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Brief alcohol interventions for college drinkers: how brief is brief?

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BRIEF ALCOHOL INTERVENTIONS FOR COLLEGE DRINKERS: HOW BRIEF IS
BRIEF?

A Thesis

Submitted to the Graduate Faculty of
the Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of
the requirements for the degree of
Master of Arts

in

The Department of Psychology

by
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Abstract

Brief interventions for college student drinkers have been shown to be effective in reducing the amount of alcohol consumed as well as the number of alcohol-related problems. However, the duration of brief interventions varies substantially across studies. In the present study 22 undergraduate students who drank alcohol heavily were randomly assigned to a 10-minute brief intervention, a 50-minute brief intervention, or a six week wait-list control group. The content of the active interventions was based on the same concept, and both interventions incorporated motivational interviewing components. As hypothesized, there was a significant difference between participants in the two active interventions regarding their alcohol consumption at a 4-week post-intervention follow up. However, albeit not significantly, participants in the 50-minute condition increased their drinking while participants in the 10-minute condition decreased their drinking. Contrary to prediction, no significant differences were found between the two treatment groups in the number of alcohol related problems at 4 weeks post-intervention. These findings may be due to insufficient power to detect differences because of the small sample size.

Literature Review

Risks and Costs Associated with Binge Drinking

Alcohol abuse poses a major problem on college campuses (Wechsler, Lee, Kuo, & Lee, 2000). Johnston, O'Malley, and Bachman (2000) reported that college students drink more than their same age peers who do not attend college. Surprisingly, the same college students consumed less alcohol than their non college bound peers while in high school. More than 40% of college students engage in binge drinking (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994), which is defined as more than five drinks for an adult male or four drinks for an adult female at one sitting (Wechsler et al., 2000). Binge drinking is associated with engaging in high risk or illegal behaviors (Baer, 1993). In addition, 31% of college students meet criteria for alcohol abuse (Knight et al., 2002). The Diagnostic and Statistical Manual for Mental Disorders, fourth edition (DSM-IV-TR., American Psychiatric Association, 1994), defines alcohol abuse as a maladaptive pattern of drinking that is characterized by significant interference with obligations, engaging in recurrent hazardous use of alcohol, or encountering significant social, legal, or interpersonal problems, without meeting the criteria for dependence (i.e., maladaptive pattern of drinking that is characterized by tolerance, withdrawal, drinking more alcohol than was intended, failure to cut down or stop drinking, significant interference with obligations, engaging in recurrent hazardous use of alcohol, or encountering significant social, legal, or interpersonal problems).

According to the report put forward by the National Highway Traffic Safety Administration (NHTSA), three young adults are killed each day when they drink and

drive (USDOT; NHTSA, 2005). In 2003, 6,002 people ages 16-20 died in motor vehicle crashes, and alcohol was involved in 38% of these deaths (United States Department of Transportation; USDOT; NHTSA, 2003). In fact, 32% of college students admitted to driving while under the influence of alcohol (Wechsler et al., 1994). Notably, alcohol abuse has a detrimental effect not only on the individual who engages in problem drinking behavior but also on his/her fellow students and the community he/she lives in (Wechsler, 1996). Indeed, Wechsler et al. (2000) reported that students residing on “high binge” campuses (i.e., more than 50% of students are binge drinkers), who did not partake in binge drinking or who abstained from alcohol, were twice as likely to experience being assaulted, awakened, or kept from studying by drinking students than were students at “low binge” campuses (i.e., 35% or lower of students are binge drinkers). In addition, researchers have shown that not only the quantity of alcohol consumed, but also the frequency with which it is consumed distinguishes between problem and non-problem drinkers. Wechsler et al. (2000) reported that college students, who engage in binge drinking more often than others, experience more negative consequences of drinking.

There is some evidence in the literature that the majority of college students will reduce their drinking with time (Schulenberg & Maggs, 2002). Still, unless college students learn how to minimize negative consequences and risks associated with heavy drinking, they will continue to experience alcohol-related problems until they “mature out” into more responsible drinking practices (Dimeff, Baer, Kivlahan, & Marlatt, 1999). Some college students, however, will continue to drink heavily and to experience harmful consequences associated with this behavior (Marlatt, Larimer, Baer, & Quigley, 1993).

Unfortunately, the majority of intervention programs have not achieved the desired reduction in alcohol drinking among college students (Larimer & Cronce, 2002). Wechsler et al. (2002) reported that in spite of the efforts to teach college students about the risks of drinking alcohol, the consumption of alcohol among college students remains dangerously high. Borsari and Carey (2005) proposed that one of the reasons for this regrettable reality could be that college students are aware of the harmful consequences associated with drinking, yet, remain unmotivated to reduce their alcohol consumption.

According to the report put forward by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), the components of a successful treatment for college drinkers are: motivational enhancement, cognitive-behavioral intervention, and skills training [United States Department of Health and Human Services (USDHHS), NIAAA, 2002]. The Brief Alcohol Strategies and Intervention for College Students (BASICS) incorporates all of the aforementioned categories (Dimeff, et al., 1999). Dimeff et al. (1999) describe BASICS as “nonconfrontational, nonjudgmental, nonauthoritarian, and nonlabelling.” The intervention is designed for college students who do not have severe alcohol dependence, but who have minimal to moderate alcohol problems or who drink in harmful, hazardous ways. The intervention consists of two 50-minute sessions. The first session is designed to assess the student’s pattern of alcohol consumption while the second session consists of feedback about the student’s personal risk factors. Advice about ways to moderate drinking is also provided. The core elements of the intervention, which will be discussed in greater detail in subsequent sections, are cognitive-behavioral interventions aimed at enhancing of self management strategies (setting drinking limits, monitoring one’s drinking, rehearsing drink refusal skills, and practicing other useful new

behaviors through role play), motivational enhancement, normative feedback, and harm reduction (Dimeff et al., 1999).

Core Elements of BASICS

Traditional treatments for college drinkers take students' motivation to change their drinking behavior for granted and proceed to teach students new skills designed to help them modify their drinking behavior. However, college students, even those who engage in heavy drinking, rarely see themselves as needing assistance with controlling their alcohol intake. Interventions such as BASICS start with motivating college drinkers to change their drinking patterns instead. Then, when students are ready and committed to change, they are taught new techniques that will help them alter their behavior.

Stage of Change Model and Motivation for Behavior Change

Correspondingly to college students who drink heavily, other individuals with substance abuse/alcohol problems rarely present to treatment with a commitment to change their pattern of drug use. Therefore, the key element of effective treatment is resolving ambivalence about changing that behavior (Miller & Rollnick, 1991). Miller and Rollnick (1991) utilize the Stage of Change model developed by Prochaska and DiClemente (1992) to motivate individuals to change unhealthy behaviors such as drug/alcohol abuse, overeating, and smoking. According to the model, change occurs on a continuum in which there are five stages of change: precontemplation, contemplation, preparation, action, and maintenance. The role of the therapist is to assist the patient in movement from one stage to another. The therapist uses the following five techniques introduced by Miller and Rollnick (1991): express empathy (i.e., understanding the patient from his/her point of view), support self efficacy (i.e., belief that one can succeed

at a particular task), avoid argumentation, “roll” with resistance (i.e., meeting patient’s ambivalence about change with acceptance rather than argumentation), and develop discrepancy (i.e., pointing out a discrepancy between present behavior and important personal goals or values). The aforementioned approaches are designed to assist the therapist with a supportive rather than argumentative or oppositional style.

Normative Feedback

It has been well documented in the literature that perceived norms for alcohol consumption and perceived alcohol related consequences have a mediating effect on alcohol consumption among college students (Perkins & Wechsler, 1996). In fact, Perkins, Haines, and Rice (2005) reported that a student’s perception of the amount of alcohol consumed by his/her peers is the strongest predictor of the amount of alcohol he/she will consume. College students often overestimate the amount of alcohol consumed by their peers and underestimate the severity of the negative consequences of problem drinking (Borsari & Carey, 2003). It follows, then, that changing students’ perceptions regarding alcohol can change the outcome of the intervention aimed at assisting college students in reducing their alcohol consumption. In fact, Mallett, Lee, Neighbors, Larimer, and Turrisi (2006) found that students, who had the greatest misperceptions about the amount of alcohol needed to experience negative consequences of drinking, were at the highest risk for heavy drinking.

The effectiveness of clinical interventions incorporating normative feedback in reducing college drinking and harm associated with problematic drinking has been well established in the literature (Borsari & Carey, 2000; Haines & Spear, 1996; Nye, Agostinelli, & Smith, 1999; Walters, 2000). Walters and Neighbors (2005) conducted a

metanalysis of outcome studies in which normative feedback was a major component of the clinical intervention for college drinkers. They presented the following categories of feedback information included in various interventions: personal alcohol consumption, alcohol related consequences, national, campus specific, or other drinking norms, risk factors associated with alcohol consumption, alcohol-related outcome expectancies (expected rewarding and punishing effects of alcohol consumption), didactic information, suggestions for moderating drinking, and blood alcohol content (BAC) diary cards. The authors reported that normative feedback, regardless of its form, seems to be effective in reducing drinking among college heavy drinkers, and they suggested that normative feedback is a vital component of BASIC (Walters & Neighbors, 2005). In fact, Neighbors, Larimer, and Lewis (2004) suggested that normative feedback is one of the active ingredients of the intervention.

Hypothesized Mechanism of Action in BASICS

Walters and Neighbors (2005), pointed out the scarcity of research investigating the mechanism of action of the brief interventions. Furthermore, in Saunders, Kypri, Walters, Laforge, and Larimer (2004), Larimer acknowledged that a substantial amount of evidence of the efficacy of a brief intervention for college drinkers has been accumulated in the literature. Still, she pointed out a large number of questions about the mechanism of action of the brief intervention that have not been answered. One of them concerns the length of the intervention. Larimer (2004) writes, “There is no standard definition of the term brief, and interventions range from four sessions to 5 minutes to receipt of a feedback sheet (or three feedback sheets) in the mail, all collapsed under this general rubric. How brief is brief? How much is enough? Is more better?”

To illustrate Dr. Larimer's point, both Marlatt et al. (1998) and Dimeff and McNelly (2000) results suggested that brief intervention for college drinkers are efficacious in reducing alcohol consumption and alcohol-related problems. However, the lengths of the interventions in the aforementioned studies differed substantially. Marlatt et al. (1998) conducted a randomized, controlled experiment in which they tested the efficacy of BASICS. They screened college student drinkers for high risk drinking behavior and provided an assessment to both the experimental and control groups. While the experimental group received both the assessment and the intervention, the control group received the assessment only. They found that students in the experimental condition had significantly greater reductions in alcohol consumption and in alcohol related problems at a 1-year and 2-year follow up. In addition, the authors point out that even though both the amount consumed and the number of drinking-related problems were reduced significantly, the effect of the intervention was greater for reducing drinking-related problems than for decreasing alcohol consumption. They proposed that this finding implies a correlation between amount of alcohol consumed and number of drinking-related problems. Therefore, they recommended that treatment for college drinkers should focus on reducing both the amount of consumed alcohol and the problems associated with heavy drinking. Marlatt et al. (1998) suggested that the effectiveness of the program "may be related to several user-friendly characteristics, including program brevity, acceptance of non-abstinence drinking goals, and the nonjudgmental yet pragmatic approach of the intervention itself."

Dimeff and McNelly (2000) randomly assigned 41 heavy college drinkers to a brief intervention or to a control condition. Students in the experimental condition met

for an up to 5-minute session with a primary health professional. During the session, students' drinking habits and risks associated with heavy drinking were discussed, and they were encouraged to reduce their drinking. In addition, the health care practitioners provided handouts for the students. The handouts addressed the following topics: steps to moderation of drinking, effects of alcohol, gender differences in how alcohol is metabolized, and alcohol expectancies (beliefs individuals have about the effects of alcohol on their behavior, emotions, cognitive abilities, etc). At a 30-day follow up period, the researchers found moderate to large effect sizes in the amount of alcohol consumed and the number of problems associated with heavy drinking. Moreover, students who spent more time with the health practitioner experienced significantly fewer problems associated with alcohol.

Although the length of the interventions and the delivery method (i.e. health practitioner in medical setting versus clinical psychology graduate student in mental health clinic) implemented in the aforementioned studies was different, both of them included the following components: reliable screening and assessment of high risk college drinkers; discussion about the effects of alcohol and the individual risk factors associated with alcohol consumption; motivating the participant to reduce drinking; and teaching him/her how to do so. Findings from both of the studies seem to suggest that both 5- minute and 50-minute brief interventions for heavy college drinkers are successful in reducing the amount of alcohol consumed and negative consequences associated with heavy drinking. Those results are encouraging despite the previously mentioned difference of the delivery method of the brief intervention.

While the findings of Marlatt et al. (1998) and Dimeff and McNelly (2000) studies are encouraging, they should be interpreted with caution due to several limitations. First, both studies relied on self report measures of alcohol consumption. Second, Dimeff and McNelly (2000) utilized a very small sample of participants. Third, Dimeff and McNelly (2000) did not extend the follow-up period beyond 30 days. Lengths of BASICS Interventions.

The literature suggests that brief interventions for problem student drinkers are successful in reducing the amount of alcohol consumed as well as negative consequences associated with alcohol consumption. Still, the length of the interventions implemented in numerous studies has varied, and there have been no studies conducted to date in college populations that have directly compared the efficacy of two interventions different in length.

Statement of Problem and Hypotheses

Brief interventions for college heavy drinkers have showed some promise in reducing drinking levels and drinking-related negative consequences (Saunders et al., 2004). However, since the duration of the intervention, content, method of delivery, and the duration of the follow up period vary across studies, we do not know whether the length of the intervention has an impact on its effectiveness. There is some evidence to suggest that the length of the intervention may have an effect on how efficacious the intervention is. Specifically, Dimeff and McNelly (2000) reported that participants who spent more time with their health care provider, who delivered a brief intervention, experienced fewer alcohol-related problems at a 30-day follow up than did participants who spent less time. Nevertheless, while interpreting the aforementioned results, we should bear in mind the following limitations: small sample size, short follow up period, and failure in establishing causation. In the present study, we randomly assigned heavy drinking college students to either a 10-minute brief intervention, to a 50 minute brief intervention, or to six weeks-wait list control group. Both interventions were provided by clinical graduate students trained to criterion in MI and included the following components: personalized feedback on alcohol consumption including information about norms, effects of alcohol and advice on ways to reduce risks associated with drinking. Although the clinician had all of the aforementioned components of BASICS at his/her disposal, rarely would he/she utilize all of them in a single session. Whether it was a 10 or a 50-minute session, the “goal in all circumstances is to move the client forward along the stages-of-change continuum” (Dimeff et al., 1999). For instance, it would be premature to introduce behavioral techniques such as drink refusal to a client who is in

the precontemplative stage (i.e. motivation for behavior change is lacking). In order to best serve such a client, the clinician would devote the majority of the session to the Motivational Interviewing component. A client who is in the action stage (i.e. motivated to change his/her behavior), on the other hand, would not gain much from the motivational part of the session. With such a client, the therapist would go over behavioral skills helpful in reduction of alcohol use. Though already stated, it is vital to keep in mind that BASICS has been conceptualized as a brief and tailored intervention to the specific needs of an individual client. We assessed participants' drinking and drinking related problems 4 weeks post intervention (both intervention groups) and 4 weeks post assessment (control group) in order to determine whether the interventions produced comparable results.

Specific Aim 1) To compare the efficacy of a BASICS intervention delivered in a 50 vs 10-minute session on reduction of alcohol consumption and alcohol-related problems among college student heavy drinkers.

Specific Aim 1 Hypothesis 1) Both the 50-minute and 10-minute intervention would produce significantly greater reduction of alcohol consumption and alcohol-related problems than the control condition among heavy college drinkers.

Specific Aim 1 Hypothesis 2) The 50 minute intervention would produce a significantly greater reduction of alcohol consumption and alcohol-related problems than the 10-minute intervention among heavy college drinkers.

Method

Power Analysis

Power to detect differences was determined for the two principal outcome measures, number of alcohol-related problems (RAPI; White & Lebouvie, 1989) and amount of alcohol consumed (DDQ; Collins, Parks, & Marlatt, 1985). Based on similar studies such as Marlatt et al. (1998), we proposed that with a sample size of 310 participants, there would be statistical power ($\beta = .80$), $\alpha = .05$ to detect a decrease in the number of alcohol-related problems and the amount of alcohol consumed. We expected the standardized effect size Cohen's $d = 0.20$ (medium effect size) based on the previous findings in the literature.

Participants

Participants were recruited through the following channels: e-mail invitation to randomly selected undergraduates from Louisiana State University (LSU), and Psychology Subject Pool. Please refer to the "Recruitment and Screening" section for detailed description recruitment methods. Inclusion criteria were: a) drinking at least monthly and consuming at least 5 drinks (for a man) and 4 drinks (for a woman) on one drinking occasion in the past month or b) reporting the experience of three alcohol-related problems on 3 to 5 occasions in the past 3 years on the Rutgers Alcohol Problem Inventory (RAPI; White & Labouvie, 1989).

- Participants Recruited through Campus-Wide e-mail Invitation: Of 6,000 potential participants who were contacted through the Internet recruiting procedures described below, 2,069 (34.5%) opened the screening survey, and 714 (34.5%) completed it. Among those, 309 (43.3%) met inclusion criteria for the study. All eligible individuals

($n=309$) were contacted through e-mail and invited to participate in the study. Twenty of those responded affirmatively for participation and attended the in-person assessment session and consented to the study procedures while 289 did not respond to our invitation to participate. Eligible students, who chose not to participate in the study ($n= 289$), were mostly Caucasian (92%) females (87%), with an average age of 19.9 ($SD= 1.2$) years and an average weekly alcohol consumption of 17.9 ($SD= 11.5$) drinks. The majority of study participants ($n= 20$) were Caucasian (95%) females (85%) with an average age of 20.2 ($SD= 1.2$), and they reported drinking 18.7 ($SD= 12.4$) drinks per week. We conducted one-way Analyses of variance (ANOVAs) with continuous baseline variables (i.e. age, number of drinks per week) as dependent variables and decision to participate (yes/no) as the factor, and chi-square analyses with categorical baseline variables (i.e., gender, race) and decision to participate (yes/no) as the factors to compare eligible participants who chose to participate ($n =20$) to those who chose not to participate ($n=289$). These analyses revealed no significant differences between participators and non-participators on the baseline variables. To date, 16 participants recruited through the campus-wide e-mail invitation have completed the study while 4 are scheduled for follow up.

- Participants Recruited through the LSU Psychology Subject Pool: We screened 45 participants, through the LSU Psychology Subject Pool, of whom 20 (42%) met the inclusion criteria and were invited to participate. The LSU Psychology Subject Pool is composed of students enrolled in Psychology courses at LSU and receiving course credit for participation. Whereas the participants recruited via the Internet completed screening measures online, students recruited via Subject Pool were assessed for eligibility at the

Psychological Services Center (PSC). Two individuals were not interested in participating in the study, while 18 signed the consent and completed the in-person assessment. Both students who declined to participate in the study were Caucasian females with an average age of 19.5 ($SD= 2.1$), and average alcohol consumption of 20.5 ($SD= 0.7$) drinks per week. Because the non-participating group was so small ($n =2$), we did not conduct parametric and non-parametric analyses to compare this group to those who decided to participate. The average age of those who agreed to participate in the study ($n= 18$) was 20.3 ($SD= 1.2$), and they consumed an average of 19.8 ($SD= 7.3$) drinks per week. The majority of these participants were Caucasian (95%) and female (66.7%). Thus far, 5 participants have completed the study while the remaining 13 are scheduled for their follow up assessment.

To assess for comparability between those participants recruited through the campus-wide e-mail invitation ($n = 20$) and those recruited through the LSU Psychology Subject Pool ($n = 18$), we conducted one-way ANOVAs with the continuous variables (age; number of drinks per week) as dependent variables and recruitment method (campus-wide e-mail invitation versus Psychology Subject Pool) as the factor, and chi-square analyses with categorical dependent variables (gender, race) and recruitment method (campus-wide e-mail invitation versus Psychology Subject Pool) as the factors. These analyses revealed no significant differences on baseline variables by recruitment method on age, race, gender, or number of drinks per week.

Participant Characteristics

Overall, we screened 765 participants of whom 339 met the inclusion criteria for the study and were invited to participate. Thirty eight signed the consent to participate in

the study. Thus far, 22 have completed the study and 15 are scheduled for follow up. The descriptive characteristics presented below (See Table 1) pertain to those participants who completed the study thus far ($n=22$). The data in the table shows that, at baseline, the participants did not differ significantly on any of the variables of interest.

Materials

The Rutgers Alcohol Problem Inventory (RAPI; White & Labouvie, 1989). The RAPI (see Appendix A) is a 23 item instrument designed to assess the frequency and severity of alcohol-related problems. Students were asked to indicate on a 5-point Likert-type scale whether any of the 23 presented items representing alcohol's role in personal, social, and academic functioning had occurred in the past three years. The RAPI has strong psychometric properties. Coefficient alpha is .91 (Martens et al., 2005) indicating excellent internal consistency. This scale has also been shown to be a reliable discriminator between clinical and non-clinical samples of college age drinkers demonstrating evidence of construct validity (White & Labouvie, 1989).

The Daily Drinking Questionnaire (DDQ; Collins et al., 1985). The DDQ (See Appendix B) is a self report instrument designed to assess drinking frequency and quantity. Participants were asked to report, for the past month, the typical number of drinks consumed during each day of the week. In addition, participants reported, for the past month, the typical number of hours they usually drink during each day of the week. Collins et al. (1985) reported adequate convergent validity for the DDQ.

The Readiness to Change Questionnaire (RTCQ; Rollnick, Heather, Gold, & Hall, 1992). The RTCQ (See Appendix C) is a 12-item self report measure based on

Table 1. Participant Characteristics at Baseline

	Overall (<i>n</i> =22)	50-minute (<i>n</i> = 6)	10-minute (<i>n</i> = 6)	Control (<i>n</i> =10)	<i>p</i>
Age	20.3, (<i>SD</i> = 1.1)	20.2, (<i>SD</i> =1.5)	20.2, (<i>SD</i> = 1.3)	20.5, (<i>SD</i> = 1.2)	<i>ns</i>
Race (%)	Caucasian(90.5%) African American (9.5%)	Caucasian(83.3%) African American (16.7%)	Caucasian(100%)	Caucasian (90%) African American (10%)	<i>ns</i>
Gender(%)	Males (18.2%) Females (81.8%)	Males (16.7%) Females (83.3%)	Males (33.3%) Females (66.7%)	Females (100%)	<i>ns</i>
DDQ ^a	19.7, (<i>SD</i> = 12.2)	16.3, (<i>SD</i> = 11.6)	27.0, (<i>SD</i> = 18.3)	18.1, (<i>SD</i> = 9.1)	<i>ns</i>
RAPI ^b	15.6, (<i>SD</i> = 10.7)	16.0, (<i>SD</i> = 11.3)	12.7, (<i>SD</i> =6.5)	17.2, (<i>SD</i> = 12.2)	<i>ns</i>
RTCQ(%) ^c	P (37.8%) C (33.3%) A (28.9%)	P (33.3%) C (50%) A (16.7%)	P (50%) C (33.3%) A (16.7%)	P (20%) C (10%) A (70%)	<i>ns</i>
CEOA ^d	2.8, (<i>SD</i> = 0.4)	2.9, (<i>SD</i> = 0.4)	2.7, (<i>SD</i> = 0.31)	2.8, (<i>SD</i> = 0.4)	<i>ns</i>

Note. P = Precontemplation, C = Contemplation, A = Action

^aIndicates an average # of drinks per week in the past month. ^bIndicates an average # of alcohol related problems in the past month. Range (0-92). ^cIndicates individual's stage of change as far as changing his/her drinking behavior is concerned. ^dIndicates the strength of positive alcohol related expectancies. Range (1-4)

Prochaska and Diclemente's stages of change model, which assesses individual's motivation to change drinking habits. The RTCQ comprises three factor-analytically derived scales: precontemplation, contemplation, and action. Rollnick et al. (1992) reported the following coefficient alpha values for each of the subscales: Precontemplation .73; Contemplation .80, and Action .83. The RTCQ significantly predicted drinking outcomes among male drinkers 8 weeks and 6 months after discharge from hospital demonstrating evidence of predictive validity (Heather, Rollnick, & Bell, 1993).

The Drinking Norms Rating Form (DNRF; Baer, Stacy, & Larimer, 1991). The DNRF (See Appendix D) is a 10-item self report instrument assessing students' perception of alcohol use among their peers, parallel in format to the DDQ. In a previous study, participants' estimates of the amount of alcohol consumed by their peers was highly correlated with their own drinking, demonstrating evidence of criterion validity (Baer, Stacy, & Larimer, 1991).

The Comprehensive Effects of Alcohol (CEOA; Fromme, Stroot, & Kaplan, 1993). The CEOA (see Appendix E) is a 38-item self report measure that included 8 different positive and negative alcohol expectancies. Fromme et al., (1993), reported following coefficient alpha values for each of the six factor analytically derived subscales: Behavioral Impairment .90; Risk and Aggression .80; Self Perception .65; Sociability .81; Liquid Courage .76; and Sex .73. In addition, the CEOA has shown adequate construct validity in distinguishing between abstainers, heavy and light drinkers (Fromme et al., 1993).

The Brief Drinker Profile (BDP; Miller & Marlatt, 1984). The BDP is a structured interview designed to assess family history of alcohol problems, history of conduct disorder, and personal drinking history.

Procedure

Recruitment and Screening

Consistent with recommendations of Baer and colleagues (2001) and prior BASICS research (Marlatt, et al., 1998) students were considered high risk if they: a) report drinking at least monthly and consuming at least 5 drinks (for a man) and 4 drinks (for a woman) on one drinking occasion in the past month or b) report the experience of three alcohol-related problems on 3 to 5 occasions in the past 3 years on the Rutgers Alcohol Problem Inventory (RAPI; White & Labouvie, 1989). These criteria are similar to those utilized in the original BASICS trial (Marlatt, et al., 1998). Based on previous research (Wechsler et al., 2000), we expected that 23% of undergraduate students at LSU will meet these study criteria.

Recruitment and Screening through the Internet.

Initially, we recruited participants via the Internet. Strengths to this approach include convenience and flexibility and direct data entry by participants. However, concern among study participants about the potential for loss of confidentiality is a major problem. In order to reassure our participants, we informed them of extensive provisions to ensure confidentiality and security of their data. Furthermore, research (Miller et al., 2002) indicates no differences in reported alcohol use and problems between individuals randomized to web or paper surveys.

In 2006, there were 24,600 undergraduate students enrolled at LSU. We obtained

a list of e-mails of a randomly selected sample of 6,000 students and sent an e-mail, inviting them to participate in the study by completing a brief screening survey on the internet. Participants who logged on were first directed to a welcome screen describing the research. Then, they were directed to a consent statement, and had to indicate their consent to the research prior to being directed to the survey. Screening consisted of demographics, the Rutgers Alcohol Problem Index (RAPI; White & LaBouvie, 1989), the Daily Drinking Questionnaire (Collins et al., 1985) and the Quantity/Frequency Index (Dimeff et al., 1999). We offered a chance to win a \$300 cash prize for study participation, and we expected that at least 45% of the students will participate in the screening (Kypri., et al., 2004), yielding a screening sample of approximately 2,700 students. We used a series of reminder emails to non-responders to achieve this sample size. We expected that following screening, eligible students ($n=620$, 23% of those screened) would be contacted by the researchers via e-mail to participate in the longitudinal study. Geisner, Neighbors, and Larimer (2006) achieved 83% recruitment using this method. Conservatively, we expected that 50% of the eligible students would agree to participate, for a sample of 310 students.

Unfortunately, we were not been able to achieve proposed response rate. As discussed above, out of 6000 contacted students, 2069 (34.5%) opened the survey, and 714 (34.5%) completed it. Out of the 714 students who completed the assessment, 309 (43.3%) were eligible and were invited to participate in the study. Out of 309 contacted students, 20 (6.1%) responded and signed the consent to participate. One explanation for a very low response to our recruitment efforts is overall decline in response rates over the past decade reported by other researchers (Caetano, 2001; Tourangeau, 2004)).

Recruitment and Screening through the Psychology Subject Pool

Our attempt at recruitment via the Internet was not as successful as we anticipated. Therefore, we extended our recruitment efforts by taking advantage of the Psychology Subject Pool. First, we determined participants' eligibility by asking them to complete the same screening measures as our Internet screening sample did. We offered 1 course credit for completing the screening assessment. Second, students who met study inclusion criteria were invited to participate in the study. For those students, we offered 5 course credits as a compensation for their participation. Through this method, we screened 45 participants of which 19 (42%) met the inclusion criteria and were invited to participate. Two individuals were not interested in the study while 17 signed the consent and completed the in-person assessment.

Baseline Assessment

All participants met with the graduate student to complete the BDP (Miller & Marlatt, 1984). Following the interview, they were asked to fill out the DDQ (Collins et al., 1985), the RAPI (White & Labouvie, 1989), QFI (Dimeff et al., 1999), RTCQ (Rollnick et al., 1992), DNRF (Baer et al., 1991), and CEOA (Fromme et al., 1993). In addition, participants in both treatment groups were asked to keep track of their daily drinking for 2 weeks prior to their scheduled intervention session using monitoring cards (see Appendix G) provided by the interviewer.

Intervention

Students were randomized to either a 10-minute or a 50-minute brief intervention session, or to a wait list control group. Interventions took place approximately two weeks after the assessment session. The sessions were individually tailored based on the

information provided at baseline. In addition, the sessions were conducted by trained graduate students using a written manual (Dimeff et al., 1999). The following topics were addressed in each session: a) evaluation of typical drinking patterns as reported on diary cards and at baseline assessment; b) comparison of typical patterns of alcohol use and perceived norms to actual norms of same-age peers; c) review of the biphasic effects of alcohol; d) personalized review of drinking related consequences; and e) placebo and tolerance effects of alcohol. Additionally, each participant received a handout with a list of strategies to encourage moderate drinking (Dimeff et al., 1999). All sessions were conducted in accordance with the principles of motivational interviewing outlined by Miller and Rollnick (1991).

Follow-up

Based on previous research (Dimeff & McNelly, 2000), we assessed study participants four weeks after the intervention (both treatment groups) and 4 weeks after the assessment (control group). We asked study participants to complete the following assessments, the RAPI (White & Lebouvie, 1989) and the DDQ (Collins et al., 1985), QFI (Dimeff et al., 1999), RTCQ (Rollnick et al., 1992), DNRF (Baer et al., 1991), and CEOA (Fromme et al., 1993).

Results

Effects of Interventions vs. Control

To test the hypothesis that both treatment conditions ($n = 12$) would be more efficacious than the control ($n = 10$) condition in reduction of alcohol consumed and in reduction in the number of problems associated with heavy drinking from baseline to 4 weeks post-intervention, we planned to conduct two separate one-way analyses of covariance (ANCOVA). In the first analysis, the independent variable was treatment assignment with two levels: control and treatment (both 10-minute and 50-minute), and the dependent variable amount of drinking at the 4-week follow up (assessed by the DDQ, administered 4 weeks post-intervention). The covariate was the DDQ score at baseline. The homogeneity-of-slopes assumption as well as other required assumptions of parametric statistics was not violated, $F(1,19) = .63, p = .44$. However, ANCOVA was not significant, $F(1,18) = .04, p = .84$. In the second analysis, the independent variable was treatment assignment with two levels: control and treatment (both 10-minute and 50-minute), and the dependent variable was the number of problems associated with heavy alcohol consumption at follow up (assessed by the RAPI). The covariate was the RAPI score at baseline. We were not able to proceed with the parametric analyses because the homogeneity-of-slopes assumption was violated.

Effects of Intervention Length

To test the hypothesis that the 50-minute intervention ($n = 6$) would be more efficacious at reducing alcohol consumption and alcohol related problems than the 10-minute intervention ($n = 6$), we conducted two separate one-way analyses of covariance (ANCOVA). In the first analysis, the independent variable was treatment assignment

with two levels: 50-minute intervention and 10-minute intervention. The dependent variable was the amount of alcohol consumed at follow up (assessed by the DDQ), and the covariate was the DDQ score at baseline. The homogeneity-of-slopes (and other requisite assumptions of parametric statistics) was not violated, $F(1,7) = .01, p = .93$. The ANCOVA was significant, $F(1,8) = 10.09, p < .05$, partial $\eta^2 = .75$, whereby participants in the 10-minute intervention had significantly fewer drinks per week as compared to participants in the 50-minute intervention at 4 weeks post-intervention. In Table 2, we present both the adjusted and unadjusted mean DDQ scores at follow up in the 50-minute condition and in the 10-minute condition. Our results indicate that post-treatment alcohol consumption was greater in the 50-minute condition than in the 10-minute condition.

Table 2. Adjusted and Unadjusted Mean DDQ Scores in Both Interventions at Follow-up

Intervention	Adjusted Mean	Unadjusted Mean
50-minute	25.3	17.5
10-minute	16.1	25.4

In Figure 1, we present average number of drinks consumed by participants in both treatment groups at baseline and at the 4-week follow-up. The mean DDQ scores presented here are not adjusted. Our results indicate that participants in the 50-minute intervention increased their drinking after the treatment while participants in the 10-minute intervention decreased their drinking at post-treatment. We conducted a within-subjects t-test for both the 10-minute and 50-minute intervention, and we found no significant differences within groups on their alcohol consumption pre to post-treatment.

In the second analysis, the independent variable was treatment assignment with two levels: 50-minute intervention and 10-minute intervention. The dependent variable

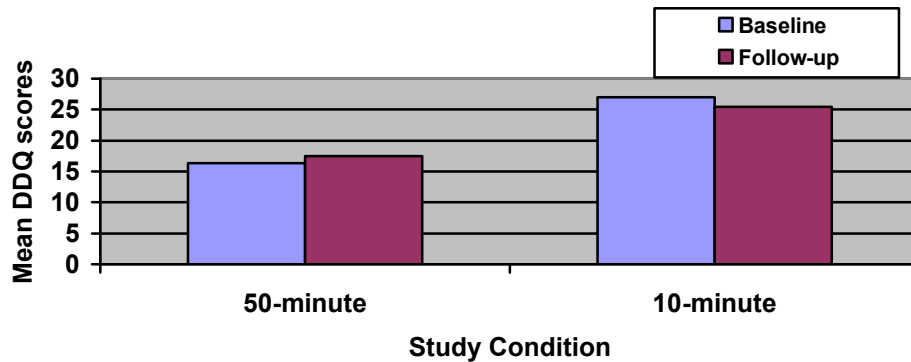


Figure 1. Alcohol Consumption at Pre and Post-treatment.

was the number of alcohol related problems at follow up (assessed by the RAPI), and the covariate was the RAPI score at baseline. The homogeneity-of-slopes assumption was maintained, $F(1,7)=.31, p=.6$. The ANCOVA was not significant, $F(1,8)=.07, p=.8$.

We were also interested in comparing the alcohol-related problems from pre to post-treatment for both intervention groups. Therefore, we conducted a within-subjects t-test for both 10-minute and 50-minute intervention. Our results indicate that participants in both groups had fewer alcohol-related problems at follow-up than at baseline.

However, the difference in the mean RAPI score (not adjusted) was only significant for the 50-minute condition., $t(5) = 3.3, p = .02$. In Figure 2, we present mean RAPI (not adjusted) scores between the two intervention groups during the baseline and follow up assessments.

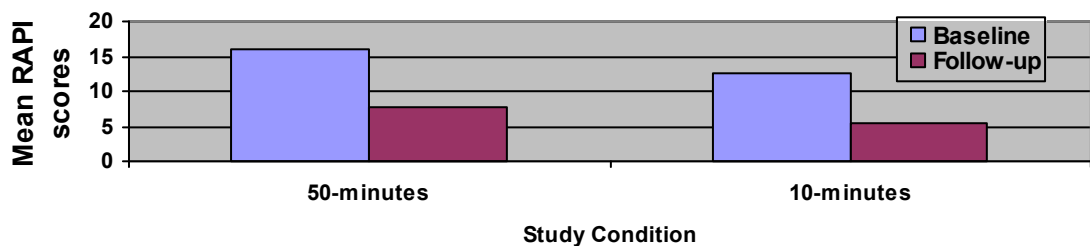


Figure 2. Alcohol Related Problems at Pre and Post-treatment.

Below, we present descriptive statistics at baseline and follow up for selected variables.

Table 3. Pre and Post-intervention Comparisons on Selected Variables

	Overall (<i>n</i> =22)	50-minute (<i>n</i> =6)	10-minute (<i>n</i> =6)	Control (<i>n</i> =10)	<i>p</i>
RTCQ B ^a	P (37.8%) C (33.3%) A (28.9%)	P (33.3%) C (50%) A (16.7%)	P (60%) C (40%) A (0%)	P (20%) C (10%) A (70%)	<i>ns</i>
RTCQ F	P (22.6%) C (38.7%) A (38.7%)	P (20%) C (40%) A (40%)	P (33.3%) C (33.3%) A (33.3%)	P (14.2%) C (42.9%) A (42.9%)	<i>ns</i>
CEAO- B ^b	2.8, (<i>SD</i> = 0.4)	2.9, (<i>SD</i> = 0.4)	2.7, (<i>SD</i> = 0.31)	2.8, (<i>SD</i> = 0.4)	<i>ns</i>
CEAO- F	2.7, (<i>SD</i> = .55)	2.6, (<i>SD</i> = .7)	2.9, (<i>SD</i> = .56)	2.7, (<i>SD</i> = .5)	<i>ns</i>

Note: B = Baseline, F = Follow up, P = Precontemplation, C = Conremplation, A = Action
^aIndicates individual's stage of change. ^bIndicates the strength of positive alcohol related expectancies.
 Range (1-4).

Discussion

In the current study, we investigated whether the length of a brief intervention for college students problem drinkers will affect its' efficacy. Although the literature seems to support the efficacy of brief interventions in reducing alcohol consumption and alcohol related problems among college students, the length of the interventions across studies varies. The present investigation was designed to contribute to the literature by demonstrating that the 50-minute intervention would be more efficacious than the 10-minute intervention in reduction of both alcohol related problems and amount of alcohol consumed by college problem drinkers.

Findings regarding alcohol consumption pre and post-intervention indicate that there were significant differences on this variable between participants in both interventions at post-intervention. In addition, our results suggest that participants in the 50-minute intervention consumed more alcohol at the 4-week follow up than did participants in the 10-minute intervention. This was contrary with prediction. Findings with the alcohol-related problems indicate that there were no significant differences at post-intervention between both 50-minute intervention and 10-minute intervention regarding that variable. However, participants in the 50-minute intervention condition reduced their drinking related problems significantly from baseline to the 4-week follow up. Our prediction that the 50-minute intervention would result in superior outcomes on both of these variables was not supported. It is unlikely that the other variables measured at pre and post-intervention mediated or moderated these outcomes, as Table 3 illustrates the lack of difference among groups.

One of the limitations of our project is small sample size, which prevents us from

drawing solid conclusions from our investigation. Notably, however, attrition has not been a problem once individuals decided to participate. Recruitment efforts were likely adversely affected by the strategy and trouble-shooting methods we employed.

Originally, we recruited participants via the Internet. The response to the screening survey was adequate. Unfortunately, the response to the e-mail invitation we sent to all eligible participants, was less than what would be expected based on previous studies that utilized the same method. Consultation with the leading BASICS researchers in the country indicated that the e-mail we sent to all eligible participants may have been lost through the “spam” screening mechanism utilized by the university and individual students with their personal e-mail accounts (Larimer, personal consultation, 2007). Dr. Larimer described a similar occurrence while conducting one of the first studies during which the Internet was utilized as a source of recruitment and screening. One of the ways to prevent this from happening in the future would be consulting with the Information Technology department prior to beginning study recruitment efforts.

Another limitation of our investigation involves the validity of self-reports of alcohol use by college student participants, and concerns about confidentiality which might influence self-report. In order to address that shortcoming, we discussed with our participants protections for confidentiality including the Certificate of Confidentiality. We acquired this document from the NIAAA as further protection of participants’ confidentiality. In addition, we utilized standardized measures of alcohol use and consequences which have been shown to be reliable and valid in this population in prior research. We considered addition of collateral respondents or other external data sources to verify accuracy of self-report measures. However, some research indicates self-report

is more accurate (Smith et al., 1995; Chermak et al., 1998) than collateral data and biochemical markers. Self-report is also more cost-effective than collateral data, and the expense does not appear to be off-set by corresponding benefits (Babor & Higgins, 2000; LaForge, et al., 2005). Additionally, other external sources of information are not readily available or useful for assessing college drinking.

Our hypothesis that participants in both treatment conditions will reduce their drinking and drinking-related problems more than participants in the control condition was not supported. Likewise, our hypothesis that longer treatment will be more efficacious in reducing problems related to heavy drinking was not supported. There are two significant findings in the present study: a) the difference in alcohol consumption among treatment participants at follow-up across two treatment conditions; b) the difference (from baseline to follow up) in the number of alcohol related problems among participants in the 50-minute condition.

However, the results are contradictory to what we expected. Specifically, participants in the 50-minute treatment condition increased their drinking at follow up while participants in the 10-minute treatment condition decreased their drinking. Still, our findings are preliminary in nature and should be interpreted with caution due to the limitations mentioned above.

References

- Babor, T. F. & Higgins, J. C. (2000). Alcohol screening and brief interventions: Dissemination strategies for medical practice and public health. *Addiction, 95*, 677-686.
- Baer, J. S., Stacy, A., & Larimer, E. M. (1991). Biases in the perception of drinking norms among college students. *Journal of Studies on Alcohol, 52*, 580-586.
- Baer, J. S. (1993). Etiology and secondary prevention of alcohol problems with young adults. In J. S. Baer & G. A. Marlatt (Eds.). *Addictive behaviors across the life span: prevention, treatment and policy issues* (pp. 111-137). Thousand Oaks, CA, USA: Sage Publications.
- Baer, J. S., Kivlahan, D. R., Blume, A. W., McKnight, P., & Marlatt, G. A. (2001). Brief intervention for heavy drinking college students: 4-year follow up and natural history. *American Journal of Public Health, 91*, 1310-1316.
- Barbor, T. F., Grant, M., Acuda, W., Burns, F. H., Campillo, C., Del Boca, F. K., Hodgson, R., Ivanets, N. N., Lukomska, M., & Machona, M. (1994). A randomized clinical trial of brief interventions in primary care: A summary of a WHO project. *Addiction, 89*, 410-424.
- Borsari, B. & Carey, K. B. (2000). Effects of a brief motivational intervention with college student drinkers. *Journal of Consulting and Clinical Psychology, 4*, 728-733.
- Borsari, B. & Carey, K. B. (2003). Descriptive and injunctive norms in college drinking: A meta-analytic integration. *Journal of Studies on Alcohol, 64*, 331-341.
- Borsari, B., & Carey, K. B. (2005). Two brief alcohol interventions for mandated college students. *Psychology of Addictive Behaviors, 19*, 296-302.
- Caetano R (2001). Non-response in alcohol and drug surveys: A research topic in need of further attention. *Addiction, 96*, 1541-1545.
- Chermack, S. T., Singer, K. & Beresford, T. P. (1998). Screening for alcoholism among medical inpatients: How important is corroboration of patient self-report? *Alcoholism: Clinical and Experimental Research, 22*, 1393-1398.
- Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self administration of alcohol. *Journal of Consulting and Clinical Psychology, 53*, 189-200.

- Dimeff, L. A., Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1999). *Brief alcohol screening and interventions for college students: A harm reduction approach*. New York: Guilford Press.
- Dimeff, L. A. & McNeely, M. (2000). Computer-enhanced primary care practitioner advice for high risk college drinkers in a student primary health-care setting. *Cognitive and Behavioral Practice, 7*, 82-100.
- Fromme, K., Scott, E. A., & Kaplan, D. (1993). Comprehensive Effects of Alcohol; Development and psychometric assessment of a new expectancy questionnaire. *Psychological Assessment, 5*, 19-26.
- Fromme, K. & Corbin, W. (2004). Prevention of heavy drinking and associated negative consequences among mandated and voluntary college students. *Journal of Consulting and Clinical Psychology, 72*, 1038, 1049.
- Geisner, I. M., Neighbors, C., & Larimer, M. E. (2006). A randomized clinical trial of a brief mailed intervention for symptoms of depression. *Journal of Consulting and Clinical Psychology, 74*, 393-3999.
- Haines, M. & Spear, S. F. (1996). Changing the perception of the norm: A strategy to decrease binge drinking among college students. *Journal of American College Health, 45*, 134-140.
- Heather, N., Rollnick, S., & Bell, A. (1993). Predictive validity of the Readiness to Change Questionnaire. *Addiction, 88*, 1667-1677.
- Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2000). *Monitoring the Future: National Survey Results on Drug Use, 1975-1999*. Vol. II: College Students and Young Adults, Ages 19-40. National Institute on Drug Abuse, Bethesda, MD, NIH Publication NO.: 00-4803.
- Knight, J. R., Wechsler, H., Kuo, M., Seibring, M., Weitzman, E. R., & Schuckit, M. A. (2002). Alcohol abuse and dependence among U.S. college students. *Journal of Studies on Alcohol, 63*, 263-270.
- Kypri, K., Gallagher, S. J., Cashell-Smith, M. L. (2004). An Internet-based survey method for college student drinking research. *Drug and Alcohol Dependence, 76*, 45-53.
- LaForge, R. G., Borsari, B., & Baer, J. S (2005). The utility of collateral informant assessment in college alcohol research: Results from a longitudinal prevention trial. *Journal of Studies on Alcohol, 66*, 479-487,

- Larimer, M. E., Turner, A. P., Anderson, B. K., Fader, J. S., Kilmer, J. R., Palmer, R. S., & Cronce, J. M. (2001). Evaluating a brief alcohol intervention with fraternities. *Journal of Studies on Alcohol, 62*, 370-380.
- 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, Supplement, 14*, 148-163.
- Mallett, K. A., Lee, C. M., Neighbors, C., Larimer, M. E., & Turrisi, R. (2006). Do we learn from our mistakes? An examination of the impact of negative alcohol-related consequences on college students' drinking patterns and perceptions. *Journal of Studies on Alcohol, 67*, 269-276.
- Marlatt, G. A., Larimer, M. E., Baer, J. S., & Quigley, L. A. (1993). Harm reduction for alcohol problems: Moving beyond the controlled drinking controversy. *Behavior Therapy, 24*, 461-504.
- Marlatt, G. A., Baer, J. S., Kivlahan, D. R., Dimeff, L. A., Larimer, M. E., Quigley, L. A., Somers, J. M., & Williams, E. (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.
- McCabe S. E, Boyd C. J, Couper M P, Crawford S, & D'Arcy H (2002). Mode effects for collecting alcohol and other drug use data: Web and US mail. *Journal of Studies on Alcohol, 63*, 755-761.
- Miller, W. R. & Marlatt, G. A. (1984). *Brief Drinker Profile*. Odessa, FL: Psychological Assessment Resources.
- Miller, W. R. & Rollnick, S. (1991). *Motivational interviewing: Preparing people to change addictive behavior*. New York: Guilford Press.
- Miller, E. T, Neal, D. J, Roberts, L. J., Baer, J. S., Cressler, S. O., Metrik, J., Marlatt, G. A. (2002). Test-retest reliability of alcohol measures: Is there a difference between Internet-based assessment and traditional methods. *Psychology of Addictive Behaviors, 16*, 56-63.
- Murphy, J. G., Benson, T. A., Vuchinich, R. E., Deskins, M. M., Eakin, D., Flood, A. M., et al. (2004). A comparison of personalized feedback for college student drinkers delivered with and without motivational interview. *Journal of Studies on Alcohol, 65*, 200-203
- Neal, D. J. & Carey, K. B. (2004). Developing discrepancy within self-regulation theory: Use of personalized normative feedback and personal strivings with heavy drinking college students. *Addictive Behaviors, 29*, 281-297.

- Neighbors, C., Larimer, M. E., & Lewis, M. A. (2004). Targeting misperceptions of descriptive drinking norms: Efficacy of a computer-delivered personalized normative feedback intervention. *Journal of Consulting and Clinical Psychology, 72*, 434-447.
- Nye, E. C., Agostinelli, G., & Smith, J. E. (1999). Enhancing alcohol problem recognition: A self regulation model for the effects of self focusing and normative information. *Journal of Studies on Alcohol, 60*, 685-693
- Perkins, H. W. & Wechsler, H. (1996). Variation in perceived college drinking norms and its impact on alcohol abuse: A nationwide study. *Journal of Drug Issues, 26*, 961-974.
- Perkins, H. W., Haines, M. P., & Rice, R. (2005). Misperceiving the college drinking norm and related problems: A nationwide study of exposure to prevention information, perceived norms and student alcohol misuse. *Journal of Studies on Alcohol, 66*, 470-478.
- Prochaska, J. O., DiClemente, C. C., & Norcross, C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47*, 1102-1114.
- Project MATCH Research Group. (1993). Project MATCH: Rationale and methods for a multisite clinical trial matching patients to alcoholism treatment. *Alcoholism: Clinical and Experimental Research, 17*, 1130-1145.
- Rollnick, S., Heather, N., Gold, R., & Hall, W. (1992). Development of a short "Readiness to Change Questionnaire" for use in brief opportunistic interventions among excessive drinkers. *British Journal of Addictions, 87*, 743-754
- Saunders, J. B., Kypri, K., Walters, S. T., Laforge, R. G., & Larimer, M. E. (2004) Approaches to brief intervention for hazardous drinking in young people. *Alcoholism: Clinical and Experimental Research, 28*, 322-329.
- Schulenberg, J. E. & Maggs, J. L. (2002). A developmental perspective on alcohol use and heavy drinking during adolescence and the transition to young adulthood. *Journal of Studies on Alcohol, Supplement, 14*, 54-70.
- Smith, G. T., McCarthy, D. M., & Goldman, M. S. (1995). Self-reported drinking and alcohol-related problems among early adolescents: dimensionality and validity over 24 months. *Journal of Studies on Alcohol 56*, 383-394.
- Tourangeau, R. (2004). Survey Research and societal change. *Annual Review of Psychology, 55*, 775-801.

- United States Department of Transportation (USDOT), National Highway Traffic Safety Administration, (2005). *Traffic Safety Facts 2003 (table 79)*, Washington, DC: National Center for Statistics and Analysis.
- United States Department of Transportation (USDOT), National Highway Traffic Safety Administration, (2005). *Traffic Safety Facts (table 81) 2003*, Washington, DC: National Center for Statistics and Analysis.
- United States Department of Health and Human Services (USDHHS), National Institute of Alcohol Abuse and Alcoholism. (2002). *A call to action: Changing the culture of drinking at U.S. colleges*. (Publication No. 02-5010). Bethesda, MD.
- Walters, S. T. (2000). In praise of feedback: An effective intervention for college students who are heavy drinkers. *Journal of American College Health*, 48, 235-238.
- Walters, S. T. & Neighbors, C. (2005) Feedback interventions for college alcohol misuse: What, why and for whom? *Addictive Behaviors*, 30, 1168-1182.
- Wechsler, H., Davenport, A., Dowdall, G., Moeykens, B., & Castillo, S. (1994). Health and behavioral consequences of binge drinking in college. *Journal of the American Medical Association*, 272, 1672-1677.
- Wechsler, H. (1996). Alcohol and the American college campus: A report from the Harvard School of Public Health. *Change*, 28, 20-27.
- Wechsler, H., Lee, J. E., Kuo, M., & Lee, H. (2000). College binge drinking in the 1990s: a continuing problem: results of the Harvard School of Public Health 1999 College Alcohol Study . *Journal of American College Health*, 48, 199-210.
- Wechsler, H., Lee, J. E., Kuo, M., Seibring, M., Nelson, T. F., & Lee, H. (2002). Trends in college binge drinking during a period of increased prevention efforts. *Journal of American College Health*, 50, 203-217.
- White, H. R., & Labouvie, E. W. (1989). Toward the assessment of adolescent problem drinking. *Journal of Studies on Alcohol*, 50, 30-37.
- White, H. R., Morgan, T. J., Pugh, L. A., Celinska, K., Labouvie, E. W., Pandina, R. J. (2006). Evaluating two brief substance-use interventions for mandated college students. *Journal of Studies on Alcohol*, 67, 309-317.
- World Health Organization (WHO) Brief Interventions Study Group (1996). A cross-national trial of brief interventions with heavy drinkers. *American Journal of Public Health*, 86, 948-955.

Appendix A

Rutgers Alcohol Problem Inventory

INSTRUCTIONS:

Different things happen to people while they are drinking ALCOHOL or as a result of their ALCOHOL use. Some of these things are listed below. Please indicate *how many times* each has happened to you *during the last three years* while you were drinking alcohol or as the result of your alcohol use.

How many times did the following things happen to you while you were drinking alcohol or because of your *alcohol use during the last three years*?

1. Not able to do your homework or study for a test.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

2. Got into fights, acted badly, or did mean things.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

3. Missed out on other things because you spent too much money on alcohol.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

4. Went to work or school high or drunk

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

5. Caused shame or embarrassment to someone.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

6. Neglected your responsibilities.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

7. Relatives avoided you.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

8. Felt that you needed more alcohol than you used to use in order to get the same effect.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

9. Tried to control your drinking by trying to drink only at certain times of the day at certain places.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

10. Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

11. Noticed a change in your personality

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

12. Felt that you had a problem with alcohol

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

13. Missed a day (or part of a day) of school or work.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

14. Tried to cut down or quit drinking

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

15. Suddenly found yourself in a place that you could not remember getting to.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

16. Passed out or fainted suddenly

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

17. Had a fight, argument or bad feelings with a friend.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

18. Had a fight, argument or a bad feeling with a family member.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

19. Kept drinking when you promised yourself not to

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

20. Felt you were going crazy.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

21. Had a bad time

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

22. Felt physically or psychologically dependent on alcohol.

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

23. Was told by a friend or a neighbor to stop or cut down on drinking

0	1	2	3	4
Never	1-2 times	3-5 times	6-10 times	More than 10 times

Appendix B

Daily Drinking Questionnaire

INSTRUCTIONS

For each day of the week, fill in both the number of drinks consumed and the number of hours you typically drink.

Please be sure to fill out the information regarding your gender, weight, and height.

QUESTION 1

For the *past month*, please fill in a number for each day of the week including the *typical number of drinks* you usually consume on that day, and the *typical number of hours* you usually drink on that day.

Number of Drinks	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of Hours							

Weight

Gender

Height

Appendix C

Readiness to Change Questionnaire

Please read the sentence below carefully. For each one please circle the answer that best describes how you feel. Your answers will be private and confidential.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. My drinking is okay as it is.	1	2	3	4	5
2. I am trying to drink less than I used to.	1	2	3	4	5
3. I enjoy my drinking but sometimes I drink too much.	1	2	3	4	5
4. I should cut down on my drinking,	1	2	3	4	5
5. It's a waste of my time thinking about drinking.	1	2	3	4	5
6. I have just recently changed my drinking habits.	1	2	3	4	5
7. Anyone can talk about wanting to do something about drinking, but I am actually doing something about it.	1	2	3	4	5
8. I am at the stage where I should think about drinking less alcohol.	1	2	3	4	5
9. My drinking is a problem.	1	2	3	4	5
10. It's alright for me to keep drinking as I do now.	1	2	3	4	5
11. I am actually changing my drinking habits right now.	1	2	3	4	5
12. My life would still be the same even if I drunk less.	1	2	3	4	5

Appendix D

Drinking Norms Rating Form

INSTRUCTIONS

Please choose one answer for questions 1 and 2

1. Dormitory/residence hall
2. Fraternity
3. Sorority
4. With Parents
5. Own Residence

1. What type of residence do you currently live in?
2. What type of residence do you expect to live in next semester?

Instructions	A. How often they drink	B. How much they drink on a typical weekend evening
We are interested in your estimates of A) <i>How often</i> and B) <i>How much</i> different types of people drink. For the following questions, please assume whenever possible that you are <i>rating a typical person of your same sex</i> . In each of the following situations, please enter the corresponding number, giving one answer for (A) (1-7), and one answer for (B) (1-6).	<ol style="list-style-type: none"> 1. Less than once a month 2. About once a month 3. Two or three times a month 4. Once or twice a week 5. Three or four times a week 6. Nearly every day 7. Once a day 	<ol style="list-style-type: none"> 1. 0 drinks 2. 1-2 drinks 3. 3-4 drinks 4. 5-6 drinks 5. 7-8 drinks 6. More than 8 drinks
3. An average college-bound senior in high school		
4. An average university student		
5. An average college student residing in a fraternity		
6. An average college student residing in a sorority		
7. An average college student residing in dormitory/residence hall		
8. An average college student residing with his/her parents		
9. An average college student residing in his/her own residence		
10. Your closest friends		

Appendix E

Comprehensive Effects of Alcohol

- 1) What would you expect to happen if you were under the influence of alcohol, and
- 2) whether you think the effect is good or bad

INSTRUCTIONS

A. Choose from “disagree to agree” depending on whether you expect the effect to happen to you *if you were under the influence of alcohol*. These effects will vary, depending on the amount of alcohol you typically consume. *Circle one answer for the first set of numbers after each statement.*

B. Choose from BAD TO GOOD depending on whether you think the particular effect is bad, neutral, good, etc. We want to know whether you think a particular effect is bad or good, regardless of whether or not you expect it to happen to you. Circle only one answer for the last set of numbers after each statement.

Example: 1. I would be.... 1 2 3 4 This effect is 1 2 3 4 5

	1 = Disagree	1 = Bad
IF I WERE UNDER THE INFLUENCE FROM DRINKING ALCOHOL:	2 = Slightly disagree	2 = Slightly Bad
	3 = Slightly agree	3 = Neutral
	4 = Agree	4 = Slightly Good
		5 = Good

- | | | |
|--|---------|--------------------------|
| 1. I would be outgoing | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 2. My senses would be dulled | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 3. I would be humorous | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 4. My problems would seem worse | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 5. It would be easier to express my feelings | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 6. My writing would be impaired | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 7. I would feel sexy | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 8. I would have difficulty thinking | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 9. I would neglect my obligations | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 10. I would be dominant | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 11. My head would feel fuzzy | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 12. I would enjoy sex more | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 13. I would feel dizzy | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 14. I would be friendly | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 15. I would be clumsy | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 16. It would be easier to act my fantasies | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 17. I would be loud, boisterous, or noisy | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 18. I would feel peaceful | 1 2 3 4 | This effect is 1 2 3 4 5 |
| 19. I would be brave and daring | 1 2 3 4 | This effect is 1 2 3 4 5 |

20. I would feel unafraid	1	2	3	4	This effect is	1	2	3	4	5
21. I would feel creative	1	2	3	4	This effect is	1	2	3	4	5
22. I would be courageous	1	2	3	4	This effect is	1	2	3	4	5
23. I would feel shaky or jittery the next day	1	2	3	4	This effect is	1	2	3	4	5
24. I would feel energetic	1	2	3	4	This effect is	1	2	3	4	5
25. I would act aggressively	1	2	3	4	This effect is	1	2	3	4	5
26. My responses would be slow	1	2	3	4	This effect is	1	2	3	4	5
27. My body would be relaxed	1	2	3	4	This effect is	1	2	3	4	5
28. I would feel guilty	1	2	3	4	This effect is	1	2	3	4	5
29. I would feel calm	1	2	3	4	This effect is	1	2	3	4	5
30. I would feel moody	1	2	3	4	This effect is	1	2	3	4	5
31. It would be easier to talk to people	1	2	3	4	This effect is	1	2	3	4	5
32. I would be a better lover	1	2	3	4	This effect is	1	2	3	4	5
33. I would feel self-critical	1	2	3	4	This effect is	1	2	3	4	5
34. I would be talkative	1	2	3	4	This effect is	1	2	3	4	5
35. I would act tough	1	2	3	4	This effect is	1	2	3	4	5
36. I would take risks	1	2	3	4	This effect is	1	2	3	4	5
37. I would feel powerful	1	2	3	4	This effect is	1	2	3	4	5
38. I would act sociable	1	2	3	4	This effect is	1	2	3	4	5

Vita

The author, Magdalena Kulesza received her Bachelor of Arts degree in 2003 from the Stony Brook University in New York. She completed an undergraduate Honor's Thesis concerning coping strategies among individuals with substance abuse problems. Upon graduation, she began working as a research assistant at the New York State Psychiatric Institute at Columbia University. Currently, she attends Louisiana State University's doctoral program in clinical psychology.