer, light, moderate, and heavy episodic) through descriptive statistics. The second method utilized repeated-measures ANCOVA to determine the change in total weekly drinking averaged over two weeks, between students in different drinker groups, while controlling for the demographic factors of gender, ethnicity, family history, and age of first

consumption. Combined, these two analyses provided a comprehensive view of student drinking habits in the population.

Table 1 presents the movement between drinker groups from pre-test to follow-up for all students who completed both the pre-test and follow-up surveys ($N = 3,854$). The rows identify the student's drinker group as of the pre-test, while the columns identify the student's drinker group as of the follow-up survey. The row values add to 100% in order to more easily identify the percentage of students from each pre-test category who either stayed in the same category as of the follow-up or moved to a different category. As indicated, 80% of the abstainers remained in that category as of the follow-up. Among light and moderate drinkers, nearly half (49% and 48%, respectively) remained in those categories later in the semester. Among moderate drinkers, similar percentages of the remaining students either reduced consumption and moved into the light drinker category (29%) or increased consumption and moved into the heavy episodic category (24%). A majority of heavy episodic drinkers (64%) continued to engage in binge-drinking activities as of the follow-up.

Considering the importance of gender with respect to alcohol consumption, the movement between drinker groups was also tracked separately for both female and male students. Similar percentages of male abstainers remained in that category (81%) compared to female abstainers (78%). Regardless of pre-test drinker group, consistently larger percentages of male students qualified for the heavy episodic drinker group as of the follow-up. Additionally, a noticeably greater percentage of males who were heavy episodic drinkers in the pre-test remained in the category as of the follow-up (75%), as compared to female students in the same category (55%).

The second piece of the consumption analysis involved the difference in total weekly drinking averaged over a two-week period between the pre-test and follow-up surveys. The repeated-measures ANCOVA analysis was to be run with an independent variable of drinker risk group (moderate or heavy) and covariates of ethnicity, gender, family history, and age of first consumption. Gender and family history were dichotomous; ethnicity was represented by dummy variables of Black, Hispanic, and Other; age of first consumption was represented by dummy variables for elementary-middle and high school. In checking the assumptions for the analysis, it was discovered that there was significant interaction between drinker group and the gender covariate, $F(1, 1,027) = 11.23$, $p < .01$, which suggested that gender was not an appropriate covariate for this analysis. However, based upon prior analysis, gender was still deemed highly important, so the decision was made to run separate analyses for each gender.

The first portion of each analysis addressed the between-subjects results, which analyze the differences in weekly consumption by drinker group regardless of time but accounting for the covariates. For women, $F(1, 573) = 167.47$, $p < .01$, $\eta^2 = .23$, and for men, $F(1, 454) = 210.08$, $p < .01$, $\eta^2 = .32$, the results indicated that consumption levels did differ significantly between moderate and heavy drinkers and that a large degree of variability could be accounted for by drinker group.

Within-subjects results accounted for any differences in weekly consumption over time without accounting for drinker group. The analysis for women, $F(1, 573) = 12.60$, $p < .01$, $\eta^2 = .02$, yielded a different conclusion than the analysis for men, $F(1, 573) = 0.91$, $p > .05$, $\eta^2 = .01$. In other words, women changed their consumption habits between pre-test and follow-up, while men did not.

The largest area of interest for the analysis involved the tests for interaction, which determined if mean consumption rates changed over time in different ways for the drinker group while controlling for the covariates. Both women, $F(1, 573) = 10.90$, $p < .01$, $\eta^2 = .02$, and men, $F(1, 573) = 7.49$, $p < .01$, $\eta^2 = .02$, yielded the same conclusion regarding interaction. Students in the moderate group changed in significantly different ways over time than those in the heavy episodic group. However, the η^2 values of .02 indicate little practical significance.

Figure 1 displays these results in a visual fashion by presenting the estimated marginal means for weekly consumption for women and men. Women in the heavy episodic category ($n = 216$) showed a significant reduction from 7.78 to 4.71 drinks per week, which was steeper than the reduction among moderate drinkers ($n = 365$), who moved from 2.86 to 2.04 drinks per week. As for the men, while the heavy episodic drinkers ($n = 152$) showed a significant reduction from 10.89 to 8.24 drinks per week, the moderate drinkers ($n = 310$) remained essentially unchanged, moving from 3.31 to 3.17 drinks per week. These means support the ANCOVA conclusions for significantly different rates of reduction over time by drinker risk group.

Protective Behavioral Strategies (PBS)

Students in the light, moderate, and heavy episodic categories were asked to rate the frequency by which they practiced PBS while drinking on a scale from 1 (*never*) to 7 (*always*) for 24 different behaviors. Since these were all positive behaviors, an answer of 7 was the most desirable. In order to form appropriate continuous variables from the Likert scale-type items, an exploratory factor analysis using the maximum likelihood method and Promax rotation was run to determine which items should be grouped together into common sub-constructs. Table 2 contains the groupings for the four factors that were ultimately extracted.

In further examination of the groupings of items in Table 2, each factor consisted of a number of items regarding a specific need for PBS use. The first factor, influence avoidance (eight items, $\alpha = .84$), addressed issues of image in social situations or "excuses" that a student could use to divert attention from others about drinking when feeling pressured to increase consumption. The items grouped with the second factor, preventative planning (six items, $\alpha = .85$), addressed the actions that students could take ahead of time to prevent harms, whether related to drinking and driving or to injurious consequences in general. Alcohol monitoring and reduction behaviors, the third factor (seven items, $\alpha = .84$), included the general preventative behaviors that did not necessarily address issues of influence from others, but rather were focused upon simply reducing the quantity of alcohol a student consumes. The final factor, binge-related behaviors (three items, $\alpha = .73$), consisted of actions associated with consuming large quantities of alcohol in a short period of time.

Four separate repeated-measures ANCOVA tests were run for each of the dependent variables created via factor analysis. Like the consumption analysis, the tests were run with an independent variable of drinker risk group (moderate or heavy) and covariates of ethnicity, gender, family history, and age of first consumption. The results will be presented in a format that allows for comparison between the various factors.

The first portion of each analysis addressed the between-subjects results, which analyzed the differences in each respective PBS variable by drinker group regardless of time but accounting for the covariates. These differences were significant for each of the four factors: influence avoidance, $F(2, 1{,}877) = 109.31$, $p < .01$, $\eta^2 = .10$; preventative planning, $F(2, 1{,}979) = 113.27$, $p < .05$, $\eta^2 = .10$; alcohol monitoring and reduction, $F(2, 1{,}932) = 95.65$, $p < .01$, $\eta^2 = .09$; and binge-related behaviors, $F(2, 1{,}976) = 110.49$, $p < .01$, $\eta^2 = .10$. Furthermore, the eta-

square values denoted that a moderate amount of variability in the respective dependent variables could be accounted for by drinker group. Evidence was shown that in general, PBS usage varies significantly between drinker risk groups.

Within-subjects results accounted for differences in the respective PBS variables over time while controlling for covariates and not addressing drinker group. Three out of four of the PBS types displayed significant differences in usage levels over time: preventative planning, $F(1, 1,979) = 15.29$, $p < .01$, $\eta^2 = .01$; alcohol monitoring and reduction, $F(1, 1,932) = 3.87$, $p < .05$, $\eta^2 = .01$, and binge-related behaviors, $F(1, 1,976) = 5.60$, $p < .05$, $\eta^2 = .01$. However, influence avoidance did not show a significant difference in usage between pre-test and follow-up: $F(1, 1,877) = 0.01$, $p > .05$, $\eta^2 < .01$.

The largest area of interest for the analysis involved the tests for interaction, which determined if mean PBS usage rates for each dependent variable changed over time in different ways for the drinker group while controlling for the covariates. Three out of four of the PBS types displayed significant interactions between drinker group and time: influence avoidance, $F(2, 1,877) = 3.70$, $p < .05$, $\eta^2 = .01$; preventative planning, $F(2, 1,979) = 6.41$, $p < .01$, $\eta^2 = .01$; and binge-related behaviors, $F(2, 1,976) = 8.64$, $p < .01$, $\eta^2 = .01$. In other words, students in different groups changed their PBS-related behaviors in these areas in different ways over time. The remaining PBS type, alcohol monitoring and reduction, $F(2, 1,932) = 2.39$, $p > .05$, $\eta^2 = .01$, indicated that although students may have changed as a population over time in this behavior (within-subjects analysis), and that there was a separation in usage levels between drinker group (between-subjects analysis), the rates of change were similar. Furthermore, the eta-square values suggest that little practical significance could be explained by the interaction.

Figure 2 displays these results in a visual fashion by presenting the estimated marginal means for the pre-test and post-test PBS usage rates by group. The factors were created such that all could be interpreted on the original 1-to-7 scale, where a score of 7 would represent the most positive result. All four factors show a consistent trend that as the drinker category increased in severity from light to heavy episodic, the usage of PBS decreased. Notably, the group that was in the most need of behavioral improvement, heavy episodic drinkers, showed significant mean score improvements in two areas, influence avoidance (3.05 to 3.25) and binge drinking-related (3.88 to 4.11) and a slight increase in one area, alcohol monitoring and reduction (3.68 to 3.74). As a whole, students in the light and moderate groups displayed decreases in their PBS use between pre-test and follow-up, so the increases by the heavy episodic drinkers suggested a gap closure. In terms of overall usage levels, while preventative planning displayed mean score decreases from pre-test to follow-up among all groups, the endorsement levels were the highest, while influence avoidance displayed the lowest levels of endorsement of use.

Negative Consequences

Students in the moderate and heavy episodic categories were asked to rate the frequency by which they incurred negative consequences while drinking on a scale from 1 (*never*) to 7 (*always*) for 24 different behaviors. Since these were all negative behaviors, an answer of 1 was the most desirable. In order to form appropriate continuous variables from the Likert scale-type items, an exploratory factor analysis using the maximum likelihood method and Promax rotation was run to determine which items should be grouped together into common sub-constructs. Table 3 contains the groupings for the four factors that were ultimately extracted.

In further examination of the groupings of items in Table 3, each factor consisted of a number of items regarding a specific negative consequence. The first factor, abusive behaviors

(11 items, α = .87), addressed negative consequences arising from activities that involved physically or emotionally abusing oneself or someone else as a result of drinking. Personal consequences (6 items, α = .82), largely addressed less severe consequences that were personal in nature but not as egregious as the abusive behaviors. The third factor, educational and professional (4 items, α = .87), was comprised of all the negative consequences directly related to school or work. The drinking and driving factor (3 items, α = .83) consisted of the items associated with a student either drinking and driving him or herself or riding with another driver who was drinking.

An attempt was made to conduct repeated-measures ANCOVA similar to the previous analyses; however, the distributions of all of the dependent variables created as a result of the factor analysis were extremely skewed and therefore unsuitable for utilization in a parametric inferential test. Although requiring forgoing the inclusion of demographic control variables, a nonparametric test, the Mann-Whitney test, was selected for this analysis to determine differences between the moderate and heavy episodic groups. A difference score was created for each respondent by subtracting the pre-test from the follow-up score. Therefore, a positive difference score would imply that a student incurred more frequent negative consequences as of the follow-up period, while a negative score would imply a decrease in incurrence of negative consequences. Descriptive statistics containing the mean values as of the pre-test and follow-up for each dependent variable and drinker group were also provided as points of reference. Using the difference score alone would not appropriately depict the entire scope of any discrepancies between groups, because it was important to be aware of the actual locations of the distributions.

The results indicated that three types of negative consequences displayed significant differences in mean rank between the moderate and heavy drinkers in terms of change. These

types were personal consequences, $z = -3.08$, $p < .01$, educational and professional, $z = -2.35$, $p < .05$, and drinking and driving, $z = -4.90$, $p < .01$. The fourth type of negative consequence, abusive behaviors, did not show a significant difference: $z = -1.15$, $p > .05$.

Although the Mann-Whitney test works in terms of mean ranks, the actual mean values serve as a more straightforward way to display direction and trends between the two groups. Figure 3 displays these means in a graphical fashion. Nearly all of the consequences displayed increases in incurrence between pre-test and follow-up, with the exception of drinking and driving among heavy episodic drinkers (1.89 to 1.77). Personal consequences indicated a steeper incline of incurrence for moderate drinkers (1.34 to 1.67) than for heavy episodic (2.05 to 2.16), while the reverse held true for educational and professional: 1.06 to 1.41 for moderate; 1.20 to 1.71 for heavy episodic. The lowest overall levels of incurrence were present in the abusive behaviors category, the most egregious of all, while the highest levels were displayed among personal consequences. It is important to note, however, that despite these increases and significant differences in trends between drinker types, the fact that the highest mean of all was 2.16 among post-test heavy episodic drinkers in personal consequences implies, out of a scale of 1 to 7, that the overall consequence incurrence level was extremely low.

Conclusions and Significance

Researchers have long treated alcohol use as a major issue at colleges and universities in America since their inception. The enduring enigma surrounding successful methods for prevention of alcohol-related issues has led to institutions utilizing large quantities of resources yet the issues still continue. As higher education continues to evolve, intervention and the associated research must do the same. The present study, in exploring one of the latest evolutions of the alcohol prevention process, illustrated a variety of findings that were not only significant

from a statistical perspective, but also meaningful from the view of either confirming the results of prior research or presenting an unexpected possibility.

The descriptive analysis addressing movement between drinker categories supported the literature in that, despite underage status of freshmen students, the majority of these students consumed alcoholic beverages to some extent prior to entering the college environment. Examining the population as a whole, the slight (4%) increase in the overall percentage of students who claimed to drink at all did not represent a dramatic rise in drinkers among the freshman class. However, it is important to remember that the theoretical background of the AlcoholEdu program was built upon the harm-reduction model, not the abstinence-only model. Therefore, the 80% retention of abstainers was promising, especially when considering that only 2% of these original abstainers claimed to engage in dangerous binge-drinking within the two-week period prior to the follow-up survey.

Interesting results also occurred among those identified in the pre-test as heavy episodic drinkers. When the results were separated by gender, statements in the literature (Barnett et al., 2006) suggesting that heavy-drinking men were less likely to have the desire to change their habits as compared to women were confirmed. Among men, 75% of the pre-test heavy episodic drinkers remained in the category as of the follow-up compared to 55% of women. However, the fact that among all students in the pre-test heavy episodic drinker group, 36% refrained from binge drinking up to the mid-semester follow-up, implied that these behaviors were not necessarily regularly practiced by a large segment of this subset of the student population.

Examining consumption rates by the numbers, the findings of the present study supported the findings of Wall (2007) and Lovecchio et al. (2010) that AlcoholEdu may play an important role in reducing alcohol consumption. The results from the analysis regarding movement among

drinker groups matched the results of the average weekly consumption analysis. Both men and

women, particularly those in the heavy episodic drinker categories, showed significant

reductions in average number of drinks consumed per week between the pre-test and follow-up.

Although women in this category did not have the high averages of their male counterparts in the

pre-test, their reduction percentage was greater than that of the men in the same drinker category.

Moderate drinkers of both genders showed reductions as well, but the changes among men in this

category were not significant in nature. The separation in performance between men and women

was not surprising, but the significant reductions were of particular interest, especially

considering the college environment with respect to alcohol culture around the time of the

follow-up (i.e., football games and other social opportunities for drinking).

Regarding the analysis of differences in PBS use between the pre-test and follow-up

surveys, there was a mix of expected and somewhat surprising results. In separating average

levels of use of each type of PBS by drinker group, consistent decreases occurred as drinker

group increased in severity, following the evidence brought forth by prior PBS-related research

(Walters, Roudsari, Vader, & Harris, 2007). As was expected, students endorsed the preventative

planning-related PBS strategies to the highest extent when compared to the other three sets of

strategies. Four of six of the items within the preventative planning factor directly referenced

drinking and driving. Students entering college in 2008 grew up in a culture so acutely aware of

the dangers of drinking and driving that these behaviors likely became second nature, even if

students did not personally have to exercise these behaviors until arriving at college. Addressing

the preventative planning behaviors, a less expected result was the significant, level decrease

among all drinker groups in use between the pre-test and follow-up surveys. Though these

behaviors remained the highest-endorsed of the four PBS factors, the significant decline

indicated that students had become lax in regard to what should have been more ingrained behaviors.

A promising result within the PBS analysis was the fact that in three of four categories, heavy episodic drinkers increased their use of PBS between the pre-test and follow-up periods. These changes were substantially more positive than those displayed by light and moderate drinkers. These students were in need of the greatest degree of change in protective behaviors and the results indicated that this desirable result came to fruition.

One of the most unexpected results of the analysis involved the incurrence of negative consequences. Despite the literature stating the magnitude of negative consequences faced by college drinkers, particularly those in the heavy episodic group (Busteed, 2008; Schaus et al., 2009; White & Swartzwelder, 2009), most students in the present study did not claim to have incurred these effects of drinking. The extremely skewed distributions indicated that large numbers of students rated each item within the four identified groupings of negative consequences—abusive behaviors, personal consequences, educational and professional consequences, and drinking and driving—with the lowest or second-to-lowest possible response.

However, despite the surprising attributes of the distribution, the trends made apparent through the literature noting that heavy episodic drinkers have incurred negative consequences to a greater extent than lighter drinkers were confirmed in the current study. Additionally, despite the low average endorsement rates across all factors, the fact that abusive behaviors, the grouping containing the most egregious consequences (i.e., getting in trouble with authorities, damaging property, injuring oneself or others) received the lowest endorsement among both moderate and heavy episodic groups, while personal consequences, the grouping containing the most anecdotally "typical" consequences of drinking (i.e., embarrassing oneself, having a

hangover, feeling sick to one's stomach) received the highest endorsement, was not at all surprising. Nevertheless, the decrease in drinking-and-driving-related consequences among heavy episodic drinkers, the only consequence type to decrease between pre-test and follow-up, was contradictory to the results indicated by the PBS use analysis. The factor addressing drinking-and-driving preventative behaviors indicated a decrease in utilization among all drinker groups. It was noted in literature reviewed (Araas & Adams, 2008; Martens et al., 2004, 2005, 2007) that decreased PBS use led to increased negative consequences, yet the opposite held true in the present study.

Despite the lack of ability to attribute any change, positive or negative, directly to the use of the AlcoholEdu program, this study provided a solid baseline for future comparisons of student use of the program. Future implications for expanding research would involve the use of multiple years of data, comparable results of peers not using the program, and further refinement of the survey tool to produce more substantive comparisons. From a practical perspective, the results supported the use of the program and surveys as a thorough screening tool, serving as part of a comprehensive campus-wide AOD program. Valuable insight could also be gained by expanding the program's follow-up period past the first semester.

As the results indicated, the issue of underage alcohol use among college students was just as prevalent as historical evidence has indicated. Postsecondary institutions have an opportunity to guide students to act responsibly with respect to alcohol. Though no single solution will solve associated issues, the right blend of approaches can transform an entire university's culture and way of thinking among its members. The evidence provided by this study supports the continuance of including AlcoholEdu as one of the first steps to which students are exposed in building a culture of responsible alcohol use.

References

American College Health Association. (2009). American College Health Association National

College Health Assessment 2008 reference group data report (abridged). *Journal of

American College Health, 57*, 477-488. doi: 10.3200/JACH.57.5.477-488

Araas, T. E., & Adams, T. B. (2008). Protective behavioral strategies and negative alcohol-

related consequences in college students. *Journal of Drug Education, 38*, 211-224. doi:

10.2190/DE.38.3.b

Barnett, N. P., Goldstein, A. L., Murphy, J. G., Colby, S. M., & Monti, P. M. (2006). "I'll never

drink like that again:" Characteristics of alcohol-related incidents and predictors of

motivation to change in college students. *Journal of Studies on Alcohol, 67*, 754-763.

Barnett, N. P., Tevyaw, T. O., Fromme, K., Borsari, B., Carey, K. B., Corbin, W. R., et al.

(2004). Brief alcohol interventions with mandated or adjudicated college students.

Alcoholism: Clinical and Experimental Research, 28, 966-975. doi:

10.1097/01.ALC.0000128231.97817.C7

Beck, J. (1998). 100 years of "Just Say No" versus "Just Say Know:" Reevaluating drug

education goals for the coming century. *Evaluation Review, 22*, 15-45. doi:

10.1177/0193841X9802200102

Boccella, K., & Giordano, R. (2007, October 18). A second student death at Rider. *The

Philadelphia Inquirer*, p. B1.

Busteed, B. (2008, May 2). The mistake colleges make about student drinking [Commentary].

The Chronicle of Higher Education, p. A34.

DeJong, W., Schneider, S. K., Towvim, L. G., Murphy, M. J., Doerr, E. E., Simonsen, N. R., et

    al. (2006). A multisite randomized trial of social norms marketing campaigns to reduce

    college student drinking. *Journal of Studies on Alcohol, 67*, 868-879.

Department of Education Drug and Alcohol Abuse Prevention Rule, 34 C.F.R. § 86 (1990).

Dobbin, B. (2009, April 1). 3 charged in NY student's drinking death. *The Boston Globe*, p. 2.

Hingson, R., Heeren, T., Winter, M., & Wechsler, H. (2005). Magnitude of alcohol-related

    mortality and morbidity among U.S. college students ages 18-24: Changes from 1998 to

    2001. *Annual Review of Public Health, 26*, 259-279. doi:

    10.1146/annurev.publhealth.26.021304.144652

Hingson, R., Heeren, T., Zakocs, R., Winter, M., & Wechsler, H. (2003). Age of first

    intoxication, heavy drinking, driving after drinking and risk of unintentional injury

    among U.S. college students. *Journal of Studies on Alcohol, 64*, 23-32.

Hustad, J. T. P., Barnett, N. P., Borsari, B., & Jackson, K. M. (2010). Web-based alcohol

    prevention for incoming college students: A randomized controlled trial. *Addictive

    Behaviors, 35*, 183-189. doi:10.1016/j.addbeh.2009.10.012

Johnson, D. (2008, November 28). Rift on Indiana campus after student dies. *The New York

    Times*, p. A33.

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2008). *Monitoring the

    Future national survey results on drug use, 1975–2007: Volume II, College students and

    adults ages 19–45* (NIH Publication No. 08-6418B). Bethesda, MD: National Institute on

    Drug Abuse.

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Monitoring the

    Future national survey results on drug use, 1975–2008: Volume I, Secondary school*

students (NIH Publication No. 09-7402). Bethesda, MD: National Institute on Drug

Abuse.

Larimer, M. E., & Cronce, J. M. (2002). Identification, prevention and treatment: A review of

individual-focused strategies to reduce problematic alcohol consumption by college

students. *Journal of Studies on Alcohol, 63*(Suppl. 14), 148-163.

Lovecchio, C. P., Wyatt, T. M., & DeJong, W. (2010). Reductions in drinking and alcohol-

related harms reported by first-year college students taking an online alcohol education

course: A randomized trial. *Journal of Health Communication, 15*, 805-819. doi:

10.1080/10810730.2010.514032

Marlatt, G. A., Baer, J. S., Kivlahan, D. R., Dimeff, L. A., Larimer, M. E., Quigley, L. A., et al.

(1998). Screening and brief intervention for high-risk college student drinkers: Results

from a 2-year follow-up assessment. *Journal of Consulting and Clinical Psychology, 66*,

604-615.

Marlatt, G. A., & Witkiewitz, K. (2002). Harm reduction approaches to alcohol use: Health

promotion, prevention, and treatment. *Addictive Behaviors, 27,* 867-886.

doi:10.1016/S0306-4603(02)00294-0

Martens, M. P., Ferrier, A. G., Sheehy, M. J., Corbett, K., Anderson, D. A., & Simmons, A.

(2005). Development of the protective behavioral strategies survey. *Journal of Studies on

Alcohol, 66,* 698-705.

Martens, M. P., Pedersen, E. R., LaBrie, J. W., Ferrier, A. G., & Cimini, M. D. (2007).

Measuring alcohol-related protective behavioral strategies among college students:

Further examination of the protective behavioral strategies scale. *Psychology of Addictive

Behaviors, 21*, 307-315. doi: 10.1037/0893-164X.21.3.307

Martens, M. P., Taylor, K. K., Damann, K. M., Page, J. C., Mowry, E. S., & Cimini, M. D.

(2004). Protective behavioral strategies when drinking alcohol and their relationship to

negative alcohol-related consequences in college students. *Psychology of Addictive

Behaviors, 18*, 390-393. doi: 10.1037/0893-164X.18.4.390

Moskowitz, J. M. (1989). The primary prevention of alcohol problems: A critical review of the

research literature. *Journal of Studies on Alcohol, 50,* 54-88.

National Institute on Alcohol Abuse and Alcoholism. (1976). *The whole college catalog about

drinking: A guide to alcohol abuse prevention* (DHEW Publication No. ADM 76-361).

Washington, DC: U.S. Government Printing Office.

National Institute on Alcohol Abuse and Alcoholism. (2002). *A call to action: Changing the

culture of drinking at U.S. colleges.* Retrieved from

http://www.collegedrinkingprevention.gov/media/TaskForceReport.pdf

Outside the Classroom. (2011). *AlcoholEdu for college.* Retrieved from

http://www.outsidetheclassroom.com/solutions/higher-education/alcoholedu-for-

college.aspx

Schaus, J. F., Sole, M. L., McCoy, T. P., Mullett, N., Bolden, J., Sivasithamparam, J., et al.

(2009). Screening for high-risk drinking in a college student health center: Characterizing

students based on quantity, frequency, and harms. *Journal of Studies on Alcohol and

Drugs, 70*(Suppl. 16), 34-44.

Straus, R., & Bacon, S. D. (1953). *Drinking in college*. New Haven, CT: Yale University Press.

Timberlake, D. S., Hopfer, C. J., Rhee, S. H., Friedman, N. P., Haberstick, B. C., Lessem, J. M.,

et al. (2007). College attendance and its effect on drinking behaviors in a longitudinal

study of adolescents. *Alcoholism: Clinical and Experimental Research, 31*, 1020-1030.

doi: 10.1111/j.1530-0277.2007.00383.x

Wall, A. (2005). *Online health education curriculum evaluation: Differential findings among college students* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3199164)

Wall, A. F. (2007). Evaluating a health education Web site: The case of AlcoholEdu. *NASPA Journal, 44,* 692-714.

Walters, S. T., Roudsari, B. S., Vader, A. M., & Harris, T. R. (2007). Correlates of protective behavior utilization among heavy-drinking college students. *Addictive Behaviors, 32*, 2633-2644. doi:10.1016/j.addbeh.2007.06.022

Warner, H. S. (1938). *Alcohol trends in college life*. Washington, DC: The Board of Temperance, Prohibition, and Public Morals of the Methodist Episcopal Church.

Wechsler, H., Moeykens, B., Davenport, A., Castillo, S., & Hansen, J. (1995). The adverse impact of heavy episodic drinkers on other college students. *Journal of Studies on Alcohol, 56*, 628-634.

Weitzman, E. R., Nelson, T. F., & Wechsler, H. (2003). Taking up binge drinking in college: The influences of person, social group, and environment. *Journal of Adolescent Health, 32*, 26-35. doi:10.1016/S1054-139X(02)00457-3

Table 1

Change in Drinker Group from Pre-Test to Follow-Up, All Students (N = 3,854)

	Group % in Follow-Up			
Pre-Test Group	1	2	3	4
1. Abstainer[a]	79.6	12.6	5.6	2.2
2. Light[b]	11.7	48.8	27.2	12.3
3. Moderate[c]	—	28.5	47.9	23.6
4. Heavy Episodic[d]	—	14.7	21.4	63.8

[a]$n = 1{,}560.$ [b]$n = 1{,}185.$ [c]$n = 708.$ [d]$n = 401.$

Table 2

Scale Creation for Protective Behavioral Strategy Use

Scale Name	Item
Influence Avoidance[a]	Choose a drink containing less alcohol
	Stop drinking at a predetermined time
	Monitor your BAC to reduce drinking-related problems
	Put extra ice in your drink
	Avoid drinking games
	Avoid trying to "keep up" or "out drink" others
	Limit the amount of money you bring to spend on alcohol
	Hold a drink so people stop bothering you about drinking
Preventative Planning[b]	Prevent a friend from driving under the influence of alcohol
	Use a designated driver
	Make plans to avoid driving after drinking
	Know where your drink has been at all times
	Have a friend let you know when you've had enough to drink
	Don't drink so you can serve as a designated driver
Alcohol Monitoring and Reduction Behaviors[c]	Set a limit on how many drinks you'll have
	Keep track of how many drinks you've had
	Pace your drinks to 1 or fewer per hour
	Alternate non-alcoholic beverages with alcoholic drinks
	Make your own drinks to control the amount of alcohol you have
	Not accept drinks from a shared source (e.g., punch bowl)
	Eat food before or while drinking
Binge-Related Behaviors[d]	Chug alcohol
	Start drinking before going out (i.e., pre-gaming)
	Do shots

[a]8 items, Cronbach α = .84. [b]6 items, Cronbach α = .85. [c]7 items, Cronbach α = .84. [d]3 items, Cronbach α = .73.

Table 3

Scale Creation for Negative Consequences

Scale Name	Item
Abusive Behaviors[a]	Got into trouble with authorities
	Injured another person
	Taken advantage of someone sexually
	Got involved in a physical fight
	Deliberately vomited to continue drinking
	Been taken advantage of sexually
	Damaged property
	Strained a relationship with a friend
	Said things you didn't mean that hurt others' feelings
	Injured yourself
	Was argumentative
Personal Consequences[b]	Forgot where you were or what you did
	Passed out
	Got a hangover
	Embarrassed yourself
	Felt sick to your stomach
	Did something you regretted
Educational and Professional[c]	Got behind in school work
	Performed poorly on an assignment/test
	Missed a class
	Missed going to work
Drinking and Driving[d]	Drove after drinking 4 or more drinks
	Drove after drinking 5 or more drinks
	Rode with a driver who had been drinking

[a]11 items, Cronbach α = .87. [b]6 items, Cronbach α = .82. [c]4 items, Cronbach α = .87. [d]3 items, Cronbach α = .83.
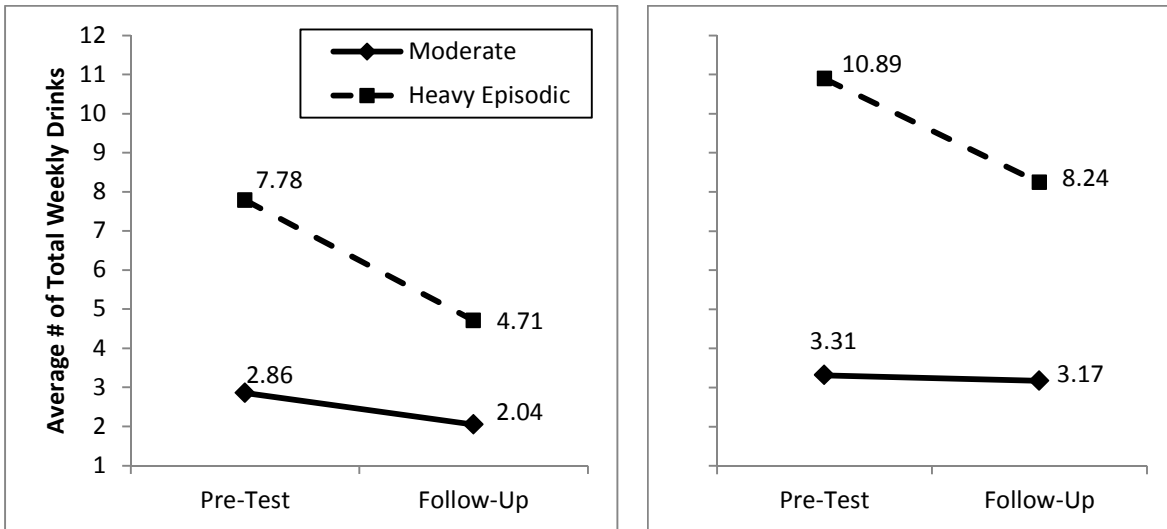
Figure 1. Mean levels of consumption for moderate and heavy episodic drinkers, pre-test and

follow-up. The graph on the left shows the results of the women; both groups indicated decreases

in consumption over time. The right-hand graph shows the results of the men; while heavy

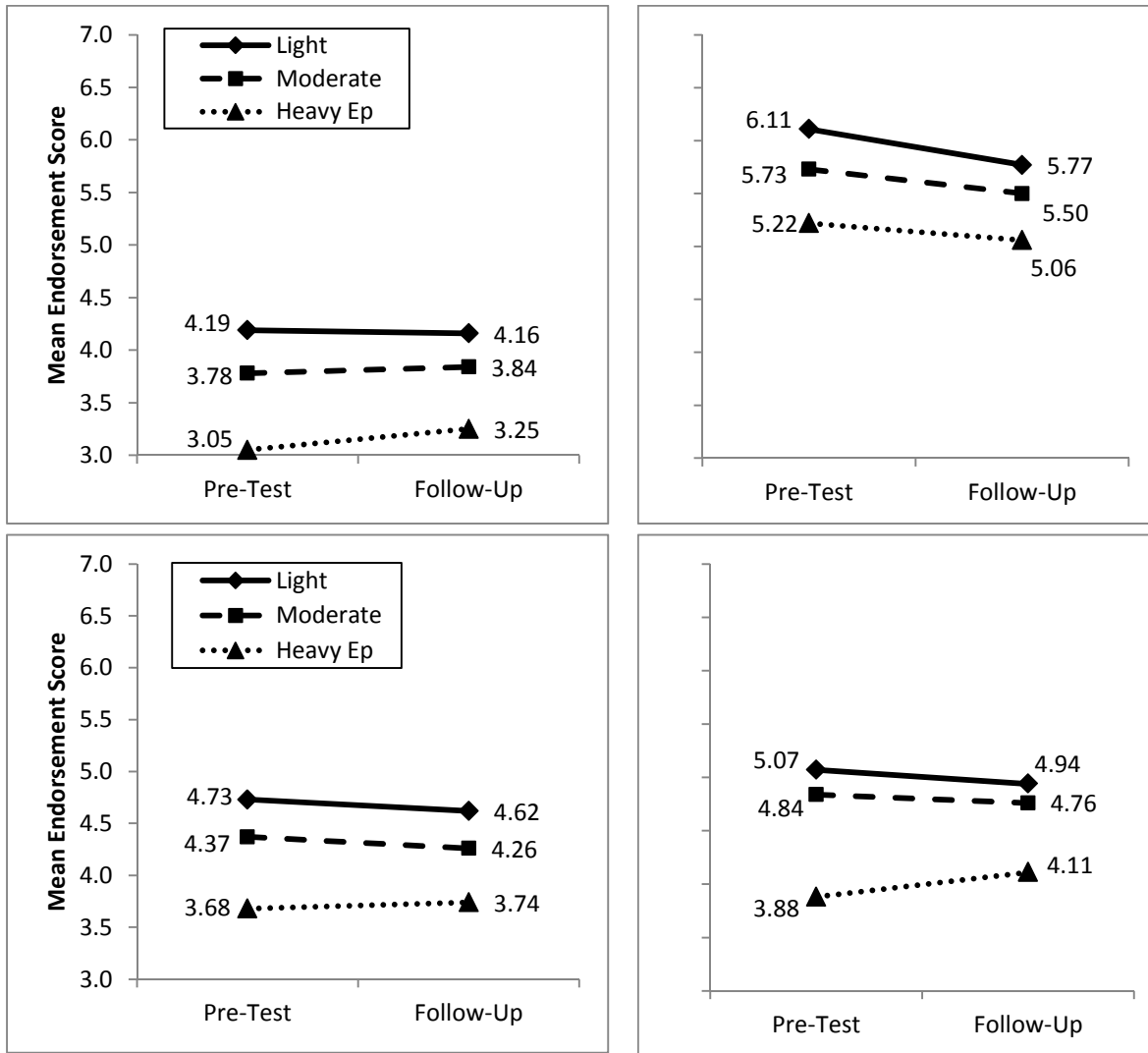episodic drinkers reduced consumption over time, moderate drinkers showed very little change.

Figure 2. Mean endorsement scores for protective behavioral strategy (PBS) use by drinker type, pre-test and follow-up. The upper-left graph represents Influence Avoidance; the upper-right represents Preventative Planning; the lower-left represents Alcohol Monitoring and Reduction; and the lower-right represents Binge-Related Behaviors. Overall, the highest endorsed behaviors belong to Preventative Planning, while the lowest-endorsed scores belong to Alcohol Monitoring and Reduction.
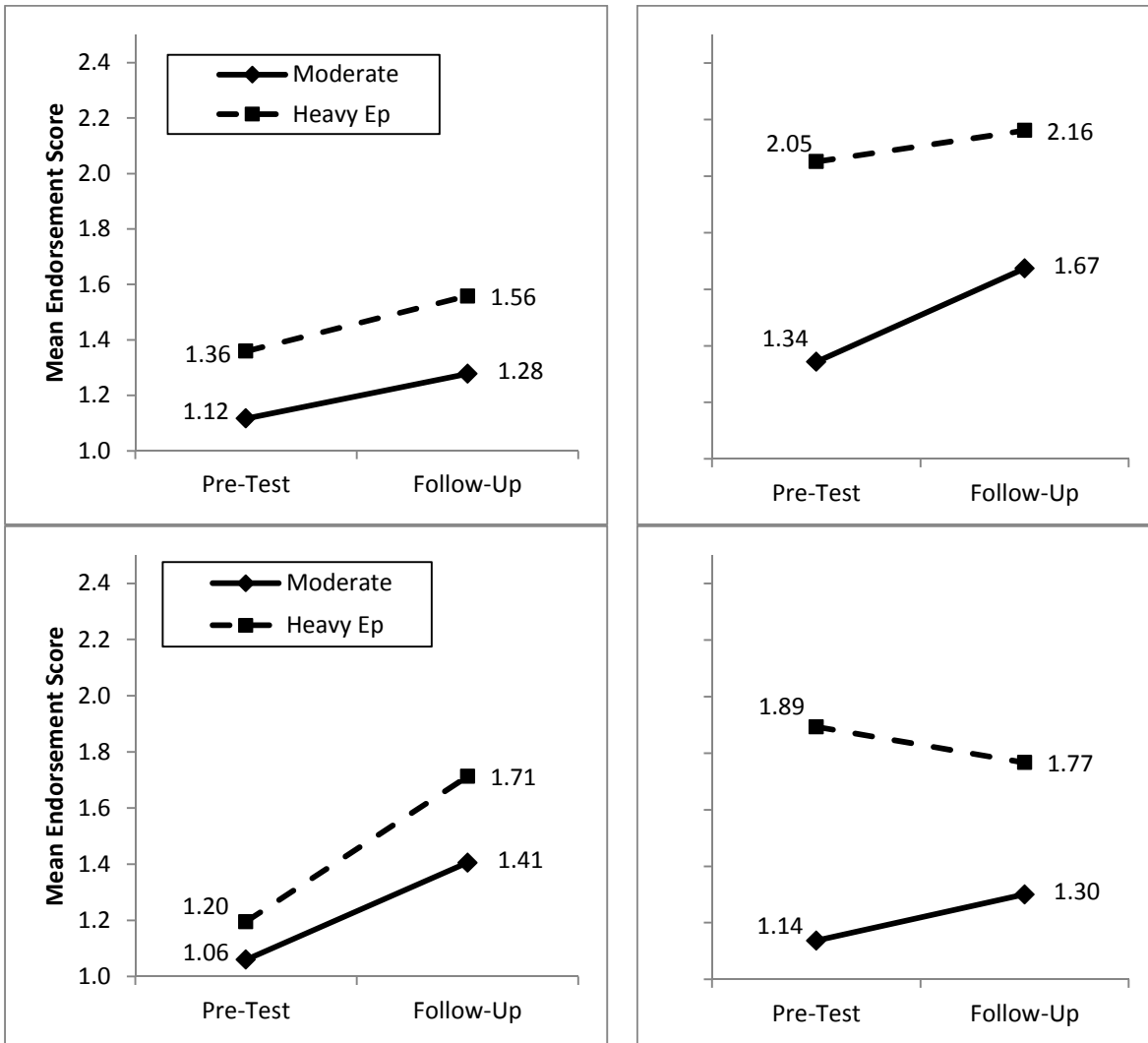
Figure 3. Mean endorsement scores for incurrence negative consequences by drinker type, pre-test and follow-up. The upper-left graph represents Abusive Behaviors; the upper-right represents Personal Consequences; the lower-left represents Educational and Professional; and the lower-right represents Drinking and Driving. Overall, the highest incurrence rate belongs to Personal Consequences, while the lowest incurrence belongs to Abusive Behaviors.