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Preventing campus alcohol abuse: A controlled comparison of two media programs

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PREVENTING CAMPUS ALCOHOL ABUSE: A CONTROLLED
COMPARISON OF TWO MEDIA PROGRAMS

by

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A dissertation completed in partial-fulfillment
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ABSTRACT

Preventing Campus Alcohol Abuse: a Controlled Comparison of Two Media Programs

by

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Alcohol misuse on university and college campuses has contributed to a variety of problems experienced by students, including driving injuries and fatalities, alcohol poisoning, academic failure, potential long-term alcohol abuse, and risky or non-consensual sexual activity. This investigation examined the efficacy of two prevention programs targeting campus alcohol misuse (Alcohol 101; Collegiate Guide to Responsible Drinking, CGRD). Alcohol 101 disseminates information regarding the consequences of alcohol abuse in a psycho-educational, interactive DVD format. CGRD includes some DVD-based psycho-educational material while primarily focusing on empirically derived cognitive behavioral techniques. Ninety-two participants recruited from university psychology courses were randomly assigned to receive one of the experimental prevention programs immediately after their completion of a battery of standardized baseline measures relevant to their use of alcohol. The same assessment battery was re-administered 30 days after program completion. Both programs demonstrated significant reductions in the amount and frequency of alcohol use for both

days post-program completion. Participants in both prevention programs improved significantly in their knowledge of the physical effects of alcohol misuse and self-regulation of alcohol. Consumer satisfaction scales indicated relatively high scores for participants in both prevention programs (i.e., CGRD, Alcohol 101). These results suggest both prevention programs may assist in reducing alcohol use. However, because study findings indicated similar reductions in alcohol use between participants in both prevention groups, it is possible significant reductions in alcohol use may have been due to extra-treatment factors associated with the passage of time. Future directions are discussed in light of the study's findings.

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CHAPTER 1

INTRODUCTION

Alcohol abuse disorders are pervasive throughout all segments of the U.S. population, and are particularly problematic among young adults in college. The onset of alcohol abuse problems for these individuals often occur with little or no education regarding the physiological effects of alcohol and related psycho-social risks (i.e., driving accidents, unplanned pregnancy, sexually transmitted diseases). In addition, the expectation of alcohol misuse through binge and heavy drinking patterns has been increasingly proposed as a “rite of passage” in university and college settings over the past several decades. Such expectations lead to increased rates of reported alcohol related trauma and other negative life events for students, and act to establish long-term patterns of alcohol misuse. Recognizing the extent of alcohol use in college students, the National Institutes of Health (NIH) and National Institute on Alcohol Abuse and Alcoholism (NIAAA) have established a website (National Institute on Alcohol Abuse and Alcoholism, 2005) to assist campus health providers, administrators, student body leaders, law enforcement and civic leaders in promoting prevention programs.

“Binge” drinking presents the most serious threat to this population and is defined as the consumption of five or more servings of alcohol for men or four servings of alcohol for women per single 2 hour occasion (Centers for Disease Control, 2008). “Heavy alcohol use” is a persistent pattern of binge drinking and is often considered five episodes

of binge drinking within thirty days (Centers for Disease Control, 2007, p. 229). In 2005, for all individuals between the ages of 18-25 years, 60.9% used Alcohol, and 15.3% of these individuals were “heavy consumers of alcohol” (Centers for Disease Control, 2007). In addition, the National Survey on Drug Use & Health (NHSDA) reports college students in this age range are less prone to daily drinking as compared with non-college same-age counterparts but are more likely to binge drink (O’Malley & Johnston, 2002). The frequent occurrence of “binge” levels of alcohol use can lead to a more pervasive pattern of alcohol abuse or dependence (APA, 2000).

Campus and residential variables are associated with differences in consumption rates (Presley, Meilman, & Leichliter, 2002). For instance, two year schools are found to have lower binge drinking rates than four year institutions. Similarly, students living off campus with relatives have lower levels of use than those in less supervised, on and off campus housing, suggesting the traditional student population warrants particular prevention-based intervention. Several empirically derived and supported interventions currently exist for the reduction of alcohol abuse in the college population. These interventions have been evaluated through controlled treatment outcome studies and share common techniques such as psycho-education and behavioral skills training. Psycho-educational training across prevention programs commonly includes learning to monitor blood alcohol levels and evaluating alcohol-related bio-psycho-social risks (e.g., sexual activity, driving under the influence, aggression, and sexual assault). Throughout the 1990’s two prominent programs were developed and utilized; Alcohol 101 (Reis, Riley, Lokman, & Baer, 2000) and ASTP (Fromme, Marlatt, Baer, & Kivlahan, 1994). Alcohol 101 is a 60 minute, interactive DVD in which participants navigate a virtual

reality drinking environment (i.e., a bar) and receive immediate feedback for the purposes of alcohol-related education and skills training. In contrast, Alcohol Skills Training Program (ASTP) incorporates more extensive group sessions (i.e., six 90 minute sessions), in which skills related to alcohol use are disseminated (e.g., monitoring alcohol-use, awareness of high-risk drinking environments, stress reduction, and mood regulation). Recent developments involve streamlining the components of these interventions, and a greater emphasis on motivational enhancement through the review of negative, alcohol related outcomes. To this end, the Brief Alcohol Screening and Intervention for College Students (BASICS, Murphy et al., 2001) was developed as an abbreviated version (i.e., one 50 minute session) of ASTP. BASICS includes many of the salient components of ASTP with the removal of extensive rehearsal. Similarly, the Lifestyle Management Class (LCM, Fromme & Corbin, 2004) is another brief program. This prevention program involves two 60 minute sessions, the primary component of which is the pairing of consequences experienced by student drinkers to related skills training. In addition, feedback alone has been utilized in two studies. First, Walters, Bennett, & Miller, 2000, provided a brief motivational interview which included a comparison of the student's drinking patterns and consequences to relevant national normative data. Second, the Multi-Media Assessment of Student Health (MMASH, Dimeff, & McNeely, 2000) utilizes a computer program to collect data and create statistical comparisons between the individual and others. Trained medical staff provide feedback. In controlled trials, these preventions have demonstrated success in reducing alcohol drinking patterns.

The present study investigates the efficacy of the widely utilized DVD-based psycho-educational prevention program for campus alcohol misuse, Alcohol 101, (Reis, Riley, Lokman, & Baer, 2000), and a new DVD alcohol misuse prevention program that incorporates cognitive-behavioral methods, Collegiate Guide to Responsible Drinking (CGRD). Donohue, Allen, Maurer, Ozols, & DeStephano (2004) compared Alcohol 101 to a cognitive behavioral (CBT) intervention that was focused on reviewing consequences of substance misuse and substance use refusal skills training. The results revealed that, in Heavy alcohol users within college campuses, Alcohol 101 increased awareness of the negative consequences of alcohol use while the CBT program was found to reduce the frequency and amount of alcohol use.

The CGRD incorporates CBT methods, albeit in a DVD format. Moreover, there is also a greater emphasis on psycho-educational components traditionally contained in campus alcohol prevention programs. Common consequences of alcohol use are reviewed, and substance refusal skills training is modeled in videotaped scenarios. These scenarios, in conjunction with the use of a corresponding workbook, were designed to provide additional training in self-regulation of drinking patterns. Participants were drawn through University psychology courses and randomly assigned to receive either the CGRD or Alcohol 101. It was predicted that while Alcohol 101 would replicate its efficacy in altering inaccurate alcohol expectations and risk awareness in this general university sample, the CGRD would be equivalent in participant satisfaction ratings and result in greater reductions of alcohol consumption among Heavy drinkers, relative to Alcohol 101.

CHAPTER 2

LITERATURE REVIEW

Prevention programs exist for a variety of problem behaviors. Such programs seek to increase pro-social behaviors while stunting the development of mental disorders or other undesirable outcomes. Nation et al. (2003) established criteria for successful prevention programs through a meta-analysis of review papers. In their examination, thirty-five journal articles produced 252 program characteristics that were categorized into three salient domains. First, the reviewers established that successful prevention programs are theory driven, expansive rather than narrow (i.e. utilize a variety of techniques), skills based rather than didactic, etiologically-supported, and facilitate pro-social interaction. Second, these programs use socio-culturally relevant adaptations in language and social scenarios whenever indicated in distinct populations. Along these lines, prevention programming must occur in the appropriate time frame (i.e., skills may fade with premature training or be insufficient if the problem is already established). The use of familiar language and relevant scenarios enhance the utility of the material. Third, it was noted that evaluation of successful prevention programs includes ongoing protocol adherence monitoring, training for treatment providers, and appropriate participants and measures of outcome. The following literature review underscores prevention programs for alcohol abuse among college students which possess many of the aforementioned characteristics, and have been evaluated in one or more controlled outcome studies. In

reviewing each prevention program, its intervention components are fully described and its empirical support is offered. As will be indicated, multi-media prevention programs for alcohol abuse in college students appear to be a particularly promising cost-effective format.

Campus Alcohol Abuse Prevention Programs

Alcohol Skills Training Program (ASTP)

Alcohol Skills Training Program (ASTP), developed by Fromme, Marlatt, Baer, and Kivlahan, (1994) is conducted in six 90 minute sessions or eight 60 minute sessions. This approach focuses on three areas: education around alcohol related life skills, increased cognitive self-monitoring, and group cohesion. Similar to other prevention interventions, this program operates on the assumption that the misuse of alcohol in this population occurs due to a life skills and knowledge deficit. Thus, the primary components of this intervention are distributing information about monitoring alcohol use, rehearsal of related skills, and self-monitoring. In addition, a group format was chosen based on Yalom's principles of group therapy and that as isolation is removed, and support for change instilled, the group becomes cohesive. The six ASTP group sessions have specific goals based on areas targeted for improvement. Materials utilized in ASTP are cumulatively implemented with continual self-monitoring of alcohol consumption patterns and concurrent events. ASTP is more comprehensive than most other alcohol misuse prevention programs and much of the program is didactically presented

Kivlahan, Marlatt, Fromme, Coppel, & Williams (1990) compared ASTP to eight sessions of psychoeducational classes and an assessment-only control condition. The psychoeducational prevention program was equivalent to ASTP in duration and content.

However, it did not include group interaction or discussion as a primary component. Forty-three students were randomly assigned to the two prevention conditions respectively: 15 ASTP participants, 13 Psycho-educational class participants, and 15 participants in the assessment-only control condition. No significant difference was found between experimental groups in the perceived helpfulness, understandability, instructor characteristics, or likelihood of recommending the program. The ASTP ratings indicated significantly higher participant satisfaction with regards to usefulness of handouts and biologically based information. ASTP group satisfaction ratings were significantly greater than the comparative prevention program with regards to the utility of the self-monitoring cards. Number of drinks and associated blood alcohol level per week (i.e., self monitoring) were found to be significantly different between the groups across time. Subsequent tests revealed that this change occurred from the pretest to 4 month follow-up assessments, and that change among the ASTP group scores improved to a significantly greater degree than the comparison program and assessment-only control conditions. ASTP participants did not demonstrate significant improvements in overall drinking patterns as compared with the other experimental groups. For instance, driving after four or more alcoholic beverages were consumed occurred in 40% or more of participants in all three groups. Moreover, the drawing of definitive conclusions is limited by low sample size.

Baer, Marlatt, Kivlahan, Fromme, Larimer, & Williams (1992) compared traditional ASTP to two alternative prevention formats; first, ASTP in a self-study format and, second, a single hour of individual motivational interviewing with limited ASTP information. Participants (N = 134) were randomly assigned to the aforementioned

groups in three “waves” or study cohorts. Participants with higher rates of alcohol use during baseline were more likely to demonstrate poor attendance in all conditions. Participants assigned to ASTP experienced the lowest rates of attrition, with 72% attending all five sessions. Perhaps due to incentives, follow-up data was relatively high, as 94% completed all assessments at a 2 year-old follow-up. A significant decrease in alcohol consumption (drinks per month) occurred across time for all prevention conditions. However, there were no significant differences in alcohol use across time between the experimental conditions, and high levels of attrition were found in all 3 prevention formats, particularly for the self-taught ASTP. The results of these studies indicate that the ASTP includes several essential components in the prevention of alcohol abuse, including modeling and rehearsal of alcohol refusal skills, monitoring of BAC, and teaching students to be more aware of cognitive cues related to drinking. However, the program lasts 8 hours and requires facilitators to lead groups, which is less cost-effective than other alcohol prevention groups for use in student populations (see below).

Brief Alcohol Screening and Intervention for College Students (BASICS)

Dimeff, Baer, Kivlahan, & Marlatt (1999) developed an abbreviated version of ASTP, Brief Alcohol Screening and Intervention for College Students (BASICS). In contrast to the six ASTP sessions, BASICS is completed in one 50 minute session. BASICS is a theoretical derivative of ASTP, grounded in social learning theory. The program is focused on learning harm reduction techniques relevant to potential risks young adults identify as salient in their alcohol use experience. BASICS is comprised of three critical components: a) an initial alcohol consumption assessment, b) a review of the individuals self-report in comparison to cohort averages while utilizing motivational

interviewing techniques, and c) social skills training and psychoeducation related to the identified deficits. As indicated as beneficial by Nation et al. (2003), BASICS is tailored to the individual, cost and time effective, and based on premises found efficacious in other populations. As noted by the investigators (Dimeff et al., 1999) a primary limitation of BASICS is that its efficacy is limited to students who consume relatively small amounts of alcohol.

Murphy et al. (2001) compared BASICS to a commonly utilized, but as yet unexamined, program BACHUS/GAMMA (Bacchus Network, 2008). Ninety-nine heavy drinkers were identified from an initial pool of 229; of which 84 completed the programs and provided data. The participants were assigned to three conditions through blocked randomization (i.e., stratification based on gender, amount of use, and RAPI scores) to BASICS (n = 30), BACCHUS/GAMMA (n = 29), and a waitlist control group (n = 25). BACCHUS/GAMMA was considered the treatment-as-usual comparison condition. It consists of a brief psychoeducational tape with a 20 minute review in which the group leader targets the participant's ideas of campus alcohol consumption. Murphy et al. (2001) acknowledged that power was low due to the small number of participants and the authors alpha level was raised to .15. Regardless of this alteration in alpha level, several significant findings occurred at the $p < .05$ level. The BASICS group was found to significantly reduce the amount of alcohol consumed in relation to the BACCHUS/GAMMA group across three months for those individuals who reported pre-prevention program binge rates of 4 or more nights per week. In addition, BASICS reduced drinking over the control condition for participants experiencing three or more

binges per week and those consuming 26 or more drinks per week at the pretest. There were no significant between group differences at the 9 month follow up assessment.

In a second investigation of BASICS (Marlatt et al, 1998), freshman were recruited and followed for four years. Individuals identified as High Risk for alcohol dependence ($N = 348$) were randomly assigned to receive BASICS ($n = 174$) or an assessment-only control condition ($n = 174$). In addition, individuals at all levels of risk were recruited to be in a “Normative” assessment-only control group ($N = 115$). Marlatt et al. (1998) reported results for the two year assessment point. A statistical comparison of the High Risk individuals assigned to BASICS or assessment-only revealed that the prevention group demonstrated statistically significant improvements in comparison to the control group from pre-prevention to post-prevention. The High Risk group receiving prevention demonstrated greater reductions in alcohol use than the untreated High Risk group. A similar pattern was reported with regards to alcohol drinking related problems.

The aforementioned data was later compiled with the results of the third and fourth year data and reanalyzed utilizing a clinical cut-off point established from the distribution of the Normative group. These results were published by Roberts, Neal, Kivlahan, Baer, and Marlatt (2000) initially, and subsequently restated in more extensively by Baer, Kivlahan, Blume, McKnight, and Marlatt (2001). Data for all three experimental groups was categorized according to individual change as follows: no change (did not move reliably in either direction), reliably worse (moved $2 se_{A-B}$ but didn't pass the clinically significant cut-off point), new case (moved reliably worse, $2 se_{A-B}$ and beyond the clinically significant cut-off point), reliably improved (moved reliably $2 se_{A-B}$ in a positive direction but not below the clinical cut-off point), and resolved (move reliably in

a positive direction and passed the clinical cut-off point). Those in the High Risk intervention group with a baseline score in the clinical range (i.e., above cut-off) experienced gains. The High Risk control group and High Risk intervention group reported a greater percentage of individuals in the “reliably improved” category in comparison to the more stable normative control group at the four year assessment point. In addition, students in the High Risk intervention group (i.e., below cut-off) experienced a greater percentage of individuals categorized as “reliably improved” in comparison to the control condition groups (i.e., nearly double) at both the two and four year assessment points.

Lee et al. (2007) have investigated the use of the components of the BASICS program in a series of 10 weekly postcards and letters. The mailings include a review of the student’s drinking patterns placed in context of the average drinking patterns at the participant’s university, a similar comparison of the student’s perceptions of alcohol use to that of their peers, and basic psychoeducational material related to Blood Alcohol Concentration. The length of the program is comparable to the BASICS program as each mailing requires 5 to 10 minutes to review. The previously established tenants of the BASICS program is delivered in a more cost and time effective manner than traditional group settings. Participants were randomly assigned to this prevention condition ($n = 737$) or an assessment-only control condition ($n = 751$). Participants receiving these materials significantly reduced their overall alcohol consumption, and number of binge drinking episodes from pre-prevention to post-prevention relative to participants in the control condition. The primary strength of this study was the large number of participants. However, it should be indicated that the control participants did not receive

an attention placebo, and males and Heavy drinkers were over-represented among students who did not complete the study. Therefore, it is difficult to determine what the effects of BASICS are on Heavy male drinkers, who are most at-risk for the dangerous consequences of alcohol misuse in college campuses.

Lifestyle Management Class (LMC)

Lifestyle Management Class (LMC; Fromme & Corbin, 2004) is a four hour course divided into two sessions conducted by male & female co-facilitators. Motivational Interviewing (Miller and Rollnick, 1991) is the primary framework of this prevention with the addition of relevant psychoeducation similar to the BASICS program and social skills training. LMC presumes that the college student identified as a Heavy alcohol consumer has yet to identify and cognitively link the consequences of alcohol consumption with problematic episodes of use. The reduction in use is posited to stem from the creation of this connection and correcting cognitive errors about “typical college drinking.” The supplemental didactic component both reinforces this process and provides tools for establishing and maintaining reductions in alcohol consumption. The investigators report this intervention has four basic components: 1) education regarding patterns of alcohol consumption, 2) reframing misconceptions about peer alcohol use, 3), motivational enhancement & interviewing techniques, and 4), social skills training in multiple domains.

Fromme & Corbin (2004) conducted a substantial, well controlled evaluation of LMC as conducted by peers versus mental health professionals. The study’s sample was initially comprised of 452 participants from the general campus community, and 124 participants referred (i.e., mandated) as a result of an alcohol related campus infraction.

Participants were assigned to one of the following three conditions. The first condition was a peer led LMC group with trained, undergraduate facilitators with 148 voluntary participants and 45 mandated participants completing the study. The second condition was a professionally led LMC group (i.e., conducted by graduate student facilitators with 2 years counseling experience) with 137 voluntary and 22 mandated participants completing the study. The third condition was a wait-list control condition that included 118 voluntary and 46 mandated participants completing the study. Results indicated the professionally led group experienced higher consumer satisfaction and compliance in comparison to peer led groups. The peer and professionally led experimental groups decreased alcohol use from pre to post test at a comparable rate. Male participants in the prevention groups demonstrated significantly greater reductions in alcohol consumption relative to control participants from pre-prevention to post-prevention. Similarly, male participants in the peer and professionally led prevention conditions significantly reduced the occurrence of driving while intoxicated in comparison to wait-list control groups. Results revealed that, for all three experimental groups, no changes were maintained at the six month point. This study demonstrates the efficacy of social skills and motivational interviewing as components in the prevention of alcohol abuse. Modeling and behavioral rehearsal are both utilized in teaching social skills in LMC. It is unclear whether behavioral rehearsal is necessary in the reduction of alcohol consumption, or if more cost-efficient media-based modeling alone is sufficient. Similarly, it appears motivational interviewing methods were initially an effective component in lowering alcohol consumption.

Motivational Interviewing

Walters, Bennett, & Miller (2000) investigated the use of motivational interviewing versus a motivational group. Participants (N = 43) were randomly assigned to a one of three conditions: a single two hour motivational enhancement group session, mailed feedback regarding alcohol use, and an assessment-only control condition. The primary mechanism of creating change in motivational interviewing is to incite incongruence between current negative alcohol related outcomes and pre-established life goals. The motivational enhancement prevention contained specific components designed to create such an effect, which included a values clarification exercise, a drinking norms-clarification exercise, the development of a drinking-consequence list (positive and negative), an alcohol-myths review, alcohol-use related social skills training, and alcohol related psycho-educational material. The mailed format involved providing written feedback about the individual's pattern of alcohol use (i.e., alcohol related problems, frequency, and amount), and comparing this information to patterns of alcohol use in the general population of their campus. Both preventions were based on empirically derived prevention programs. While both groups made significant improvements from pre-prevention to 6-week post-prevention in alcohol consumption, the control and prevention groups did not differ significantly. The primary limitation of this study is the limited number of participants (i.e., low power).

LaBrie et al. (2008) conducted a controlled evaluation of motivational interviewing in a group format among first-year college women. Participants were female students in college that were randomly assigned to either a motivational enhancement prevention group (n = 126) or a psycho-educational control condition (n = 94). The motivational

enhancement prevention group consisted of a single two hour session comprised of information regarding Blood Alcohol Concentration using self-reports of recent drinking rates to facilitate “self-confrontation,” discussing alcohol expectancies (i.e., pros and cons of alcohol consumption), and setting personal, alcohol-related behavioral goals. The psychoeducational control condition was a 30 minute assessment and psychoeducational presentation relevant to women and alcohol consumption presented in a written format with minimal discussion. Compared to participants receiving the psychoeducational prevention, individuals receiving the motivational group prevention experienced a significant decrease in the number of alcoholic drinks consumed weekly, the number of drinks during “peak consumption events,” and fewer negative alcohol related consequences over the 10 weeks following the program. The sample size was substantial, and the design was well controlled through stringent and on-going evaluation of the group leaders’ fidelity to program protocols. The primary limitation of this investigation was the attrition of 41 of the 261 participants after the initial evaluation.

The results of these studies indicate that motivational interviewing is an effective strategy in bringing about significant decreases in alcohol use and negative alcohol related consequences. These studies are especially encouraging, as they indicated that motivational interviewing can provide such benefits in less than 2 hours. Of course, one of the disadvantages of motivational interviewing in a group context is the costs associated with training facilitators and need to monitor integrity of the prevention program. Utilization of motivational interviewing methods administered within a multi-media format may offer distinct advantages.

Multi-Media Assessment of Student Health (MMASH)

Multi-Media Assessment of Student Health (MMASH), developed by Dimeff, & McNeely (2000), is a 20-minute prevention for alcohol abuse consisting of a 15-minute computer-based questionnaire and 5 minutes of direct contact with a physician for students who present in health service facilities for crises. The primary care physician relates students' alcohol consumption to the health and social crises that lead them to student health services (e.g., injury, STD screening, unplanned pregnancy, and dietary concerns). A brief motivational interview focuses on discrepancies between the student's life goals and their negative drinking patterns. Dimeff & McNeely (2000) conducted an investigation of the efficacy of MMASH. The investigators screened 340 students; 78 were considered "Heavy" users, and included in this study. These participants were randomly assigned into MMASH ($n = 37$) or treatment as usual (i.e., standard medical care; $n = 41$). Effect sizes for MMASH participants in frequency of alcohol "binges" and occurrences of alcohol use from pre-prevention to post-prevention were "Moderate to Large" (Dimeff & McNeely, 2000). The investigators mention that the effect sizes of the experimental condition were "favorable" to the control condition. However, univariate comparisons between the two experimental conditions across time was not performed. The investigators also reported breaches in protocol. Therefore, the definitiveness of study's results are unclear. Nevertheless, this study was among the first to examine computer technology in the prevention of alcohol abuse among college students. It was also one of the first prevention studies to make use of the anonymity inherent in computer-based technology within alcohol abuse prevention. However, this prevention program is limited in its ability to comprehensively address psycho-educational aspects

of alcohol abuse prevention. Moreover, skills relevant to alcohol refusal are not demonstrated, as in other prevention programs for alcohol abuse, such as the BASICS or LMC.

Alcohol 101

Alcohol 101 was developed by the University of Illinois and the Century Council (Reis, Riley, Lokman, & Baer, 2000) as a 60 minute interactive psycho-educational DVD. More comprehensive than the MMASH, Alcohol 101 is now in a third iteration (i.e., Alcohol 101 Plus). The interactive program asserts that heavy drinkers in the college population have a deficit of “physiological, psychological and legal information” (Sharmer, p. 343) regarding alcohol use. Thus, the premise of Alcohol 101 is that providing such information to the target population lowers subsequent drinking patterns. It is further asserted that providing this information in an entertaining, youth-oriented fashion will increase the likelihood of the information being processed and subsequently applied. Alcohol 101 utilizes computer animated hosts, personal data, and a virtual alcohol bar setting to disseminate information in a self-guided manner. Information regarding blood alcohol level estimation, date/acquaintance rape, mental status, driving impairment, and legal issues is conveyed through an entertaining quiz-like format, video clips and virtual alcohol consumption. The student completes each component in a self-paced manner, based on personal abilities and interests through navigating a virtual campus. The program is completed in one period of approximately 60 minutes. The primary strengths of Alcohol 101 are its applicability to a wide range of students and its cost-effectiveness. Content of this program is somewhat limited by its inability to offer

individualized skills training exercises that include behavioral rehearsal and individualized feedback.

Reis, Riley, Lokman, & Baer (2000) evaluated the efficacy of Alcohol 101 as compared to an alternative psychoeducational group and an assessment-only control condition. Subjects were drawn from a first year leadership program and academic substance abuse courses occurring at a mid-western university. Subjects were randomly assigned from within the two on-campus groups with 248 students assigned to Alcohol 101, 207 students assigned to an alternative lecture/exercises, and 188 students placed in the control condition. Alcohol 101 outcomes did not differ significantly from the other groups in general. However, a few important differences occurred in specific domains. Alcohol 101 participants reported an increase in the ability to respond appropriately to alcohol over-dose in peers and identified the link between alcohol and instances of unprotected sex, rape, and violence as compared to participants assigned to the educational and control conditions. Most importantly, Alcohol 101 participants also reported greater knowledge relevant to reducing harm when drinking alcohol, as compared with both the educational and control groups. A methodological strength of this study is its sampling of participants from a general student population similar to the majority of U.S. campuses. The relative weakness of this investigation was the utilization of a non-standardized measure, which may or may not have adequate psychometric properties.

Sharmer (2001) conducted a second evaluation of Alcohol 101 in which it was compared to a motivational lecture that was equivalent to Alcohol 101 in content and duration and an assessment-only control group. Participants were chosen from nine

specific university classes and entire classes were randomly assigned to one of the three conditions. This procedure resulted in 3 classes being assigned to each condition (i.e., Alcohol 101, $n = 92$, motivational speech condition, $n = 118$, assessment-only control condition, $n = 102$). Assessments were conducted prior to participation and post-prevention at weeks 4, 8, and 12 with attitude, knowledge, and drinking behavior as dependent measures. Differences among the treatment conditions were evaluated for each of the assessment points utilizing an analysis of covariance (pre-program scores were covariates). Relative to the other experimental conditions, Alcohol 101 was shown to demonstrate significantly healthier attitudes towards alcohol use, from pre-prevention to 8 week assessment. Participants in the motivational condition, relative to Alcohol 101 participants, demonstrated superior knowledge of alcohol metabolic processes from pre-prevention to 4 and 8 week assessment points. Alcohol use behaviors were not found to change significantly across time between groups. However, attrition was rather high over the course of the study: 18% at week 4, 26% at week 8, and 31% at week 12. The authors reported that the target population, Heavy alcohol consumers, may have been overrepresented in the group of participants who failed to complete this study.

Donohue, Allen, Maurer, Ozols, & DeStephano (2004) examined Alcohol 101 in relation to cognitive behavioral skills training. The programs were comparable in length, but differed significantly in delivery and content. The cognitive behavioral program included a personalized review of the negative consequences of alcohol use, as well as alcohol refusal skills training. Individuals were prescreened for their extent of alcohol use and separated into “High” and “Low” alcohol use groups based on their mean for this variable. Participants in both conditions significantly reduced their number of alcoholic

drinks consumed per occasion from the month preceding prevention to the month following prevention. However, reductions in amount and frequency of drinking experienced by individuals in the High Risk-CBT experimental group exceeded that of Alcohol 101 participants. Individuals in the Alcohol 101 program reported greater levels of satisfaction in increasing risk awareness, and a higher likelihood of increased caution in alcohol use in comparison to CBT. One of the primary methodological strengths of this study was the implementation of protocol adherence measures in CBT to ensure high levels of prevention program integrity. Therefore, Alcohol 101 is a cost-effective approach that has demonstrated efficacy in reducing alcohol use, educating college students about alcohol metabolization and the potential physical, legal, and social hazards associated with the abuse of alcohol. However, this approach is largely psychoeducational in nature, lacking explicit motivational enhancement methods beyond a review of global consequences, is limited in social skills training (e.g., alcohol refusal skills), and does not address maladaptive cognitive patterns related to alcohol abuse.

Concluding Remarks

The aforementioned studies represent empirically based prevention programs for university-based alcohol abuse. Common components of these programs include, psychoeducation regarding Blood Alcohol Concentration, modeling and behavioral rehearsal, alcohol refusal skills training, identifying personal risks and goals related to alcohol consumption, motivational interviewing, and addressing misperceptions about what constitutes “typical” alcohol consumption among college students. The current literature reveals a shift from relatively lengthy prevention programs (e.g., ASTP, Fromme, Marlatt, Baer, and Kivlahan, 1994; LMC, Fromme & Corbin, 2004) to briefer

prevention formats that are more appropriate for students who are particularly at-risk for alcohol misuse (e.g. BASICS, Dimeff, Baer, Kivlahan, & Marlatt, 1999; MMASH, Dimeff, & McNeely, 2000). Multi-media alcohol abuse prevention programs appear to be particularly promising, as they are both feasible and effective. Zabinski, Wilfley, Calfas, Winzelberg, and Taylor (2004) and Celio et al. (2000) noted that the use of multi-media alleviates social-stigma and positive statements regarding the targeted behavior that are often stated by participants in group settings. Of these evidence-based prevention programs, Alcohol 101 (Reis, Riley, Lokman, & Baer, 2000) appears to stand alone in its cost-effectiveness. Its relative strengths include ease of administration, entertainment value, self-guided approach, and consistency with contemporaneous issues affecting college students. However, this program is limited in its inability to provide specific feedback relevant to skills training, which has demonstrated effectiveness in other studies (see aforementioned review). In addition, while some common logical fallacies related to campus alcohol consumption are provided in Alcohol 101, cognitive techniques related to monitoring and altering faulty cognitive patterns, and setting personal goals related to alcohol use are not provided.

The aims of this study were to develop, and formally evaluate (utilizing the well-established Alcohol 101 program as a comparison condition), a computer-based alcohol abuse prevention program for use among college students. Although this program (i.e., The Collegiate Guide to Responsible Drinking, CGRD) includes key components recognized in the prevention literature as important (i.e., motivational enhancement strategies, psychoeducation regarding alcohol use and related consequences, addressing logical fallacies about college alcohol use). The CGRD is unique in several important

ways. It utilizes urge control steps commonly found substance abuse treatment (Azrin, Donohue, Besalel, & Kogan, 1994) to enhance the consumer's ability to monitor and control alcohol related decisions and behavior. This program also emphasizes positive social modeling through video-taped scenarios (e.g., Webster-Stratton, Kolpacoff, & Hollinsworth, 1988; Webster-Stratton, 1990; Webster-Stratton, 1994; Gordon, 2000; Segal, Chen, Gordon, Kacir, & Glylys, 2003). It was predicted that relative to Alcohol 101, the CGRD would demonstrate greater reductions in the frequency and amount of alcohol consumption among individuals identified as Heavy alcohol consumers. It was further posited that the CGRD would produce an increase in skills related to the self-regulation of alcohol consumption behavior.

CHAPTER 3

METHOD

Participant Recruitment and Process of Entering the Study

All students enrolled in introductory psychology courses at the University of Nevada, Las Vegas are required to participate in a psychology subject pool or complete a review of select research articles. Subject pool volunteers are required to participate as research participants for 3 hours. In addition, many upper division psychology course instructors utilize this subject pool as a method of providing extra credit opportunities for students. Subject pool participants are permitted to review the description of all available studies, including time requirements, general activities entailed in participation, study in/exclusionary criteria, credits earned for participation, and contact information of the primary investigators responsible for the study. Participants were permitted to participate in this study if they were under 30 years of age and had consumed alcohol on at least one occasion during the 30 days prior to study participation. They were informed that the study was being conducted to examine the relative effectiveness of two computer-based alcohol prevention programs and that they would need to participate in approximately 50 minutes of assessment conducted at three time periods (i.e., 20 minutes immediately prior to participation in one of the two prevention programs, 10 minutes immediately after participating in one of these programs, and 20 minutes 30 days after program participation). The study summary reported that the assessment measures would include

questions about their number of days using alcohol and that participants would be randomly assigned to one of the two computer-based alcohol abuse prevention programs. The prevention programs were described as preventative and educational in nature and that they were 55 minutes in duration. Participants were informed they would receive two hours of class research credit after completing the post-prevention evaluation and one hour of class research credit immediately after their participation in the 30-day post-prevention assessment. Figure 3.1 shows the flow of potential participants through the protocol. One-hundred and ten participants reported that they met study in/exclusionary criteria and were scheduled to participate in the study. Of these participants, three were excluded because they did not consume alcohol during the 30 days prior to the study, and three participants were excluded because they were older than 30 years. The 104 qualifying participants were scheduled for study participation based on their availability. Informed consent was obtained prior to study participation consistent with the Institutional Review Board of the University of Nevada Las Vegas.

Participants

As summarized in Table 3.1, 104 undergraduate students attending the University of Nevada, Las Vegas were included in this study. The majority of participants were in their early 20's (i.e. mean = 20.5 years, standard deviation = 2.3) with the CGRD participants being slightly older (mean 20.9, standard deviation 2.5) and Alcohol 101 participants being slightly younger (mean 20.1, standard deviation 1.9). A little more than half of participants (50.5%, n=52) were female. The ethnic composition of the sample reflected the diversity of the student population. Freshmen were of greatest representation.

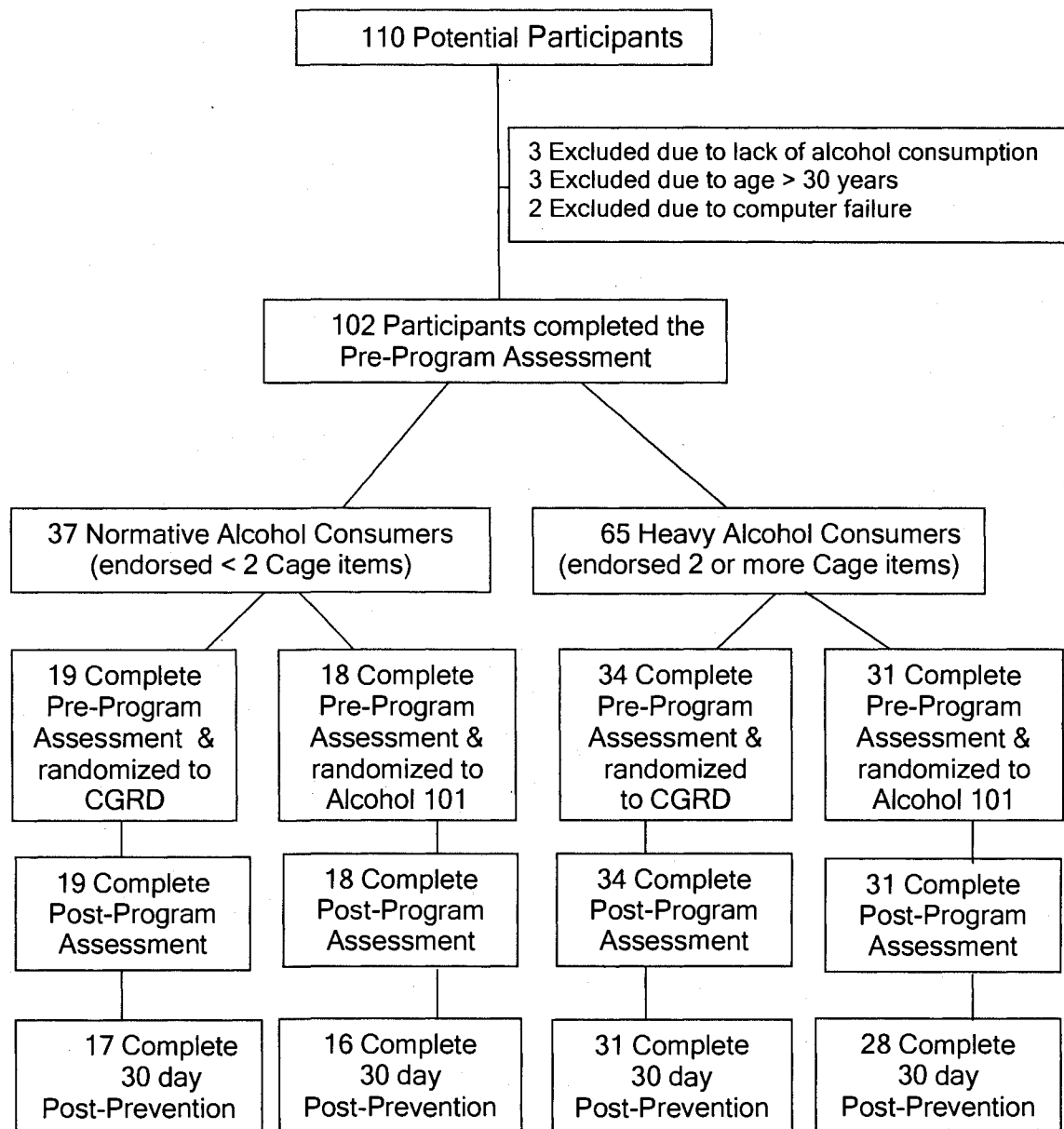


Figure 3.1. Participant flow through the trial. Participants were considered to have completed the study if they completed all three assessment periods: pre-prevention, post-prevention and 30 day post-prevention assessments.

Table 3.1

Demographic Information for Treatment Conditions and Total Sample.

	CGRD n = 53		Alcohol 101 n = 49		Total N = 102	
	N	P	N	P	N	P
<i>Participant Sex</i>						
Female	26	25.2%	25	25.2%	52	50.5%
Males	27	26.2%	24	23.3%	51	49.2%
<i>Participant Ethnicity</i>						
African American	5	4.9%	6	5.9%	11	10.8%
Asian	9	8.8%	11	10.8%	20	19.6%
Caucasian	28	7.5%	23	22.5%	51	50.0%
Hispanic	6	5.9%	4	3.9%	10	9.8%
Multi-ethnic	4	3.9%	3	2.9%	7	6.9%
Native American	1	1.0%	0	-	1	1.0%
Pacific Islander	0	-	2	2.0%	2	2.0%
<i>Participant Age</i>						
18	9	8.8%	13	12.7%	22	21.6%
19	12	11.8%	9	8.8%	21	20.6%
20	6	5.9%	10	9.8%	16	15.7%
21	8	7.8%	7	6.9%	15	14.7%
22	5	4.9%	6	5.9%	11	10.8%
23	5	4.9%	0	-	5	4.9%
24	1	1.0%	3	2.9%	4	3.9%
25	4	8.3%	0	-	4	3.9%
26	1	1.0	0	-	1	1.0%
27	2	2.0%	1	1.0%	3	2.9%
<i>Participant Class Standing</i>						
Freshman	14	13.7%	25	24.5%	39	38.2%
Sophomore	16	15.7%	11	10.8%	27	26.5%
Junior	10	9.8%	1	10.8%	21	20.6%
Senior	13	12.7%	2	2.0%	15	14.7%

Procedures

Participants met at a campus-site where university computers with DVD capability were readily available. During initial trials participation occurred at a library and included fewer than four participants while subsequent trials occurred in the UNLV psychology department computer laboratory, serving up to eight participants at a time. The pre-prevention assessment required 15 to 20 minutes and included the administration of: a demographics questionnaire, an alcohol abuse disorder screening measure, measures of frequency and amount of alcohol use for the previous 30 days, alcohol self-regulation skills, knowledge of the physical effects of alcohol consumption, and the frequency of consequences associated with alcohol abuse. Upon completion of the pre-prevention assessment, participants were randomly assigned to one of two alcohol abuse prevention programs. Of the 104 participants who were randomly assigned, two participants assigned to one of the prevention programs (i.e., Collegiate Guide to Responsible Drinking, see below) were excluded because their computers malfunctioned during their participation in this program. Thus, 102 participants were included in this study. Each of the programs lasted approximately one hour. All participants were invited to complete a post-prevention assessment immediately after their respective alcohol abuse prevention program was administered. The post-prevention assessment lasted approximately 10 minutes and included: a second administration of the measures of alcohol self-regulation skills, knowledge of the physical effects of alcohol consumption, and a consumer satisfaction questionnaire. Participants were encouraged to participate in a 20-minute 30 day post-prevention assessment approximately 30 days after their pre-prevention and post-prevention assessment measures were completed. The 30-day post-prevention

assessment entailed obtaining their amount and frequency of alcohol use and alcohol related consequences occurring during the previous 30 days, as well as reassessing alcohol self-regulation skills and their knowledge of the physical effects of alcohol.

Measures

Demographics Questionnaire

A demographics questionnaire was utilized to record the participant's age, gender, ethnicity, and educational class standing (e.g. freshman, sophomore, junior, and senior).

Timeline Follow-back (TLFB)

The Timeline Follow-back (TLFB; Sobell, Sobell, Klajner, Pavan, & Basian, 1986). is a semi-structured interview that may be utilized to determine patterns of alcohol use including frequency (i.e., number of days consumption occurred) and amount (i.e., number of alcoholic beverages consumed). This measure was used to obtain the frequency and amount of alcohol consumption during the 30 days prior to the date of the assessment. Participants were given a calendar to record salient events commonly associated with alcohol consumption. These events include absences from work and/or school, sporting events, birthdays and anniversaries, holidays, academic discipline and legal problems (e.g., citations, arrests). These occurrences were utilized as memory anchor points as participants reported the number of alcohol units consumed on the calendar after recording all alcohol-related events. Standard measurements of what constitutes a unit of alcohol were provided (i.e. one 12 oz beer, 5 ounces of wine, 1.5 ounces of hard liquor) to ensure consistency among participant reports. The convergent validity of the TLFB method is evidenced from its significant relationship with official

records, and it has been found to have good test-retest reliability (Ehrman & Robbins, 1994; Sobell et al., 1986).

Rutgers Alcohol Problem Inventory (RAPI)

The RAPI (RAPI; White & Labouvie, 1989) is designed to assess the frequency (i.e., number of times an event occurred during a specific time period) of problems associated with alcohol use among college students. This screening tool includes 23-items encompassing common consequences of adolescent and young adult problem drinking. This includes events such as not being able to study, missing work or classes, and arguments with friends and family. The measure also contains items related to thoughts commonly associated with alcohol use included: noticing personality changes, feeling that their alcohol use is a problem, and making a conscious effort to “cut back” alcohol use. Responses are assessed on a five point scale addressing the frequency of the specific event: 0 (never), 1(1 to 2 times), 2 (3 to 5 times), 3 (6 to 10 times) and 4(> 10 times). Thus, the overall range of scores is 0 to 92. This measure is widely used in the literature addressing adolescent/young adult problem-drinking and is recommended by the National Institute of Alcohol Abuse and Alcoholism for comparisons of problem drinking across groups (Allen & Wilson, 2003). This report also noted that this measure has excellent face validity and practical utility, Martin and Winters (1998) report satisfactory convergent validity, and Miller et al. (2002) report good test-retest reliability.

The CAGE – Adapted

An adaptation of the CAGE (Ewing, 1984) was utilized to screen participants for Heavy drinking and signs of dependency. The CAGE is a widely used 4-item screening device that may be utilized to assist in identifying potential cases of alcohol abuse

disorders. Endorsing one or more of the items is indicative of problem drinking in the general adult population presenting for treatment in outpatient and inpatient settings. Items include attempting to “cut back” alcohol consumption and having feelings of guilt related to alcohol use. Meta-analysis of available studies found satisfactory internal consistency (i.e., average $\alpha = .74$; Sheilds & Caruso, 2004). Its predictive validity among participants in college appears to be poor (Heck, 1991), particularly among women (O’Hare & Tran, 1998). However, Heck (1991) increased the cut-off point to the endorsement of two or more CAGE items and added two items related to the population (i.e., regular alcohol use during high school and consistent use of alcohol at social events), which significantly improved the measure’s predictive validity. Aertgeerts et al. (2000) also sought to improve its predictive validity through the inclusion of an item targeting the occurrence of intoxicated driving. These alterations significantly improved predictive validity of this measure among college students (false positive 13%, false negatives 12%). In the present study, the original 4 CAGE items and 3 additional items examined in Heck (1991) and Aertgeerts et al., (2000) were utilized. The cut-off point was set at 2 items, consistent with the recommendations of Heck (1991). Participants endorsing 2 or more items were categorized as Heavy consumers of alcohol and those endorsing less than 2 items as Normative consumers of alcohol for purposes of data analysis.

Comparisons of Student Learning (CSL)

The Comparisons of Student Learning (CSL, Reis et al, 2000) is a 14-item measure of an individual’s knowledge of the biological effects of alcohol and perceived ability to use this knowledge to make decisions regarding alcohol consumption. The items include

understanding the relationship of gender and food consumption to Blood Alcohol Concentration and the ability to identify the symptoms of alcohol poisoning. Responses were provided in the form of a 5 point Likert-scale identifying how the participant rates their abilities or knowledge in that domain. This measure was developed by Reis et al. (2000) for the specific purpose of evaluating the efficacy of Alcohol 101.

Student Alcohol Use Self-Regulation (SAUS)

The SAUS is an 11-item questionnaire developed for use in this study to assist in detecting self-perceived abilities in regulating thoughts and behaviors related to alcohol use among college students. Example items include: "When planning my free time I know the best point at which to employ a no alcohol use strategy," and "I have identified the consequences of alcohol misuse that apply to me." Participants respond utilizing a five point Likert-scale and rate how accurately the statement describes their abilities or knowledge in that domain (i.e., not at all true, very true). The measure has not been evaluated psychometrically, although its face validity appears to be good.

Client Satisfaction Questionnaire (CSQ-8)

The Client Satisfaction Questionnaire (CSQ-8; Larsen, Attkisson, Hargreaves, & Nguyen, 1979) is an 8-item questionnaire designed to assess an individual's perception of the quality of a recently conducted intervention. The content includes perceived quality, format, utility, and overall satisfaction with the intervention, as well as willingness to recommend the respective intervention to others and willingness of the individual to engage in continued or additional interventions if offered. The response set includes a 4-point scale from least to greatest level of satisfaction in the respective domain. DeWilde

and Hendricks (2005) sampled clients in treatment for substance abuse disorders and found the CSQ-8 to obtain good concurrent validity and internal consistency.

Prevention Programs

Alcohol 101 Plus

Alcohol 101 (Reis, Riley, Lokman, & Baer, 2000) is an interactive DVD developed in a controlled trial to assist college students in reducing their risk for alcohol related problems. Participants are taught to monitor Blood Alcohol Concentration (BAC). Alcohol 101 Plus is the latest version of this program in which participants enter a virtual campus and are guided by two animated hosts through a variety of topics they can explore related to alcohol abuse. These didactic segments focus on information relevant to the emotional, social, physical, and academic consequences of alcohol use within the context of a virtual college campus. Each virtual building represents a different topic and the participant selects the building from a map or clicking on the actual building as they move through campus. Each segment contains interactive graphics, video-clips, quizzes, and links to supplemental information from NIAAA as well as other organizations which disseminate information regarding alcohol abuse. For example, the “Freshmen Dorms” contain information regarding underage drinking, the student health area contains information regarding alcohol poisoning and the effect of alcohol on the brain, and the “Dean’s Office” contains information regarding the consequences of breaking campus alcohol regulations with links to the websites for the specific campus regulations of many universities. In addition, there is a specific segment addressing alcohol abuse and sexual assault from the point of view of both a male and female characters depicted in brief video-clips.

While comprised of varied components, the cornerstone of Alcohol 101 Plus, and previous versions in the Alcohol 101 series, is the virtual bar. As with other segments, the bar is a building on the map available for participant selection. After selection, participants enter their gender and weight into the computer, their BAC is reported as time continues and as they select alcoholic drinks and food. In addition, participants are given the option of viewing “friends” (a panel of individuals of both genders of different weights) and seeing how the equivalent amount of alcohol would alter their BAC. The virtual bar is an entertaining didactic tool aimed at assisting participants in understanding their personal BAC and how it differs from other individuals with whom they socialize.

Collegiate Guide to Responsible Drinking (CGRD)

The Collegiate Guide to Responsible Drinking is an alcohol abuse prevention program comprised of a DVD and accompanying workbook. Participants begin the program by viewing an introductory segment in which confederate students describe the negative consequences of alcohol use they have viewed on campus. Following this segment two hosts guide participants through other sections designed to disseminate information about alcohol use, facilitate motivational exercises, and model alcohol use refusal skills. The program contains a pause feature to allow participants to turn their attention to the workbook in order to identify consequences of their previous use of alcohol and rationale for reduction or cessation of use. A primary component of the program is the modeling of an urge control procedure that was originally developed in a treatment program for substance abusers (Azrin et al., 1994). In this program, the urge control procedure includes a rationale for its components steps, associated video clips, and delineation of each component (i.e., thought stopping, relaxation, recognizing

consequences, and planning alternative behaviors). The underlying techniques and structure designed by Azrin et al. (1994) were retained. However, the intervention was tailored to a college population and placed in the context of alcohol abuse prevention rather than treatment. A brief psycho-educational component is also included in the presentation. This component is reviewed to identify social, emotional, and environmental cues related to alcohol use, as well as the computation of Blood Alcohol Concentration. The information is displayed for men and women of various weights utilizing a standardized chart based on NIAAA guidelines (Roberts, 2003). Information helpful in regulating BAC is also disseminated (Ray and Ksir, 2002), such as how the passage of time, digestion of food, body mass and gender impact the metabolization of alcohol. The program also addresses social skills in both refusing alcohol in an effective, socially acceptable manner, and techniques for reducing the overall social pressure to consume alcohol.

A workbook is administered to each program user. The DVD is designed to direct the participant to designated pages related to the discussion. The student then pauses the video and utilizes the workbook. The first two pages contain the BAC chart for men and women as shown in the DVD. Two sample BAC calculations are left for students to complete based on 2 drinks in three hours and 5 drinks in 6 hours. The next pages are designed to personalize the information received in the DVD for the user, and include their personal alcohol-related goals, consequences related to alcohol use, environmental drinking cues, cognitive drinking cues, and physical drinking cues. In the concluding pages, information provided in the DVD is placed in outline form which includes: safer drinking tips, strategies for effectively declining a drink, and the urge control steps.

CGRD Development

Phase One: Content Compilation

The initial phase of CGRD program development began by reviewing intervention and prevention alcohol abuse outcome studies to determine best practice strategies relevant to traditional psychoeducation and cognitive behavioral social skills training. Other programs were evaluated for content with a specific focus on material related to motivation enhancement. The most common psychoeducational information contained in multiple programs was Blood Alcohol Concentration (BAC) calculation, the legal construct of Driving under the Influence and related consequences, as well as the relationship between sexual assault and alcohol for both men and women. This information was organized into a tentative outline of the proposed program.

Phase Two: Manuscript Development

Nations et al. (2003) report that tailoring the presentation to the targeted population is an important prerequisite to the successful implementation of prevention programs. Therefore, undergraduate students were utilized in the development of the script for the Collegiate Guide to Responsible Drinking in brainstorming sessions. Development meetings focused on the design of presentation style and specific content of the DVD (i.e., relevant and realistic dialogue and scenarios). This tailoring included prevalent cultural norms and situations: in this case the language and daily activities of college and university students. The aforementioned vignettes and the development of dialogue came to fruition through the use of weekly meetings and final drafting and editing by the primary investigators. The brainstorming approach was adopted and uninhibited preliminary suggestions were conjoined and molded into a final product (Ritchie &

Lewis, 2003). Such sessions have been found to be an essential component in treatment manual and psychometric measure development. Approximately 8 individuals were utilized on the development panel as that has been found to be optimal (Bloor, Frankland, Thomas, & Robson, 2001). Undergraduate students, approximately six, from within the psychology department were on the panel as individuals acquainted with both the broader principles underlying the treatment and university culture. The remaining members were the primary investigator, her advisor, and a video-production professional who lent technical support to the creation of the DVD (e.g., communication, multi-media). Upon the advice of an expert in the creation of multi-media in mental health settings, the psychoeducational material was scripted while the vignettes had a storyline but were articulated by the volunteer actors in their own phrasing. This process served to ensure that the dialogue reflected the current language used by students and reduced the burden placed on the actors. Manuscript development ended with the completion of an initial script utilized in the final phase of program development.

Phase Three: Program Production

The final phase of program development was the production of the DVD and workbook. This production was completed with the assistance of undergraduate volunteers who agreed to appear as commentators, hosts, and actors in the production and the primary investigator's academic advisor who appeared as an addictions specialist. Production began with the taping of interviews with university students for the introductory segment. Subsequently, each week one scene of a typical college drinking episode, an accompanying mock-interview of the main character, and approximately three host segments were videotaped. This process occurred over approximately seven

weeks. During this time, initial video-editing occurred, allowing for the re-taping of any scenes that were deemed unusable. The aforementioned video-expert was available to demonstrate proper taping techniques and instruction in basic video editing.

Subsequently, post-production video editing occurred and the segments were organized and appropriate graphics were inserted. The workbook was developed as appropriate points for the participant to personalize information and set goals became apparent during the post-production editing process.

Assurance of Program Integrity

The primary investigator administered all prevention program components in each experimental condition. Adherence to protocol was assured due to the nature of multimedia technology. That is, both experimental prevention programs included participatory prompts that were imbedded within the respective DVD. The prompts embedded within the CGRD condition were associated with information and tasks contained in the accompanying workbook. The delivery of both programs was thus uniform across all conditions, thereby assuring fidelity to the prevention program. During program administration the participants assigned to both conditions were monitored to ensure continued activity and progress through their designated prevention programs.

CHAPTER 4

RESULTS

Baseline Comparison of Participants Across Prevention Groups

To determine pre-prevention equivalence of participants assigned to the prevention groups, independent sample t-tests were conducted on continuous demographic variables, and Mann-Whitney U tests were conducted on discontinuous demographic variables, utilizing group assignment as the independent variable. The distribution of participants assigned to the two prevention program conditions did not differ with regards to age, gender, or ethnicity (all $ps > .05$). However, there was a significant difference in the class standing of individuals assigned to the Alcohol 101 condition as compared to the CGRD condition ($U = 895.0$, $p = .01$), with more freshman in the Alcohol 101 condition than the CGRD condition. As class standing was significantly different between the two experimental groups, it was treated as a covariate in analyzing treatment outcomes between experimental conditions. Independent t-tests of baseline measures (i.e., TLFB amount, TLFB frequency, RAPI, CSL, and SAUS) were conducted to determine equivalence across prevention groups at the pre-program assessment point. There were no statistically significant differences between the groups at the pre-program assessment point with regards to any of these measures (all $ps > .05$).

Timeline Follow-Back (TLFB)

Number of Drinks

The Colligate Guide to Responsible Drinking (CGRD) was predicted to result in a significantly greater decrease in the number of alcoholic drinks consumed as compared with participants assigned to Alcohol 101 for Heavy alcohol consumers.. The Timeline Follow-Back was utilized to measure the participant's alcohol consumption in number of alcoholic drinks for the 30 days prior to, and 30 days subsequent to, viewing the assigned prevention program. A repeated measures Analysis of Covariance was conducted to compare the variance in experimental group means from the 30 day pre-program assessment to the 30 day post-program assessment with class standing utilized as a covariate. There was a statistically significant main effect for time from 30 days pre-prevention to 30 days post-prevention, $F(1, 87) = 3.985, p = .049$. Subsequent independent paired t-tests indicate that both CGRD, $t(1, 44) = 3.9, p = .00$, and Alcohol 101, $t(1, 43) = 3.2, p = .00$, demonstrated significant decreases the number of alcoholic beverages consumed. As might be expected, there was a significant main effect for type of drinker as defined by the CAGE (Heavy vs. Normative alcohol consumers), $F(1, 87) = 10.8, p = .001$. There was not a significant Experimental Condition (i.e., CGRD and Alcohol 101) by Time (i.e., 30 days pre-prevention assessment and 30 day post-prevention assessment) interaction in the number of drinks consumed, $F(1, 87) = .00, p = .971$.

These results indicate that both groups reduced the number of alcoholic drinks consumed. However, contrary to predictions, no significant difference was detected

The results also indicate that Heavy alcohol consumers reported drinking a greater number of alcoholic drinks during the 30 day assessment periods than did Normative drinkers. This latter finding supports the predictive validity of the Adapted CAGE in discriminating between these two groups with regards to the amount of alcohol consumed. However, the Heavy and Normative alcohol consumers experienced proportionately similar reductions in the number of alcoholic beverages consumed 30 days prior to the two TLFB assessment points.

Number of Days Consuming Alcohol

The frequency of alcohol consumption (i.e., number of days in which at least 1 day of alcohol consumption occurred as obtained by the TLFB) was also obtained for the 30-days pre-prevention and 30 days post-prevention. A repeated measures Analysis of Covariance was conducted to compare the variance in experimental group means from the 30 day pre-program assessment to the 30 day post-program assessment with class standing utilized as a covariate. There was a statistically significant main effect for time, $F(1, 87) = 8.765, p = .004$. Subsequent independent paired t-tests indicate that both CGRD $t(1, 44) = 2.6, p = .01$, and Alcohol 101, $t(1, 43) = 2.1, p = .04$, resulted in significant reductions in the frequency of alcohol consumption. There was also a significant main effect for level of alcohol consumption (i.e., Heavy vs. Normative alcohol consumer), $F(1, 87) = 7.234, p = .009$. There was no significant interaction for experimental condition by time, $F(1, 87), p = .41$ in number of days of alcohol use (see Table 4.2).

These results indicated that no difference in frequency of alcohol consumption was found between participants assigned to Alcohol 101 and CGRD from the 30 day pre-

Table 4.2

Number of Days Consuming Alcohol in the Thirty-days Prior to Prevention

Programming and 30 days Post-Prevention Programming, as per Timeline Follow-back

Results Across the Experimental Conditions.

Condition	Level of Use	30 Day Pre-Prevention Assessment		30 Day Post-Prevention Assessment	
		M	SD	M	SD
CGRD	Heavy Use	4.1	2.1	2.8	2.5
	Normative Use	2.8	2.2	2.2	2.6
	CGRD Total	3.6	2.2	2.6	2.5
Alcohol 101	Heavy Use	5.1	3.5	3.8	3.6
	Normative Use	2.7	2.0	2.4	3.3
	Alcohol 101 Total	4.2	3.2	3.3	3.5
Heavy Use Total		4.5	2.9	3.3	3.1
Normative Use Total		2.8	2.1	2.3	3.0
Combined Group Total		3.9	3.1	2.9	3.1

prevention assessment period and the 30-day post-prevention assessment period. A significant reduction in the frequency of alcohol use was observed for participants in both groups at a comparable rate. In addition, individuals identified as Heavy alcohol consumers from both prevention groups endorsed drinking a significantly greater number of days than participants identified as Normative alcohol consumers. This finding further

supports the predictive validity of the Adapted CAGE to delineate between Heavy and Normative alcohol consumers based on the frequency of their alcohol consumption.

Rutgers Alcohol Problem Inventory (RAPI)

It was predicted that, in comparison to Alcohol 101, the CGRD would result in a significantly greater reduction in negative alcohol-related consequences. The Rutgers Alcohol Problem Inventory (RAPI) was utilized to obtain participant reports of their frequency of 23 alcohol related consequences. A repeated measures Analysis of Covariance was conducted to compare the variance in experimental group means from 30-days pre-program to 30 days post-program with class standing utilized as a covariate. A significant main effect was detected with regards to level of use (i.e., Heavy vs. Normative alcohol consumers), $F(1,87) = 9.025, p = .00$. No significant experimental condition by time interaction was found (see Table 4.3), $F(1,87) = 1.23, p = .24$.

These results indicate that neither prevention program resulted in changes in the frequency of alcohol related consequences from the 30 day pre-prevention assessment to the 30 day post-prevention assessment period. In addition, participants identified as Heavy alcohol consumers reported a significantly greater number of alcohol-related consequences than participants identified as Normative alcohol consumers. This finding supports the discriminative validity of the Adapted CAGE in separating Heavy and Normative alcohol consumers based on the frequency of negative alcohol related consequences.

Table 4.3

Number of Alcohol Related Consequences in the Thirty-days Prior to Prevention Programming and 30 days Post-Prevention Programming, as per RAPI Results Across the Experimental Conditions.

Condition	Level of Use	30 Day Pre-Prevention Assessment		30 –day Post-Prevention Assessment	
		M	SD	M	SD
CGRD	Heavy Use	7.1	6.7	6.1	6.8
	Normative Use	2.2	2.9	3.1	4.6
	CGRD Total	5.4	6.1	5.0	6.2
Alcohol 101	Heavy Use	8.8	7.8	4.7	3.9
	Normative Use	3.9	4.9	4.7	7.0
	Alcohol 101 Total	7.0	7.2	4.8	5.1
Heavy Use Total		7.9	7.3	5.4	5.6
Normative Use Total		3.0	4.0	3.9	5.9
Combined Group Total		6.2	6.7	4.9	5.7

Comparisons of Student Learning (CSL)

It was predicted that, as the two programs contained basic information regarding the physical aspects of alcohol consumption, the ratings of participants assigned to the CGRD would be comparable to those of participants assigned to Alcohol 101. Participant

knowledge related to alcohol use was assessed through a measure addressing awareness of the physical effects of alcohol via the Comparisons of Student Learning (CSL) measure. A repeated measures Analysis of Covariance was conducted to compare experimental groups across all three assessment points with class standing utilized as a

Table 4.4

Self-Ratings of Alcohol Related Knowledge Thirty-days Prior to Prevention Programming, Post-Prevention Programming, and 30 days Post-Prevention Programming, as per CSL Results Across the Experimental Conditions.

Condition	Level of Use	30 Day Pre-Prevention Assessment		Post- Prevention Assessment		30 Day Post-Prevention Assessment	
		M	SD	M	SD	M	SD
CGRD	Heavy Use	40.0	6.8	47.3	5.1	45.9	5.8
	Normative Use	44.3	7.2	51.3	4.6	49.8	4.8
	CGRD Total	44.5	7.2	48.7	5.3	47.3	5.7
Alcohol 101	Heavy Use	39.9	7.3	45.9	6.5	44.9	6.2
	Normative Use	38.7	7.1	46.7	6.1	45.9	6.2
	Alcohol 101 Total	37.6	7.2	46.1	6.3	45.2	6.2
Heavy Use Total		38.5	7.1	46.6	5.8	45.4	6.0
Normative Use Total		41.6	7.6	49.1	5.8	47.9	5.8
Combined Group Total		39.6	7.4	47.5*	5.9	46.3	6.0

covariate. There was a statistically significant main effect for time, $F(1, 87) = 9.6, p = .003$ (see Table 4.4). Subsequent independent paired t-tests indicate that both CGRD, $t(1, 49) = 7.6, p = .00$, and Alcohol 101 $t(1, 49) = -9.6, p = .00$, resulted in significant increases in CSL scores from 30 day pre-prevention to post-prevention. Significant differences also existed for CGRD, $t(1, 47) = -4.7, p = .00$, and Alcohol 101, $t(1, 43) = -5.9, p = .00$, from 30 day pre-prevention to 30 day post-prevention. However, no significant difference was observed to occur from post-prevention to 30 day post-prevention. Significant differences in CSL scores were found between participants identified as Normative alcohol consumers and those identified as Heavy alcohol consumers $F(1, 87) = 6.6, p = .01$. No interaction was found for experimental condition (i.e., CGRD, Alcohol 101) by time (i.e., 30 day pre-prevention, post-prevention, 30 day post-prevention), $F(1, 87) = .834, p = .36$.

There were no significant differences in CSL scores among the two experimental conditions. Participants in both groups significantly increased their self-ratings in this domain from the 30 day pre-prevention to the post-prevention assessment periods, and these scores did not appreciably differ from the post-prevention to the 30 day post-prevention assessment periods. Individuals identified as Heavy alcohol consumers were found to have significantly lower scores than participants categorized as Normative alcohol consumers in all three comparisons. This finding supports the discriminative validity of the Adapted CAGE with regards to separating Heavy and Normative alcohol consumers as indicated by their knowledge regarding the physical effects of alcohol consumption.

Student Alcohol Use Self-Regulation (SAUS)

It was predicted that individuals assigned to the CGRD condition would, as a result of social skills and urge control training, report higher ratings of confidence in alcohol related self-regulation than participants assigned to Alcohol 101. The Student Alcohol Use Self-Regulation (SAUS), a measure of self-regulation and perceived social skills

Table 4.5

Self-Ratings of Alcohol Self-Regulation Thirty-days Prior to Prevention Programming, Post Prevention Programming, and 30-days Post-Prevention Programming, as per SAUS Results Across the Experimental Conditions.

Condition	Level of Use	30 day Pre –Prevention Assessment		Post- Prevention Assessment		30 Day Post- Prevention Assessment	
		M	SD	M	SD	M	SD
CGRD	Heavy Use	32.6	6.4	35.9	5.5	34.8	6.0
	Normative Use	37.8	6.0	40.0	4.2	38.7	3.7
	CGRD Total	34.5	6.7	37.4	5.4	36.2	5.6
Alcohol 101	Heavy Use	31.1	8.0	34.4	6.9	35.3	5.8
	Normative Use	33.4	6.0	37.6	5.0	38.7	5.6
	Alcohol 101 Total	31.9	7.4	35.6	6.4	36.6	5.9
Heavy Use Totals		31.9	7.2	35.2	6.2	35.1	5.8
Normative Use Totals		35.7	6.3	38.8	4.7	38.7	4.6
Combined Group Total		33.3	7.1	36.5	6.0	36.4	5.7

related to alcohol use, was developed and utilized to measure skills in this domain. A repeated measures Analysis of Covariance was conducted to compare experimental groups across the three assessment points, with class standing utilized as a covariate. There was a statistically significant main effect with regards to time ($F [1, 87] = 7.7, p = .0$). Subsequent independent paired t-tests indicate that both CGRD, $t (1, 52) = -3.5, p = .00$ and Alcohol 101, $t (1, 48) = -4.1, p = .00$ resulted in significant gains in SAUS scores from 30 pre-prevention to post-post. SAUS scores were also significantly different from 30 day pre-prevention to 30 day post-prevention for Alcohol 101, $t (1, 43) = -5.1, p = .00$ but not for the CGRD condition $t (1, 47) = -1.7, p = .1$. No significant difference was present between post-prevention and 30 day post-prevention assessment scores (see Table 4.5). A significant main effect was found between participants identified as Normative alcohol consumers and those identified as Heavy alcohol consumers ($F [1, 87] = 10.6, p = .00$). No significant interaction was observed between the experimental conditions across time with regards to SAUS scores, $F (1, 87) = 3.4, p = .06$.

Changes in SAUS scores did not significantly differ among the two experimental conditions. Participants in both groups significantly increased their self-ratings in this domain from the 30 day pre-prevention to the post-prevention assessment periods, and these scores did not appreciably differ from the post-prevention to the 30 day post-prevention assessment periods. Individuals identified as Heavy alcohol consumers were found to have significantly lower SAUS ratings than participants identified as Normative alcohol consumers at all three assessment points. This finding supports the discriminative validity of the Adapted CAGE in identifying the responses of Heavy vs. Normative alcohol consumers with regards to the SAUS measure.

Consumer Satisfaction Questionnaire (CSQ-8)

It was predicted that the CGRD program would be equal to Alcohol 101 in viewer satisfaction ratings. The eight item satisfaction measure, the CSQ-8, was utilized in measuring client satisfaction in a single administration directly after viewing the

Table 4.6

*Consumer Satisfaction Ratings Post-Prevention Programming Viewing as per CSQ-8
Results Across the Experimental Conditions.*

Condition	Level of Use	Post-Prevention Assessment	
		M	SD
CGRD	Heavy Use	26.1	5.0
	Normative Use	28.4	3.4
	CGRD Total	27.0	4.6
Alcohol 101	Heavy Use	27.7	4.6
	Normative Use	27.8	3.7
	Alcohol 101 Total	27.7	4.2
Heavy Use Total		26.9	4.9
Normative Use Total		28.1	3.5
Combined Group Total		27.3	4.4

program. A one-way Analysis of Variance was utilized to examine client satisfaction with CSL scores utilized as the dependent measure and treatment condition (i.e., CGRD, and Alcohol 101) and level of use (i.e., Heavy and Normative alcohol consumption) as independent variables. There was no significant main effect for experimental condition in CSQ-8 scores (see Table 4.6). There was also no main effect for level of alcohol use (Heavy vs. Normative alcohol consumers). Thus, participant's satisfaction ratings did not differ significantly regardless of assignment to experimental condition (i.e., Alcohol 101 or CGRD) or classification of alcohol consumption (i.e., Normative or Heavy use) $F = .00, p = .99$.

CHAPTER 5

DISCUSSION

The present study examined the efficacy of a program for the prevention of alcohol abuse on college campuses. The experimental program, the Collegiate Guide to Responsible Drinking (CGRD), was compared to an established and widely utilized prevention program produced by the Century Counsel, Alcohol 101. The Century Council (Century Council, 2008) reports that Alcohol 101 has been implemented in over 2500 colleges and universities. It has been produced in two interactive CD ROM versions and a website production. Previous investigations determined it was equally effective as more costly psychoeducational groups in reducing alcohol consumption and produced greater awareness regarding the social consequences of alcohol use and symptoms of alcohol overdose (Reis, Riley, Lokman, & Baer, 2000) as well as knowledge of alcohol metabolism and appropriate attitudes towards alcohol use (Sharmer, 2001). Donohue, Allen, Maurer, Ozols, & DeStephano (2004) found that individuals identified as Heavy alcohol consumers assigned to an alcohol refusal skills training group experienced significantly greater reductions in alcohol consumption, in both frequency and amount, as compared to Heavy Alcohol consumers assigned to Alcohol 101. CGRD was developed to incorporate behavioral components of refusal skills training (Donohue, Allen, Maurer, Ozols, & DeStephano, 2004) while including basic psychoeducation related to alcohol consumption traditionally included in Alcohol 101 and other comparable and more cost-

effective media programs. Along these lines, it was hypothesized that CGRD would lead to greater reductions in alcohol use in college students than Alcohol 101.

The results of this study indicated that both prevention conditions resulted in equal reductions in the number of days, and number of alcoholic drinks consumed. However, both CGRD and Alcohol 101 conditions failed to demonstrate significant reductions in the frequency of negative alcohol related consequences. Given the relative gains experienced by Heavy alcohol consumers receiving refusal skills training in the Donohue et al. (2004) study as compared with Alcohol 101, and the present study finding that both preventions were equally effective in reducing alcohol consumption, live interaction and individualized feedback may be important components in the prevention of alcohol use among Heavy college alcohol consumers. However, among Normative alcohol users, the less costly multi-media programs may be sufficient.

In addition to altering behavioral patterns, another goal of an alcohol abuse prevention program is to increase knowledge related to the targeted behavior (e.g., effects of food, time and gender on Blood Alcohol Concentration). In this study, participants in both prevention programs were predicted to improve their knowledge of the physical effects of alcohol use. The CGRD contained these essential components but in an abbreviated format relative to the Alcohol 101 program. Results demonstrated that participants in both prevention groups increased their knowledge of the physical effects of alcohol use to the same degree.

It was predicted that, relative to participants assigned to Alcohol 101, participants assigned to the CGRD condition would experience an increase in their perceived ability to self-regulate their behavior relevant to alcohol consumption. Indeed, CGRD targeted

self-regulation, whereas Alcohol 101 did not. Results indicated that participants in both experimental conditions perceived greater control of their alcohol use from pre- to post-prevention, albeit these gains were similar. Also related to perceptions, participants in both prevention programs perceived these programs were professionally produced and helpful in reducing their likelihood of future alcohol abuse.

The responses of Heavy alcohol consumers, as compared with Normative consumers, were found to differ significantly across all dependent measures with the exception of client satisfaction. For instance, Heavy alcohol consumers drank alcohol in greater amounts and with greater frequency than did Normative alcohol consumers in both experimental groups during the pre and post 30 day prevention assessment periods. These individuals also reported a significantly greater number of negative alcohol-related consequences than Normative alcohol consumers during these time periods. Heavy alcohol consumers also rated their knowledge of the physical effects of alcohol consumption consistently lower than Normative alcohol consumers. Similarly, Heavy alcohol consumers' ratings of their ability to regulate alcohol consumption were significantly lower than that of Normative alcohol consumers. Particularly given the limited sample size of the present study, this is a remarkable pattern to find with such consistency. Thus adaptations of the CAGE (Ewing, 1984) in college students by Heck (1991) and Aertgeerts et al. (2000) appear to have good discriminative validity. These findings have implications for future investigators seeking to accurately separate college drinkers by severity of their alcohol use.

It is possible self-reported decreases in alcohol consumption may have been due to factors associated with the passage of time, such as maturation and changing academic

demands over the course of a semester. However, given the previous consistent improvements noted to occur in Alcohol 101 trials, it is likely study findings were genuine. Along these lines, the study results will likely assist future program development, as participants from both conditions appeared to demonstrate significant reductions in frequency and amount of alcohol consumption, and participants indicated that they were satisfied with their respective program. Similarly, experimenter expectancies could have impacted the participants reports as the primary investigator collected data at all three assessment points. Efforts were made to reduce experimenter bias by minimizing verbalized instructions, using written instructions as the predominant form of communication, and refraining from looking at data in the presence of participants.

There is a relative dearth of measures available to assess consequences and behavioral patterns relevant to college alcohol use (Comby & Lange, 2008). Scores for the Comparison of Student Learning (CSL; Reis et al, 2000) and Student Alcohol Use Self-Regulation (SAUS) that were utilized to assess student knowledge of the physical effects of alcohol and its self-regulation respectively. Although the psychometric properties of these measures have not been adequately established, the constructs of the CSL and SAUS are related (i.e., alcohol knowledge and self-regulation should be positively correlated). Indeed, scores for both measures increased across time supporting their convergent validity. Similarly, scores for these measures also increased as alcohol use decreased, supporting their divergent validity.

The National Institute on Alcohol Abuse and Alcoholism, rather than supporting any specific campus alcohol abuse program, provides guidelines for each university to create

or adopt a program that addresses their specific needs within the “individual, group, institution, community, and State and Federal public policy” (NIAAA, 2008, Center section, ¶ 1). However, one of the primary components recommended in this process is to utilize the findings of outcomes studies. The outcome literature suggests that, on the individual level, college students most at risk for alcohol abuse are best served through refusal skills training and motivational enhancement strategies in a live setting as conducted by Donohue, Allen, Maurer, Ozols, & DeStephano (2004). At the group or institutional level, the present study supports the use of a newly produced multi-media based program for the general population of alcohol consumers as a primary prevention strategy. The CGRD was equally effective as Alcohol 101 in that both produced reductions in alcohol consumption. These programs support the NIAAA’s primary goal of “changing people’s knowledge, attitudes, and behavioral intentions regarding alcohol consumption” at a general level (NIAAA, 2008, Center section, ¶ 1). The Century Counsel has taken the next step in this area by placing their program in a more readily accessible online format. As many students currently participate in online social networking, the future development of Alcohol 101, the CGRD, and other programs should focus on utilizing such sites. This integration would permit students to have ongoing access to the information, self-regulation, and peer support tools associated with these programs throughout their college or university matriculation. The literature demonstrates that the majority of individuals who binge drink during college “mature out” of such behavior after college. Thus, ongoing prevention contact could provide a broader safety net, or alter the atmosphere and attitudes of institutions towards more moderate levels of alcohol consumption.

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