COLLEGE STUDENTS' INTENTIONS TO DRINK ALCOHOL AND ENGAGE IN INCIDENTAL ALCOHOL-RELATED LEGAL RISK BEHAVIOR FOLLOWING A HYPOTHETICAL ALCOHOL-RELATED LEGAL ENCOUNTER

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CHAPTER I

INTRODUCTION

Background

Frequent heavy alcohol use by college students is a serious public health problem. Nationwide, approximately 40% of college students binge drink annually (O'Malley & Johnston, 2002). Binge drinking, defined as consuming five or more drinks for men and four or more drinks for women on any single occasion during a two week period, is associated with numerous alcohol-related problems (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Binge drinking can be a dangerous and even fatal habit, with an estimated 1,400 alcohol-related student deaths occurring each year as a result of binge drinking (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002).

The negative consequences associated with frequent, heavy alcohol use may occur in interpersonal, intrapersonal, community, and legal arenas. The interpersonal consequences include getting into fights, experiencing or initiating sexual violence, and being involved in or being the victim of property damage and vandalism (Perkins, 2002). Intrapersonal consequences also may occur. These include experiencing academic problems, injuries and accidents, drinking and driving, suffering brain damage, experiencing an increased likelihood of using illicit substances, suffering memory loss, and experiencing an increased vulnerability to injury and violent behavior, including

sexual aggression (Vicary & Karshin, 2002; Wechsler, Lee, Kuo, & Lee, 2000b). Binge drinking may also have a negative impact on the community in which this pattern of alcohol use occurs, including property damage, vandalism, fights and interpersonal violence, sexual violence, and harassment (Perkins, 2002). Further, on college campuses where rates of binge drinking are high, binge drinking may exert negative secondhand effects on students who are not binge drinkers or who abstain from alcohol use altogether (Wechsler et al., 2000b), such as having to take care of a drunken student, having one's property damaged, having study or sleep interrupted, and being the victim of an unwanted sexual advance, sexual assault, or date rape.

College students who binge drink may also experience legal problems related to their alcohol use, such as being arrested for liquor law violations, driving under the influence, or experiencing trouble with the police or campus authorities (Perkins, 2002). Between 62% and 72% of male heavy drinkers and between 49% and 59% of female heavy drinkers reportedly drive under the influence of alcohol (Engs, Diebold, & Hanson, 1996; Wechsler et al., 1994), although only 2% of college students are actually arrested for driving while intoxicated (Presley, Meilman, & Cashin, 1996). According to the United States Traffic Safety Administration, in 1996 45% of all traffic deaths involving individuals age 15 to 24 involved alcohol, and research suggests that the risk of a fatality accident increases with each alcoholic drink (Hingson, 1998). An additional 5-10% of college students report experiencing trouble with authorities because of alcohol use (Engs & Hanson, 1994). Moreover, for many college students, alcohol use is an illegal act itself. Students under the legal drinking age of 21 account for a significant portion of alcohol users on college campuses (Miller, Stout, & Shepard, 2000). Approximately 66% of

underage college students drink alcohol and 40% of underage college students report binge drinking (Wechsler et al., 2000b). Adolescent and young adult alcohol use results in harmful, and sometimes fatal, consequences.

The Problem

Research clearly demonstrates that alcohol use among college students is problematic, and therefore, the need for prevention and intervention efforts is warranted. One potential avenue for intervention is that of formal and informal legal sanctions. However, both types of sanctions likely fail to consistently deter individuals from committing future legal violations (Pogarsky & Piquero, 2003). Between 20 and 30% of individuals arrested for an alcohol-related driving offense are re-arrested for similar offenses (C'de Baca, Miller, & Lapham, 2001; McCarty & Argeriou, 1986). Yet, these rates only represent individuals who are caught. Those who avoid legal authorities are more likely to re-offend and believe that their chance of being punished again for future violations is extremely low (Pogarsky & Piquero, 2003; Piquero & Paternoster, 1998). Given the high rates of recidivism for alcohol-related driving offenses it seems that few behavioral changes occur after experiencing an alcohol-related legal encounter.

Little is known about the effects of legal encounters on subsequent alcohol use, other incidental risk behaviors (e.g., riding in a car with someone who has been drinking), or the experience of other negative consequences (e.g., being the victim of unwanted sexual advances). Legal encounters may motivate some individuals to change patterns of alcohol use, take fewer legal risks when drinking, or both. Yet, the nature or duration of these changes following a legal encounter is unclear.

Understanding the natural consequences of a legal encounter upon subsequent behavior is important. The experience of having a legal encounter may be a natural way to detect high-risk drinkers who are a suitable population for the delivery of targeted interventions for alcohol consumption. If the experience of a legal encounter results in substantial changes in alcohol use behaviors, then additional interventions may not be warranted for this population. However, if no changes occur or if changes occur only in incidental legal risk behaviors, but not in drinking patterns, then this population may continue to be at risk for experiencing other negative consequences associated with high-risk drinking, in addition to the likelihood to re-offend. In such cases, legal encounters may be a useful way to identify high-risk alcohol users who may benefit from a targeted intervention.

Ideally, researchers should assess the behavior of individuals who have experienced some type of alcohol-related legal encounter. Despite the frequency of engaging in behaviors that violate the law, the occurrence of being caught and sanctioned for these behaviors is extremely low (Ross, 1992), making research with this population difficult. A pilot study conducted by the author demonstrated substantial difficulty in recruiting a sufficient sample of college-aged offenders immediately after their experience of an actual legal encounter, even when substantial financial incentives ($50) were offered. An alternative approach to answering questions about behavioral changes following a legal encounter is to examine changes in behavioral intentions using a hypothetical paradigm. Intentions to drink alcohol are a strong predictor of actual behavior (Glindemann et al., 2001; Johnston & White, 2003; O'Callaghan, Chant, Callan,

Baglioni, 1997; Trafimow, 1996), and are therefore a useful proxy to actual behavior change that might occur in response to an actual legal encounter.

Purpose and Objectives of the Study

The purpose of this study is to investigate college students' intentions to drink alcohol and engage in incidental legal risk behaviors following a hypothetically experienced alcohol-related legal encounter. Incidental legal risk behaviors are actions students engage in, while using alcohol, that increase or decrease their risk of detection or arrest by legal authorities (Leedy & Leffingwell, 2006). Using a hypothetical paradigm to examine college students drinking and incidental legal risk behavior may shed light on what students actually do after experiencing alcohol-related legal encounters.

Hypothetical scenarios that are analogous to real life situations are frequently used in psychological research to study real-life behavior (Irwin, McClelland, & Schulze, 1992; Johnson & Bickel, 2002; Norris & Devin, 1992; Spector, Cohen, & Penner, 1976; Wiseman & Levin, 1996). Researchers use this type of paradigm to examine numerous research questions, including intentions to "purchase" drugs in a sample of substance users (Petry, 2001a; Petry 2001b; Petry & Bickel, 1998), intentions to exceed driving speed limits (Kimura, 1993), intentions to use condoms (Connor, Graham, & Moore, 1999; Finkelstein & Brannick, 2000; Trafimow, 1994), intentions to respond to sexual encounters (Davis, George, & Norris, 2004; Leigh & Aramburu, 1996; Surbey & Conohan, 2000) and sexual harassment situations (Weiss & Lalonde, 2001), intentions to respond in dating violence scenarios (Katz, Street, & Arias, 1997), and intentions to make arrests in domestic violence situations (Finn, Blackwell, Stalans, Studdard, & Dugan, 2004).

Assessing behavioral intentions is useful because intentions are a strong predictor of the future occurrence of a behavior (Fishbein & Ajzen, 1975). Behavioral intentions predict the occurrence of actual behavior in several areas (Armitage & Connor, 2001), including alcohol use among college students (Glindemann et al., 2001; Johnston & White, 2003; O'Callaghan et al.1997; Trafimow, 1996), substance use among pregnant and parenting adolescents (Morrison, Spencer, & Gillmore, 1998), condom use (Albarracin, Johnson, Fishbein, & Muellerleile, 2001), college students' class attendance and grade achievement (Ajzen & Madden, 1986), children's physical activity levels (Hagger, Chatzisarantis, Biddle, & Orbell, 2001), and breast self-examinations (Meyerowitz & Chaiken, 1987).

Using this alternative approach, the first aim of this study was to examine the immediate effects of a hypothetical alcohol-related legal encounter upon intentions to drink alcohol and engage in incidental legal risk behaviors. The second aim of this study was to determine if experiencing negative consequences related to drinking alcohol (including prior legal encounters), past behavior, and perception of certainty of punishment moderated the effects of the hypothetical scenario upon intentions to drink alcohol or engage in incidental legal risk behaviors. A third aim of this study was to determine if reading the hypothetical scenario predicted actual drinking rates and incidental legal risk behaviors one month after initial assessment. If hypothetically experiencing a legal encounter deters individuals from actual future legal risk behavior and/or heavy alcohol use, then this may inform strategies for prevention interventions. In the subsequent chapter, a brief review of the negative consequences associated with collegiate binge drinking, the trajectory of collegiate drinking, and prevention efforts

associated with collegiate drinking is presented. Next, a description of incidental legal risk behaviors and the effects of legal encounters on behavior are examined. Finally, a review of the psychological research using hypothetical paradigms and research regarding the association between behavioral intentions and actual behavior is provided.

CHAPTER II

REVIEW OF LITERATURE

Prevalence of College Student Alcohol Use

Alcohol use, especially binge drinking, by college students has been deemed a serious health concern for universities and colleges (United States Department of Health and Human Services, 2000). The study of collegiate alcohol use is not a new trend. In fact, researchers have collected data on college alcohol use since the 1950s. Interestingly, 30-day prevalence rates of general alcohol use by college students collected by Straus and Bacon in the 1950s was relatively high. Approximately 65% of students reported drinking alcohol once a month or more, a finding that is fairly consistent with general college alcohol use today (68-73%; O'Malley & Johnston, 2002). However, because of changes in the demographic makeup of current college students compared to mid-century college students, there may be more differences in alcohol use in the last 50 years than a single statistic can demonstrate (O'Malley & Johnston, 2002).

What we do know is that in the past ten years, nationwide estimates of college students indicate that 44% of students binge drink at least once annually, a finding that has remained relatively stable from 1993 to 1999 (Wechsler, Lee, Kuo, & Lee, 2000). Twenty-three percent of college student reported *frequent* binge drinking (i.e., binge drinking three or more times in the past two weeks), which represents a 20% increase in frequent binge drinking since 1993 (Wechsler et al., 2000).

Data taken from the 2001 National Household Survey on Drug Abuse provide more recent estimates of college alcohol use. Specifically, 29% of college men and 14% of college women reported engaging in binge drinking at least one time in the past month, compared to 24% and 9% of non-college men and women (Slutske, 2005).

A random survey of college students at 119 four-year universities and colleges revealed that, in the previous year, 31.6% of students met diagnostic criteria for alcohol abuse and 6.3% met diagnostic criteria for alcohol dependence (Knight, Wechsler, Kuo, Seibring, Weitzman, & Schuckit, 2002). Other data using the National Household Survey on Drug Abuse suggest lower rates of alcohol abuse diagnoses for college students (11.9%; Slutske, 2005). Regardless of the discrepancy between these two studies, these diagnostic estimates of alcohol abuse for college students are substantially higher than the 12-month prevalence estimates of 7.4% for the general population (Knight et al., 2002). Clearly, more than half of college students use alcohol, and an alarming number of students have serious problems with alcohol use, as described by the estimates of alcohol use disorders.

Problems and Consequences

The frequency of general alcohol use and heavy alcohol use by college students clearly presents problems indicative of alcohol use disorder diagnoses. Other problems that are likely to affect college students who drink alcohol, as well as college students who abstain from alcohol use, are well documented. Perkins (2002) provides a review of the current literature and distinguishes between three general categories in which problems are likely to occur: damage to self, damage to other people, and institutional costs and damages. College student drinkers typically experience some combination of

academic, emotional, physical, social, and legal problems. However, collegiate drinking can also negatively affect other college student drinkers, college students who abstain from alcohol use, neighborhoods, and campus visitors. The academic institution can also suffer damages that affect its well being.

College student drinkers may experience several negative consequences from heavy drinking, including blackouts, injuries to their person, poor physical health, suicide, dangerous sexual activity (e.g., unintended and unprotected sex), sexual coercion, and acquaintance rape victimization (Perkins, 2002). For example, in an observational prospective study of emergency department admissions of college students, 13% of admissions were related to alcohol use. Among that sample, 53% of individuals presented with a serious trauma (e.g., injury to head or extremities, assault, or accident; Turner & Shu, 2004). This study suggests that heavy drinking college students engage in risky activities while drinking that could result in substantial physical injury.

College student drinkers engage in, or are victims of, other risky health behaviors, as well. Based on mailed survey data from freshman students at a 4-year university who were classified as abstainers, light-moderate drinkers, episodic drinkers, and heavy drinkers, a positive and linear trend was found across drinker classification and health behaviors. Specifically, more drinking was associated with more tobacco, caffeine, and illegal drug use, as well as engagement in sexual activity (Kim, Larimer, Walker, & Marlatt, 1997). Another study sampled college students nationwide and found that frequent binge drinkers were seven to ten times more likely than their non-binge drinking peers to be injured, to engage in unplanned and unsafe sexual activity, and to get into trouble with campus police. Frequent binge drinkers were also 25 times more likely to

experience at least five commonly reported alcohol-related problems, when compared to their non-binge drinking peers (Wechsler et al., 1994). In a cross-sectional study that investigated the rate of unwanted sexual contact and alcohol use among a sample of college students in the Greek system, both men and women who reported unwanted sexual contact also reported significantly higher rates of alcohol use and alcohol-related problems than those who did not report any unwanted sexual contact (Larimer, Lydum, Anderson, & Turner, 1999). Finally, a random sample of students across three west coast universities revealed a significant and positive association between psychological distress, alcohol consumption, and alcohol-related problems, especially for men (Geisner, Larimer, & Neighbors, 2004).

College students may also experience impaired driving, trouble with legal authorities, impaired athletic performance, and academic problems. Between 18-28% of college students who use alcohol miss class and 15-33% perform poorly on coursework because of alcohol use (Perkins, 2002). One study compiled several national reports that examined alcohol-related injuries, deaths, and other health problems among 18-24 year-olds and revealed astounding information. Results estimated that 1,400 student deaths, 500,000 injuries, and more than 70,000 incidences of sexual assault or date rape occur each year due to alcohol use (Hingson et al., 2002). This study also concluded that, in the year preceding the survey, two million (out of eight million) college students drove a vehicle while under the influence of alcohol, and over three million reported riding in a vehicle with a driver who had been drinking alcohol. Other data from a nationwide sample of 4-year university students found that 40% and 21% of frequent male and female binge drinkers, respectively, reported driving a vehicle after binge drinking

(Wechsler et al., 1994). In fact, one of the strongest contributors to morbidity and mortality of adolescents and young adults appears to be driving under the influence (Waller, Blow, Maio, Singer, Hill, & Schaefer, 1995; Wechsler et al., 2000b). Research finds that younger drivers (age 16 to 20) are two times more likely than individuals over age 21 to be involved in fatality motor vehicles crashes when alcohol is involved (Yi, Williams, & Dufour, 2001). Although not all college drinkers experience the negative consequences just described, a significant minority of college students do incur substantial harm as a result of alcohol use (Perkins, 2002).

In addition to consequences for the alcohol-using student, peers, faculty, neighbors, and campus visitors may also be negatively affected by collegiate binge drinking. These individuals may be victims of property damage and vandalism, fights and interpersonal violence, sexual violence, noise disruptions, and harassment (Perkins, 2002). In a survey of 140 colleges, three out of four students reported that they had experienced some secondary effects of heavy alcohol use by other college students (Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998). At high drinking level colleges (i.e., over 50% of students classified as binge drinkers) non-heavy-drinking students seem to be about four times more likely than their peers at low drinking level colleges (i.e., less than 35% of students classified as binge drinkers) to suffer at least one of eight secondary problems as a result of student drinking (Wechsler et al., 1994; Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995). However, experiencing secondary consequences is not exclusive to non-heavy drinking students. In a random sampling of students across five colleges in New York, 91% of alcohol-using students who reported experiencing primary problems also reported being exposed to secondary

problems as a result of others' alcohol use. Further, 77% of alcohol-using students who reported secondary problems also reported primary problems (Yu, 2001). Thus, students are likely to be the instigator of some of the negative consequences of alcohol use, as well as be the victim of other alcohol-using students' behavior. Examples of secondary problems that are experienced include: having to take care of a drunken student, being insulted or humiliated, being involved in a serious argument, being physically pushed, hit, or assaulted, having one's property damaged, having study or sleep interrupted, and being the victim of an unwanted sexual advance, sexual assault, or date rape (Wechsler et al., 1994). Clearly, collegiate binge drinking places the heavy drinker, as well as the non-heavy drinker, at risk for experiencing negative effects.

The academic institution in which binge drinking occurs also faces negative consequences (Perkins, 2002). Such problems include increased attrition rates, increased loss of tuition revenue, potential legal suits against the institution, and campus property damage. In a study conducted by Wechsler et al. (1998) 11.5% of participants admitted that they damaged property. Although it is unclear how much, if any, university property damage occurred, 53 and 33% of administrators at high-level heavy drinking colleges and mid-level heavy drinking colleges, respectively, reported damage to campus property as a result of alcohol use (Wechsler, et al., 1995).

Clearly, college student binge drinking results in a host of problems that affect not only the individual drinker but others, as well. Quality of life, and even life itself, may be jeopardized by high rates of alcohol use by college students. The notorious issue of heavy alcohol use compromises the safety of all college students and may have a lasting impact on college students' futures. Understanding more about college alcohol use,

consequences associated with alcohol use, and interventions that can be targeted towards high-risk college student drinkers, is imperative in the effort to reduce this disruptive and harmful behavior.

The Trajectory of Binge Drinking During College

The "maturing out" effect that is typically seen during the college years has resulted in some college administrators viewing collegiate alcohol use problems as a developmental stage and thus, the problem has many times been ignored (Presley, Meilman, & Leichliter, 2002). The maturing out effect describes the declining nature of college alcohol use typically observed from freshman through senior years of college (Sher & Gotham, 1999). Several surveys indicate that college students' alcohol use fluctuates during the college years, but average use typically decreases as individuals reach early adulthood (Jackson, Sher, Gotham & Wood, 2001; Schulenberg, O'Malley, Bachman, Wadsworth, & Johnston, 1996). In fact, most college students (approximately 66%; Fillmore, 1988) successfully mature out of binge drinking (Gotham, Sher, & Wood, 1997; Jackson et al., 2001; O'Neill, Parra, & Sher, 2001; Schulenberg et al., 1996; Sher & Gotham, 1999). This decline in heavy alcohol use is usually associated with life changes that require more responsibility (e.g., marriage, parenthood; Bachman, Wadsworth, O'Malley, Johnston, & Schulenberg, 1997; Schulenberg et al., 1996).

In a longitudinal study of college students from age 18-24, latent transition probabilities revealed that more individuals moved from a more severe drinking status to a less severe drinking status (Jackson et al., 2001). Another longitudinal study found that average drinking level remained relatively stable across the college years, but dramatically decreased in the immediate post college years (O'Neill et al., 2001). Similar

results were found among college sorority and fraternity members. Longitudinal analysis revealed that members of Greek organizations reported heavy alcohol use in the college years, with increases in alcohol use associated with increased exposure to the Greek system. Participants were surveyed three and seven years post college, which revealed significant decreases in frequency and quantity of alcohol use (Bartholow, Sher, & Krull, 2003). The above data is consistent with early research that found that alcohol use peaks around 21 years of age, stablizes, and then decreases over the next several years (Donovan, Jessor, & Jessor, 1983; Newcomb & Bentler, 1988; Power & Estaugh, 1990a & b). Additionally, Alcohol Use Disorders (AUD) seen in college students are typically "developmentally limited," indicating that a substantial portion of these students no longer meet criteria for an AUD after college (Sher & Gotham, 1999).

Results from the longitudinal study cited above found that, although some students matured out of severe drinking categories, 40-70% of students remained stable in their drinking status and some students actually increased their drinking (Jackson et al., 2001). The observation that not all college students mature out of heavy drinking indicates that there are other factors that influence the maturing out process, such as family history of alcoholism (Jackson et al., 2001; Muthen & Muthen, 2000). Many college students are at risk of developing a chronic alcohol dependence problem (Jackson et al., 2001; Sher & Gotham, 1999) and some fail to graduate from college as a result of their alcohol use (Schulenberg et al., 1996). Using data from a longitudinal study of college students, indexes of heavy alcohol use during the college years significantly predicted heavy drinking and risk for experiencing alcohol problems at age 29 (O'Neill et al., 2001). Additional research using a structured clinical interview of DSM-IV criteria

for alcohol abuse and dependence observed that between 16-18% of college students meet criteria for a lifetime diagnosis of alcohol abuse or dependence (Clements, 1999). Thus, while heavy drinking is likely to level off as student's progress through college and in the years immediately after college, some students may suffer numerous negative consequences that may affect them for years, even after heavy drinking has ceased (O'Neill et al., 2001).

Prevention

Several attempts have been made to curb the rate of binge drinking and decrease the associated negative consequences. Yet, many of these efforts are met with resistance by college students and the college community. Several barriers make the implementation of prevention efforts difficult, including (1) the negative stigma of being labeled an alcohol abuser by other college students, (2) the trend for college students to mature out of binge drinking and view heavy drinking as a developmental rite of passage, (3) the unrealistic goal of abstinence for college students, and (4) the culture of the college and surrounding communities that encourage alcohol use (Walters, Bennett, & Noto, 2000). Thus, prevention interventions that are sensitive to the unique culture of college students is necessary to decrease the harm associated with alcohol use.

There are two categories of prevention interventions, primary and secondary preventions. Primary, or universal, preventions are directed at all members of a population, regardless of the members' risk of developing a problem (Gordon, 1987; Walters & Bennett, 2000). These efforts are intended to prevent or delay the onset of risk associated with a behavior (Dimeff & McNeely, 2000). Media campaigns, restrictions of alcohol possession or use, restrictions on alcohol advertisements, residential options (e.g.,

alcohol-free dormitories), and alcohol education are considered primary preventions (Wechsler et al., 2000a). In a review of the college alcohol use literature, Walters et al. (2000) assert that although many college campuses have programs in place to address alcohol use, "few campus programs have actually been empirically validated, and those that are evaluated often find that changes in attitudes or knowledge about alcohol are not accompanied by actual decreases in drinking" (p. 223).

Modest empirical support exists for the ability of primary interventions to decrease risky drinking in college students (Bennett, McGrady, Johnson, & Pandina, 1999). In general, research suggests that some educational-based primary prevention interventions result in decreases in drinking, although they are less effective when compared to other prevention efforts, such as skills or attitudinal-based interventions, which represent secondary preventions (Walters et al., 2000). For example, a longitudinal study examined the effectiveness of a general campus-wide alcohol awareness and educational program at a large public university. A five year follow-up analyses revealed few changes in rates of student alcohol consumption, alcohol knowledge, or alcohol-related problems (Gonzalez, 1991).

Changing normative misperceptions of college students has also been identified as a potential primary intervention, although research outcomes are generally bleak. In a study of a six-month social norms campaign, researchers targeted the entire student body of a private university and disseminated decals, magnets, pens, flyers, visors, advertisements, and newspaper articles with normative information about college alcohol use. Eight-five percent of students reported having been exposed to the normative messages once or twice per week for six months, and about half of the surveyed student

body reported being exposed on a daily basis to the messages. However, the campaign failed to produce changes in students' perception of drinking norms or in students' actual alcohol use (Granfield, 2002). Another study evaluated differences between a normative prevention group and a traditional prevention group in a college freshman sample (Steffian, 1999). In the normative prevention group, students completed a measure of alcohol consumption and engaged in a group task to determine student's perception of normative drinking behavior on their college campus and the normative frequency of other students' experience of negative consequences due to alcohol use. These students also had a discussion to correct their misconceptions of other students' alcohol use. The traditional prevention group completed a measure of alcohol consumption and watched a video on the physiological effects of alcohol. Results from a one-month follow-up indicated that correcting student's misconceptions about normative alcohol consumption did not result in significantly different rates of alcohol use compared to participants in the traditional prevention group. However, both prevention interventions resulted in a decrease in the number of negative consequences reported by participants (Steffian, 1999).

One recent study provides hope for primary prevention efforts. Weitzman, Toben, Nelson, Lee, & Wechsler (2004) presented initial data from a mulitsite longitudinal environmental prevention study. In this study, ten colleges and surrounding communities across the nation implemented policies for interventions as they related to alcohol purchasing and consumption. For sites with high fidelity implementation procedures, there were significant decreases in students' alcohol consumption and alcohol-related primary and secondary negative consequences at four-year follow-up (Weitzman, Toben,

Nelson, Lee, & Wechsler, 2004). This approach to primary prevention shows some promise, although implementation appears complex.

In contrast to primary prevention efforts, secondary prevention efforts, also known as targeted or identified preventions, are directed towards individuals who are *at risk* for developing a problem, or who have already been identified as having a problem as a result of some behavior (Gordon, 1987; Dimeff & McNeely, 2000). The goal of secondary preventions is to reduce risk that already exists. Providing advice and feedback on ones alcohol use and experience of negative consequences (Walters et al., 2000) is one type of secondary prevention. Substantial empirical evidence exists for the efficacy of secondary interventions to reduce the known risks of alcohol use on college students (Baer, Marlatt, Kivlahan, Fromme, Larimer, & Williams, 1992; Bien, Miller, Tonigan, 1993; Kivlahan, Marlatt, Fromme, Coppel, & Williams, 1990; Walters & Bennet, 2000).

One secondary intervention, the Alcohol Skills Training Program (ASTP), is a group intervention that provides skills training and education about the effects of alcohol and social norms (Kivlahan et al., 1990). In a controlled investigation that compared ASTP to 1 hour of professional feedback with advice, both treatments were effective at reducing high-risk drinking and the number of negative consequences experienced among high-risk college student drinkers (Baer et al., 1992; Marlatt, Baer, & Larimer, 1995; Dimeff, Baer, Kivlahan, & Marlatt, 1999). A related intervention, Brief Alcohol Screening and Intervention for College Students (BASICS), provides individualized assessment and feedback of alcohol use and negative consequences in two one-on-one sessions (Dimeff et al., 1999). Several studies have demonstrated that BASICS is efficacious and effective at reducing high-risk drinking and negative consequences in

heavy drinking college students (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001; Dimeff et al., 1999; Marlatt et al., 1998; Murphy et al., 2001).

Although the majority of college students mature out of problematic alcohol use, they may still be at risk for incurring a number of negative consequences during the college years that could result in substantial harm (O'Neill et al., 2001). Thus, prevention efforts aimed at decreasing the risks associated with current alcohol use and reducing the probability of developing chronic alcohol use disorders is necessary. However, individuals at high-risk for experiencing alcohol-related problems must first be *identified* in order for mental health providers to deliver effective secondary prevention interventions. Students who experience legal encounters may be high-risk drinkers who would benefit from interventions, and this experience could be one potential way to identify a subgroup of risky drinking college students. If students fail to learn from the negative experience of alcohol-related legal encounters and intentions to drink alcohol in risky ways do not change, then this may be a useful event by which to identify college students for whom secondary prevention interventions may be warranted.

Incidental Legal Risk Behaviors

Researchers have recently begun to investigate the use of behaviors that buffer college students from experiencing negative alcohol-related consequences typically associated with frequent and heavy alcohol use. For example, Martens, Taylor, et al. (2004) examined the relationship between protective behavioral strategies (PBS) and negative consequences. Examples of PBS used in the study included alternating non-alcoholic and alcoholic beverages, determining in advance not to exceed a specific number of alcoholic beverages, using a designated driver, and pacing how often alcohol

is consumed on one occasion. Results indicated that students who used fewer PBS experienced more negative consequences of their alcohol use. Despite the novelty of investigating protective factors, the items used to assess PBS are confounded with the quantity and frequency of an individual's alcohol use (four of the PBS items relate to quantity and frequency of alcohol use). Research has already demonstrated that increases in alcohol use increase the occurrence of negative consequences (Geisner, Larimer, & Neighbors, 2004; Wechsler et al., 1994). Martens et al.'s (2004) findings are logical in that greater use of PBS, especially items that assess quantity and frequency, result in fewer negative consequences. However, this study does not clarify if protective strategies that are independent of real time alcohol use are effective at reducing the occurrence of specific, or even general, negative consequences.

Delva et al. (2004) reported similar findings that college students who used more protective behaviors reported fewer negative consequences of alcohol use. Again, the measure of protective behaviors used included items that assessed quantity and frequency of alcohol use (e.g., choose not to drink alcohol, pace your drinks to 1 or fewer per hour). These confounding results decrease the ability to confidently state that the use of alcohol-independent protective strategies sufficiently decrease negative consequences of alcohol use. Further, the items that assessed negative consequences included only seven items and failed to address legal and emotional problems, among others. Thus, the following questions remain: (1) What, if any, behaviors buffer against the likelihood of experiencing negative consequences, and (2) Do the occurrence of negative consequences change the use of those behaviors, change alcohol use, or both?

To answer the above questions as they relate to a specific type of negative consequence, alcohol-related legal encounters, the behaviors that college students engage in that increase their risk of experiencing specific legal consequences must be identified. These behaviors must be assessed independently of quantity and frequency of alcohol use. The effect of the consequence on future behavior must be examined to determine if the consequence alone is effective at reducing specific problematic behavior, alcohol use, or both. For those students who experience multiple types of consequences, a mere change in consequence-specific behavior (e.g., not drinking and driving) may not decrease the risk of experiencing other types of consequences (e.g., physical violence). If a consequence does demonstrate reductions in alcohol use, then further intervention efforts may not be necessary, because the risk of experiencing other negative consequences in general has decreased as a result of reductions in general alcohol use. Examination of incidental legal risk behaviors while using alcohol can help clarify what behaviors actually change following an alcohol-related legal encounter, which can then inform interventions for high-risk alcohol-using college students.

In light of the frequency of incidental behavior that is legally risky (despite few formal sanctions), the experience of any type of legal encounter (formal or informal) may be yet another way to identify students who are at-risk and who could benefit from an intervention. The idea described above lead to the development of the Legal Risk Behaviors while using Alcohol (LRBA) assessment. The author's Masters Thesis focused on the development of the LRBA, which initially consisted of 30 incidental legal risk behavior (LRB) items that were conceptualized as behaviors students engage in, while drinking alcohol, that increase or decrease their risk of detection or arrest from legal

authorities. A factor analysis revealed that three factors explained 40% of the variance (Leedy & Leffingwell, 2006). Based on the nature of the items that loaded on each factor, LRBs were characterized in three ways: risky drinking situations, protective behaviors, and private settings drinking behavior (Leedy & Leffingwell, 2006). Risky drinking situations describe situations that are likely to receive attention from legal authorities. Examples of these situations include drinking with people who are likely to get into physical fights while drinking, drinking and driving, or riding in a car with a driver who had been drinking. Protective and private settings drinking behaviors, on the other hand, describe situations that are less likely to attract attention from legal authorities. Some examples of protective behaviors include having a designated driver, planning ahead to avoid drinking and driving, and letting someone else who had not been drinking drive. Private settings drinking behaviors include drinking in one's home, drinking with a small group of friends or family, or drinking in a private setting that did not require travel.

Leedy and Leffingwell (2006) report that risky and private settings drinking behavior, but not protective behaviors, are significantly correlated with alcohol-related negative consequences. All three categories of LRBs are moderately related to past month drinking habits (quantity and frequency), and are relatively independent from one another. Hierarchical regression analysis shows that engaging in legally risky behaviors may contribute to risk for experiencing legal encounters.

LRBs are an important component to understanding college students' behavioral response to experiencing a legal encounter. After experiencing a legal encounter, students may alter only LRBs, only alcohol use, or they may alter both. Understanding how students respond to being caught or apprehended for committing an alcohol-related legal violation

may help identify students who continue to be high-risk drinkers and thus who continue to be at risk of experiencing other negative consequences. Identifying this group of students may inform the development and delivery of secondary prevention efforts.

The Effect of Legal Encounters on Behavior

Intuitively, experiencing negative consequences of using alcohol, such as a legal encounter, should serve as a positive punishment experience and decrease the likelihood of risky alcohol use behaviors in the future. Empirical studies, however, do not support intuitive logic and an empirical investigation examining changes in consequence-specific incidental behaviors, and/or alcohol use in general, is warranted. According to the doctrine of specific deterrence, being arrested, or even caught, for a legal violation (Homel, 1988; Ross, 1992) should provide enough of a punishment effect to discourage recidivism (Gibbs, 1975). Yet, formal and informal sanctions do not significantly deter individuals from committing legal violations (Pogarsky & Piquero, 2003). Between 20 and 30% of individuals arrested for an alcohol-related driving offense re-offend (C'de Baca et al., 2001; McCarty & Argeriou, 1986). Even intentions to drink and drive are not swayed by individuals who have experienced an arrest in the past five years (Piquero & Paternoster, 1998). In fact, for some prior alcohol-related punishment experiences, (being randomly pulled over at a roadside checkpoint by police to determine blood alcohol concentration) *increases* intentions to drink and drive (Piquero & Paternoster, 1998).

Research involving drinking and driving and underage alcohol consumption among college students demonstrates that individuals who have been punished for an offense believe their chance of being caught again are lower than their peers who have

less, or no, prior punishment experience (Minor & Harry, 1982; Pograsky & Piquero, 2003; Stafford & Warr, 1993). One explanation for this effect, among others, is that the experience of being apprehended for an offense is relatively infrequent (Ross, 1992) and thus, individuals reduce their estimates of the likelihood of being apprehended again. These individuals apply the classic logic "lightening never strikes the same place twice" when estimating their chances of being caught by authorities (Pogarsky & Piquero, 2003). Individuals who repeatedly drink and drive without being apprehended learn how to avoid legal authorities (Pogarsky & Piquero, 2003). The more experience a person has with avoiding legal authorities when drinking and driving, the more likely the person will continue to drink and drive (Piquero & Paternoster, 1998).

Another explanation, and possible moderator, of this surprising effect is the perception of punishment certainty. Research indicates that projections of future illegal behavior are a function of estimations of the effectiveness of the law and that these estimates are complex and depend on personal and vicarious experience (Piquero & Paternoster, 1998). In general, there appears to be an inverse relationship between violating the law and certainty of punishment. Individuals who have little personal or vicarious experience with committing illegal acts have higher estimates of the certainty of punishment for themselves (Paternoster, Saltzman, Waldo, & Chiricos, 1985). These individuals are also less likely to drink and drive than individuals who have more experience violating the law, regardless of whether the latter individuals were caught (Piquero & Pogarsky, 2002). However, individuals who have avoided punishment, and know others who have avoided punishment, have lower estimates of certainty of punishment and are more likely to reoffend. This indicates that these individuals find the

threat of legal sanction less credible (Piquero & Paternoster, 1998; Piquero & Pogarsky, 2002). Again, this speaks to the explanation previously mentioned, that these individuals believe their chances of getting caught again are low. In general, the research is relatively consistent in finding that legal punishment and punishment avoidance do *not* deter individuals from committing the same offense again. Punishment and punishment avoidance actually serve to increase intentions to commit the illegal acts, such as drinking and driving, by decreasing one's perception that they will be punished for their behaviors in the future.

Although a considerable amount of research indicates that individuals who have experienced a legal encounter re-offend, and presumably do not change many incidental legal risk behaviors, there is still little research regarding changes in alcohol use after experiencing a legal encounter. One study found that underage individuals who were punished for drinking alcohol and using marijuana were more likely to continue this behavior one year later compared to their peers who had not been punished (Paternoster & Piquero, 1995). Thus, initial research suggests that being punished for drinking alcohol and using marijuana does not produce many changes in subsequent use, although the actual quantity and frequency of later use is unknown. Research on recidivism suggests that those who have had a legal encounter may need more specific or intense secondary prevention interventions to reduce the likelihood of continuing to engage in risky behaviors when drinking (e.g., driving while intoxicated) and possibly risky alcohol use. This empirical paucity begs the question of whether or not college students generalize the "punishment" of experiencing a legal encounter, either hypothetically or actually, to the preliminary behavior involved in such encounters: risky alcohol use. Absent any changes

in alcohol use, college students remain at risk for experiencing many other negative consequences of risky drinking.

Hypothetical Scenarios in Behavioral Research

Some behaviors that do not lend themselves to experimentation must be investigated through analogue studies (Epstein, 1986). Obviously, it is not possible to randomly assign college students to experience an alcohol-related legal encounter. An alternative way of assessing behavioral changes following an alcohol-related legal encounter is to assess behavioral intentions following a hypothetical scenario. Using this type of design, students can be randomly assigned to "experience" an alcohol-related legal encounter or not. Hypothetical scenarios are advantageous because of their realistic nature, their specificity, and their ability to assess instantaneous relationships between the independent and dependent variable (Piquero & Tibbetts, 1996).

Research on risky decision making indicates that participants may respond differentially to hypothetical versus real situations. Wiseman and Levin (1996) note three categories of differential participant responses according to the research: (1) riskier decisions are made in hypothetical compared to real situations, (2) riskier decision are made in real compared to hypothetical situations, and (3) decision are unaffected by hypothetical or real situations. Two studies provide evidence for the first category. Slovic (1969) found that participants who made decisions in the hypothetical group made riskier decisions and discounted the probability of losing money more than the participants in the real money condition. Lafferty and Higbee (1974) demonstrated similar results, noting that participants in a hypothetical win condition, who were deciding on gambles based on a minimum acceptable win probability, were less conservative in their decisions

than the real win condition participants. In contrast, research conducted by Levin, Chapman, and Johnson (1988) suggests that riskier decisions are made in real situations versus hypothetical situations. When participants were asked to indicate how much they would be willing to play out a number of different gambles, participants gambling for real money rated a higher acceptability of gambling than did participants in the hypothetical scenario.

However, numerous studies support the idea that there are no systematic differences in decision making in either hypothetical or real situations. In one experiment, Spector et al. (1976) found that participants' preferences to initiate a date under the threat of hypothetical or real rejection were unaffected by their assigned condition. Similar results emerged in a second experiment when participants were asked to indicate their preferences for a particular grading system (Spector et al., 1976). Participants in the Irwin et al. (1992) study completed an auction task in which they placed bids to insure against the loss of real versus hypothetical money. Results indicated that the decision to make bids in the hypothetical condition were predictive of decisions made in the real condition. Using a sexual risk-taking scenario, Norris and Devin (1992) demonstrated that participants' responses to a hypothetical scenario significantly predicted immediate assessment of actual self-report sexual risk taking behavior.

In a study examining delay discounting functions, participants were asked to choose one of two monetary rewards under two independent conditions: hypothetical (i.e., participants would not receive the monetary award) or real (i.e., participants would receive the monetary reward). Results indicated that there were no systematic differences in participants' responses to the hypothetical or real reward condition (Johnson & Bickel,

2002). Another study investigated risky decision making in three separate experiments (Wiseman & Levin, 1996). Participants were asked to make decisions regarding monetary gambles or investment of their time and effort under the condition that the consequences of their decisions were either hypothetical or real. Results of each experiment revealed no significant differences between decisions made under the hypothetical or real consequence condition. These studies support the claim that hypothetical scenarios are a valid proxy to real situations when assessing actual behavior.

The research described thus far compares responses between hypothetical and real situations. However, not all behaviors lend themselves to these types of comparisons. When researchers are constrained to examine behavioral intentions or behavioral correlates instead of actual behavior, hypothetical scenarios are a useful way to simulate real world situations. Crime and delinquency researchers have frequently used hypothetical scenarios to assess deviant behavior. One study assessed college students' perceptions of the costs and benefits of committing an offense (i.e., drinking and driving or shoplifting), intentions to commit the offense, and estimation of being arrested, or being caught but not arrested, for committing the offense (Piquero & Tibbetts, 1996). Analyses revealed that participants with low levels of self-control were likely to intend to drink and drive and shoplift and receive pleasure from committing both acts. In addition, perceived sanctions were negatively correlated with intentions to drink and drive but were not significantly related to intentions to shoplift. Another study used a hypothetical scenario to predict likelihood of drinking and driving from past drunk driving behavior and estimations of certainty of punishment among college students (Pogarsky & Piquero, 2003). Analyses indicated that individuals who had previously been punished were more

likely to drink and drive and had lower estimates of punishment certainty than individuals who had not been previously punished for drinking and driving.

Kimura (1993) used a hypothetical scenario approach to clarify the relationship between drivers' attitudes and intentions to speed. Kimura investigated affective and cognitive components of attitude, perception of other driver's speed, and intentions to speed. Multiple regression analyses indicated that, when using a hypothetical scenario, affective and cognitive attitudes and perception of others' speed behavior significantly predicted intentions to speed. Others have used hypothetical scenarios to study condom use. Connor et al. (1999) used a hypothetical scenario to manipulate the influence of alcohol consumption on participant's intentions to use condom. Data suggested that "intoxication," as manipulated in the hypothetical scenario, moderated intentions to use condoms. Finkelstein and Brannick (2000) asked participants to read a vignette in which the participant and a hypothetical date varied his/her attitude towards condom use. Participants then rated their intentions to use condoms. Results indicated that attitudes "held" by the participant and their date, as described in the hypothetical scenario, were predictive of intentions to use condoms. Finally, Trafimow (1994) used hypothetical scenarios to assess and manipulate participants' confidence in their perceptions of normative pressure to use condoms and then assessed intentions to use condoms. Findings suggested that intentions were greatest when participants believed their perceptions of normative pressures were correct.

Other studies have examined the associations between simulated behavior and behavioral correlates in a sample of alcohol and heroin users. In these studies, participants "purchased" drugs in a hypothetical drug-purchasing scenario. Purchasing

choices in the hypothetical scenario were significantly associated with objective measures of current drug use and lifetime reports of drug use for the drugs "purchased" (Petry, 2001a, Petry & Bickel, 1998). Petry (2001b) also observed significant associations between choice to "forgo housing" in a hypothetical scenario and the actual amount of time spent homeless among heroin, cocaine, and alcohol abusers.

Studies of sexual activity and domestic violence frequently use hypothetical scenarios to predict behavioral intentions. Two studies have used this technique to examine the influence of alcohol consumption on decisions regarding sexual activity. Davis et al. (2004) used hypothetical scenarios to examine the role of alcohol intoxication on women's responses to unwanted sexual advances and found that, in such situations, women who were "intoxicated" were likely to consent to unwanted sexual advances. Another study engaged participants in an interactive computer game in which a hypothetical situation depicted an individual's alcohol consumption and possible sexual activity with an individual. At key moments in the game participants' responses determined the computer-individual's actions (Leigh & Aramburu, 1996). Results indicated that women who had been hypothetically drinking alcohol were likely to hypothetically engage in sexual activity. One study by Surbey and Conohan (2000) asked participants to rate their likelihood of engaging in casual sex with a partner of the opposite gender. In this hypothetical scenario, relationship status and characteristics of the partner where manipulated. Overall, men reported more likelihood of engaging in casual sex than women, although women's reported likelihood of engaging in casual sex varied as a function of manipulated partner characteristics.

Another study used a hypothetical scenario to investigate factors that influence responding assertively to sexual harassment (Weiss & Lalonde, 2001). Male professors or teaching assistants were hypothetically accused of sexually harassing female students. The study assessed the associations between "victim" responses, situational ambiguity, harasser status, and coping style. Results demonstrated that, in the less ambiguous hypothetical harassment scenario, participants reported greater negative emotions, more acknowledgment of the harassment, and more assertive responding, compared to participants in the ambiguous hypothetical scenarios. A study by Katz et al. (1997) described hypothetical episodes of relationship violence where the perpetrator was the female participants' dating partner. Researchers correlated the participant's self-esteem and attributions for the violence with self-rated probable responses. Data indicated that self-esteem and self-attributions correlated with intentions to forgive one's partner. Finally, the association between police officers' departmental policies and decisions to arrest one, or both, spouses as described in one of six hypothetical domestic violence scenarios were examined (Finn et al., 2004). Results demonstrated that officers' perception of departmental support moderated their intentions to arrest the husband, wife, or both parties in a hypothetical situation.

In conclusion, a small number of studies report inconsistent responses in hypothetical versus real situations. However, a larger body of research provides solid evidence that assessing behavior and decisions using hypothetical situations is a reasonably valid indicator of what an individual would do in real situations (Wiseman & Levin, 1996). The following section provides evidence that intentions are predictive of actual behavior. This research supports the underlying claim of this study: that intentions

are a sufficient variable to assess changes in college students' behavior following a hypothetical alcohol-related legal encounter.

The Predictive Validity of Intentions

Due to the difficult pragmatics of assessing college students' actual behavior after experiencing an alcohol-related legal encounter, modifications to research designs must be made to provide adequate substitutions. Fortunately, the research community has recognized this need. The results of several studies provide sufficient evidence to support the use of hypothetical scenarios to approximate real world conditions that are otherwise difficult to capture in real time. In addition, researchers must often use approximations of actual behavior when actual behavioral responses are inaccessible. Behavioral intentions are one type of approximation to actual behavior that has received an ample amount of support for its use.

Research demonstrates that behavioral intentions are correlated with and are predictive of future behaviors, even deviant behaviors (Green, 1989). Several factors influence the strength of the intention-behavior relationship (Ajzen, 2000; Trafimow, 1996). Fishbein and Ajzen (1975) provide three criteria for maximizing the strength of the intention-behavior relationship. First, the intentions and behavior should be measured with the same degree of specificity. In other words, when using a hypothetical scenario, the behavior described should be highly specific in order to obtain a valid assessment of intentions from the scenario. Second, the intentions should be highly stable. Piquero and Tibbetts (1996) argue that researchers have no reason to question the stability of intentions if a realistic and specific hypothetical scenario is used. Finally, individuals should be able to carry out their intentions willfully. Thus, in order to provide sufficient

predictive validity of actual behavior, questions should be specific about the action, target, situational context, and time for which intentions are being assessed (Maddux and DuCharme, 1997).

A review of the relevant literature demonstrates a high degree of correspondence between intentions and behavior. Glindemann et al. (2001) asked students to estimate their blood alcohol concentration based on their intentions to drink alcohol one week and immediately before attending a fraternity party. After the party, the researchers used breathalyzers to measure participants' alcohol consumption. Results indicated that, one week before the party, students' estimation of their BAC the night of the party were significantly correlated to objectively measured BAC taken before students left the party (r=.54). Correlations between estimations of BAC level assessed immediately before entering the party and objective measures of BAC taken upon leaving the party were also significant (r=.63). Johnston & White (2003) conducted a study that predicted college students' intentions to binge drink. Initial assessment included intentions to binge drink, while actual binge drinking behavior was assessed two weeks later. Results indicated that intentions significantly predicted later binge drinking behavior. Another study examined current substance use (including alcohol) and intentions to use the same substances in a sample of pregnant and parenting adolescents (Morrison et al., 1998). Data was gathered every six months over a 12-month period. Results indicated that intentions to use substances were significantly correlated with reported use of the substances six months later at two different assessment times (for alcohol, Time 1 intentions-Time 2 behavior, r=.36; Time 2 intentions-Time 3 behavior, r=.45). One study examined the effects of different messages on college women's intentions to perform breast self-examinations.

Researchers found that women's intentions, at the time of initial assessment, were significantly predictive of their reported behavior four months later (r=.23; Meyerowitz & Chaiken, 1987). In a meta-analysis of studies that predicted intentions to engage in a variety of behavior, Armitage & Conner (2001) found that, when controlling for sample size, intentions accounted for 22% of the variance in behavioral predictions (R=.47). An additional finding from this study is that self-reported behavioral predictions performed superior to objective or observed behavioral predictions. Self-reported alcohol use is, indeed, a valid method to study drinking habits (Midanik, 1988).

In two separate experiments, Ajzen and Madden (1986) predicted college students' class attendance and attainment of an "A" in the course. In the first experiment, hierarchical regression analysis revealed that intentions exclusively (B=.36) predicted class attendance. Results of the second experiment were similar to the first experiment: intentions independently predicted attainment of an "A" (B=.26, R=.26). A study examining children's intentions to engage in physical activity also found that intentions moderated, and significantly predicted, actual physical activity behavior (Hagger et al., 2001). Finally, a meta-analysis of research on condom use was conducted (Albarracin et al., 2001) and revealed that the overall relationship between intention to use condoms and actual condom use was moderate (weighted mean correlation coefficient =.45). Thus, a number of studies support the claim that behavioral intentions are a valid representative of future behaviors.

Summary

Frequent, heavy alcohol use among college students occurs at an alarming rate and can result in significant, even fatal, harm to the alcohol-using and to the non-alcohol-

using student. Negative consequences may be experienced in interpersonal, intrapersonal, community, and legal domains. In the legal domain specifically, a substantial percentage of students report engaging in risky behaviors (e.g., driving under the influence; Engs, Diebold, & Hanson, 1996; Wechsler et al., 1994) that increase their risk of being legally sanctioned. Despite the threat of formal and informal sanctions, few students change their risky drinking behaviors, as evidenced by significantly high recidivism rates (C'de Baca, Miller, & Lapham, 2001; McCarty & Argerious, 1986). Research has shown that the supposed deterrent effect of legal consequences on future risky alcohol-related behavior, in general, fails to work as expected. Initial research suggests that the general frequency of alcohol and marijuana use is unlikely to change when assessed one year after an individual is punished (Paternoster & Piquero, 1995).

Despite knowledge of reoccurring legal violations, there is little understanding of changes in specific behaviors that increase or decrease one's risk for actually committing a legal violation associated with alcohol use. Similarly, there is little understanding in specific changes in alcohol use following a legal encounter. The aim of the present study is to determine if changes in risky behaviors or alcohol use are likely to occur after experiencing an alcohol-related legal encounter. Due to the difficult nature of recruiting recently sanctioned college students, common analogs (behavioral intentions and hypothetical scenario) of real world behaviors and situations will be used to determine if, and to what degree, behavioral changes occur after a legal encounter. Additionally, the frequently used method of presenting a hypothetical scenario has not been examined to determine if this method affects future behavior. This question is important because of the potential vicarious-effect that hypothetical scenarios may have on participants.

Results from this study will provide direction to future researchers who have an interest in investigating the behavioral consequences of experiencing a legal encounter. This study may also inform the development of secondary interventions for alcohol using college students, given the failure of punishment and the threat of punishment, to produce significant behavioral changes in college students alcohol use and risky drinking behaviors.

To address the aims of this study, participants were randomized into three experimental conditions: arrest, no arrest, and control. Participants in the control condition hypothetically experienced a situation in which the participant drives a vehicle when he/she perceives his/her BAC to be above the legal limit. The scenario in this condition concludes with the individual avoiding legal authorities and arriving at home without difficulty. Participants in the "no arrest" condition hypothetically experienced the same general situation as participants in the control condition, except the scenario concluded with the individual being pulled over by police, questioned about their alcohol intake, and released. Finally, participants in the "arrest" condition were exposed to a similar scenario, with the exception that the participant was "arrested" for driving under the influence of alcohol. Participants' actual intentions and hypothetical intentions after hypothetically experiencing an alcohol-related legal encounter were assessed. The following research questions and hypotheses are provided.

Research Question 1: Does experiencing a hypothetical alcohol-related legal encounter result in changes in college students' intentions to consume alcohol?

Hypothesis 1: Hypothetically experiencing a legal encounter by the "arrest" and "no arrest" groups will significantly decrease intentions to drink alcohol (peak drinking

quantity, typical drinking quantity, and drinking frequency) from pre-scenario assessment to post-scenario assessment within each respective group. The control group will show no significant changes in intentions to drink alcohol (peak drinking quantity, typical drinking quantity, and drinking frequency) from pre-scenario assessment to post- scenario assessment. This hypothesis combines between and within group comparisons.

Research Question 2: Does experiencing a hypothetical alcohol-related legal encounter result in changes in college students' intentions to engage in incidental legal risk behaviors that increase or decrease their risk of experiencing such an encounter?

Hypothesis 2: Hypothetically experiencing a legal encounter by the "arrest" and "no arrest" group will significantly decrease intentions to engage in incidental behavior associated with alcohol use that increase risk of experiencing an alcohol-related legal consequences (as measured by *risky behaviors* subscale of the LRBA) from pre-scenario assessment to post-scenario assessment, and will increase intentions to engage in incidental behavior associated with alcohol use that decrease risk of experiencing legal consequences (as measured by the *private settings drinking behavior* and *protective behaviors* subscales of the LRBA) from pre-scenario assessment to post-scenario assessment within each respective group. The control group will show no significant changes in intentions to engage in risky, protective, or private settings drinking behavior from pre-scenario assessment to post-scenario assessment.

Research Question 3: Do intentions to consume alcohol and engage in incidental legal-risk behaviors after hypothetically experiencing an alcohol-related legal encounter vary as a function of experiencing negative consequences of alcohol use and/or one's perception of the certainty of future punishment.

Hypothesis 3: Past month and past year negative consequences (including prior legal encounters or the absence of prior legal encounters), and perception of certainty of punishment (PCP) will moderate the effect of the hypothetical scenario on intentions to drink alcohol (peak drinking quantity, typical drinking quantity, and drinking frequency) (post-scenario assessment) and intentions to engage in legally-risky or protective incidental behaviors (post-scenario assessment) for the ”arrest” and “no arrest” groups. These variables will not moderate the effect of the hypothetical scenario on intentions to consume alcohol and engage in legally-risky or protective incidental behaviors for the control group.

Research Question 4: Do intentions to consume alcohol and intentions to engage in incidental legal-risk behaviors predict actual alcohol consumption patterns and actual engagement in incidental legal-risk behaviors one month later?

Hypothesis 4: Actual quantity and frequency of alcohol use and engagement in incidental legal-risk behaviors one month after initial assessment (1-month follow-up) will not be significantly different from reported actual intentions to consume alcohol (binge, quantity and frequency of alcohol use) and to engage in actual incidental legal-risk behaviors at pre-scenario assessment for the “arrest,” “no arrest,” or control groups.

CHAPTER III

METHOD

Research Participants

Male and female college students were recruited to participate in an online study. To be eligible for participation, students had to: (1) be at least 18 years of age, (2) drink alcohol, and (3) meet, at a minimum, criteria for heavy episodic binge drinking [i.e., drinking 5 or more drinks on a single occasion in the past month; Hingson et al., 2002]. Binge drinkers are a suitable sample to study because of the likelihood of previously experiencing negative alcohol related consequences, including legal encounters (Hingson et al., 2002; Leedy & Leffingwell, 2006; Wechsler et al., 1994).

Participants were recruited from Oklahoma State University's (OSU) subject pool via Experimetrix. Experimetrix is a system used to organize, recruit, and schedule participants for research and is maintained by OSU's subject pool coordinator. Undergraduate students who were enrolled in psychology, marketing, and wellness courses are part of the subject pool and are required to earn research credit, which can be accomplished in one of three ways: (1) by participating in a research study, (2) by attending a colloquium, or (3) by writing a research paper. Students in these courses had access to a description of the inclusion criteria and research description through Experimetrix and they were able to access the website address if interested. Individuals who chose to participate in the online study earned two units of credit, which could be

applied to their research requirements. Individuals earned one unit of credit after completing the first session and one unit of credit after completing the second session. Individuals who did not choose to participate could fulfill their research requirements by completing one of the remaining options, as noted above.

Measures

Demographic Questionnaire. Participant's age, gender, ethnicity, year in college, Greek membership status, marital status, residency status, and quantity and frequency of marijuana use were assessed. Two additional items were added based on criminology and deterrence research: (1) "How many times in the past year have you had an encounter with legal authorities due to alcohol use (general offense) that either did or did not result in arrest?" and (2) "How many times in the past year have you driven when you perceived your BAC to be over the legal limit?" See Appendix C for a copy of the demographic questionnaire.

The College Alcohol Problems Scale-revised (CAPS-r). The CAPS-r is an eight item self-report measure of drinking-related negative consequences that have occurred in the past month and in the past year. Negative consequences are assessed on a six-point Likert scale (0=*never/almost never* to 5=*10 or more times*; Maddock, Laforge, Rossi, & O'Hare, 2001). The CAPS-r assesses two general factors of alcohol use, personal and social problems, that are moderately related (r=.46) to each other. Internal consistency of the measure is satisfactory for personal problems (α =.78) and for social problems (α = .73; Maddock, Laforge, Rossi, & O'Hare, 2001). Internal consistency for the sample in this study was as follows: personal problems (month: α =.82; year: α =.78); social problems (month: α =.56; year: α =.68). The CAPS-r can be scored either by creating a

mean score for each subscale or by creating a total score for the entire scale (Maddock et al., 2001). See Appendix D for a copy of the CAPS-r.

Frequency-Quantity Questionnaire (FQQ). The FQQ is a three-item self-report measure of quantity and frequency of alcohol consumption (Dimeff et al., 1999). The first question assesses the peak amount of alcohol consumed on one occasion during the previous month; the second question assesses the typical amount of alcohol consumed on an average weekend; the third question assesses the frequency of alcohol use during the previous month. The FQQ takes approximately two minutes to administer. No validity or reliability information is available for this measure. One additional item was added, "On how many occasions did you drink to get drunk in the past 30 days?" A description of a standard drink was provided for each question. See Appendix E for a copy of the FQQ.

Legal-Risk Behaviors While Using Alcohol (LRBA). The LRBA is 19-item self-report measure of incidental legal risk behaviors engaged in during the previous month (Leedy & Leffingwell, 2006). Incidental legal risk behaviors are behaviors that increase or decrease one's risk for detection or arrest by legal authorities while drinking alcohol. The LRBA consists of three factors, which explains 46% of the variance of the LRBA. The three factors are described as: risky, protective, and private settings drinking behaviors. Risky drinking and protective behaviors are moderately related to each other (r=.16, p <.05), while private settings drinking behavior is not significantly related to either one of the other factors (Leedy & Leffingwell, 2006). Psychometric properties for the LRBA are satisfactory (internal consistency: risky drinking α = .83, protective behaviors α = .83, private settings drinking behavior α = .65; two week test-retest reliability: risky drinking, r = .88, p <.001, protective behaviors, r = .77, p < .001, and

private settings drinking behavior, $r = .75$, $p < .001$; Leedy & Leffingwell, 2006). Internal consistency for the current sample is also satisfactory (Intentions: risky drinking $\alpha = .78$, protective behaviors $\alpha = .75$, private settings drinking behavior $\alpha = .48$; Hypothetical Intentions: risky drinking $\alpha = .80$, protective behaviors $\alpha = .87$, private settings drinking behavior $\alpha = .78$; Past Month: risky drinking $\alpha = .77$, protective behaviors $\alpha = .81$, private settings drinking behavior $\alpha = .66$). The LRBA is scored using a "coarse" scoring strategy (Grice, 2001), in which observed scores of items on a factor are summed to create a total score for each subscale. Higher scores on a subscale indicate a higher frequency of engaging in a particular behavioral pattern (e.g., risky drinking, protective drinking, private settings drinking behavior). Response options are *Never* (0), *Rarely* (1), *Many Times* (2), or *Always* (3). See Appendix F for a copy of the LRBA.

Marlowe-Crowne Social Desirability Scale Short Form (MC-SDS). The MC-SDS is a thirteen item self-report true/false measure of socially desirable responding for self-report measures (Reynolds, 1982). Internal consistency for the MC-SDS ranges from 0.13-0.49 and 0.82 when the short form is compared to the whole scale (Reynolds, 1982). Internal consistency for the sample in this study was $\alpha = .27$. The MC-SDS is capable of measuring both types of biased responding, self-deception and impression management (Paulhus, 1986). The MC-SDS described two types of behaviors: (1) desirable but uncommon behaviors or (2) undesirable but common behaviors. Participants are asked to choose "true" or "false" for each item. The MC-SDS is scored by creating a total score (a summation of all items endorsed as "true"). Higher scores indicate more socially desirable responding. See Appendix G for a copy of the MC-SDS.

Perception of Certainty of Punishment (CP). Two self-report questions were used to assess the perception of certainty of punishment for engaging in the behavior described in the hypothetical scenario in the future. These two assessment items are modified from items used by Pogarsky and Piquero (2003), and were completed by all participants. The two questions read: (1) On a scale of 0 (no chance at all) -100 (I would definitely be pulled over) estimate the likelihood that you would be pulled over by the police if you drove home IN THE FUTURE under the circumstances described in the scenario. (2) On a scale of 0 (no chance at all) -100 (I would definitely be arrested) estimate the likelihood that you would be arrested by the police if you drove home IN THE FUTURE under the circumstances described in the scenario. See Appendix H for a copy of the PCP measure.

Intentions to Drink Alcohol-Frequency-Quantity Questionnaire (IFQQ, pre and post). To measure intentions to drink alcohol after hypothetically experiencing an alcohol-related legal encounter, instructions for the FQQ (described above) were modified, according to the hypothetical scenario presented, to read: "Think about the scenario you just read. Imagine that you had "a lot to drink" and "felt drunk," but decided to drive home from the bar. You [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [got stopped by the police, were arrested for driving under the influence of alcohol, and spend the night in jail]. Please respond to the following questions as if you were the person in the scenario. In other words, if you [drove under the influence of alcohol and made it home safely] or [got stopped by the police but were not arrested] or [were arrested for drinking and driving] what do you think your drinking habits would be like in the month following this event?" See Appendix I (pre) and J (post) for a copy of the IFQQ.

Intentions to Engage in Legal Risk Behaviors While Using Alcohol (ILRBA, pre and post). The 19 item self-report LRBA was adapted to reflect intentions at pre-scenario and post-scenario to engage in incidental legal risk behaviors in the next month. Instructions for the pre-scenario assessment were modified to read: "When drinking alcohol, you may take certain actions that prevent you from being in a situation that could result in negative consequences. The following items are things individuals might do or avoid doing to reduce the chance of attracting police or authorities when drinking alcohol. Think about [what] your own drinking habits over the [next] month [might be like] and respond to the following statements." Instructions for the post-scenario assessment will be modified to read: "Think about the scenario you just read. Imagine that you had "a lot to drink" and "felt drunk," but decided to drive home from the bar. You [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [got stopped by the police, were arrested for driving under the influence of alcohol, and spend the night in jail]. Please respond to the following questions as if you were the person in the scenario. In other words, if you [drove under the influence of alcohol and made it home safely] or [got stopped by the police but were not arrested] or [were arrested for drinking and driving] what do you think your habits would be like in the month following this event?"

The ILRBA was scored in the same manner as the LRBA, by using a "coarse" scoring strategy (Grice, 2001). Higher scores on a subscale indicated greater intention to engage in a particular behavioral pattern (e.g., risky drinking, protective drinking, private settings drinking behavior). Response options are *Never*, *Rarely*, *Many Times*, *Always*. See Appendix K (pre) and L (post) for a copy of the ILRBA.

Experimental Manipulation (Hypothetical Scenario; HS). The experimental manipulation in the present study was the hypothetical scenario, with slight modifications, as used by Piquero and Tibbetts (1996). Three versions of the scenario were used in this study. Version 1 (control condition) described a situation in which an individual drives a vehicle when he/she perceives his/her BAC to be above the legal limit. This version concluded with the individual avoiding legal authorities and arriving at home without difficulty. Version 2 ("no arrest" condition) described the same general situation as that in Version 1 except that this scenario concluded with the driver being pulled over by legal authorities, questioned, and released. Version 3 ("arrest" condition) was similar, except that this scenario concluded with the driver being stopped by legal authorities, questioned, and detained for driving under the influence of alcohol. See Appendix M for a copy of the three versions of the hypothetical scenario.

Manipulation Check. To determine if participants perceived the hypothetical scenario as realistic, participants were asked to complete a brief survey. Four items were used to assess the realism of the hypothetical scenario. Items that constitute the manipulation check include: (1) Have you ever experienced a situation like the one presented in the scenario that you just read?, (2) To your knowledge, have any of your friends ever experienced a situation like the one presented in the scenario that you just read?, (3) As you read the scenario, did you imagine that this situation was happening to you?, (4) Did reading the scenario cause you to think more about the amount of alcohol you drink and/or your behavior while drinking?, (5) Was the scenario that you read realistic? In other words, do you think what happened in the scenario could happen in real life? See Appendix N for a copy of the Manipulation Check.

Research Procedure

Participants were asked to complete the first session of the study, which took approximately 30-45 minutes to complete. Four weeks later, participants completed the second session, which took approximately 15 minutes to complete. Individuals who were interested in participating read and agree to an on-line consent form (See Appendix B). Researchers assumed that, after reading the consent page and proceeding with the study, the individual understood the details, risks, and benefits of the study and gave full consent to participate in the first and second sessions of the study. A printable version of the consent form was available for participants to keep for their records.

After agreeing to the conditions of the study, participants indicated their gender by selecting an appropriate button on the online survey. Participants were separated by gender to ensure that they accessed the appropriate questionnaire that defined and questioned the construct of binge drinking in terms of their selected gender (i.e., $\geq$4 alcoholic drinks for women, $\geq$5 alcoholic drinks for men). After the correct questionnaires were accessed, each participant was automatically randomized to one of three conditions (control, "no arrest," "arrest") based on a hypothetical scenario that would be presented in the middle of the session.

Before beginning the first session questionnaire, participants in all groups created a unique identification number using a rubric that consisted of portions of their social security number and their birth date (last four of SSN and birth month). This number served to protect the participants' actual identity and enabled the researcher to match their first session responses to their second session responses.

In the first session, all participants completed the following questionnaires: pre-scenario intentions to drink alcohol in the next month, pre-scenario intentions to engage in incidental legal risk behaviors in the next month, demographic, alcohol-related negative consequences (past month and year), quantity and frequency of alcohol use (past month), and socially desirable responding. Participants were then presented with the experimental manipulation, in which an individual has either driven while under the influence of alcohol and did not get stopped by legal authorities (control group), been stopped, but not arrested, by legal authorities for an alcohol-related offense ("no arrest" group), or been stopped and arrested by legal authorities for an alcohol-related offense ("arrest" group). Participants were asked to imagine that they are the individual to whom this situation was happening. After reading the hypothetical scenario, participants rated their perception of the certainty of future punishment (e.g., likelihood of being pulled over and of being arrested in the future) after hypothetically experiencing a punishment avoidance or punishment. Finally, participants in all conditions rated their post-scenario hypothetical intentions to drink alcohol in the next month and post-scenario hypothetical intentions engage in incidental legal risk behaviors in the next month. Finally, participants completed a manipulation check of the experimental to determine if the hypothetical scenario was believable. Upon completion of the first session, participants electronically submitted their responses and were automatically sent an email confirming that their data was successfully submitted. Next, participants were directed to a separate web page where they provided their name, address, telephone number(s) and email address(s) so that the researcher could contact them for the second session (See Appendix O). Participants were also provided with course and instructor information so that

appropriate credit could be assigned to them for completing the first session. Participants were informed that the information provided on that final page was maintained separately from the previously submitted data and could not be connected. A link to a printable page confirming their participation in the first session was available (See Appendix Q). Participants were encouraged to print and keep this page for their records.

Four weeks after the first session participants were sent a notice, via email, providing them with a hyperlink to the second online session. Participants had two weeks to participate in the second session (week 4 and week 5 after initial participation). One week after presumable receipt of the notice, participants who had not submitted data for the second session were contacted again by email to encourage them to participate. In the second session, participants "identified" themselves again by completing the identification rubric that was presented during the first session. Participants then reported their actual quantity and frequency of alcohol use over the past month, frequency of engagement in incidental legal risk behaviors, and experience of negative consequences related to alcohol use during the past month, including the experience of an alcohol-related legal encounter in the past month.

Upon completion of the second session, participants electronically submitted their responses and were automatically sent an email confirming that their data was successfully submitted. Participants were then directed to a separate web page where they provided their name, course, and instructor information so that appropriate credit could be assigned to them for completing the second session. Participants were informed that the information provided on this final page was maintained separately from the previously submitted data and could not be connected. A link to a printable page

confirming their participation in the second session was available (See Appendix R). Participants were encouraged to print and keep this page for their records.

After completing all portions of the study, participants were directed to another page where they read a debriefing statement (See Appendix S). An on-line and printable version of referrals to drug and alcohol services in the surrounding area were available for participants who experienced exacerbated emotional reactions to the study, or for individuals who wanted to consider professional assistance regarding their alcohol use or problems related to their alcohol use (See Appendix T). A flow chart of the research design is provided in Appendix A.

CHAPTER IV

RESULTS

A main objective of this study was to determine if changes in incidental legal risk behaviors or alcohol use behaviors are likely to occur after experiencing an alcohol-related legal encounter. Obviously, it is not plausible to randomly assign individuals to experience an actual alcohol-related legal encounter. Thus, a hypothetical legal encounter scenario was created as an indirect way of answering the research question.

The experimental groups in this study consisted of three different hypothetical scenarios. The "arrest" scenario illustrated an individual who was arrested for drinking and driving. The "no arrest" condition illustrated an individual being pulled over for drinking and driving, but not arrested. Finally, the control scenario illustrated an individual drinking and driving and arriving safely at his/her final destination with no legal encounter. This analog design was used to shed light on the possible effects that experiencing a legal encounter may have on college students' risky behaviors and alcohol use.

Participants completed two different sessions. The first session asked them to report their intentions to drink alcohol in the following month, then to read one of the three hypothetical scenarios, to which they were randomly assigned, and then they were immediately asked to report what they *believed* their drinking habits would be like *if* they had experienced the hypothetical scenario. The second session occurred one month later

and asked participants to report their *actual* drinking habits in the past month (i.e., the time elapsed since completing the first session).

Data Preparation

One hundred forty three participants completed session 1. One participant was omitted from data analyses because of an excessive amount of missing data, resulting in a total sample of 142 participants. Items on which participants chose a non-response option (i.e., "I prefer to not respond," or no data was provided), were replaced using the mean substitution technique (Schafer & Graham, 2002). Each of the missing data cases were individually inspected and replaced with either the sample-wide mean score for that variable (if the item was a single-item measure) or with the individual participant's mean score for a related set of variables (if the item was used to calculate a scale score for multi-item measures). However, missing data on legal risk behavior variables was replaced with the subscale mean score for the specific individual who had missing data, because that specific item is highly correlated with other items within that subscale (Leedy & Leffingwell, 2006). This method of managing missing data allowed for more statistical power and used the theoretical knowledge of the relationship between specific variables to determine what type of mean substitution was most useful. The data set for session one had 67 non-responses on 35 different variables. Thus, 67 data substitutions were made for the first session data. Subjective scanning of the variables for which participants endorsed a non-response option did not reveal any pattern which would make the author believe that participants responded carelessly or randomly.

Participants

As noted, the first session of the internet study was completed by 142 participants and included both men (n = 58, 40.8%) and women (n = 84, 59.2%). The average age of the participants was 20.7 years (SD = 3.39) and ranged from 18-49 years. Approximately half of the sample was under the age of 21 (n = 80, 56.3%), the age at which alcohol consumption is legal according to current state law. Most participants described themselves as Caucasian (n = 122, 85.9%) and as college freshman (n = 50, 35.2%). Forty-six participants (32.4%) reported being a member of a social fraternity or sorority. Most participants (n = 133, 93.7%) reported having never been married and most reported living on-campus (n = 48, 33.8%) or off campus with a roommate (n = 45, 31.7%). Most participants (n = 108, 76.1%) denied using marijuana in the past month and denied having a legal encounter in the past year (n = 12, 78.9%). A more comprehensive overview of the demographic data is provided in Table 1.

On average, in the past month, participants reported drinking on 5.42 occasions (range = 0-31; SD = 6.06) and drinking to get drunk on 3.86 occasions (range = 0-29.5, SD = 5.19). Participants further reported that on peak drinking occasions they consumed an average of 8.42 alcoholic drinks (range = 0-19 or more, SD = 5.11), and drank 5.96 alcoholic drinks on a typical weekend evening (range = 0-19 or more, SD = 4.40). On average, participants reported binge drinking on 4.33 occasions in the past month (range = 0-29.5, S = 5.32). Approximately 85% of participants reported binge drinking in the past month with 51.4% reporting binge drinking on seven or more occasion in the past month. Men consumed significantly more alcoholic drinks than women on peak, $F(1,140) = 33.12$, $p<.001$, and typical drinking occasions, $F(1,140) = 21.39$, $p<.001$, and had more

binge drinking occasions than women, $F(1,140) = 4.68$, $p = .03$. Please refer to Table 2 for more information about participant's drinking habits.

In regards to the assignment to the experimental group, 53 participants (37.3%) were randomly assigned to the "arrest" condition (men: $n = 19$, 13.4%; women: $n = 34$, 23.9%). Fifty-four participants (38%) were randomly assigned to the "no arrest" condition (men: $n = 27$, 19%; women: $n = 27$, 19%) and 35 participants (24.6%) were randomly assigned to the control condition (men: $n = 12$, 8.5%; women: $n = 23$, 16.2%). Thus, not all groups had an equal number of total participants, nor an equal proportion of men and women.

Seventy participants completed session 2. Two cases were deleted because the same participant submitted the survey twice but with inconsistent responses, leaving 68 participants (men, $n = 23$, 33.8%; women, $n = 45$, 66.2%) who were included in subsequent analyses. Mean substitution procedures (Schafer & Graham, 2002) were used to manage missing data in Session 2. The data set for session 2 had 34 non-responses on 12 different variables for which mean substitution was used. Twenty seven participants (39.7%) had been in the "arrest" group, 22 participants (32.4%) had been in the "no arrest" group, and 19 participants (27.9%) had been in the control group. Chi-square analyses and independent sample t-tests indicated that there were no statistically significant differences between participants who completed only the first session and those who completed both sessions on demographic variables, variables of negative consequences, social desirability, or past month drinking habits.

Randomization Check

First, a multivariate analysis of variance (MANOVA) procedure indicated that there were no differences between experimental groups and past month drinking variables, $F(12,270) = 1.22$, $p = .26$, power = .52. MANOVA analysis also revealed an non-significant difference between experimental groups and Social Desirability and Past Month and Past Year Negative Consequences, $F(6,276) = .1.26$, $p = .27$, power = .27. A chi-square analysis revealed that there was not a significant difference in the distribution of men and women in each scenario. However, a MANOVA, using gender and experimental group as independent variables, was conducted to determine if the four past month drinking variables differed according to gender or experimental group. These analyses revealed a significant main effect between gender and past month Peak, $F(1,5) = 36.60$, $p<.001$, Typical $F(1,5) = 18.42$, $p<.001$, and Past 2-week and Past Month Binge Drinking, $F(1,5) = .44$, $p = .02$; $F(1,5) = 8.79$, $p<.01$.

Primary Analyses

The following research questions and hypotheses were investigated, using an alpha level of .05 for all statistical analyses:

Hypothesis 1. Hypothetically experiencing a legal encounter by the "arrest" and "no arrest" groups will significantly decrease intentions to drink alcohol (Peak drinking quantity, Typical drinking quantity, and Drinking Frequency) from pre-scenario assessment to post-scenario assessment on drinking variables, within each respective group; there will not be significant differences between the "arrest" and "no arrest" groups at post-scenario assessment. The control group will show no significant changes

in intentions to drink alcohol (Peak drinking quantity, Typical drinking quantity, and Drinking Frequency) from pre-scenario assessment to post-scenario assessment.

Results of analyses for hypothesis 1. Does experiencing a hypothetical alcohol-related legal encounter result in changes in college students' intentions to consume alcohol? To answer this question, mean scores on intentions and hypothetical intentions for Peak, Typical, Frequency of Drinking, and Frequency of Getting Drunk were examined. In general, all groups reported reduced intentions to drink alcohol after being presented with their respective hypothetical scenarios. Specifically, the "arrest" group reported a mean of 6.79 pre-scenario peak intentions and a mean of 1.61 post scenario peak hypothetical intentions. For Typical Drinking, Frequency of Drinking, and Frequency of Getting Drunk, the reported pre-scenario intention means and post-scenario hypothetical intention means were: 5.46 and 1.64; 4.58 and 1.49; and 3.40 and 0.91, for the "arrest" group, respectively.

A similar pattern of decreasing pre- and post-scenario intention means were evident for the "no arrest" group (peak: 8.55 and 4.90; typical: 6.07 and 4.36; frequency of drinking: 5.25 and 3.60; frequency of getting drunk: 4.80 and 2.60). Surprisingly, the control group evidenced a similar, albeit weaker, pattern for peak drinking and frequency of drinking (Peak: 7.17 and 5.07; Frequency of Drinking: 5.12 and 4.85). One exception was that pre-scenario intention means were less than post-scenario hypothetical intention means on the Typical Drinking (5.02 and 5.24) and Frequency of Getting Drunk variable (2.50 and 4.11). See Figures 1-4 for graphical depictions of the means for the "arrest," "no arrest," and control groups for each drinking variable discussed above.

Repeated measures ANOVAs, controlling for gender as a between subjects factor, were conducted to examine whether the within-subject differences between pre-scenario and post-scenario intention means for each drinking variable were significant within each group. These tests revealed that most of the differences in pre-scenario mean intentions and post-scenario hypothetical mean intentions were statistically significant. Table 4 provides the F-values, significance values, and effect sizes for each group and each variable. Two exceptions were noted in the control group, in that the differences in pre-scenario intention means and post-scenario intention means were not significantly different for Typical Drinking, and Frequency of Drinking variables. These data provide evidence to reject the null hypothesis that there would not be significant differences within the experimental groups on intentions to drink alcohol before reading the scenario and hypothetical intentions to drink alcohol after reading the scenario.

In general, results revealed that within group differences existed between pre-scenario intentions and post-scenario hypothetical intentions. A secondary question arises: Are there any significant differences in the magnitude of change between groups? In order to test this between group question a difference score was created for each drinking intention variable (Peak, Typical, Frequency of Drinking, and Frequency of Getting Drunk). This difference score was created by subtracting pre-scenario intentions on each drinking variable from post-scenario hypothetical intentions on the same drinking variable. Essentially, this score examined the difference in participants reported intentions to drink alcohol *before* reading the scenario and their reported hypothetical intentions to drink *after* reading the hypothetical scenario. An analysis of variance (ANOVA) with two *a priori* contrasts comparing the "arrest" versus "no arrest" groups

and the "arrest" and "no arrest" versus control group were conducted on each outcome drinking variable of interest (i.e., difference score). Gender was statistically controlled as a between subjects factor in each analysis.

Peak drinking quantity. Results revealed that the difference score for Peak Drinking between the "arrest" and "no arrest" group was significantly different, $t(2,136) = -2.87$, $p < .01$, with the "arrest" group exhibiting a greater reduction in Peak Drinking Intentions (adjusted mean difference score = 2.96) than the "no arrest" group (adjusted mean difference score = 1.85). An ANOVA with a priori contrast comparing the combined means of the "arrest" and "no arrest" group against the control group revealed a non-significant difference, $t(2,136) = 1.73$, $p = .08$. Adjusted mean scores for the difference scores are reported for the simple contrast analyses because these means take into account the fact that gender was controlled. These results indicate that participants who imagined experiencing an arrested, are more likely to show a greater magnitude of change from pre-scenario intentions to post-scenario hypothetical intentions than those participants in the control group who did not imagine experiencing a legal encounter.

Typical drinking quantity and drinking frequency. Similar significant findings were evident when examining Typical Drinking and Frequency of Drinking. Specifically, there was a significant difference on the difference score for Typical Drinking between the "arrest" and "no arrest" group, $t(2,136) = -3.67$, $p<.001$, with the "arrest" group demonstrating a significantly greater reduction of Typical Drinking Intentions (adjusted mean difference score = 2.22) than the "no arrest" group (adjusted mean difference score = .85). However, a significant difference was not found when the "arrest" and "no arrest" groups were combined and compared to the control group. Thus, for Typical Drinking,

the magnitude of change was greater for participants who read the "arrest" compared to the "no arrest" scenario.

The data for Frequency of Drinking revealed a comparable pattern of significant differences between the "arrest" and "no arrest" groups, $t(2,136) = -4.18$, $p<.001$, with the "arrest" group having a more substantial reduction in drinking frequency intentions (adjusted mean difference score = 1.38) than the "no arrest" group (adjusted mean difference score = .53). Similar to what was seen for Typical Drinking, no significant differences were found when the "arrest" and "no arrest" groups were combined and compared with the control group. Finally, for Frequency of Drinking to Get Drunk, there was not a significant difference on the difference score between the "arrest" and "no arrest" groups, $t(2,136) = -1.41$, $p = .15$, although the "arrest" group did evidence a greater reduction in intentions to get drunk compared to the "no arrest" group. Interestingly, the difference between the "arrest" and "no arrest" groups compared to the control group was significant, $t(2,136) = -2.16$, $p = .03$, with the control group showing a negative adjusted mean difference score (-.31). This indicates that some of the participants in the control group actually reported an increase in post-scenario hypothetical intentions. These data indicate that the control group had a different pattern of change compared to the "arrest" and "no arrest" groups, such that participants in the control group reported an increase in post-scenario intentions to drink.

In conclusion, the null hypothesis that there would not be significant differences between pre-scenario intentions and post-scenario hypothetical intentions on drinking variables for each group is rejected. These findings provide evidence that participants believe (at least hypothetically) that they would decrease their intentions to drink in the

month following a scenario in which they were arrested, or were at least stopped by police for drinking and driving.

In addition to the analyses above, a univariate analysis of variance (ANOVA) was conducted to investigate if there were significant differences only on scores *after* participants were presented with the scenarios. Recall that no significant differences between the experimental groups on pre-scenario intentions were found. The present analysis was not investigating whether there were decreases in intention drinking scores from pre-scenario to post-scenario (as reported above), but whether the reported post-scenario hypothetical intentions on drinking variables differed based on group. An ANOVA indicated that there was a significant group difference between mean hypothetical intentions on Peak, Typical, Drinking Frequency, and Frequency of Drinking to Get Drunk scores (Peak: $F(2,139) = 15.46$, $p<.001$; Typical: $F(2, 139) = 14.23$, $p<.001$; Drinking Frequency: $F(2,139) = 7.25$, $p = .001$; Frequency of Getting Drunk: $F(2,139) = 5.76$, $p = .004$). Tukey post-hoc procedures revealed significant differences between the "arrest" and "no arrest" groups and the "arrest" and control groups for Peak Drinking, Typical Drinking, and Frequency of Drinking. There were no significant post-hoc differences found between the "no arrest" group and the control group for any of the variables. For Frequency of Drinking to Get Drunk, the only significant group difference was found between the "arrest" and control group.

Thus, the null hypothesis that there will not be significant group differences on post-scenario hypothetical drinking intentions is rejected. These finding indicate that individuals who imagine getting arrested for drinking and driving believe they would drink less alcohol and on fewer occasions than individuals who imagined being pulled

over, but not arrested, for drinking and driving. Further, participants who imagined being arrested believe that they would drink less alcohol after such an event than those participants in the control group. Interestingly, participants in the "no arrest" group were not distinct from participants in the control group on post-scenario hypothetical intentions. Taken together, these data indicate that hypothetically experiencing an arrest for drinking and driving may affect change in future drinking behaviors in a way that is unique when compared to simply being stopped by police or arriving home without any negative consequences.

Hypothesis 2. Hypothetically experiencing a legal encounter by the "arrest" and "no arrest" groups will significantly decrease intentions to engage in incidental legal risk behaviors associated with alcohol use that increase risk of experiencing alcohol-related legal consequences (as measured by the Risky Behaviors subscale of the LRBA) from pre-scenario assessment to post-scenario assessment, and will increase intentions to engage in incidental legal risk behaviors associated with alcohol use that decrease risk of experiencing legal consequences (as measured by the Private Settings Drinking Behavior and Protective Behaviors subscales of the LRBA) from pre-scenario assessment to post-scenario assessment within each respective group. The control group will show no significant changes in intentions to engage in Risky, Protective, or Private Settings Drinking Behavior from pre-scenario assessment to post-scenario assessment.

Results of analyses for hypothesis 2. Does experiencing a hypothetical alcohol-related legal encounter result in changes in college students' intentions to engage in incidental legal risk behaviors? To investigate this question, examination of the pre-

scenario means and post-scenario means of each variable (Risky, Protective, and Private Legal Risk Behaviors) within each experimental group were examined.

Participants in the "arrest" and "no arrest" groups reported a reduction in their intentions to engage in Risky Drinking Behaviors from pre-scenario to post-scenario ("arrest," 8.10 and 5.16; "no arrest," 9.25 and 7.40). One exception was seen for participants in the control group, who reported an increase from pre-scenario intentions to post-scenario hypothetical intentions (9.12 and 9.37). There is no theoretical basis on which to control gender in LRBA analyses, thus a MANOVA, using gender as the independent variable and Risky, Protective, and Private Drinking Behaviors as the dependent variables was conducted to see if gender was differentially related to the LRBA. MANOVA analysis revealed a significant gender difference in the pre-scenario intentions to engage in Risky, $F(1) = 3.7$, $p = .05$ and Protective Behaviors, $F(1) = 12.52$, $p = .001$, but not in Private Behaviors, $F(1) = .05$, $p = .82$ with men reporting greater engagement in risky behaviors and women reporting greater engagement in protective behaviors. Thus, gender was controlled in subsequent Risky and Protective Behavior analyses, but not in Private Drinking Behavior analyses.

In order to examine whether there were significant differences between pre-scenario intentions and post-scenario hypothetical intentions for Risky, Protective, and Private Drinking Behaviors, a repeated measures ANOVA that controlled for the effects of gender (except for the Private Drinking Behaviors analysis) was conducted. Results indicated that the difference between means on the Risky Drinking Behaviors score was significant for the "arrest" and the "no arrest" group, but not for the control group. See Table 5 for F, significance, and effect size values. These data indicate that participants in

both of the legal encounter groups intended to engage in risky drinking behaviors less frequently after they read the hypothetical scenario. This pattern of decreasing frequency of engaging in incidental risky drinking behaviors is a change in the desired direction after experiencing a legal encounter. See Figure 5 for a graphical depiction of the difference between means for each group.

In regards to incidental Protective Drinking Behaviors, participants in the "arrest" and "no arrest" groups reported an increase in their intentions to engage in Protective Behaviors after reading the hypothetical scenario ("arrest," 12.49 and 14.24; "no arrest," 11.98 and 13.65; control, 12.02 and 12.25). A repeated measures ANOVA revealed that the difference between the mean pre-scenario intentions and mean post-scenario intentions were significantly different for the "arrest" group and for the "no arrest" group, but not for the control group. Refer to Table 5 for statistical reporting. Thus, participants in both of the legal encounter groups believed that they would engage in protective behaviors significantly more often after reading the scenario than before they read the scenario. This pattern of increase in mean post-scenario intentions is a desired outcome of reading the hypothetical scenario. Figure 6 illustrates the differences in mean scores for each group.

Finally, a repeated measures ANOVA, not controlling for the effects of gender, indicated that there were no significant difference in Private Drinking Behaviors from pre-scenario and post-scenario intentions for the "arrest," "no arrest," or control groups. Table 5 has a report of the statistics and Figure 7 shows a graphical depiction of the differences in mean scores for each group.

The data indicated that, within some groups, participants reported believing that they would reduce the frequency in which they would engage in risky drinking behaviors, and increase the frequency in which they would engage in protective drinking behaviors, and have no change in the frequency in which they would engage in private drinking behaviors. In addition to these within group changes, between group differences may be present. To investigate this possibility, a data procedure similar to that conducted for Hypothesis 1 was employed. Specifically, a difference score for each LRBA subscale (Risky, Protective, Private) was created by subtracting pre-scenario intentions from post-scenario hypothetical intentions. These difference scores were used as the outcome variables in the subsequent analyses. Again, each outcome variable examined the difference in participants' reported intentions to engage in Risky, Protective, or Private Incidental Drinking Behaviors *before* reading one of the three hypothetical scenarios and their reported *hypothetical* intentions to engage in these same behaviors *after* reading the hypothetical scenario.

As previously mentioned, a MANOVA analysis indicated that there was a significant gender difference in the pre-scenario intentions to engage in Risky and Protective Behaviors but not in Private Behaviors. Thus, gender was accounted for in subsequent Risky and Protective Behavior analyses. Additionally bivariate correlations indicated that social desirability was significantly correlated with protective behaviors (r = .16, p = .05), but not risky (r = .04, p = .65) or private behaviors (r = .05, p = .49). Past Month Negative Consequences were significantly related to Risky (r = .47, p<.001) and Private Behaviors (r = .16, p = .04), but not Protective Behaviors (r = -.15, p = .06). Finally, Past Year Negative Consequences were significantly correlated to Risky

Behaviors (r = .42, p<.001), but not Protective (r = -.07, p = .39) or Private Behaviors (r = .13, p = .1). Thus, Social Desirability was covaried in subsequent Protective Behavior analyses. Past Month Negative Consequences were covaried in Risky and Private Behavior, while Past Year Negative Consequences were covaried in Risky Behavior analyses.

ANCOVA procedures with *a priori* contrasts comparing "arrest" versus "no arrest" and "arrest" and "no arrest" versus control were conducted on each LRBA outcome variable (difference score for Risky Drinking Behaviors, Protective Drinking Behaviors, and Private Drinking Behaviors). Relevant variables were controlled in the appropriate analyses, as discussed above.

ANCOVAs with an *a priori* simple contrast revealed a non-significant difference on the difference score for engaging in risky behaviors for the "arrest" and "no arrest" groups, $t(2, 134) = -1.90$, $p = .06$. However, the combination of the "arrest" and "no arrest" groups compared to the control group was significant, $t(2, 134) = -2.28$, $p = .02$. Thus, the data show that the magnitude of change between the "arrest" and "no arrest" groups were not significantly different. However, the difference between the "arrest" and "no arrest" groups compared to the control group provides evidence that the experimental manipulation did have an effect on participants reported post-scenario hypothetical intentions to engage in incidental risky drinking behaviors.

ANCOVA analyses revealed that there were no significant differences between the "arrest" and "no arrest" groups or the combination of the "arrest" and "no arrest" groups compared to the control group for Protective Drinking Behaviors, $t(1, 135) = .07$, $p = .94$; $t(1, 135) = -.50$, $p = .61$, or for Private Drinking Behaviors, $t(2, 138) = -1.16$, p =

.24; $t(2, 138) = -1.44$, $p = .15$, respectively. This data indicate that the hypothetical scenarios did not significantly influence the magnitude of change from pre-scenario intentions to post-scenario hypothetical intentions for incidental Protective or Private Drinking Behaviors.

Overall, the null hypothesis that the "arrest" and "no arrest" groups would show no significant differences in Risky and Protective Drinking Behaviors from pre-scenario intentions to post-scenario hypothetical intentions is not rejected. However, when the "arrest" and "no arrest" groups are combined and compared with the control group significant differences are seen for Risky Drinking Behaviors. Thus, at least this type of incidental drinking behavior, the hypothetical scenario did have an effect. This data suggests the possibility that individuals who have experienced some type of legal encounter related to their alcohol use may, in the future, reduce the frequency of engaging in risky behaviors, such as drinking with people who are likely to get into a physical fight, or drinking and driving. The data also indicate that participants who read one of the two scenarios, in which they hypothetically experienced a legal encounter, reported hypothetical intentions to more frequently engage in behaviors that may protect them from the possibility of experiencing a legal encounter related to their alcohol use in the future (e.g., calling a taxi). The finding that there were no significant differences between the "arrest" and "no arrest" groups interestingly suggests that the actual *type* of legal encounter that an individual experiences may be irrelevant in behavior change, specifically when considering changes to using more protective behavioral strategies.

Hypothesis 3. Past Month and Past Year Negative Consequences (including prior legal encounters or the absence of prior legal encounters), and Perception of Certainty of

Punishment (PCP) will moderate the effect of the hypothetical scenario on hypothetical intentions to drink alcohol (Peak Drinking quantity, Typical Drinking quantity, Drinking Frequency, Frequency of Getting Drunk; post-scenario) and intentions to engage in legally-Risky or Protective Incidental Behaviors (post-scenario) for the "arrest" and "no arrest" groups. These variables will not moderate the effect of the hypothetical scenario on intentions to consume alcohol and engage in legally Risky or Protective Incidental Behaviors for the control group.

Results of Hypothesis 3. Do intentions to consume alcohol and engage in incidental legal-risk behaviors after hypothetically experiencing an alcohol-related legal encounter vary as a function of experiencing negative consequences of alcohol use and/or one's perception of the certainty of future punishment? To answer this question, multiple regression was used to determine if Past Month Negative Consequences (CAPSrM), Past Year Negative Consequences (CAPSrY), and Perception of Certainty of Punishment (PCP) moderated the effect of the experimental group on hypothetical intentions for Peak Drinking. To assess whether a moderator effect existed, the data first had to be prepared by transforming the categorical predictor variable (hypothetical scenario) into Dummy Codes. Dummy coding is a frequently used procedure to represent categorical variables (Aiken & West, 1991). For this data, there were three different hypothetical scenarios, resulting in two dummy codes (using the control group as the comparison group in both codes). For dummy code 1, the "arrest" group was assigned the value of 1, while the "no arrest" group and the control group were assigned the value of 0. For dummy code 2, the "no arrest" group was assigned a value of 1, while the "arrest" and control groups were assigned a value of 0. Thus, dummy code 1 represents the difference between the "arrest"

and control group (noted as ADC below); dummy code 2 represents the difference between the "no arrest" and control group (noted as NADC). Next, the moderator variables (CAPSrM, CAPSrY, PCP) were centered (i.e., the mean was subtracted from each score) to reduce multicollinearity, as recommended by Aiken and West (1991) and Holmbeck (1997). Finally, interaction terms were created by multiplying the centered moderator variables by the dummy variables.

The prepared data was analyzed using multiple regression and the simultaneous entry method. Peak Drinking, Typical Drinking, Drinking Frequency, and Frequency of Getting Drunk were the dependent variables and a separate regression was conducted for each dependent variable. For each regression, the two dummy variables, CAPSrM, CAPSrY, and PCP and the interaction terms were entered in one block.

Results indicated that there were no significant interactions between CAPSrM, CAPSrY, or PCP and "arrest" and "no arrest" conditions for any of the hypothetical intention drinking variables. Thus, the null hypothesis that there would not be a moderating effect of Past Month or Past Year Negative Consequences or Perception of Certainty of Punishment is not rejected. The data indicate that the "arrest" and "no arrest" conditions were not differentially affected by the amount of negative consequences or perception of certainty of punishment participants endorsed.

Risky and Protective Drinking Behaviors. The same regression procedure used above was used to determine if a significant interaction effect was present between CAPSrM and CAPSrY, PCP, and "arrest" and "no arrest." Results indicated that there was not a significant interaction for any of the hypothesized moderating variables. The null hypothesis that CAPSrM and CAPSrY and PCP would not moderate the effect of

hypothetical scenario on hypothetical intentions to engage in Risky or Protective Drinking Behaviors after reading one of three hypothetical scenarios is not rejected.

Hypothesis 4. Actual quantity and frequency of alcohol use and engagement in incidental legal-risk behaviors one month after initial assessment (1-month follow-up) will not be significantly different from reported intentions to consume alcohol (quantity and frequency of alcohol use) and to engage in incidental legal-risk behaviors at pre-scenario assessment for the "arrest," "no arrest," or control group.

Results of Analyses for Hypothesis 4. Do intentions to consume alcohol and intentions to engage in incidental legal-risk behaviors predict actual alcohol consumption patterns and actual engagement in incidental legal-risk behaviors one month later? To investigate this question, bivariate correlations were conducted. As previously mentioned, 68 participants completed both session 1 and session 2 and were included in the following analysis.

Drinking Behaviors. Bivariate correlational analyses were conducted to examine the degree of association difference between participants reported pre-scenario *intentions* to use alcohol in the next month and their reported *actual* alcohol consumption at 1-month follow-up. Results revealed significant and positive relationships for all drinking variables between pre-scenario intentions and reported drinking behavior at one month follow (See Table 6). These findings provide evidence to support a main argument for the design of this study: that assessing intentions is a valid means of assessing behavior**.**

Incidental Legal Risk Behaviors. Bivariate correlations conducted by group examined the relationship between reported pre-scenario intentions to engage in Risky, Protective, or Private Drinking Behaviors and their reported *actual* engagement in these

behaviors in the 1-month follow-up. Results revealed significant and positive relationships between pre-scenario intentions and past month actual LRBA behaviors reported at 1-month follow-up (See Table 7).

The results of this analysis provide evidence to fail to reject the null hypothesis that there would not be significant differences in drinking behaviors and in many of the incidental legal risk behaviors. The relationship between pre-scenario intentions and actual behavior the previous month were significantly associated with each other. In general, the data support the validity of using intentions as a proxy for actual behaviors.

Secondary Analyses. Participants completed a measure that was designed by the author to determine if the manipulation (i.e., hypothetical scenario) was valid and seemed realistic to the participants. Participants were asked five questions related to their experience of similar situations, their friends' experiences of similar situations, whether or not they imagined themselves in the scenario they read, if the scenario caused them to thinking about their drinking and/or incidental drinking behaviors, and if the scenario was realistic. Most participants (72.1%) reported that they had not experienced a similar situation, but 85.3% reported that their friends had experienced a similar situation. The majority (66.2%) of participants reported that they had imagined that the scenario was happening to them, while 26.5% reported that they "somewhat" imagined themselves in the scenario; 7.4% reported that they did not imagine themselves in the scenario at all. Forty two percent of participants reported that the scenario made them think about the amount of alcohol they drank and/or their incidental drinking behaviors. Thirty nine percent answered "somewhat" and 26.5% responded "no," that the scenario did not make them think about their drinking and/or drinking behaviors; 34.5% of participants reported

that the scenario did make them think about their behaviors. The majority of participants (89.7%) reported that the scenario they read was realistic, while 7.4% and 2.9% reported that the scenario was "somewhat" and "not" realistic, respectively.

Pearson's Chi Square was used to determine if there were any differences in responses to these questions based on the scenario that was read. There was a significant association between observed and expected frequency counts for the first manipulation check items, $X^2 = 4.56$, $p<.001$. However, this 3x2 analysis made it impossible to determine the nature of the association. A visual examination of the table showed large differences between the combined "arrest" and "no arrest" group and the control group. Therefore, the "arrest" and "no arrest" group were combined to form one "legal encounter" group and compared with the control group. This subsequent Chi Square analysis was also significant, $X^2 = 16.24$, $p<.001$ indicating that there was differential responding based on the scenario that was read. Specifically, participants who read one of two legal encounter scenarios answered "no" more frequently than those in the control condition to the question, "Have you ever experienced a situation like the one presented in the scenario that you just read?." This difference may reflect true differences or may reflect the unequal sample size in the groups ("arrest" 37.3%; "no arrest" 38%; control 24.6%).

In general, the manipulation check data revealed that participants imagined they were experiencing the scenario they read and that they believed the scenario was realistic. Thus, it appears that the hypothetical scenario was a valid manipulation. This data, in addition to the literature that argues that using hypothetical scenarios are a valid proxy to real life situations, provides support for the use of a hypothetical scenario in this study.

A question not addressed by the hypotheses is whether there are significant differences between post-scenario hypothetical intentions to drink alcohol and engage in incidental legal risk behaviors and actual behavior assessed at 1-month follow-up. Paired samples t-test for the "arrest," "no arrest," and control groups indicated significant differences for the "arrest" group (Peak: $t(26) = -7.08$, $p<.001$; Typical: $t(26) = -4.31$, $p<.001$; Frequency: $t(26) = -6.00$, $p<.001$; Frequency of Getting Drunk: $t(26) = -4.62$, $p<.001$), with higher actual drinking behaviors reported at follow-up compared to at post-scenario hypothetical intentions (see Figure 15, 16, 17, and 18). There were no significant differences found for the "no arrest" or control groups, except for the Peak Drinking variable ("no arrest": $t(26) = -2.37$, $p=.02$; control: $t(26) = -2.68$, $p<.01$).

This data indicate that participants in the "arrest" group reported post-scenario hypothetical intentions to drink that were dissimilar to their actual alcohol consumption habits reported at the 1-month follow-up in that they reported using more alcohol more frequently at 1-month follow-up. However, participants in the "no arrest" and control groups both reported post-scenario hypothetical intentions that were similar to their actual behavior at follow-up. A desired outcome for this study would be for there to be no significant differences between what participants believed their intentions would be after reading the scenario and their reported behavior in the following month. Such an outcome would indicate that hypothetical intentions are valid indicators of actual behavior.

The opposite pattern was observed for the "arrest" group in regards to incidental legal risk behaviors. Paired samples t-tests indicated that there were not significant differences from post-scenario hypothetical intentions to actual behavior in incidental Risky, Protective, or Private Drinking Behaviors for the "arrest" or control groups. Only the "no

arrest" group evidenced a significant difference in incidental Protective Drinking Behaviors, $t(21) = 2.37$, $p = .02$, with mean post-scenario hypothetical intentions (11.86) being higher than actual behavior reported at 1-month follow-up (9.54). This data suggests that, in general, participant's reported hypothetical intentions are indicative of their actual incidental legal risk behaviors.

CHAPTER V

DISCUSSION

The purpose of this study was to examine college students' intentions to drink alcohol and engage in incidental legal risk behaviors following a hypothetically experienced alcohol-related legal encounter. The study used three different hypothetical scenarios to investigate the drinking habits and behaviors that participants *believed* they would engage in after hypothetically experiencing a specific event. One scenario depicted a situation in which the participant hypothetically drove while under the influence of alcohol and was arrested by police. A second scenario described a situation in which the participant hypothetically drove while under the influence of alcohol and was stopped by the police, but was not arrested. The third scenario portrayed a situation in which the participant hypothetically drove while under the influence of alcohol and arrived safely at their destination without being stopped by police.

The first goal of this study was to examine the immediate effects of a hypothetical alcohol-related legal encounter upon intentions to drink alcohol and engage in incidental legal risk behaviors. The second goal was to determine if experiencing negative consequences related to drinking alcohol and one's perception of certainty of punishment moderated the effects of the hypothetical scenario upon hypothetical intentions to drink alcohol or engage in incidental legal risk behaviors. A third goal was to determine if intentions to consume alcohol and intentions to engage in incidental legal-risk behaviors

predicted actual alcohol consumption patterns and actual engagement in incidental legal-risk behaviors one month later.

In regards to the first goal, all groups demonstrated a decrease from reported pre-scenario intentions to post- scenario hypothetical intentions. However, significant differences were evident between pre-scenario intentions and post-scenario hypothetical intentions to drink alcohol only for the "arrest" and "no arrest" groups on all drinking variables. The control group only evidenced a significant difference for peak drinking. The significant differences between pre-scenario intentions and post-scenario hypothetical intentions found on peak drinking for the control group is surprising. This data could not be explained by differences on demographic variables, past drinking habits, the experience of past month or past year negative alcohol-related consequences or social desirability. This finding suggests the possibility that simply being aware that one is drinking and driving, and thus breaking the law despite not being caught, may be enough to make an individual think about changing their drinking habits in the future.

Collectively, these findings suggest that when an individual imagines being arrested for drinking and driving, or being "let off the hook," the individual believes that he/she would drink less in the month following such an experience. This is discrepant to the literature presented in this paper, which argues that "punishment and punishment avoidance actually serve to increase intentions to commit the illegal acts, such as drinking and driving…" (page 26 of this document). Of course, the previously cited studies examined how much participants believe they would drink after they *actually* experienced punishment or punishment avoidance. This study, on the other hand, examined how much participants believe they would drink after *hypothetically*

experiencing punishment or punishment avoidance. Regardless, the findings that intentions to drink alcohol decrease after hypothetically experiencing a legal encounter provides hope that college students may generalize the "punishment" of experiencing a legal encounter to the preliminary behavior that is involved in such encounters: risky alcohol use.

In regards to incidental legal risk behavior, the "arrest" and "no arrest" groups showed significant differences in intentions to engage in risky and protective drinking behavior before reading the hypothetical scenario compared to after reading the scenario. Specifically, participant's reported a decrease in hypothetical intentions for Risky Drinking Behavior and an increase in hypothetical intentions in Protective Drinking Behaviors. There was no significant change in Private Drinking Behaviors.

However, when the two legal encounter groups were combined and compared with the control group, there were significant differences in the magnitude of change in risky drinking behavior from pre- to post-scenario. There was no significant difference in magnitude of change between groups for Protective or Private Drinking Behaviors. This finding suggests that experiencing *any* type of legal encounter related to alcohol use may in fact result in positive changes in incidental risky drinking behaviors.

Individuals who imagined that they were arrested, or merely stopped by the police for drinking and driving, reported believing that, in the month following their hypothetical legal encounter, they would decrease the frequency of engaging in risky behaviors. For example, they may believe that they would not drink with people who use illegal drugs or that they would not ride with a driver who had been drinking. Reducing these types of behaviors may decrease the likelihood that they would experience a similar

type of legal encounter in the future. Further, participants who read one of the two scenarios in which they hypothetically experienced a legal encounter, reported that they believed they would more frequently engage in behaviors (e.g., calling a taxi) that may protect them from the possibility of experiencing a legal encounter in the future.

Interestingly, the finding that there were no significant differences between the "arrest" and "no arrest" groups suggests that the actual *type* of legal encounter that an individual experiences may be irrelevant. That is, individuals may decide to engage in protective drinking behaviors more frequently in the future to avoid experiencing *any* type of legal encounter. Thus, any type of legal encounter may be a powerful motivator to make changes in incidental risky behaviors and in private behaviors.

Results related to the second goal of this study indicated that past month and past year negative consequences related to alcohol use did not moderate the effect of the hypothetical scenario on hypothetical intentions to drink alcohol or to engage in incidental risky or protective behaviors. Likewise, perception of certainty of punishment did not moderate the effect of the hypothetical scenario on any of the hypothetical intention variables of interest. As previously discussed in chapter 2 of this document, individuals who have avoided punishment believe that they are unlikely to be punished in the future for breaking the law and they are more likely to re-offend (Piquero & Paternoster, 1998; Piquero & Pogarsky, 2002).

Contrary to the literature, results of this study indicated that participant's perception of certainty of punishment did not moderate the effect of punishment ("arrest") or punishment avoidance ("no arrest") on participant's beliefs about their future alcohol use. These non-significant results could be due to an individual's belief that their

experience of alcohol-related negative consequences has little to do with their alcohol use or legal risk behaviors, thus, the hypothetical scenario had little effect on their beliefs about these behaviors. Additionally, participant's belief about the likelihood that they would be punished again in the future may have not exerted a powerful enough effect due to the hypothetical nature of their "experience."

The final goal of the study was to determine if pre-scenario intentions were associated with actual drinking rates and incidental legal risk behaviors one month after the participants' initial pre-scenario intentions were assessed. The results indicated that there were positive and significant associations for all groups for the alcohol consumption variables, and in many of the incidental legal risk behaviors, from pre-scenario intentions to actual behavior at 1-month follow-up. This data supports the literature that argues that intentions are a valid proxy to actual behavior.

To expand on the final goal of the study, a related question is: "Are hypothetical intentions representative of actual behavior?" The answer is, somewhat. For all groups, participants' beliefs about their future drinking behavior after experiencing a hypothetical arrest did not represent their actual drinking behavior in the following month for peak drinking. Specifically, all groups evidenced a significant increase in peak drinking behavior from post-scenario hypothetical intentions to actual behavior. Participants in the "arrest" group showed a similar increase for typical, frequency of drinking, and frequency of getting drunk. This pattern was not observed in the "no arrest" or control groups. One possibility for this finding in the "arrest" group may be that the hypothetical scenario motivated these participants to report that they would drink less alcohol less frequently, although they may have not believed their ability to follow through with their

own report. This lack of follow-through with their reported intentions may reflect little experience with actual legal encounters or may reflect beliefs that they are immune from ever experiencing such an encounter. It may also be that the scenario had no real effect on drinking behaviors in the next month. For the design of this study to have more validity, the optimal outcome would be to have no significant differences between post-scenario hypothetical intentions and actual behavior. Such a finding would suggest that hypothetical intentions are valid indicators of future behavior and would further indicate that the hypothetical scenario was realistic and did have an effect on actual behavior. The results of this study reveal that hypothetical intentions may be somewhat representative of actual behavior, but that the hypothetical scenario had no power to affect change in actual behavior.

This study has several strengths. First, the unique design of this study provides some knowledge of the possible consequences of a legal encounter on future alcohol consumption and legal risk behaviors. This study provides a starting point for further investigation in this area. Second, the hypothetical scenario was realistic to the participants and elicited thoughts about their behaviors. Thus, the use of a hypothetical scenario adds to the literature, which supports the use of such techniques when real time assessment is not feasible. Third, the random assignment procedure successfully distributed any differences in the participants across experimental group. The use of a control group, which did not hypothetically experience any type of legal encounter, provides a useful comparison for determining if changes may have been related to the hypothetical legal encounter itself. Finally, participants responses were not influenced by social desirability.

One weakness of this study is quite obvious: assessing participants hypothetical intentions following a hypothetical scenario provides limited information into actual changes college students may make following a real legal encounter. The design of this study clearly attenuates the strength of the conclusions. However, the literature consistently supports the use of intentions as a proxy to actual behavior and this study replicated those findings, as well as provided support that hypothetical intentions are not completely distinct from actual behaviors.

Another weakness of this study is the possible limited ability to generalize to other college students and regions of the country. Specifically, this study was conducted in a small, rather rural college town and the majority of the participants were of Caucasian background. Results may be different in a more urban setting and with more ethnic diversity in the sample. Another weakness of this study is the attrition rate from initial assessment to follow-up one month later. The approximate 50% attrition rate substantially reduced the power with which to detect differences. This calls into question the conclusion about the differences between hypothetical behavioral intentions and actual behavior and if the conclusions can generalize to other samples. However, it is noteworthy that there were no significant differences on demographic variables, past month or year negative consequences, social desirability, or past month drinking habits for those participants who completed the first session only compared to those who completed both sessions.

A fourth weakness of this study is the use of the mean substitution technique to manage missing data. Although this technique allows for inclusion of more cases compared to deleting entire cases that have missing items, use of this technique means

that some participant's responses were estimated based on their response to similar items or based on the sample response to an item. Clearly, this means that the data is not a true reflection of participant's responses. Finally, a weakness of the frequently used FQQ to assess frequency and amount of drinking is that responses are not open-ended. Specifically, participants must respond to discrete categories of drinking behavior (e.g., 5-6 drinks; 7-8 drinks) rather than filling in a blank (e.g., I typically drink 22 beers over a weekend). An open-ended assessment may provide a more accurate description of college student's drinking behavior.

The data from this study have implications for the use of hypothetical scenarios in the public health arena. Specifically, according to these results, hypothetical scenarios do not have an effect on actual behavior. Thus, efforts to curb college alcohol use with, for example, displays of vehicle wreckage from an alcohol related car accident may not produce the desired effect of decreasing problematic drinking behaviors. After viewing such a display, college students are likely to report that they would decrease their alcohol use and engage in more protective strategies to prevent themselves from suffering a similar fate. Yet, the current data provides grounds to argue that students' report of their hypothetical intentions have little correspondence to their actual behavior. In fact, their actual drinking behaviors may increase and become more risky after viewing such a display. Thus, efforts to change student drinking behaviors by inducement of fear of the consequences of risky drinking does not appear to be a cost effective strategy and likely results in little, if any, actual behavior change. Of course, additional research needs to be conducted to determine if the results of this study are applicable to such hypothetical situations that are more tangible in nature.

Other areas of expansion from this study are to replicate the results. Specifically, conducting a similar study in a less rural area may produce different results, as geographic factors may influence the frequency of engaging in certain legal risk behaviors (e.g., living in a larger town could influence how frequently a students calls a taxi). Similarly, increasing the ethnic diversity of the sample would expand the generalizability and applicability of the results. Second, presenting a hypothetical situation and allowing participants to view their peers responses could be useful to determine how participants respond to peer influence. In a similar vein, college student's normative perceptions of how their peers respond after a legal encounter could be assessed. Understanding peer influence and normative perceptions may be extremely helpful in creating targeted interventions for college students who are high-risk alcohol users and who also have legal problems related to their alcohol use.

In general, the literature could also be strengthened by using an open-ended assessment of drinking frequency and quantity, which would allow for more specific information of alcohol consumption. Such knowledge would help researchers and clinicians develop appropriate interventions, given that these students may be at risk for a number of other negative consequences related to their alcohol use, besides being involved with legal authorities.

Another area of interest may be to design a study to assess student's intentions immediately after experiencing an *authentic* legal encounter. Such a design would be helpful in gathering real-time data. Expanding such as study to include one, three, six, and 12 month follow-ups would be an ideal design to determine, more specifically, what behaviors college students change over what length of time.

In conclusion, this study examined the effects that a hypothetical legal encounter may have on college student's alcohol use and legal risk behaviors. The results suggest that college students believe that they would decrease the amount of alcohol they drink, as well as the frequency in which they drink alcohol, regardless of the type of legal encounter they might experience. They also reported beliefs that they would decrease the frequency in which they engage in incidental legally risky behaviors (e.g., drinking and driving) and increase the frequency of engaging in incidental protective drinking behaviors (e.g., calling a taxi for a ride). However, student's beliefs about their behaviors after experiencing a hypothetical legal encounter have little correspondence on actual future behavior.

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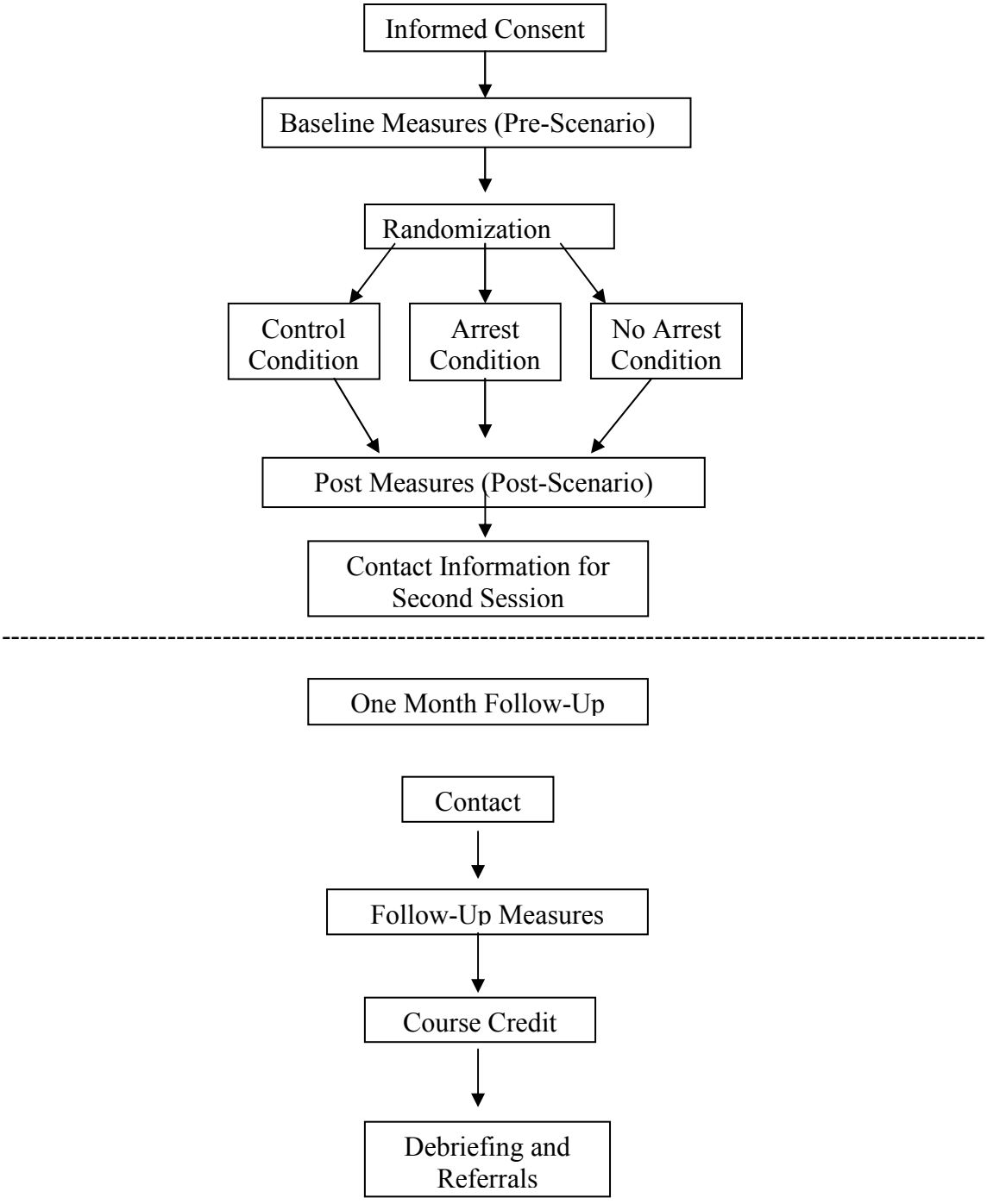
APPENDICES

Appendix A

FLOW CHART OF RESEARCH DESIGN


Informed Consent
Baseline Measures (Pre-Scenario)
Randomization
Control Condition
Arrest Condition
No Arrest Condition
Post Measures (Post-Scenario)
Contact Information for Second Session
One Month Follow-Up
Contact
Follow-Up Measures
Course Credit
Debriefing and Referrals

Appendix B

INFORMED CONSENT

College Drinker's Intentions Survey-Informed Consent
Carefully read the information below before deciding whether or not to participate in this study. If you choose to continue, your consent will be presumed.

What is this project? Who is responsible for the project?

This project is designed to understand the behaviors of college student who use alcohol. The project is titled the "College Drinker's Intentions Survey" and is being conducted by Melissa J. Leedy, a graduate student in the Department of Psychology at Oklahoma State University and Thad Leffingwell, Ph.D., Assistant Professor. *This project is approved by OSU's Institutional Review Board.*

Why might I be asked to participate?
You have been invited to participate because you are currently a college student who is at least 18 years of age and who reported drinking at least 4 or more alcoholic drinks on a single occasion in the past month.

What will I be asked to do?

All participants will be asked to complete 2 sessions of the survey. During the first session, you will complete an online survey that includes questions about your alcohol use, other behaviors while using alcohol, problems associated with using alcohol, and intentions to use alcohol. This questionnaire should take approximately 30-45 minutes to complete. Four weeks after the first session you will be asked to participate in the second session, which is expected to take about 10 minutes to complete.

What are the risks of participating in this project?

The risks of this study are minimal and do not exceed those ordinarily encountered in daily life.

What about my privacy and confidentiality?

Participation in this study will require you to share some information that you may consider quite private and sensitive. All records from this study will be kept confidential, and several measures will be taken to make it very unlikely that this confidentiality is compromised. Computerized data, including identifying information, will be maintained in a password-protected file accessible only by the researchers. Your identity will be protected by creating a code number, and information that connects code numbers with names will be kept in a separate file by the researchers. Your individual responses to the questionnaire will only be seen by the researchers, and will <u>not</u> be seen by anyone else involved at Oklahoma State University, legal authorities, or your parents.

What are the benefits of participating?

If you choose to participate, the primary benefit to you will be two units of research

credit. After completing both sessions of the survey, you will be directed to a separate page that will ask you to submit your name, student number, and other information to allow us to make sure you are given appropriate credit for your participation. You will receive one unit of research credit for each session that you complete. The personal information you provide will be kept separate from the data you provide on the survey.

What are the alternatives?

The alternative is to not participate. Your participation is voluntary. There is no penalty for choosing to not participate. If you are eligible for research credit in a course due to your participation, the instructor of that course will make optional comparable activities available. You may choose to not participate now, or at any time during your participation.

What if I have other questions or concerns about my participation?

If you have any questions or need to report an effect about the research procedures, you may contact Thad R. Leffingwell, Ph.D. at (405) 744-7494 or 215 North Murray, Stillwater, OK 74078. If you have questions about your rights as a research participant, you may take them to the Dr. Sue Jacobs, IRB Chair of OSU's Institutional Review Board at (405) 744-1676 or 415 Whitehurst, Stillwater, OK 74078.

PROVIDING ELECTRONIC CONSENT:

Instructions: Click here to continue

> "I have read the above conditions and agree to participate in this study." (Clicking on this link sends you to the beginning of the study)
>
> "No thanks"

Appendix C

DEMOGRAPHIC INFORMATION

To create your unique code number, please use the following formula:
Last 4 digits of social security number -- day of birth

Unique code number: ___ ___ ___ ___ - ___ ___
(Last 4 of SSN) (Birth MONTH)

Age _____

Gender (circle one): Male Female

Ethnicity (circle one): Caucasian African American Pacific Islander

Native American/American Indian Hispanic/Latino

Asian Biracial, please specify: _____

Other, please specify:_____

Year in college: Freshman Sophomore Junior Senior

Graduate Student Non-degree seeking

Are you a member of a social sorority or fraternity? Yes No

Marital Status: Never Married Married Divorced Widowed

Cohabitating/Living with Partner

Residency: On campus Off campus/independent Off campus/with roommate(s)

Off campus/with parents Sorority/Fraternity House
Other

How many days have you used marijuana in the past month? _____

How many times in the past year have you had ***any*** **type of encounter** with legal authorities ***due to alcohol use*** **that either did or did not result in arrest?** _____

How many times in the past year have you driven when you thought your blood alcohol level was over the legal limit? In other words, **how many times in the last year do you think you drove after drinking too much alcohol?** _____

Appendix D

COLLEGE ALCOHOL PROBLEMS SCALE-revised (CAPS-r)

Instructions: Please indicate HOW OFTEN you have had any of the following problems over the PAST MONTH and over the PAST YEAR as a result of drinking alcoholic beverages.

How often have you felt sad, blue, or depressed over the past month as a result of drinking alcoholic beverages?

1	2	3	4	5	6
Never	Yes, but not in the past MONTH	1-2 times	3-5 times	6-9 times	10 or more times

1	2	3	4	5	6
Never	Yes, but not in the past YEAR	1-2 times	3-5 times	6-9 times	10 or more times

How often have you felt nervous or irritable over the past month as a result of drinking alcoholic beverages?

1	2	3	4	5	6
Never	Yes, but not in the past MONTH	1-2 times	3-5 times	6-9 times	10 or more times

1	2	3	4	5	6
Never	Yes, but not in the past YEAR	1-2 times	3-5 times	6-9 times	10 or more times

How often have you felt bad about yourself over the past month as a result of drinking alcoholic beverages?

1	2	3	4	5	6
Never	Yes, but not in the past MONTH	1-2 times	3-5 times	6-9 times	10 or more times

1	2	3	4	5	6
Never	Yes, but not in the past YEAR	1-2 times	3-5 times	6-9 times	10 or more times

How often have you had problems with appetite or sleeping over the past month as a result of drinking alcoholic beverages?

1	2	3	4	5	6
Never	Yes, but not in the past MONTH	1-2 times	3-5 times	6-9 times	10 or more times

1	2	3	4	5	6
Never	Yes, but not in the past YEAR	1-2 times	3-5 times	6-9 times	10 or more times

How often have you engaged in unplanned sexual activity over the past month as a result of drinking alcoholic beverages?

1	2	3	4	5	6
Never	Yes, but not in the past MONTH	1-2 times	3-5 times	6-9 times	10 or more times

1	2	3	4	5	6
Never	Yes, but not in the past YEAR	1-2 times	3-5 times	6-9 times	10 or more times

How often have drove under the influence over the past month as a result of drinking alcoholic beverages?

1	2	3	4	5	6
Never	Yes, but not in the past MONTH	1-2 times	3-5 times	6-9 times	10 or more times

1	2	3	4	5	6
Never	Yes, but not in the past YEAR	1-2 times	3-5 times	6-9 times	10 or more times

How often have not used protection when engaging in sex over the past month as a result of drinking alcoholic beverages?

1	2	3	4	5	6
Never	Yes, but not in the past MONTH	1-2 times	3-5 times	6-9 times	10 or more times

1	2	3	4	5	6
Never	Yes, but not in the past YEAR	1-2 times	3-5 times	6-9 times	10 or more times

How often have you engaged in illegal activities associated with drug use over the past month as a result of drinking alcoholic beverages?

1	2	3	4	5	6
Never	Yes, but not in the past MONTH	1-2 times	3-5 times	6-9 times	10 or more times

1	2	3	4	5	6
Never	Yes, but not in the past YEAR	1-2 times	3-5 times	6-9 times	10 or more times

Appendix E

FREQUENCY-QUANTITY QUESTIONNAIRE (FQQ)

Instructions:
For the following questions, one drink equals: 4 ounces of wine, 1 wine cooler, 12 ounces of "3-2" beer, 8-10 ounces of "6-point" beer, malt, liquor, ice beers, or "microbrew" beers, a mixed drink with 1 ounce of liquor, or a single shot of liquor.

Think of the occasion you drank the most this past month. How much did you drink?

- ❑ No drinks
- ❑ 1-2 drinks
- ❑ 3-4 drinks
- ❑ 5-6 drinks
- ❑ 7-8 drinks
- ❑ 9-10 drinks
- ❑ 11-12 drinks
- ❑ 13-14 drinks
- ❑ 15-16 drinks
- ❑ 17-18 drinks
- ❑ 19 or more drinks

On a given weekend evening, how much alcohol do you typically drink? Estimate for the past month.

- ❑ No drinks
- ❑ 1-2 drinks
- ❑ 3-4 drinks
- ❑ 5-6 drinks
- ❑ 7-8 drinks
- ❑ 9-10 drinks
- ❑ 11-12 drinks
- ❑ 13-14 drinks
- ❑ 15-16 drinks
- ❑ 17-18 drinks
- ❑ 19 or more drinks

How often during the last month did you drink alcohol?

- ❑ I did not drink at all.
- ❑ Two to three times a month
- ❑ Three to four times a week
- ❑ Once a day or more
- ❑ About once a month
- ❑ Once or twice a week
- ❑ Nearly every day

On how many occasions did you drink to get drunk in the past 30 days?

- ❑ Not at all
- ❑ 1-2 occasions
- ❑ 3-5 occasions
- ❑ 6-9 occasions
- ❑ 10-19 occasions
- ❑ 20-39 occasions

In the past month, on how many occasions did you have five or more standard alcoholic drinks on a single occasion?

- ❑ Not at all
- ❑ 1-2 occasions
- ❑ 3-5 occasions
- ❑ 6-9 occasions
- ❑ 10-19 occasions
- ❑ 20-39 occasions

In the past two weeks how many times did you drink [four] five or more standard alcoholic drinks on a single occasion?

- ❑ Not at all
- ❑ 1-2 occasions
- ❑ 3-5 occasions
- ❑ 6-9 occasions
- ❑ 10-19 occasions
- ❑ 20-39 occasions

Appendix F

LEGAL-RISK BEHAVIORS WHILE USING ALCOHOL (LRBA)

"When drinking alcohol you may take certain actions that prevent you from being in a situation that could result in negative consequences. The following items are things individuals might do or avoid doing to reduce the chance of attracting police or authorities when drinking alcohol. Think about your own drinking habits over the past month and respond to the following statements."

In the past month <u>when you were drinking alcohol how often were you</u>…

…drinking in your home?
Never Rarely Many Times Always

…with one or more persons likely to get into physical fights while drinking alcohol?
Never Rarely Many Times Always

…with one or more persons likely to use illegal drugs while drinking alcohol?
Never Rarely Many Times Always

…with a small group (i.e., 10 or less) of friends or family?
Never Rarely Many Times Always

…at a public event (e.g., sports, concerts, etc.)?
Never Rarely Many Times Always

…with one or more persons likely to get into a verbal fight while drinking alcohol?
Never Rarely Many Times Always

…using illegal drugs while drinking alcohol?
Never Rarely Many Times Always

In the past month when you were drinking alcohol how often did you...

…drink in a private setting that did not require you to travel (e.g., walk or drive)?
Never Rarely Many Times Always

…have a designated non-drinking driver drive you to another location?
Never Rarely Many Times Always

…drive yourself after drinking?
Never Rarely Many Times Always

…drive more slowly when drinking and driving?
Never Rarely Many Times Always

…call a taxi or a friend to drive you to another location?
Never Rarely Many Times Always

…arrange for alternate transportation after drinking?
Never Rarely Many Times Always

…plan ahead so that you wouldn't have to drive after drinking?
Never Rarely Many Times Always

…take some action towards maintaining or achieving sobriety (e.g., spaced out drinking, waited before driving, drank at beginning of occasion, vomitted, ate food, etc.)?
Never Rarely Many Times Always

…obey traffic laws when you were drinking and driving?
Never Rarely Many Times Always

…ride with a driver who had been drinking?
Never Rarely Many Times Always

…let someone else who had not been drinking at the drinking location drive instead of driving yourself?
Never Rarely Many Times Always

…drive with an open container of alcohol in the car?
Never Rarely Many Times Always

Appendix G

MARLOWE-CROWNE SOCIAL DESIRABILITY SCALE SHORT FORM (MC-SDS)

Instructions: Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you.

True False It is sometimes hard for me to go on with my work if I am not encouraged.

True False I sometimes feel resentful when I don't get my way.

True False On a few occasions, I have given up doing something because I thought too little of my ability.

True False There have been times when I felt like rebelling against people in authority even thought I knew they were right.

True False No matter who I'm talking to, I'm always a good listener.

True False There have been occasions when I took advantage of someone.

True False I'm always willing to admit it when I make a mistake.

True False I sometimes try to get even rather than forgive and forget.

True False I am always courteous, even to people who are disagreeable.

True False I have never been irked when people expressed ideas very different from my own.

True False There have been times when I was quite jealous of the good fortune of others.

True False I am sometimes irritated by people who ask favors of me.

True False I have never deliberately said something that hurt someone's feelings.

Appendix H

PERCEPTION OF CERTAINTY OF PUNISHMENT (CP)

Instructions: Now, after imagining that you are the person in the scenario, read the questions below and indicate a choice that is a realistic estimation of what you think could happen to you if you had more than (four) five alcoholic drinks in three hours and you decided, **IN THE FUTURE**, to drive yourself home again.

1. On a scale of 0 (*no chance at all*)-100 (*I would definitely be pulled over*) estimate the likelihood that you would be pulled over by the police if you drove home **IN THE FUTURE** under the circumstances described in the scenario. Circle the number that bests describes your thoughts.

No Chance At All — I Would Definitely Be Pulled Over

0 10 20 30 40 50 60 70 80 90 100

2. On a scale of 0 (*no chance at all*)-100 (*I would definitely be arrested*) estimate the likelihood that you would be arrested by the police if you drove home **IN THE FUTURE** under the circumstances described in the scenario. Circle the number that bests describes your thoughts.

No Chance At All — I Would Definitely Be Arrested

0 10 20 30 40 50 60 70 80 90 100

Appendix I

INTENTIONS TO DRINK ALCOHOL-
FREQUENCY AND QUANTITY QUESTIONNAIRE (IFQQ Pre)

Instructions:
For the following questions, one drink equals: 4 ounces of wine, 1 wine cooler, 12 ounces of "3-2" beer, 8-10 ounces of "6-point" beer, malt, liquor, ice beers, or "microbrew" beers, a mixed drink with 1 ounce of liquor, or a single shot of liquor.
For the following questions, think about how much you INTEND to drink in the NEXT MONTH.

Think of an occasion in the **next month** where you will likely drink the most. How much do you
intend to drink?

- ❑ I do not intend to drink at all
- ❑ I intend to drink 1-2 drinks
- ❑ I intend to drink 3-4 drinks
- ❑ I intend to drink 5-6 drinks
- ❑ I intend to drink 7-8 drinks
- ❑ I intend to drink 9-10 drinks
- ❑ I intend to drink 11-12 drinks
- ❑ I intend to drink 13-14 drinks
- ❑ I intend to drink 15-16 drinks
- ❑ I intend to drink 17-18 drinks
- ❑ I intend to drink 19 or more drinks

Think of a weekend evening in the **next month**. How much alcohol do you **intend to drink** on a **typical weekend evening**?

- ❑ I do not intend to drink at all
- ❑ I intend to drink 1-2 drinks
- ❑ I intend to drink 3-4 drinks
- ❑ I intend to drink 5-6 drinks
- ❑ I intend to drink 7-8 drinks
- ❑ I intend to drink 9-10 drinks
- ❑ I intend to drink 11-12 drinks
- ❑ I intend to drink 13-14 drinks
- ❑ I intend to drink 15-16 drinks
- ❑ I intend to drink 17-18 drinks
- ❑ I intend to drink 19 or more drinks

How often **during the next month** do you **intend to drink** alcohol?

- ❑ I do not intend drink at all
- ❑ I intend to drink about two to three times a month
- ❑ I intend to drink about three or four times a week
- ❑ I intend to drink about once or more a day
- ❑ I intend to drink about once a month
- ❑ I intend to drink about once or twice a week
- ❑ I intend to drink nearly every day

On how many occasions do you **intend** to drink to get drunk in the **past 30 days**?

- ❑ I do not intend to drink at all
- ❑ I intend to get drunk on 1-2 occasions
- ❑ I intend to get drunk on 3-5 occasions
- ❑ I intend to get drunk on 6-9 occasions
- ❑ I intend to get drunk on 10-19 occasions
- ❑ I intend to get drunk on 20-39 occasions

In the next month, on how many occasions do you **intend** to have (four) five or more standard alcoholic drinks on a single occasion?

- ❑ I do not intend to drink at all
- ❑ I intend to have (≥4) ≥5 drinks on 1-2 occasions
- ❑ I intend to have (≥4) ≥5 drinks on 3-5 occasions
- ❑ I intend to have (≥4) ≥5 drinks on 6-9 occasions
- ❑ I intend to have (≥4) ≥5 drinks on 10-19 occasions
- ❑ I intend to have (≥4) ≥5 drinks on 20-39 occasions

In the next two weeks how many times do you **intend** to drink (four) five or more standard alcoholic drinks on a single occasion?

- ❑ I do not intend to drink at all
- ❑ I intend to have (≥4) ≥5 drinks on 1-2 occasions
- ❑ I intend to have (≥4) ≥5 drinks on 3-5 occasions
- ❑ I intend to have (≥4) ≥5 drinks on 6-9 occasions
- ❑ I intend to have (≥4) ≥5 drinks on 10-19 occasions
- ❑ I intend to have (≥4) ≥5 drinks on 20-39 occasions

Appendix J

HYPOTHETICAL INTENTIONS TO DRINK ALCOHOL-FREQUENCY AND QUANTITY QUESTIONNAIRE (HI - FQQ Post)

Instructions: Think about the scenario you just read. Imagine that you had "a lot to drink" and "felt drunk," but decided to drive home from the bar. You [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [got stopped by the police, were arrested for driving under the influence of alcohol, and spend the night in jail]. Please respond to the following questions as if you were the person in the scenario. In other words, if you [drove under the influence of alcohol and made it home safely] or [got stopped by the police but were not arrested] or [were arrested for drinking and driving] what do you think your drinking habits would be like in the month following this event.

For the following questions, one drink equals: 4 ounces of wine, 1 wine cooler, 12 ounces of "3-2" beer, 8-10 ounces of "6-point" beer, malt, liquor, ice beers, or "microbrew" beers, a mixed drink with 1 ounce of liquor, or a single shot of liquor.

If you [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [*were arrested for drinking and driving] what do you think your drinking habits would be like in the month following this event?*

Think of having [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [*were arrested for drinking and driving]*, on any given occasion in month following an [arrest], what is the most alcohol you would likely drink? How much would you intend to drink?

- ❑ I would not drink at all
- ❑ I would drink 1-2 drinks
- ❑ I would drink 3-4 drinks
- ❑ I would drink 5-6 drinks
- ❑ I would drink 7-8 drinks
- ❑ I would drink 9-10 drinks
- ❑ I would drink 11-12 drinks
- ❑ I would drink 13-14 drinks
- ❑ I would drink 15-16 drinks
- ❑ I would drink 17-18 drinks
- ❑ I would drink 19 or more drinks

Think of having [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [*were arrested for drinking and driving]*, on a weekend evening in the month following an [arrest], how much alcohol do you think you would drink on a typical weekend evening?

- ❑ I would not drink at all
- ❑ I would drink 1-2 drinks
- ❑ I would drink 3-4 drinks
- ❑ I would drink 5-6 drinks
- ❑ I would drink 7-8 drinks
- ❑ I would drink 9-10 drinks
- ❑ I would drink 11-12 drinks
- ❑ I would drink 13-14 drinks
- ❑ I would drink 15-16 drinks
- ❑ I would drink 17-18 drinks
- ❑ I would drink 19 or more drinks

Think of having [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [*were arrested for drinking and*

driving], how often during the month following an [arrest] do you think you would drink alcohol?

- ❑ I would not drink at all
- ❑ I would drink two to three times a month
- ❑ I would drink three or four times a week
- ❑ I would drink once or more a day
- ❑ I would drink about once a month
- ❑ I would drink once or twice a week
- ❑ I would drink nearly every day

Think of having [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [*were arrested for drinking and driving]*, on how many occasions following an [arrest] do you think you would drink to get drunk?

- ❑ I would not get drunk at all
- ❑ I would get drunk on 1-2 occasions
- ❑ I would get drunk on 3-5 occasions
- ❑ I would get drunk on 6-9 occasions
- ❑ I would get drunk on 10-19 occasions
- ❑ I would get drunk on 20-39 occasions

Think of having [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [*were arrested for drinking and driving]*, in the month following an [arrest], on how many occasions do you think you would have (four) five or more standard alcoholic drinks on a single occasion?

- ❑ I would not drink at all
- ❑ I would have (≥4) ≥5 drinks on 1-2 occasions
- ❑ I would have (≥4) ≥5 drinks on 3-5 occasions
- ❑ I would have (≥4) ≥5 drinks on 6-9 occasions
- ❑ I would have (≥4) ≥5 drinks on 10-19 occasions
- ❑ I would have (≥4) ≥5 drinks on 20-39 occasions

Think of having [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [*were arrested for drinking and driving]*, in the two weeks following an [arrest], how many times do you think you would drink (four) five or more standard alcoholic drinks on a single occasion?

- ❑ I would not drink at all
- ❑ I would have (≥4) ≥5 drinks on 1-2 occasions
- ❑ I would have (≥4) ≥5 drinks on 3-5 occasions
- ❑ I would have (≥4) ≥5 drinks on 6-9 occasions
- ❑ I would have (≥4) ≥5 drinks on 10-19 occasions
- ❑ I would have (≥4) ≥5 drinks on 20-39 occasions

Appendix K

INTENTIONS - LEGAL RISK BEHAVIORS WHILE USING ALCOHOL
(ILRBA Pre)

Instructions: When drinking alcohol you may take certain actions that prevent you from being in a situation that could result in negative consequences. The following items are things individuals might do or avoid doing to reduce the chance of attracting police or authorities when drinking alcohol. Think about what your own drinking habits over the next month might be like and respond to the following statements.

In the NEXT month when you are drinking alcohol how LIKELY are you to…

…drink in your home?
Never Rarely Many Times Always

…drink with one or more persons likely to get into physical fights while drinking alcohol?
Never Rarely Many Times Always

…drink with one or more persons likely to use illegal drugs while drinking alcohol?
Never Rarely Many Times Always

…drink with a small group (i.e., 10 or less) of friends or family?
Never Rarely Many Times Always

…drink at a public event (e.g., sports, concerts, etc.)?
Never Rarely Many Times Always

…drink with one or more persons likely to get into a verbal fight while drinking alcohol?
Never Rarely Many Times Always

…use illegal drugs while drinking alcohol?
Never Rarely Many Times Always

In the NEXT month when you are drinking alcohol how LIKELY are you to...

…drink in a private setting that will not require you to travel (e.g., walk or drive)?
Never Rarely Many Times Always

…have a designated non-drinking driver drive you to another location?
Never Rarely Many Times Always

…drive yourself after drinking?

Never Rarely Many Times Always

…drive more slowly when drinking and driving?

Never Rarely Many Times Always

…call a taxi or a friend to drive you to another location?

Never Rarely Many Times Always

…arrange for alternate transportation after drinking?

Never Rarely Many Times Always

…plan ahead so that you won't have to drive after drinking?

Never Rarely Many Times Always

In the NEXT month when you are drinking alcohol <u>how LIKELY are you to</u>...

…take some action towards maintaining or achieving sobriety (e.g., space out drinking, wait before driving, drink at beginning of occasion, vomit, eat food, etc.)?

Never Rarely Many Times Always

…obey traffic laws when you are drinking and driving?

Never Rarely Many Times Always

…ride with a driver who has been drinking?

Never Rarely Many Times Always

…let someone else who has not been drinking at the drinking location drive instead of driving yourself?

Never Rarely Many Times Always

…drive with an open container of alcohol in the car?

Never Rarely Many Times Always

Appendix L

HYPOTHEICAL INTENTIONS - LEGAL RISK BEHAVIORS WHILE USING ALCOHOL (HI - LRBA Post)

Instructions: Think about the scenario you just read. Imagine that you had "a lot to drink" and "felt drunk," but decided to drive home from the bar. You [got home safely and did not have any trouble with the police] or [got stopped by the police, but did not get arrested] or [got stopped by the police, were arrested for driving under the influence of alcohol, and spend the night in jail]. Please respond to the following questions as if you were the person in the scenario. In other words, if you [drove under the influence of alcohol and made it home safely] or [got stopped by the police but were not arrested] or [were arrested for drinking and driving] what do you think your habits would be like in the month following this event.

IF YOU [DROVE UNDER THE INFLUENCE OF ALCOHOL AND MADE IT HOME SAFELY] OR [GOT STOPPED BY THE POLICE BUT WERE NOT ARRESTED] OR [WERE ARRESTED FOR DRINKING AND DRIVING] how LIKELY do you think it is that in the MONTH FOLLOWING an arrest you would…

…drink in your home?

Never Rarely Many Times Always

…drink with one or more persons likely to get into physical fights while drinking alcohol?

Never Rarely Many Times Always

…drink with one or more persons likely to use illegal drugs while drinking alcohol?

Never Rarely Many Times Always

…drink with a small group (i.e., 10 or less) of friends or family?

Never Rarely Many Times Always

…drink at a public event (e.g., sports, concerts, etc.)?

Never Rarely Many Times Always

…drink with one or more persons likely to get into a verbal fight while drinking alcohol?

Never Rarely Many Times Always

…use illegal drugs while drinking alcohol?

Never Rarely Many Times Always

IF YOU [DROVE UNDER THE INFLUENCE OF ALCOHOL AND MADE IT HOME SAFELY] OR [GOT STOPPED BY THE POLICE BUT WERE NOT ARRESTED] OR [WERE ARRESTED FOR DRINKING AND DRIVING] how LIKELY do you think it is that in the MONTH FOLLOWING an arrest you would…

…drink in a private setting that will not require you to travel (e.g., walk or drive)?

Never Rarely Many Times Always

…have a designated non-drinking driver drive you to another location?

Never Rarely Many Times Always

…drive yourself after drinking?

Never Rarely Many Times Always

…drive more slowly when drinking and driving?

Never Rarely Many Times Always

…call a taxi or a friend to drive you to another location?

Never Rarely Many Times Always

…arrange for alternate transportation after drinking?

Never Rarely Many Times Always

…plan ahead so that you won't have to drive after drinking?

Never Rarely Many Times Always

IF YOU [DROVE UNDER THE INFLUENCE OF ALCOHOL AND MADE IT HOME SAFELY] OR [GOT STOPPED BY THE POLICE BUT WERE NOT ARRESTED] OR [WERE ARRESTED FOR DRINKING AND DRIVING] how LIKELY do you think it is that in the MONTH FOLLOWING an arrest you would…

…take some action towards maintaining or achieving sobriety (e.g., space out drinking, wait before driving, drink at beginning of occasion, vomit, eat food, etc.)?

Never Rarely Many Times Always

…obey traffic laws when you are drinking and driving?

Never Rarely Many Times Always

…ride with a driver who has been drinking?

Never Rarely Many Times Always

…let someone else who has not been drinking at the drinking location drive instead of driving yourself?

Never Rarely Many Times Always

…drive with an open container of alcohol in the car?

Never Rarely Many Times Always

Appendix M

EXPERIMENTAL MANIPULATION (HYPOTHETICAL SCENARIO;HS]

Instructions: Please read the following scenario. **Imagine that you are the person in the scenario and that the event is happening to you**. Here are some questions to think about that might help you imagine that you are the person in this scenario: What might the weather be like? Who are you likely to spending time with? What might you be wearing? What are you likely to have planned for the next day? What type of car did you likely drive? What things might happen to you at the end of this story? Again, **please try your best to imagine that you are the person in this story to whom this is happening**.

Control Condition:

> It's about two o'clock a.m. and you have spent most of Thursday night drinking with friends at "Jake's College Bar." You decide to leave Jake's College Bar and go home to your off-campus apartment, which is about 10 miles away. You have had a lot to drink in the three hours while at Jake's College Bar. You feel drunk and wonder if you may be over the legal limit to drive and perhaps should not drive yourself home. You realize that if you get a ride home, you will have to get a ride to Jake's College Bar the next morning to pick up your car. You decide to drive yourself home. You arrive home safely and do not have any encounter with the police.

No Arrest Condition:

> It's about two o'clock a.m. and you have spent most of Thursday night drinking with friends at "Jake's College Bar." You decide to leave Jake's College Bar and go home to your off-campus apartment, which is about 10 miles away. You have had lot to drink in the three hours while at Jake's College Bar. You feel drunk and

wonder if you may be over the legal limit to drive and perhaps should not drive yourself home. You realize that if you get a ride home, you will have to get a ride to Jake's College Bar the next morning to pick up your car. You decide to drive yourself home. On your way home you are pulled over by the police. The police officer asks you some questions about the evening, tells you to be careful when driving, and lets you continue to drive home. You arrive home safely after having one encounter with the police.

Arrest Condition:

It's about two o'clock a.m. and you have spent most of Thursday night drinking with friends at "Jake's College Bar." You decide to leave Jake's College Bar and go home to your off-campus apartment, which is about 10 miles away. You have had lot to drink in the three hours while at Jake's College Bar. You feel drunk and wonder if you have if you may be over the legal limit to drive and perhaps should not drive yourself home. You realize that if you get a ride home, you will have to get a ride to Jake's College Bar the next morning to pick up your car. You decide to drive yourself home. On your way home you are pulled over by the police. The police officer asks you some questions about the evening, including how much you have had to drink. The police officer asks you to take a breathalyzer test and then arrests you for driving under the influence of alcohol. You do not go home. Instead, you are taken to the county jail. You are allowed to make one phone call and call your parents to bail you out of jail.

Appendix N

MANIPULATION CHECK

Think about the scenario that you just read and answer the questions below. Please be as honest as possible.

1. Have you ever experienced a situation like the one presented in the scenario that you just read?

   Yes No

2. To your knowledge, have any of your friends ever experienced a situation like the one presented in the scenario that you just read?

   Yes No I Don't Know

3. As you read the scenario, did you imagine that this situation was happening to you?

   Yes No Somewhat

4. Did reading the scenario cause you to think more about the amount of alcohol you drink and/or your behavior while drinking?

   Yes No Somewhat

5. Was the scenario that you read realistic? In other words, do you think what happened in the scenario could happen in real life?

   Yes No Somewhat

Appendix 0

CONTACT INFOMRATION (SESSION 1 AND SESSION 2)

SESSION 1

Step 3. Tell us how to contact you.
Complete and submit the following information. We will use this information to contact you for the second session of the study. You will be contacted in three weeks to complete this session. We will also use this information to give you one unit of research credit for completing the first session of this study. Please allow 2-4 weeks to receive your one unit of research credit. This data is kept separate from your survey data.

*required fields

*First Name:

*Last Name:

*Email Address: You will be contacted in three weeks to participate in the second session of this study. Please type in your current working email address in the space below. Remember, you will receive one unit of research credit for participating in the second session.

Please re-enter your email address:

Any comments?

SESSION 2

Step 3. Tell us how to contact you. Complete and submit the following information. We will use this information to give you one unit of research credit for completing the second session of this study. Please allow 2-4 weeks to receive your one unit of research credit. This data is kept separate from your survey data.

*required fields

*First Name:

*Last Name:

*Email Address: Please type in your current working email address in the space below. Remember, you will receive one unit of research credit for participating in the second session.

Please re-enter your email address:

Any comments?

Appendix P

COURSE INFOMRATION PAGE

Tell us how to contact you.

Complete and submit the following information. We will use this information to give you one unit of research credit for completing the second session of this study. Please allow 2-4 weeks to receive your one unit of research credit. This data is kept separate from your survey data.

* Required Fields

* First Name: _____

* Last Name: _____

* Email Address: Please type in your current working email address in the space below. In the event that you are not registered on Experimetrix, you will be emailed at the address you provide to encourage you to register so that you may receive credit for participating in this study. Remember, you will receive one unit of research credit for participating in this study.

Email: _____

Please re-enter your email address:

Email: _____

* Student ID Number: _____

* Select your course from the following list:

Course Number	Day/Time	Instructor
PSYCH 111.001	MWF 8:30-9:20AM	Victor Wong
PSYCH 111.002	MWF 8:30-9:20AM	Ted Wagener
PSYCH 111.003	MWF 9:30-10:20AM	Brian Miller
PSYCH 111.004	MWF 9:30-10:20AM	Ted Wagener
PSYCH 1113.005	MWF 10:30-11:20PM	Brian Miller
PSYCH 1113.006	MWF 10:30-11:20PM	Christina Almstrom
PSYCH 1113.007	MWF 11:30-12:20PM	Christina Almstrom
PSYCH 1113.008	MWF 11:30-12:20PM	Ben Sigel
PSYCH 1113.009	MWF 1:30-2:20PM	Dr. Bill Scott
PSYCH 1113.010	MWF 2:20-3:10PM	Dr. Bill Scott
PSYCH 1113.011	M 6:45-9:15 PM	Amanda Burke
PSYCH 1113.012	M 6:45-9:15 PM	Victor Wong
PSYCH 1113.014	TR 2:00-3:15PM	Mike Bowers
PSYCH 1113.015	TR 2:00-3:15PM	Kim Bates
PSYCH 1113.016	TR 3:30-4:45PM	Emily Voller
PSYCH 1113.017	TR 3:30-4:45PM	Joe Mignogna

PSYCH 1113.018	T 9:00-11:30AM	Joey Mignogna
PSYCH 1113.019	T 6:45-9:15PM	Ben Sigel
PSYCH 1113.020	T 6:45-9:15PM	Emily Voller
PSYCH 1113.021	MW 4:00-5:15PM	Amanda Burke
PSYCH 1113.022	MW 4:00-5:15PM	Victor Wong
PSYCH 1113.701(Honors)	TR 2:00-3:15PM	Dr. William Hargett
PSYCH 1113.702(Honors)	TR 9:00-10:15AM	Dr. William Hargett
PSYCH 2313.001	TR 2:00-3:15PM	Kim Haala
PSYCH 2583.001	W 6:45-9:30PM	Elaine Fernandez
PSYCH 2743.001	MWF 11:30-12:20	Dr. Bill Scott
PSYCH 2593	MW 3:30-4:45PM	Dr. Bill Scott
PSYCH 3073.001	TR 12:30-1:45PM	Dr. David Thomas
PSYCH 3073.002	TR 12:30-1:45PM	Dr. David Thomas
PSYCH 3214.001	MWF 10:30-11:20AM	Dr. Sheila Kennison
PSYCH 3214.002	MWF 10:30-11:20AM	Dr. Sheila Kennison
PSYCH 3214.003	W 1:30-3:20PM	Joshua Swift
PSYCH 3214.004	W 3:30-5:20PM	Joshua Swift
PSYCH 3443.001	MW 9:30-10:20AM	Dr. Cynthia Hartung
PSYCH 3443.002	MW 9:30-10:20AM	Dr. Cynthia Hartung
PSYCH 3443.003	MW 9:30-10:20AM	Dr. Cynthia Hartung
PSYCH 3443.004	MW 9:30-10:20AM	Dr. Cynthia Hartung
PSYCH 4213.001	TR 12:30-1:45PM	Dr. William Hargett
PSYCH 4483.001	MWF 11:30-12:20 (Parenting)	Dr. Doug Scambler
PSYCH 4813.001	TR 3:30-4:45PM	Dr. William Hargett
CPSY 1112.001	MW 9:30-10:45AM	K. Samuels
CPSY 1112.002	MW 10:30-11:45PM	K. Samuels
CPSY 1112.004	M 6:45-8:30PM	Steve Hubbard
EPSY 3113.501 (online)	Found. Childhood	S. Scherweit
EPSY 3113.502 (online)	Found. Childhood	S. Harrist
EPSY 3213.002	9:30-10:20AM	Stinson

Any Comments?

_____

_____

_____

_____

Submit *Clear Form*

Appendix Q

EMAIL CONFIRMATION FOR SESSION 1

Thank you!

Your data has been accepted. You have just completed Part 1 of this study.

We will contact you in four weeks for Part 2 of this study. Please look for an email in your Inbox or Junk Mail Box from the Behavior Change Lab for instructions for the second session.

Please allow 2-4 weeks to receive your one unit of research credit completing this session.

You may want to print this page for your records
to confirm your participation in first session of this study.

Appendix R

EMAIL CONFIRMATION FOR SESSION 2

Thank you!

Your submission has been accepted. You have just completed Session 2 of this study.

Please allow 2-4 weeks to receive your one unit of research credit completing this session.

You may want to print this page for your records
to confirm your participation in second session of this study.

Appendix S

COLLEGE DRINKER'S INTENTIONS SURVEY
DEBRIEFING INFORMATION

The purpose of this study was to determine if changes in alcohol use or risky behaviors are *likely* to occur after experiencing a hypothetical alcohol-related legal encounter. Results from this study will provide direction to future researchers who have an interest in investigating the actual behavioral consequences of experiencing a real alcohol-related legal encounter. This study may also inform the development of secondary interventions for alcohol using college students who are at risk for experiencing other negative consequences of heavy alcohol use.

Appendix T

REFERRAL INFORMATION

Referral Information

Psychological Services Center
118 North Murray Hall, Stillwater, OK 74078
405-744-5975

The Psychological Services Center (PSC) provides therapeutic assistance to any interested individuals from Oklahoma State University or the surrounding area. Service fees are based on individual yearly income. All appointments are confidential.

Counseling Psychology Clinic
410 Willard Hall, Stillwater, OK 74078
405-744-6980

The Counseling Psychology Clinic provides therapeutic assistance to any interested individuals from Oklahoma State University or the surrounding area. Service fees are based on individual yearly income. All appointments are confidential.

College Drinker's Check-up
118 North Murray Hall, Stillwater, OK 74078
405-744-5975

The College Drinker's Check-up (CDC) is a service provided by the Behavior Change Laboratory in the Psychology Department at OSU. The CDC provides non-confrontational evaluations that are designed to help you make informed decisions about your alcohol use. Evaluations consist of an assessment interview, a session to complete questionnaires, a feedback interview, and a personalized report. Evaluations are $75 ($50 for OSU students). All appointments are confidential.

Personal Counseling Services
301 Student Union, Stillwater, OK 74078
405-744-5472

or

002 Student Health Center, Stillwater, OK 74078
405-744-7007

The Personal Counseling Services (PCS) provide therapeutic assistance to members of the Oklahoma State University community. Sessions are provided at a minimal fee. All appointments are confidential.

Payne County Counseling Center
801 S. Main, Stillwater, OK 74074
405-372-0198

The Payne County Counseling Center provides members of the community with counseling services and substance use evaluations. Service fees vary. All appointments are confidential.

Starting Point II, Inc
608 Highpoint Drive, Stillwater, OK 74075
405-377-1517

Starting Point II, Inc., is a non-profit agency that provides substance abuse services for members of the Stillwater community. Services include outpatient counseling, substance abuse evaluations, substance abuse education, non-medical detoxification, and continuing care counseling. Service fees vary. All appointments are confidential.

Appendix U

OKLAHOMA STATE UNIVERSITY IRB APPROVAL LETTER

Oklahoma State University Institutional Review Board

Date: Thursday, January 05, 2006 IRB

Application No: AS-06-41

Proposal Title: College Drinkers' Survey

Reviewed and Expedited (Spec Pop)
Processed as:

Status: Approved

Status Date:

12/14/2005

Protocol Expires: 12/13/2006

Principal
Investigator(s):

Melissa Leedy
215 N. Murray
Stillwater, OK 74078

Thad Leffingwell 215
N. Murray Stillwater,
OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 415 Whitehurst (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Sue C. Jacobs
Chair Institutional Review Board

Table 1

Demographic Characteristics of Participants who Completed Session 1 (N=142)

Characteristic		Frequency	Percent
Gender	Male	58	40.8%
	Female	84	59.2%
Ethnicity	Caucasian	122	85.9%
	African American	3	2.1%
	Native American	8	5.6%
	Hispanic/Latino	6	4.2%
	Asian	3	2.1%
College Status	Freshman	50	35.2%
	Sophomore	29	20.4%
	Junior	31	21.8%
	Senior	32	22.5%
Member of Fraternity/ Sorority	Yes	46	32.4%
	No	96	67.6%
Marital Status	Never Married	135	95.1%
	Married	1	0.7%
	Divorced	4	2.8%
	Cohabitating with Partner	2	1.4%
Residency	On Campus	48	33.8%
	Off Campus Living Alone	22	15.5%
	Off Campus Living with Roommate	45	31.7%
	Off Campus Living with Parents	4	2.8%
	Sorority/Fraternity House	23	16.2%

Table 2

Past Month Quantity of Alcohol Use for Participants who Completed Session 1

	Number of Drinks in Past Month	Males (*n*, %)	Females (*n*, %)
Peak Drinking Occasion	0	3, 5.2%	3, 3.6%
	1.5	3, 5.2%	6, 7.1%
	3.5	3, 5.2%	14, 16.7%
	5.5	5, 8.6%	19, 22.6%
	7.5	2, 3.4%	24, 28.6%
	9.5	9, 15.5%	8, 9.5%
	11.5	9, 15.5%	5, 6.0%
	13.5	7, 12.1%	3, 3.6%
	15.5	6, 10.3%	0, 0%
	17.5	2, 3.4%	1, 1.2%
	19.5 or more	9, 15.5%	1, 1.2%
Typical Drinking Occasion	0	5, 8.6%	3, 3.6%
	1.5	5, 8.6%	20, 23.8%
	3.5	5, 8.6%	23, 27.4%
	5.5	8, 13.8%	20, 23.8%
	7.5	10, 17.2%	9, 10.7%
	9.5	10, 17.2%	5, 6.0%
	11.5	6, 10.3%	3, 3.6%
	13.5	3, 5.2%	0, 0%
	15.5	2, 3.4%	0, 0%
	19.5 or more	4, 6.9%	1, 1.2%

Table 3

Past Month Frequency of Alcohol Use for Participants who Completed Session 1

	Number of Drinking Occasions in Past Month	Males (*n*, %)	Females (*n*, %)
Frequency of Drinking	0	3, 5.2%	2, 2.4%
	About 1/month	6, 10.3%	14, 16.7%
	2-3 times/month	20, 34.5%	28, 33.3%
	3-4 times/week	6, 10.3%	7, 8.3%
	Nearly every day	3, 5.2%	2, 2.4%
	1/Day or More	20, 34.5%	31, 36.9%
Frequency of Getting Drunk	0	13, 22.4%	10, 11.9%
	1-2	21, 36.2%	35, 41.7%
	3-5	14, 24.1%	25, 29.8%
	6-9	4, 6.9%	8, 9.5%
	10-19	5, 8.6%	4, 4.8%
	20-39	1, 1.7	2, 2.4%
Frequency of Binge Drinking	0	8, 13.8%	13, 15.5%
	1-2	11, 19.0%	37, 44.0%
	3-5	22, 37.9%	20, 23.8%
	6-9	9, 15.5%	8, 9.5%
	10-19	6, 10.3%	5, 6.0%
	20-39	2, 3.4%	1, 1.2%

Table 4

Repeated Measures ANOVA Between Pre-Scenario Intentions and Post-Scenario Hypothetical Intentions for Drinking Behaviors

Experimental Condition	Variable	df	F	*p*	Eta Squared
Arrest	Peak Drinking	51	89.5	.00	.63
	Typical Drinking	51	58.2	.00	.53
	Drinking Frequency	51	21.1	.00	.29
	Frequency of Getting Drunk	51	19.5	.00	.27
No Arrest	Peak Drinking	52	44.5	.00	.46
	Typical Drinking	52	10.4	.00	.16
	Drinking Frequency	52	07.9	.00	.13
	Frequency of Getting Drunk	52	10.5	.00	.16
Control	Peak Drinking	33	23.5	.00	.42
	Typical Drinking	33	0.00	.93	.00
	Drinking Frequency	33	00.4	.52	.01
	Frequency of Getting Drunk	33	05.5	.02	.14

Table 5

Repeated Measures ANOVA Between Pre-Scenario Intentions and Post-Scenario Hypothetical Intentions for LRBAs

Experimental Condition	Variable	df	F	*p*	Eta Squared
Arrest	Risky Drinking Behaviors	51	33.6	.00	.39
	Protective Drinking Behaviors	51	04.8	.03	.08
	Private Drinking Behaviors	52	01.0	.30	.02
No Arrest	Risky Drinking Behaviors	52	15.9	.00	.23
	Protective Drinking Behaviors	52	09.4	.00	.15
	Private Drinking Behaviors	53	0.06	.80	.00
Control	Risky Drinking Behaviors	33	0.14	.70	.00
	Protective Drinking Behaviors	33	0.50	.48	.01
	Private Drinking Behaviors	34	03.1	.08	.08

Table 6

Bivariate Correlations between Pre-Scenario Drinking Intentions and Past Month Drinking Reported at 1-Month Follow-Up

Group	Pre-Scenario Drinking Intentions	Correlation with Past Month Actual Drinking
Arrest	Peak	.58**
	Typical	.42*
	Frequency	.77**
	Frequency of Getting Drunk	.84**
	1-Month Binge Drinking	.71**
	2-Week Binge Drinking	.51**
No Arrest	Peak	.47*
	Typical	.49*
	Frequency	.65**
	Frequency of Getting Drunk	.44*
	1-Month Binge Drinking	.63**
	2-Week Binge Drinking	.52*
Control	Peak	.77**
	Typical	.80**
	Frequency	.81**
	Frequency of Getting Drunk	.81**
	1-Month Binge Drinking	.80**
	2-Week Binge Drinking	.77**

* Correlation is significant at the .05 level (2-tailed)
** Correlation is significant at the .01 level (2-tailed)

Table 7

Bivariate Correlations between Pre-Scenario LRBA Intentions and Past Month LRBA Reported at 1-Month Follow-Up

Condition	Pre-Scenario LRBA Intentions	Correlation with Past Month Actual LRBA
Arrest	Risky	.78*
	Protective	.51*
	Private	.54*
No Arrest	Risky	.88*
	Protective	.39
	Private	.60*
Control	Risky	.62*
	Protective	.83*
	Private	.70*

* Correlation is significant at the .01 level (2-tailed)

Figure 1.

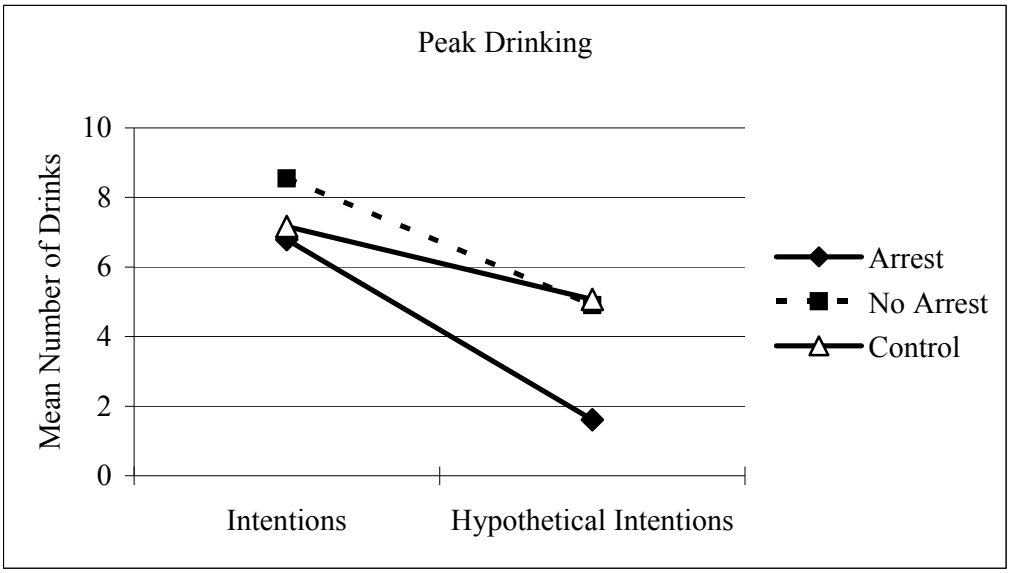

Peak Drinking
Mean Number of Drinks
10
8
6
4
2
0
Intentions
Hypothetical Intentions
Arrest
No Arrest
Control

Figure 2.

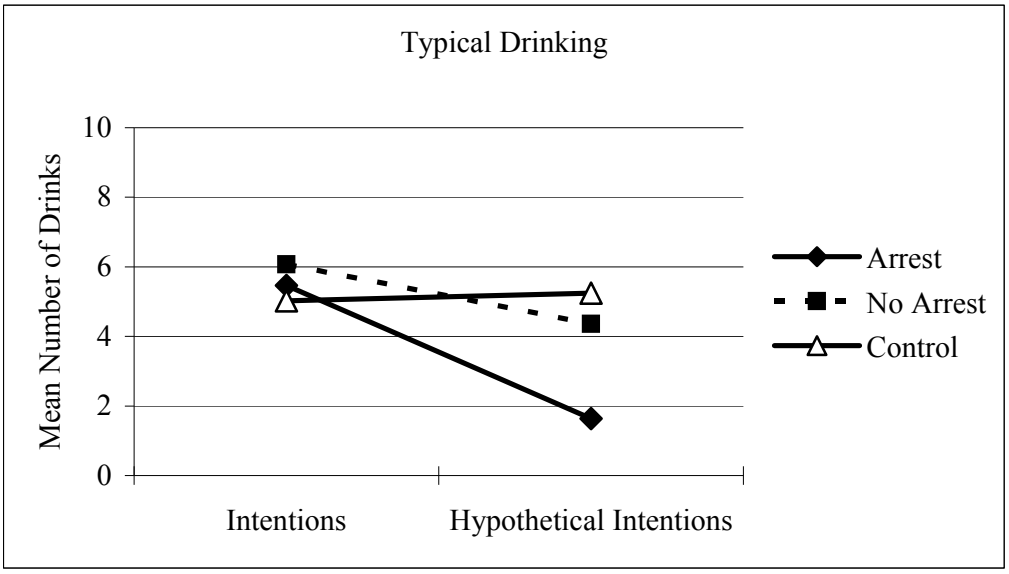

Typical Drinking
Mean Number of Drinks
10
8
6
4
2
0
Intentions
Hypothetical Intentions
Arrest
No Arrest
Control

Figure 3.

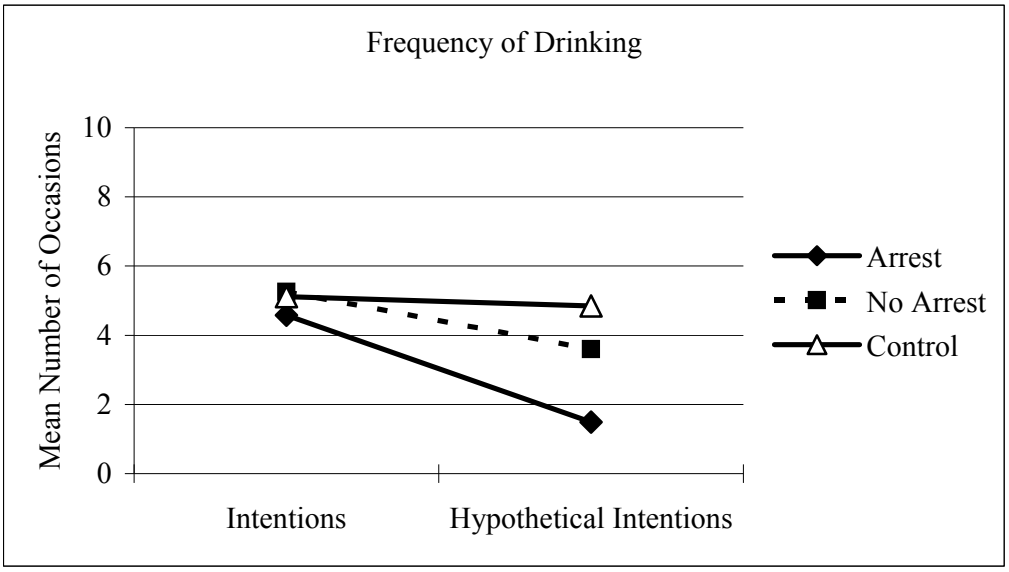

Frequency of Drinking
Mean Number of Occasions
10
8
6
4
2
0
Intentions
Hypothetical Intentions
Arrest
No Arrest
Control

Figure 4.

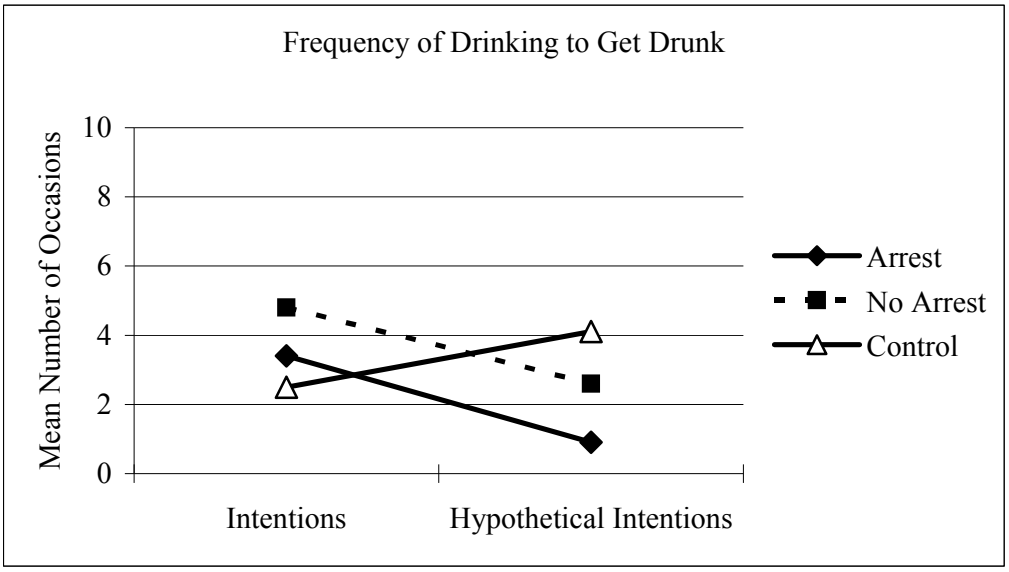

Frequency of Drinking to Get Drunk
Mean Number of Occasions
10
8
6
4
2
0
Intentions
Hypothetical Intentions
Arrest
No Arrest
Control

Figure 5.

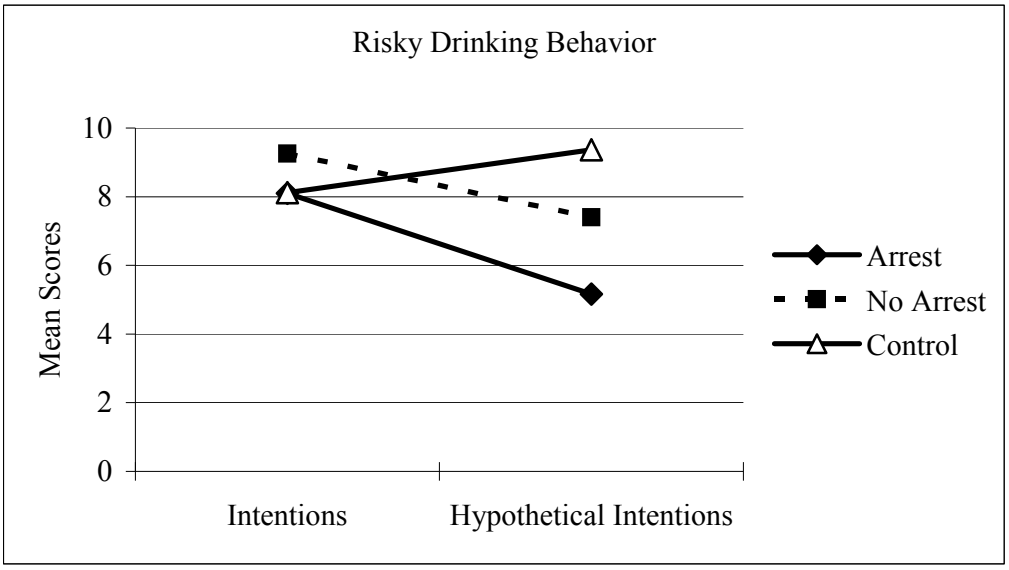

Risky Drinking Behavior
Mean Scores
10
8
6
4
2
0
Intentions
Hypothetical Intentions
Arrest
No Arrest
Control

Figure 6.

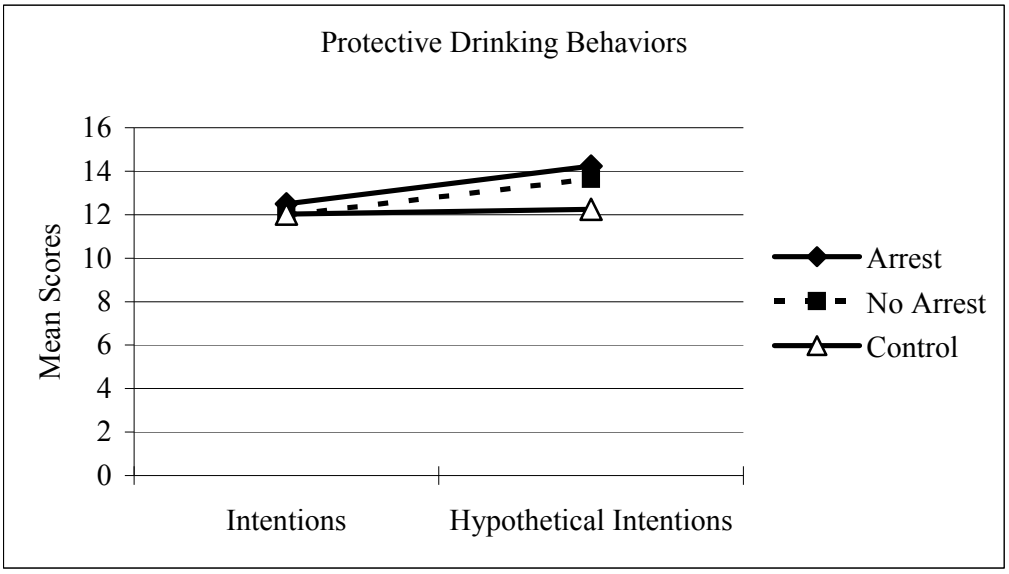

Protective Drinking Behaviors
Mean Scores
16
14
12
10
8
6
4
2
0
Intentions
Hypothetical Intentions
Arrest
No Arrest
Control

Figure 7.

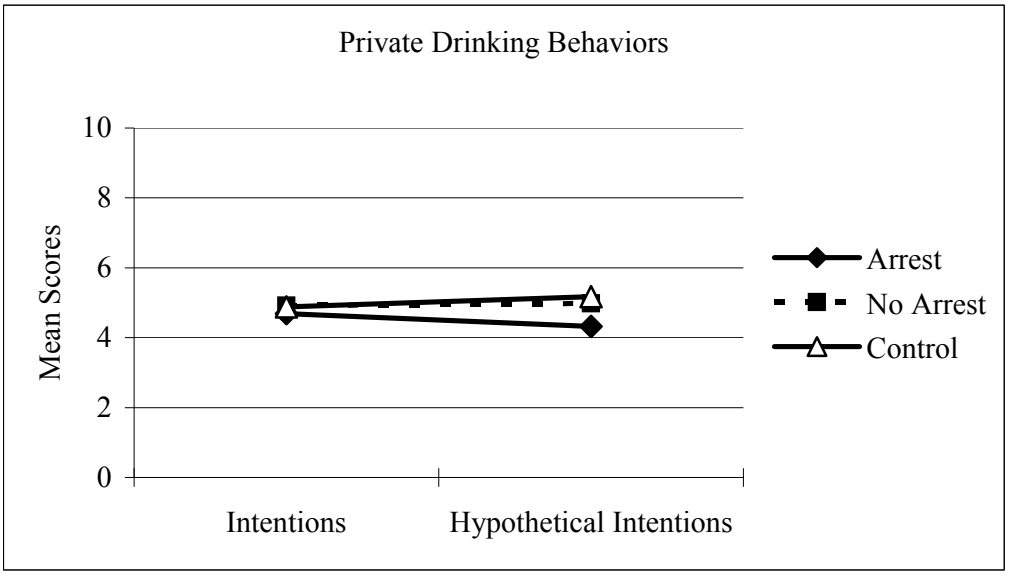

Private Drinking Behaviors
Mean Scores
10
8
6
4
2
0
Intentions
Hypothetical Intentions
Arrest
No Arrest
Control

Figure 8.

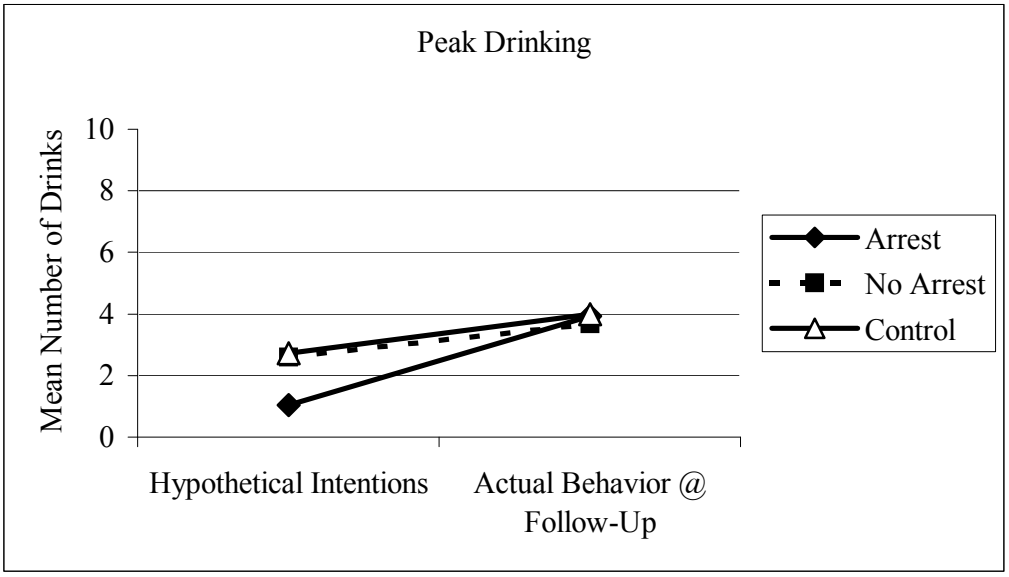

Peak Drinking
Mean Number of Drinks
10
8
6
4
2
0
Hypothetical Intentions
Actual Behavior @ Follow-Up
Arrest
No Arrest
Control

Figure 9.

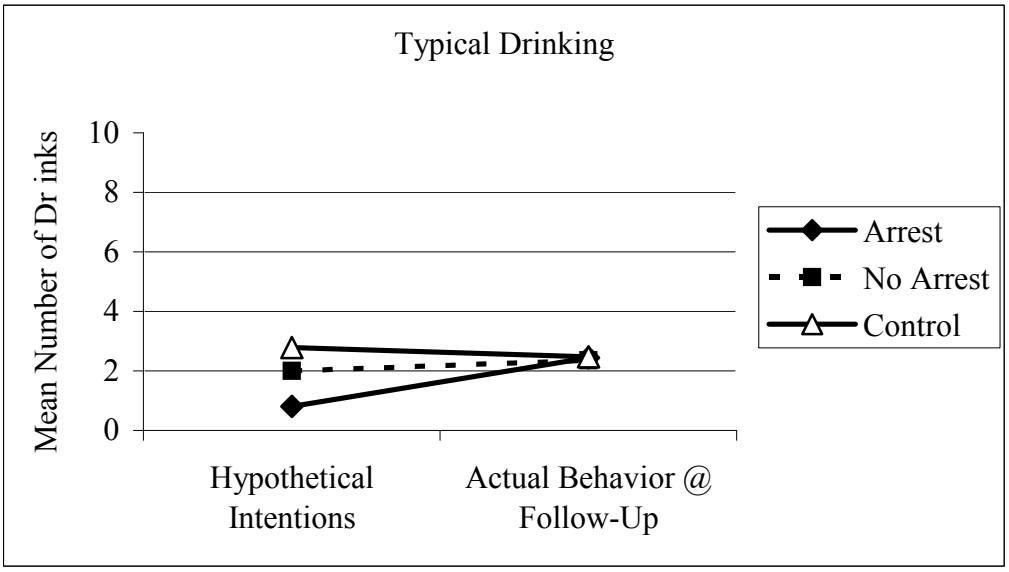

Typical Drinking
Mean Number of Dr inks
10
8
6
4
2
0
Hypothetical Intentions
Actual Behavior @ Follow-Up
Arrest
No Arrest
Control

Figure 10.

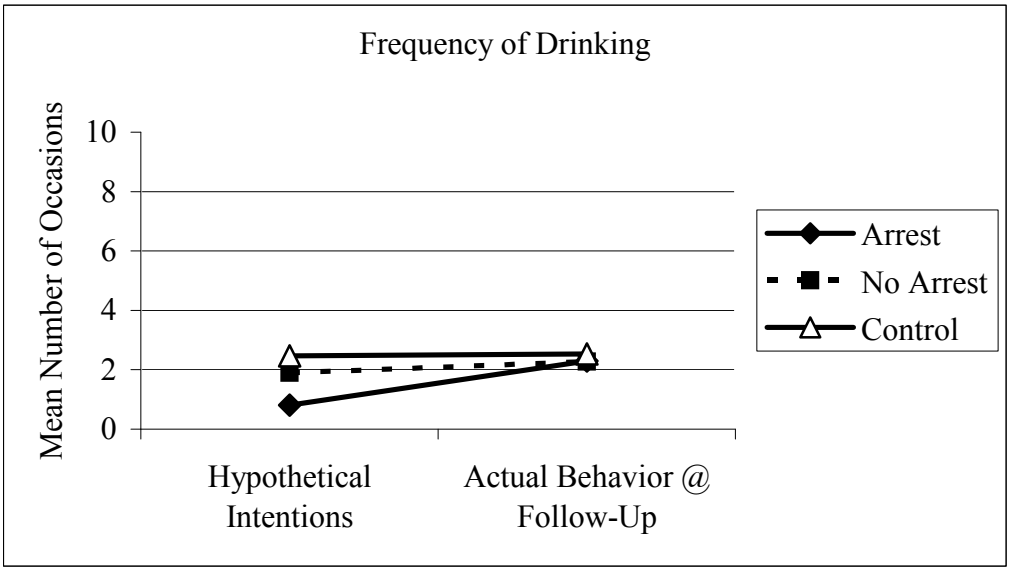
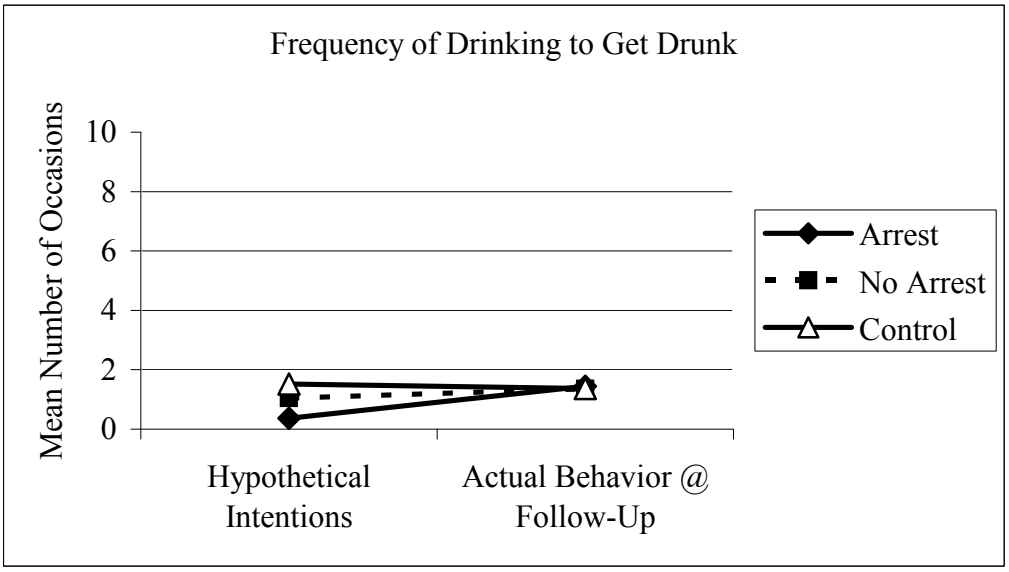

Frequency of Drinking
Mean Number of Occasions
10
8
6
4
2
0
Hypothetical Intentions
Actual Behavior @ Follow-Up
Arrest
No Arrest
Control

Figure 11.


Frequency of Drinking to Get Drunk
Mean Number of Occasions
10
8
6
4
2
0
Hypothetical Intentions
Actual Behavior @ Follow-Up
Arrest
No Arrest
Control

VITA

Melissa Jean Leedy

Candidate for the Degree of

Doctor of Philosophy

Thesis: COLLEGE STUDENTS' INTENTIONS TO DRINK ALCOHOL AND ENGAGE IN INCIDENTAL ALCOHOL-RELATED LEGAL RISK BEHAVIOR FOLLOWING A HYPOTHETICAL ALCOHOL-RELATED LEGAL ENCOUNTER

Major Field: Clinical Psychology

Biographical:

Education:

University of Oklahoma, Norman, OK — 1997 - 2001
Degree: Bachelor of Arts
Major: Psychology

Oklahoma State University, Stillwater, OK — 2001 - 2004
Degree: Masters of Science
Major: Clinical Psychology

Oklahoma State University, Stillwater, OK — 2004 - 2007
Degree: Doctor of Philosophy
Major: Clinical Psychology

Completed the requirements for the Doctor of Philosophy in Clinical Psychology at Oklahoma State University, Stillwater, Oklahoma in December 2007.

Experience:

James A. Haley VAMC, Tampa, FL — 2006 - 2007
Position Title: Pre-doctoral Psychology Intern

Professional Memberships:

American Psychological Association
Division 12 – Society of Clinical Psychology
Division 38 – Health Psychology
Association for Behavior and Cognitive Therapies

Name: Melissa Jean Leedy Date of Degree: December 2007

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: COLLEGE STUDENTS' INTENTIONS TO DRINK ALCOHOL AND ENGAGE IN INCIDENTAL ALCOHOL-RELATED LEGAL RISK BEHAVIOR FOLLOWING A HYPOTHETICAL ALCOHOL-RELATED LEGAL ENCOUNTER

Pages in Study: 173 Candidate for the Degree of Doctor of Philosophy

Major Field: Clinical Psychology

Scope and Method of Study:

The purpose of this web-based study was to examine college students' intentions to drink alcohol and engage in incidental legal risk behaviors following a hypothetically experienced alcohol-related legal encounter. The experimental design was pre- post-test in nature. Participants were randomized into one of three groups, "arrest," "no arrest," or control. Participants were asked to respond to questions about their alcohol use and alcohol-related incidental legal risk behaviors before and after being presented with a hypothetical scenario in which they were "stopped by police for drinking and driving."

Findings and Conclusions:

Results indicated that all groups demonstrated a decrease from reported pre-scenario intentions to post- scenario hypothetical intentions to drink alcohol. Additionally, the "arrest" and "no arrest" groups showed a significant decrease and increase from pre-scenario intentions to post- scenario hypothetical intentions to engage in risky and protective drinking behavior, respectively. These findings suggest that when an individual imagines being arrested for drinking and driving, or being "let off the hook," the individual believes that he/she would drink less in the month following such an experience. Further, experiencing *any* type of legal encounter related to alcohol use may result in positive changes in incidental risky drinking behaviors. Finally, the results revealed positive and significant associations for alcohol consumption and incidental legal risk behaviors between pre-scenario intentions and actual behavior one month later.

ADVISER'S APPROVAL: Dr. Thad R. Leffingwell