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RETHINKING DRINKING: A PARADIGM SHIFT FOR ESTIMATING

SOCIAL AND BEHAVIORAL HARM

by

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ABSTRACT

This study challenges old saws about negative consequences attributed to alcohol use. Previous research findings associate negative social and behavioral consequences with alcohol consumption, as if college students only do regrettable things when they are drunk. Typical research related to negative consequences and alcohol use relies on retrospective self-reporting. Investigators often frame negative consequences as outcomes of problematic drinking or, as more commonly labeled, "binge drinking." In the nomenclature of prevention, binge drinking is not a direct measure of alcohol use resulting in intoxication; it is a hypothetical tipping point, predicting an increased likelihood of the incidence of negative consequences at some (often unspecified) point in the path between "sober" and "drunk".

It is obvious that social and behavioral distress and misbehavior are not limited to drinking. Students miss class, express regrets, say or do embarrassing things, and get injured while sober as well as while drinking. Contemporary measures of alcohol-related negative consequences do not typically control for the prevalence of negative consequences when respondents are sober as well as when they are drinking. Thus it is unclear if the association between drinking and negative consequences is exclusively attributable to alcohol consumption, as is frequently assumed. Self-reported alcohol-related negative consequences might reflect *a priori* attitudes, beliefs, and behaviors and be unrelated to drinking. The prevalence of social complications unassociated with drinking merits investigation. A better understanding of the overall prevalence of negative consequences is needed to test the notion that drinking, binge

drinking in particular, leads to numerous negative consequences presently reported in the alcohol studies literature.

This dissertation is dedicated to my parents.

ACKNOWLEDGMENTS

In sum, I owe a debt of gratitude to family, friends, and colleagues who challenged and

motivated me to finish this journey.

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CHAPTER 1: INTRODUCTION

In 1953, Seldon Bacon and Robert Strauss observed,

> Drinking has been blessed and cursed, has been held the cause of economic catastrophe
> and the hope for prosperity, the major cause of crime, disease and military defeat,
> depravity and a sign of high prestige, mature personality, and refined civilization. (cited
> in Engs, 1977, p.85).

Bacon was the first sociologist to develop a paradigm to study alcohol consumption from a distinctly sociological perspective (Barrows & Room, 1991). He differentiated physiological studies of alcohol from sociological. He observed key elements between the study of individual pathology and a sociological appreciation of drinking traditions, rituals, customs, and their transmission from one generation to the other. Bacon proposed that sociologists were best prepared to offer a perspective that accounted for the scope of alcohol consumption effects on behaviors and attitudes within and across populations (Barrows & Room, 1991).

Goode (1972) conceded, "Whenever a certain observation is made; a sociologically relevant question would be not only 'Is it true?' but also 'Why stress this observation rather than another equally valid one?'" (p. 11–12).

Selective observations about alcohol use allow for attending to some facts while ignoring others. The persistent narrative of alcohol use as a physical malady versus a function of social rules and roles has persisted for at least 200 years (Levine, 1978). Alcohol use narratives are preoccupied with alcoholism and the negative effects of drinking. Perhaps the disease narrative

explains why some public health commentators, and other investigators appear suspicious about findings of healthful effects of drinking. Stanton Peele (1993) concluded "Health professionals seem to live in fear that, on hearing that it is good to drink, people will rush out and become alcoholics" (p. 809). On the other hand Robin Room (2011) argued that concerns about alcohol use have shifted from addiction to intoxication. The public health model points out negative consequences associated with even moderate alcohol use to justify the shift away from concerns about alcoholism to concerns about intoxication. Room contended "[the] unrestrained market promotion [of alcohol] tends to push upward the population's alcohol consumption" and the focus on intoxication is justified (p. 148).

More than ever, the consumer is inundated with appeals to drink alcohol. Billions of dollars are invested in portraying alcohol use as a mark of sophistication and success. Images of beautiful, successful actors consuming alcohol are consistently beamed into our psyche. When alcohol use becomes problematic the neoliberal shift to normalize drinking redirects the responsibility of problem drinking to the individual (Room, 2011). This narrative insists responsible drinking —a subjective opinion— is a litmus test of self-control, and those individuals lacking proper self-control are at times marginalized as alcoholics or problem drinkers.

Contemporary public discourse and scholarly research about alcohol use is often divided into discrete "camps." Those, such as Peele's (1993), view overreaching public health policies as "meddling," whereas Room (2011) and others are concerned about alcohol use in general and typically support policy interventions. The ambivalence with regard to how to frame alcohol use is evident in divergent strategies undertaken to address college student alcohol use. However, both camps have apparently overlooked potential confounds.

C. Wright Mills (2000) observed that all social problems share common ground. He stated, "It is easy to see that most social issues involve a tangled-up mess of factual errors and unclear conceptions, as well as evaluative bias" (p. 77). A remarkable gap—not unlike what Mills described—exists in contemporary alcohol studies with regard to college students. Correlates between selected negative consequences presumed to be a result of any drinking are widely reported to be causal, even as students are told insistently, "correlation is not cause!"

The association between drinking and negative consequences has been accepted within the research community with little hesitation. This study raises questions about the association between drinking and various negative consequences—behaviors stereotypically associated with student drinking. However, the prevalence of negative consequences similar to those associated with alcohol but not related to any alcohol use is largely unknown. We know with certainty, for example, that many sexual assaults happen while either the victim or the perpetrator, or both, have been drinking. But how many sexual assaults occur in the complete absence of alcohol? And are the drunk and non-drunk assaulters *the same people*? No one has yet researched the possibility that the association between drinking and negative behavioral outcomes is spurious, that these outcomes could occur at the same rate and be perpetrated by the same people whether they are drinking or not.

There is almost universal agreement that alcohol causes numerous legal, social, and behavioral problems. Some of these issues can occur only during or after drinking alcohol. For example, driving under the influence of alcohol cannot happen if alcohol is not consumed. Conversely, negative consequences do occur when actors are sober. Doing or saying something embarrassing, taking avoidable risks, missing class, or failing to follow through on a commitment are a few examples of negative consequences that can occur whether alcohol is

being consumed or not. Yet, in our review of the literature, no alcohol studies were located that compared a past thirty-day incidence of negative consequences at times respondents were drinking and at times they were sober.

This study controlled for alcohol use while estimating the prevalence of negative consequences within a student population one to four years post-high school graduation. This subsample was chosen because of their reported susceptibility to binge drinking and related vulnerabilities for negative consequences. Theoretical considerations also informed the subsample parameters. Social Control Theory and Social Learning Theory help explain developmental transitions among this age group. For instance, among college students traditional social bonds may be weakened by an emerging sense of autonomy. While students live apart from their families, peers may provide unrestricted social support that leads to the adoption of increasingly deviant behavior.

Purpose of the Study

The study was an exploratory analysis of self-reported social and behavioral negative consequences. College students are the target audience for this research. Understanding the distribution of alcohol-related and non–alcohol related negative consequences among college students is an important area of inquiry. The literature is robust concerning the distribution of alcohol-related negative consequences and high-risk drinking. However, an alternate hypothesis about the occurrence of negative consequences is tested. For example, people who drive drunk on occasion could be reckless drivers all of the time, whether drunk or sober. In other words the trait of reckless driving may be exacerbated by drinking but not caused by drinking (Philip, 2011). Conversely, low academic engagement, high sensation seeking, and low religious

affiliation may be traits associated with group affiliation or individual values. The strength or weakness of social bonds may account for so-called alcohol-related negative consequences—that is, factors unrelated to alcohol use may be causally related to negative consequences. Thus, for college students academic disengagement, risk taking, regretted sexual encounters, and loss of control may be associated with but not caused by drinking.

Significance of the Study

Bacon (1991) stressed the importance of sociological study within a system of values, beliefs, and action, free from prevailing moral or medical assumptions. However, late in his academic career, he anticipated a generation of sociologists would find little support for social science research that was not driven by pathology or defined by deviance. Bacon predicted that those who strayed from pathology-driven research would find "not only the general lay public and politically and professionally relevant groups viewing them as 'dangerous' and 'radical,' but even the 'laboratory science' people joining in this negative evaluation" (cited in Freed, 2010, p. 857).

To date, no published survey offers respondents the opportunity to reflect on times they experienced the same or similar negative consequences while sober. The distribution of alcohol- and non–alcohol-related consequences is unreported. An important question left unanswered in contemporary alcohol harms research is what, if any, moderating variables influence the prevalence of non–alcohol-related negative consequences. If non-alcohol-related negative consequences are not uniformly distributed among drinkers, rethinking assumptions about associations between binge drinking and negative consequences merits additional study. In other words, do consequences (missed class, saying or doing embarrassing things, regretted sexual

encounters) typically associated with alcohol use occur when students are sober too? This study is an attempt to find support for additional social science research that is not driven by estimates of binge drinking. The implications of this inquiry on collegiate alcohol prevention strategies are far reaching.

Definitions

Social Complications or Negative Consequences

Social complications are behaviors that lead to a disruption in social role performance. Social role performances include normative expectations of traditional authorities and peer associates. Negative consequences are the popular nomenclature to describe social complications. Although social role performance is a more consistent description within a sociological framework, contemporary research adopts language from the public health arena. The term negative consequence is consistent with institutional narratives that define healthy versus unhealthy behaviors. In this study, social complications are synonymous with negative consequences. An alternate descriptor for negative consequences is "harms" or simply "consequences." Either term is interchangeable and representative of negative consequences in this study.

Direct Alcohol-Related Negative Consequences

Direct negative consequences are defined in this study as consequences that can only be explained by drinking. Examples include driving while intoxicated, passing out or blacking out from drinking.

Indirect Negative Consequences

Indirect negative consequences are defined in this study as perceived negative consequences that may occur with or without alcohol use, for example, skipping class or engaging in regretful sexual behaviors. This distinction is made because indirect negative consequences are typically associated with drinking. However, many "alcohol" related negative consequences might occur without the consumption of any alcohol.

Drinker Typology

Our study recognizes two drinker types. Binge Drinking is the first drinker type. It is a dichotomous quantity measure of alcohol consumption. Binge Drinking is defined as five or more drinks in a sitting in the past semester. The second drinker type is a categorical quantity/frequency measure. Drinker categories include 4 levels of drinking (Non-drinker, Light drinker, Moderate drinker, and Heavy drinker). Drinker categories are based on a clinical measure used to screen for an alcohol use disorder. Because the measure is gender specific, our study includes a variable for both male and female drinker categories.

Self-control

Self-control or self-regulation is operationally defined as being able to control internal drives in the face of external stresses. Self-control exists within a complex social system with multiple levels of interaction. It is an internal response to external contingencies. When individuals are described as having more or less self-control there is often an inference about the presence or absence of social stigma. Many view self-control as an asset. In this study self-control is defined by a set of questions related to role expectations.

Religiosity

Religiosity is defined as a measure of either the frequency of attendance at organized houses of worship, or an individual or intrinsic belief system that stands apart from a formal system of religious beliefs. Religiosity is believed to be protective against binge drinking for college students. Involvement in organized religious activities may be more influential during the transition from high school to college. Faith and proscriptive drinking norms of parents, close friends, and peers constrain adolescent heavy drinking (Gryczynski & Ward, 2012). Affiliation with a house of worship may reinforce existing social bonds or provide growth opportunities with regard to social bonds.

Sensation Seeking and Academic Engagement

Quinn (2011) found heavy drinking was associated with sensation seeking and impulsivity. Collegiate heavy drinking may lead to the adoption of risky behaviors that have a significant negative impact on assorted individual behaviors (Quinn, Stappenbeck, & Fromme, 2011). Sensation seeking is defined by thrill seeking or risk-taking behavior. Sensation seekers are often expressive leaders within groups and test the limits of traditional authority. In our study, sensation seeking is defined by positive urgency, e.g., "the tendency to act rashly or maladaptively in response to positive mood states" (Cyders et al., 2007, p.107). Because peer affiliations reinforce alcohol use, sensation seeking associated with group status may influence the prevalence of binge drinking. Social networks are either more protective against binge drinking or less protective.

Academic engagement is defined as a commitment to scholarship. A commitment to scholarship is demonstrated by classroom engagement. Academic engagement is important in navigating early transitions from high school to college, since students who do not have clear

academic goals tended to drink more frequently (Wechsler, Dowdall, Davenport, & Castillo, 1995). In addition, binge drinking is reported to be less prevalent when college students are engaged academically (Hoeppner et al., 2012; Porter & Pryor, 2007).

Alcohol Expectancies

Expectancy theory posits that drinking behaviors are activated at the individual level as opposed to the group. Alcohol expectancies are a term used to describe how information is stored in the brain and nervous system about the anticipated effects of alcohol (Rather & Goldman, 1994). Liquid courage and sociability are examples of expectancy beliefs. When a student identifies drinking with interpersonal competence, alcohol use becomes paired with a feeling of well-being. Similar to Pavlov's theory of placebo effects, the association of positive expectancies is paired with alcohol use, resulting in beliefs that alcohol causes effects that cannot be explained by pharmacological effects of alcohol (Rohsenow & Marlatt, 1981). In other words, positive, non-pharmacological effects of alcohol are a result of thinking, not drinking. Expectancies are learned through informal exposure to drinking traditions within the family or community. Alcohol effects are often portrayed in movies, advertising, and even cartoons. This information, as it is processed in memory, is a component in explaining patterns of alcohol use. Expectancies may be a part of the causal chain by which precursors of alcohol influence the consumption and pattern of drinking in individuals (Cruz & Dunn, 2003; Fromme & Dunn 1992).

Gender Differences

A meta-analysis on 150 studies of risk taking and gender differences (Byrnes, Miller, & Schafer, 1999) revealed that in 60% of studies men engaged in greater risk taking behaviors than women. Men also tended to take risks even when it was clear their actions would lead to negative consequences. In 2006, Benton, Benton, and Downey identified men as being at greater

risk of negative consequences than women because men's rate and frequency of alcohol use exceeds that of women. However, Presley and Pimentel (2006) found as women increase their alcohol intake, they experience more negative consequences as compared to their male counterparts. Among heavy-episodic drinkers, they found disproportionate negative consequences for women as compared to men.

Among younger men and women there is evidence of similarities in drinking as a method for coping with stress and social anxiety (Kuntsche, Knibbe, Gmel & Engels, 2006). Recent studies suggest women are closing the gender gap related to high risk drinking (Harrell & Karim, 2008). A study by Lawrence, Hall, and Lancey (2012) found no significant difference between genders both in terms of tailgating behaviors and binge drinking. The authors also reported that no gender differences were found in terms of the total number of negative consequences experienced while drinking. Lawrence et al. proposed that the lack of gender differences across the variables in their study suggests that the consumption of alcohol and the negative consequences reported did not significantly differ by gender.

This study examines self-reported negative consequences of individuals on days they do not report any drinking. In order to better understand negative consequences associated with college student drinking, it is important to control for the frequency and distribution of negative consequences independent of and subsequent to any alcohol use. First, correlates between quantity and frequency measures of non–alcohol-related negative consequences are examined. Second, social control covariates—academic engagement, religiosity, and self-control—test hypotheses about the prevalence of both alcohol- and non–alcohol-related negative consequences. Last, social learning covariates—alcohol expectancies and sensation seeking—

test hypotheses about the prevalence of both alcohol- and non–alcohol-related negative

consequences.

CHAPTER 2: LITERATURE REVIEW

In 1943, notwithstanding that alcohol use was thought of as a disease as early as the 1900s, the Center for Alcohol Studies at Yale University was the first interdisciplinary research group for the study of alcohol as a physical disease (Levine, 1978). There was optimism that science would produce a vaccine for alcoholism as it had for polio, chicken pox, or yellow fever. However, no vaccine was found.

Alcohol studies in the 1940s were emerging from the shadow of prohibition and a moralistic view of alcoholism. The disease narrative transformed the social stigma associated with "drunkenness" in colonial days; instead of punishment for moral depravity; the alcoholic was powerless over his disease. The emergence of Alcoholics Anonymous in the 1940s and the theme of "powerlessness" reified the notion of alcoholism as an incurable disease (Levine, 1978). Defining alcoholism as a disease excluded research from a macro sociological perspective. The sociological perspective on the continuum of alcohol use was overshadowed by the "exotic fraction of drinking behavior (that) has attracted all the attention" (Bacon, 1991, p. 25).

Sociological features of ordinary alcohol use held little sway within the social or behavioral sciences. Socio-cultural perspectives on alcohol-use narratives appear to this day to be missing in both the public health and sociology literature (Hanson, 1996; Roman, 2007; Room, 2011). For instance, between 1972 and 2005 the NIAAA awarded alcohol research grants to fewer than 20 investigators based in sociology departments (Roman, 2007). Helen White

perceived an apparent lack of interest among sociologists for alcohol research. White reviewed 1,600 articles published in *Social Forces*, *American Journal of Sociology*, and *American Sociological Review* between 1995 and 2004 and found only six published articles related to alcohol use (Roman, 2007).

In the past 20 years, alcohol studies have been dominated by concerns related to binge drinking and related negative consequences. The incidence of social and behavioral complications has become increasingly problematic for educators. Student retention and progression to graduation are widely reported to be adversely impacted by anxiety, stress, and lack of focus (Robotham & Julian, 2006; Vaughn, 2014). Binge drinking is often cited as a cause of not only anxiety, stress, and a lack of focus but also of a broad range of other negative consequences. Consideration of age appropriate, developmental milestones is often absent from the binge drinking narrative.

Systemic changes in social roles often lead to a redefinition of deviant behavior. Binge drinking may be a function of systemic changes. For example, the first semester in college away from home may strain students' and parents' coping behaviors about the loss of emotional and proximate closeness and control. Concerns about alcohol use may function as a proxy for concerns about changes in the family system.

The transition from high school to college presents students with opportunities and challenges to differentiate themselves from their family of origin and problematic college alcohol use may be moderated by personal autonomy (Hanson, 1996). The relationship between students and their parents often predicts self-efficacy (Fischer, Forthun, Pidcock, & Dowd, 2007). A positive transition to adulthood is more likely when individuals are able to control which emotions they will experience and how they will express them (Fischer et al., 2007). Often these

processes are activated in mid-adolescence, with an aim toward emancipation from the primary family group. The energy needed to free oneself from the family system may lead to the adoption of risk taking behaviors. Alcohol abuse may be a function of a need for separation and individuation from the primary family group. Deviant behavior may be accounted for by changes in the family system or life cycle. Patience and awareness of important developmental transitions may produce better outcomes for college students than patient labels that infer substance use disorders —see Diagnostic and Statistical Manual of Mental Disorders 5th ed.

The use of alcohol as a strategy to self-medicate a non-clinical presentation of stress, anxiety, or unhappiness is an additional risk for students who struggle with interpersonal competence issues (Keough, O'Conner, Sherry, & Stewart, 2015; Tomlinson & Brown, 2012). Gender and parental relationships also play a role in the development of self-efficacy. Females experience a higher level of dissonance as compared to males (Coffelt et al., 2006). Binge drinking may be more likely for females as a result of interpersonal stress such as family conflicts, while men are reported to drink to cope with intrapersonal stress such as self-doubt (Fischer et al., 2007). Fischer and colleagues' research concluded that women who exhibit lower levels of psychosocial maturity are more likely to drink as compared to female peers who exhibit a higher degree of psychosocial maturity. For men, decreased ability to regulate emotion was an indicator of alcohol use.

Fischer et al. (2007) found that for college students, conflicted relationships with parents are linked to developmental issues that may predict alcohol use problems. The importance of clear boundaries between parents and their children cannot be overstated. Over-parenting leads to increased risk of alcohol use by college students. Negotiating definitions and boundaries of self versus paternalistic expectations is an important developmental process for young adults.

In the past 20 years, college student binge drinking has been almost universally accepted as a cause of a number of negative consequences. This belief has gone unchallenged in contemporary research studies. The present study speaks to several questions related to negative consequences presumably associated with binge drinking. Controlling for life experience or "maturing out" of problem alcohol use was an important consideration in our study design. For this reason our sample is limited to 18 to 21 year old full time college students. A central question this study seeks to address is related to the socialization of college students. Can we be sure binge drinking causes the social complications reported in the professional literature? Some may consider this a naïve question given the voluminous research that "proves" binge drinking leads to all manner of irresponsible behavior. Notwithstanding how naïve this question may appear, it remains an empirical one. This study proposes to examine the prevalence of negative consequences students report during times they are drinking and at times they are sober. The assumption of a causal relationship between binge drinking and negative consequences would be bolstered if selected negative consequences in this study happen only at times students binge drink. If negative consequences occur both while sober and during or after drinking, the causal link between drinking and negative consequence is called into question.

Before addressing this question, it is important to understand some of what is known about the context of alcohol use and college life. Strauss and Bacon's formative research on college drinking (1953) was the first of its kind and set the stage for the contemporary study of alcohol consumption and student life. Straus and Bacon attempted to objectively define characteristics of drinking behavior. They were the first to quantify alcohol use, smaller (less than or equal to 1.3 ounces of pure alcohol), medium (more than 1.3 ounces but less than 3

ounces), and larger (3 ounces or more). Their work set precedence for future alcohol studies to develop and use reliable drinking measures.

Straus and Bacon (1953) also measured the frequency of drinking among participants in their study. Drinking frequency rates varied from monthly or less to several times per week. They developed five drinking typologies based on quantity and frequency and measured the incidence of social complications for each typology. A striking difference between their study and those to come was Straus and Bacon's decision not to stigmatize drinking behavior as healthy or unhealthy. They did not recommend drinking guidelines or provide social commentary. They questioned how community traditions, gender, socioeconomic status, and membership in houses of worship shaped alcohol use. Theirs was a sociological study of college student drinking, free of any expectation of supporting traditional or official efforts to exert institutional control.

Contemporary alcohol studies seem less directed by sociological interests and more by individual health concerns. The myriad of health messages proclaimed by "experts" raises the question whether discarded moral models have been supplanted by pseudo-science. Pseudo-science, often are inconsistent and conflict one to another. James Wright aptly illustrated conflicting "research" in his commentary on fad diets;

> Food faddists and nutritional zealots have made people paranoid about food… Every day, it seems, new "studies" are published showing that some common (and usually much-enjoyed) food causes cancer, shortens the life span, hardens the arteries, or makes your hair fall out. Little wonder many people have concluded that if you're eating something you enjoy, you're probably killing yourself. (unpublished manuscript, 2013, p. 321)

It took almost twenty years after Straus and Bacon's (1953) study for the American

Psychiatric Association (APA) to adopt a standard definition of binge or alcoholic drinking. In

place of subjective renderings of role impairment, APA estimates of blood alcohol concentration

considered physical effects such as gender, body weight, rate of consumption, standard drink

definitions and drug interactions. In the 1970s clinical guidelines assumed a 180-pound male

would have to consume nineteen standard drinks or eleven ounces of pure ethanol on consecutive

days to be diagnosed with alcoholism (Anderson, 2010). At the same time, binge drinking was

defined by several days of continuous drunkenness, leading to significant impairment often

including memory loss, episodic withdrawal from social and occupational commitments, and

ultimately addiction (Chrzan, 2013).

In the 1990s the term "binge drinking" became synonymous with college student

drinking. The threshold for "binge-drinking" was essentially lowered from a clinical definition of

alcoholic drinking to a measure of negative consequences. Present-day descriptions of binge

drinking misappropriate the pathological tone from the earlier clinical definition. The

contemporary definition measures binge drinking as consuming 5 or more drinks for men, or 4 or

more drinks for women, in a sitting at least once in the past two weeks.

College student drinking is perceived to be extremely problematic by many. While

negative consequences associated with drinking do in fact cause harm, generalizations about

drinking and negative consequences may cause additional harm. Despite estimates that the

majority of students drink moderately if at all, the disease narrative predominates in

contemporary media coverage of college student drinking. There is agreement among many in

the alcohol studies field that a relationship exists between negative consequences and drinking.

Straus and Bacon (1953) concluded the same in their study. However, they cautioned readers that

"for most of the students who reported any of the complications or warning signs, the experiences were infrequent and often but a single incident" (p. 169). Straus and Bacon were optimistic that most college students would learn how to cope with social complications exacerbated by alcohol use.

The contemporary binge drinking narrative set the stage for research paradigms that replicated findings associating binge drinking with negative consequences. Five drinks a day appeared to be a tipping point for the initiation of negative consequences. In the 1990s research reports seemed to imply that students were dying *en masse* and that colleges were wasting their best and brightest (Wechsler & Wuethrich, 2002).

In 2002, the National Advisory Council on Alcohol Abuse and Alcoholism issued *A Call to Action: Changing the Culture of Drinking at U.S. Colleges* (U. S. Department of Health and Human Services, 2002). The U.S. Surgeon General commissioned this study, and college presidents were the intended audience. This report claimed that 1,400 college students were dying annually due to drinking (Hingson, Heeren, & Zakocs, 2002). Most of these accidental deaths were attributed to motor vehicle accidents. Three years later, the number increased to 1,700 deaths per year (Hingson, Heeren, Winter, & Wechsler, 2005). The media reported these estimates as fact. However, Chrzan (2013) contends these estimates were biased due to their small sample size and the scaled up population parameters misleading.

Chrzan (2013) did not share the concerns of the binge drinking paradigm:

The public perception of college-age drinking is that it is dangerous and out of control, but the diaries and ethnographic description indicate most students don't abuse alcohol regularly, don't get drunk frequently, nor do they present a regular danger to themselves or others. (p. xi)

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The popularity of the new definition of binge drinking eventually led to funding for research to determine the scope of college drinking. A keyword search from 1991 to 2015 in the Web of Science database found binge drinking referenced in the publication title 989 times. To put this in perspective, the same keyword search found binge drinking referenced by only 12 publication titles from 1965 to 1990. Additional study is merited to identify social forces that account for this 82-fold increase in publication titles referencing binge drinking from 1990 to 2015.

Lowering the threshold for binge drinking was not without its detractors. Paul Roman (2007) criticized the tone of the rhetoric as unnecessary and counterproductive. Roman observed that

> drinking may be an important socialization rite…this conclusion is in sharp contrast to the current obsession with drinking among college students, and the symbolic association of death and injury with "binge drinking," a term effectively invented and diffused to precipitate a degree of moral panic. (p. 414)

Fears about youth drinking were pervasive despite data indicating that alcohol use was relatively unchanged from previous studies by Straus and Bacon (1953) and Ruth Engs (1977). Philip Cook (2007) emphatically stated "THERE IS NO CRISIS, NO EPIDEMIC, no dramatic upsurge of alcohol abuse that demands public attention" (p. 196). However, media alarmists played on the anxieties of parents and the public in general. The attention to binge drinking fueled a call for action and decrees of an epidemic. Some critics contended that binge drinking was the rallying cry of the new temperance movement (Borsay, 2007; Critcher, 2011; Frost & Gardiner, 2005; Hier, 2011; Young, 2009). In light of their parents' college drinking stories, current students must wonder how drinking had become such a serious problem in just 25 years.

Stanton Peele (1989) expressed concerns about the contemporary binge drinking narrative. He warned, "Creating a world of addictive diseases may mean creating a world in which anything is excusable" (p.16). For example, if students experience a setback, alcohol becomes a fallback. The binge drinking narrative gives all involved a face-saving way out. The institution, parent, and the student can rest assured that binge drinking caused their setback and thus look away from other possibilities.

Roman (2007) also cast doubts on the contemporary cause-and-effect hypothesis related to binge drinking and accidents, injuries, and academic/work performance difficulties. He implied that the binge drinking narrative may oversimplify negative outcomes. He observed "[alcohol currently] takes precedence over other possible causal explanations" (p. 394). Roman's quote referenced estimates of negative consequences specifically related to drinking and driving. If alcohol is present, any motor vehicle accident is reported as an alcohol-related accident, even if the driver at fault is sober. Roman's observation is central to this study. Why does alcohol use take precedence over all other possible causal explanations? If another equally valid observation explains negative consequences, why are surveys designed to query respondents about alcohol-related negative consequences and no other? The sociological imagination calls us to challenge prevailing beliefs, foster doubt, and appreciate real or perceived social and cultural functions of alcohol use.

Social Control and Alcohol Use

In colonial days alcohol was perceived to have health benefits and drinking was encouraged. Alcohol was a dietary staple. Tannahill (1973) estimates colonists consumed about 3 gallons of rum annually (p.295). However, changes in the drinking narrative re-authored alcohol

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from a gift of God to a curse from the devil. Debate about the benefits versus costs of alcohol persists to this day. A historical reading of alcohol prohibition is relevant to understanding the contemporary college student binge drinking narrative as well as the modern U.S. war on drugs.

Problem drinking as defined in our time is largely a product of the past 200 years (Room 1991). The nation's first temperance society was founded in Moreau, New York, in 1808 (Lender, 1987). Temperate drinking was characterized by abstaining from liquor. However, by the 1820s the Temperance movement shifted its focus away from moderation to abstinence (Barrows & Room, 1991).

A new wave of Irish immigrants in the early 1800s may have influenced the shift from moderation to abstinence. Historians contend that prejudice and discrimination directed to Irish immigrants increased the need for social control. Apparently concerns related to drunkenness and lawlessness among a marginalized population was a cause for alarm. Advocates for temperance reasoned that prohibition was a crime-fighting strategy. However, even the leaders within the 1880s temperance movement understood that prohibition was "an invasion of private rights" (Lender, 1987, p.73). Theodore Parker justified the actions of temperance advocates on the grounds of preserving morality. "It becomes the duty of the state to take care of its citizens; the whole of its parts" (Lender, 1987, p.73).

Universities were largely exempt from the temperance movement. If students chose to drink, they did so without moral censure. As the temperance movement exerted more social control, social class status exempted college men from the drinking debate. Excessive drinking among college men was a perquisite of their privileged status and was relatively unchallenged by the leaders of the temperance movement (Vander Ven, 2011).

Temperance leaders shaped a narrative that government intervention was needed to protect the whole from its parts. Between 1900 and 1920 six countries (Australia, Canada, Iceland, Norway, Finland, and the USA) passed laws prohibiting alcohol sales. The Volstead Act, a constitutional amendment that prohibited the manufacture, sale, and transportation (but not consumption) of alcohol was passed in 1918, and signed into law.

However, numerous exceptions and exemptions weakened Prohibition's intended purpose. For example, physicians were permitted to prescribe whiskey for medical purposes, and individuals were allowed to make wine for personal consumption. While increased social control of behavior was an implicit goal of Prohibition, the political will to enforce the law was lacking. Many urban law enforcement agencies either engaged in illegal sales or protected alcohol supply networks (Kobler, 1993). Because institutional actors did not have the same passion for change as the leaders of the Temperance movement, Prohibition ultimately failed in Australia, Canada, Iceland, Norway, Finland, and the USA. The leaders of the movement failed to understand the cost of their legislative success. The unintended outcome was less not more social control.

The contemporary binge-drinking narrative is similar to historical examples of moral entrepreneurs. The themes are universal. First, behavior that was previously non-stigmatized becomes stigmatized. Moral entrepreneurs shape prescribed norms, public opinion supports new social restraints, and governing institutions intervene to disrupt previous norms (Goode & Ben-Yehuda, 2010). When the social context influencing public opinion shifts away from social control -which is often the case- previous norms are reestablished.

After the failure of prohibition, the physical sciences picked up the temperance torch. Alcohol use was transformed from a moral failing to a physical disease. Prohibition found a new ally in the research community!

Transitioning from Moral to Medical Models

Post prohibition, alcohol use research rapidly expanded. Advancement in medical treatments for yellow fever, polio, and venereal disease led to hope for the development of medical tests to diagnose and treat alcoholism. However, with regard to alcoholism, no laboratory test was found, and in the absence of an objective measure, subjective measures were adopted. Social role impairment" (aka, "functional impairment") was a trustworthy confirmation of alcoholism. Alcoholism was believed to be widespread, yet relatively few working individuals were treated. In the 1950s, the "functional" or "hidden" alcoholic entered into the medical and research lexicon. The "hidden" alcoholics were reported to be adept at masking their role impairment to the outside world; however, their disease was substantiated by failed relationships with family, friends, and coworkers (Roman, 1991). Defining functional or hidden alcoholics resulted in the need for identifying new subjective measures to locate those who were unaware of their need for treatment. Surprisingly the hidden alcoholic narrative failed to account for personality traits unassociated with alcohol use that might pre-dispose individuals to failed relationships and poor job productivity.

Later, proponents of the disease model had to respond to critics who charged that some recovering alcoholics were worse off than before they were "treated." The term dry drunk was added to the disease vocabulary to explain those who were sober yet still had failed relationships and poor job productivity. Jellinek (1960) described the "dry drunk" as an individual who was unable to adapt to an alcohol-free life. A dry drunk experienced irritability, depression, or aggressiveness associated with his newfound sobriety. Behavioral manifestations of the dry drunk bear a resemblance to role impairment characteristics associated with alcoholism (Keller & McCormick, 1968). The dry drunk narrative largely overlooked the possibility that social

problems arising during sobriety stem from complications of power and control, roles, expectations, and responsibilities.

It is unclear if the 12 steps model of addiction intentionally or intuitively included "steps" for the recovering alcoholic that re-socialized the person. It is unclear if the re-socialization AA fostered, versus the addict's newfound sobriety, better accounted for their improved quality of interpersonal relationships and positive behavior change. Not unlike alcohol addiction, contemporary binge drinking is believed to disrupt interpersonal relationships, cause somatic illnesses and lead to significant social role impairment.

Binge Drinking and Public Safety

The binge drinking narrative appears to be expanding from its previous boundaries of college life. Linda Carol (2014), an NBC News correspondent reported,

> A stunning one in 10 deaths in working-age adults may be due to excessive alcohol consumption, a new government study shows … Put another way, that means that binge drinking and regular heavy drinking cut 30 years off the lives of those who died.

Carol (2014) reported the CDC found other deaths were associated with binge drinking. The top three reported causes of death were motor vehicle crashes (25%), homicides (16%) and falls (15%). David Jernigan, an associate professor at John's Hopkins Bloomberg School of Public Heath, observed

> The big problem is not the addicts, but the binge drinkers who so far outnumber those who are addicted. Anybody can have a problem if he or she drinks to excess on a single occasion. You do not have to be addicted to crash your car into a tree or fall into a pool or off a hotel balcony. (Carol, 2014)

The CDC defines excessive drinking as a rate of 15 or more drinks a week for men and 8 or more drinks a week for women (Centers for Disease Control and Prevention, 2016). According to CDC researchers, breast cancer, liver disease, and heart disease were associated with exceeding the recommended guidelines for alcohol consumption. At the same time, the U.S. Department of Agriculture Center for Nutrition Policy and Promotion reported health benefits from drinking two glasses of alcohol a day for men and one glass per day for women (USDA, 2010). USDA guidelines for healthy (moderate) drinking are 14 drinks a week for men and seven drinks per week for women.

Based on the guidelines from the CDC and USDA, only one drink per week separates those who may reduce their risk of coronary disease from those who presumably lose 30 years of their life—a self-evidently ridiculous proposition. In addition, one extra drink per week will significantly increase susceptibility to breast cancer, liver disease, and heart disease. Thus, the nomenclature of engineered panics provides confusing and contradictory information about living and dying. Public health crises implicitly cast moral aspersions on even moderate alcohol use. These crises justify a narrative that widens the lens of disease to find a vaguely defined group of drinkers labeled "binge drinkers" as causing more potential for harm than "addicts" currently being treated for what many describe in the health field as an incurable, progressive disease.

Near the end of his career, Bacon (1979) expressed regret about his contribution to alcohol studies:

Alcoholism has been the great cult of excitement of the last 34 years. I was one of the people who helped build up the cult, in the early days before I got thrown out when I said, "Well, that was not quite what I meant." Alcoholism was to be the wheelhouse of

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change; it was not to be the change. It has been taken over… Recently the cult became so

popular that it has taken over traffic problems and youth problems, and they are all called

alcoholism, which, of course, is a lot of nonsense if the word is to refer to a disease-like

entity of some sort or a life disorder of some sort. Alcohol problems are much, much

bigger than that. (cited in Roman, 1991, p.61)

Bacon's perspective belies the risk associated with institutional control, especially under the

guise public health or safety. Despite being nonplussed by the unintended consequences of his

contributions to alcoholism research, Bacon could not have imagined how "the great cult of

excitement" would shape public health research in the years to come.

Student Conduct—Setting the Institutional Narrative

Campus administrators are now in a more difficult position when alcohol is associated

with serious injury or harm. Prior to the contemporary binge drinking narrative alcohol use was

not viewed as cautiously as it is today. Drinking was associated with college life. If drinking

resulted in serious injuries associated with drinking, the individual was assigned responsibility

for his or her injury. The institution was not responsible for the "poor judgement" of its students.

The binge drinking narrative has changed how the institution responds to alcohol use.

More than ever, campuses provide specialty services to educate students about the danger of

binge drinking or to intervene with binge drinkers. Communities increasingly look to campuses

to manage off-campus student behavior. There is consensus that social control is needed to

manage binge drinking and contain costs related to negative externalities associated with

drinking. The following brief summary of institutional alcohol control strategies is provided for

the reader to appreciate the context of the campus binge drinking narrative.

Over time, a college education has evolved from a privilege into a right or expectation. Campus enrollments have swelled while tenured faculty lines have not. In large public universities, 1,000 or more students may be enrolled in a single class. Some universities' student-to-faculty ratios are 25 to 1 or higher. The growth of enrollment has put increased pressure on institutional and community resources. Responding to campus crime, sexual assault, food insecurity, and substance abuse and a thousand other issues that face the modern university requires resources similar to that of a city. Many colleges and universities are not prepared to respond to the needs of student's pre-existing social and behavioral health problems. Yet, external pressures in the higher education marketplace have led to the realignment of academic rigor and student life amenities.

In his book *The Rights and Responsibilities of the Modern University: The Rise of the Facilitator University,* Peter Lake (2013) outlined three eras defining campus ethos about student life. The first era, *in loco parentis,* permitted campus administrators the freedom to act indiscriminately concerning student discipline. Concern about alcohol use varied by institution, administrator, and campus tradition. Straus and Bacon's study (1953) indicated that alcohol use in the *in loco parentis* era was, for the most part, unrestrained. However, Straus and Bacon pointed out that alcohol use was a problem for some but not all. In this era, the Dean of Students had the last word on student conduct issues and meted out discipline with little outside oversight. Lake estimated the *in loco parentis* era was in place until the late 1960s.

The 1978 movie *Animal House* (Reitman, Simmons, & Landis, 1978) characterized Dean Wormer as an antagonist who was humiliated by a protagonist group of fraternity men. These men were depicted as academically disengaged miscreants who celebrated drunkenness and disdain for institutional control. The heroes in *Animal House* became cultural icons for

generations of college students and perhaps contributed to the current binge drinking narrative. The movie did not capture the power of the Dean of Students' office. In real life, the Dean acting from the *in loco parentis* paradigm would have been far less entertaining and more decisive. This was a time when colleges had a bigger stick than carrot. However, campuses began to change in the 1950s. The influx of military veterans into college supported by the G.I. bill moved public campuses away from instrumental social control. Campus life in the 1960s and '70s was less restrained than in previous times.

Lake (2013) described the late 1960s through the 1980s as the "bystander era." An increasing cohort of first-generation college students ("Baby Boomers") attended college at this time. As the term bystander implies, colleges took a step back from social control. Personal freedom and academic expression replaced de facto parental oversight by the institution. During this time, administrators enacted a "hands off" approach to student life. A line between the academic function and non-academic function was clearly drawn. Colleges assumed responsibility for academics; the regulation of activities outside the classroom was a less important, low-priority, non-academic function.

At many public institutions, permissive attitudes toward both alcohol and drug use were commonplace. The Dean of Students' new role did not emphasize character education. For the most part, parents and college administrators were ambivalent about alcohol use. There was the consensus that alcohol consumption was problematic; however, similar to the conclusions of Straus and Bacon in 1953, there was little consensus on what if anything needed to be done. Many believed alcohol was a "safer" alternative to illicit drug use; alcohol use was the lesser of two evils. However, the bystander era was short-lived in comparison to the *in loco parentis* era.

Lake (2013) referred to contemporary times as the era of the facilitator university. In this era, universities are increasingly responsible for the product (employable graduates) they produce. Consumerism frames education as a tangible product and applies protections associated with consumer liability laws. This paradigm assumes institutions and students are apportioned responsibility for injuries that occur as a result of campus life.

Campuses, according to Bickel and Lake (1999), share more responsibility to address dangerous drinking than previously thought. The shift in responsibility from students to institutions with regard to managing campus risk raises concerns for university administrators. In 1997, the death of a freshman living in an MIT fraternity led the university president to acknowledge that his approach to alcohol prevention was inadequate (Healy, 2000). Several other high-profile incidents involving college students related to alcohol and mental-health incidents supported Bickel and Lake's (1999) observation regarding a shift toward greater accountability for colleges. The expectation for college administrators to perceive and prevent foreseeable harms is exacerbated by the proliferation of social media and normative attitudes related to dangerous drinking rituals.

Institutions of higher education are expected to put in place all necessary institutional control to keep campuses safe both for their customers, e.g. students, and the surrounding community. In the past 20 years, institutions have become more legalistic in handling alcohol-related conduct violations. Unlike in the 1970s, parents of current students expect campuses to enact social control policies to keep their students safe. The expectation is similar to *in loco parentis*; however, facilitator universities are expected to manage student behavior and keep their students happy—a decidedly difficult proposition in an institutional setting steeped in formal

rationality. A tenuous balance is struck between supporting individual autonomy and maintaining social order.

Several socio-political events led to the modern facilitator university. Laissez-faire attitudes about substance use from the 1950s through the 1970s were reframed as symptoms of America's moral decay in the 1980s. Conservative economic ideologies and religious dogmas replaced the politics of the "Great Society" (Lindsay, 2008). In the mid-1980s, underage and excessive drinking were increasingly re-authored as deviant behaviors that required intervention. In 1988, President Ronald Reagan appointed the nation's first Drug Czar to lead the White House Office of National Drug Control Policy. Nancy Reagan led a national "just say no" to drugs campaign. Substance use prevention and treatment were a high profile but underfunded priority.

The influence of faith communities and advocacy groups such as the Moral Majority ushered the disease model into higher education. Mothers Against Drunk Driving (MADD) shaped a narrative that justified the need for more social control. MADD successfully lobbied Congress to re-define intoxication from blood alcohol concentrations of .15 to .08. The convergence of economic and political forces in the 1980s resulted in a reversal in attitudes regarding alcohol policies in higher education. Lender (1987) noted "Nineteenth-century prohibition advocates sound like Reagan-era prohibitionist advocates … It's a circular argument, they (drinkers) set a poor example because drinking is bad; their drinking is bad because it sets a poor example" (p. 95).

Concerns about alcohol use became part of a broader conversation about restoring community values. In 1989, as a condition of the reauthorization of Title 1 funding, the U.S. Congress passed the Drug-Free Schools and Campuses Act (DFSCA), requiring mandatory

substance use education in primary, secondary, and post-secondary institutions. The law included a monetary penalty for postsecondary institutions that did not provide students with information about illegal substance use on Federal, state, and local sanctions.

The enactment of Part 86 of the Drug-Free Schools and Communities Act increased the accountability of colleges to warn students about the risks of substance use and established institutional and legal penalties related to law or policy violations. However, many campuses were unaware of their new responsibilities and did not comply with the law. It took over 15 years for the U.S. Department of Education to consistently apply punitive sanctions on schools that did not comply with this law. Eleven years after the passage of Part 86 of Drug-Free Schools and Campuses Act, the U.S. Surgeon General identified college student drinking as a national health crisis. In 1999, he commissioned a panel of experts funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) to review available research on college student alcohol use and recommend actions for college presidents and prevention specialists.

New concerns about campus alcohol use presented challenges for both campuses and communities. The U.S. Surgeon General's 2002 task force report referred to alcohol abuse as a national epidemic endangering the health and safety of campuses and their surrounding communities. In 2002, the NIAAA concluded that college student drinking was clearly dangerous for the drinker and society. Drinking alcohol was identified as "bad" for the health of young adults because of increased risk of drowning, injuries from falls, motor vehicle crashes, risky sexual behaviors, poor school performance, and increased likelihood of suicide and homicide (Byrnes et al., 1999; Kenney & LaBrie, 2013; Lewis, Litt, Cronce, Blayney, & Gilmore, 2014).

Increased publicity related to alcohol use on college campuses, fueled by high-profile media reports of injuries and fatalities, have shifted the paradigm related to student alcohol use. Administrators are increasingly pressured to do something to address concerns about safety. In addition, college students who are admitted to college with pre-existing substance dependency are expected to receive support services provided by the institution. Colleges and universities often struggle to define the boundary between providing appropriate support for admitted students and making college tuition and fees affordable.

Trends in College Student Alcohol Use

The University of Michigan's 2014 Monitoring the Future's longitudinal survey results benchmark alcohol use among college students. MTF is a long-term epidemiological study that surveys trends in legal and illicit drug use among American adolescents and adults. The MTF is funded by research grants from the National Institute on Drug Abuse, one of the National Institutes of Health.

The 2014 MTF survey found over the 34-year interval from 1980 through 2014, college students' binge-drinking rates declined nine percentage points (from 44% to 35%), while noncollege respondents' rates declined 12 percentage points (41% to 29%) (Johnson, O'Malley, Bachman, & Schulenburg, 2015). Drinking differences between women and men remain. The 2014 MTF study reported men have higher rates of being drunk in the past 30 days than women (46% vs. 40%). However, the gender difference has narrowed significantly over time (Johnson et al., 2015). The 2014 MTF report found college students and their noncollege cohort reported similar quantity and frequency of alcohol use (Johnson et al., 2015). College students reported higher rates (63%) of drinking in the past 30 days compared to noncollege respondents (56%).

College students also reported higher rates of binge drinking (35%) compared to noncollege respondents (29%). College students reported higher rates of being drunk (43%) as compared to noncollege respondents (34%). College students reported similar rates of daily drinking compared to their noncollege age cohort (4.3% to 4.1%).

The MTF data show drinking trends inconsistent with college student disease and disorder narratives often reported in popular media. Actually, there is little difference between college and noncollege binge drinking rates. Overall, younger people, whether in or out of college, drink less today than young people drank 34 years ago. However, the data show alcohol use among a subgroup of drinkers that is a concern of medical professionals. One in ten men and one in fifty women reported drinking 15 or more drinks in a row (Johnson et al., 2015). These statistics are more consistent with the clinical definition of binge drinking and over time could lead to alcohol addiction.

The contemporary binge drinking narrative has endured since the mid-1990s. Given the fact that college students who graduated in 2000 now range between 33 and 36 years old, it is reasonable to expect to see an increase in overall drinking for adults since 2000. However, the 2014 Gallup Annual Consumption Habits Survey showed annual drinking rate trends have changed little since 1939 (58% vs. 64%). Twenty-two percent of adults responded yes to the 2013 Gallup Annual Consumption Habits Survey question, "Do you sometimes drink more alcoholic beverages than you think you should?" The highest affirmative response to this question was 26% in 2000, and the lowest was 17% in 2011. The 2014 percentage of abstainers is lower (36% vs. 42%) than for Gallup's first poll in 1939. Those who responded to the 2014 July 7-10 Consumption Habits Survey reported a mean of 4.1 drinks and median of 1 in the past seven days (Saad, 2014). Approximately 14% of these respondents exceeded the guidelines for

moderate drinking. However, a 2015 Gallup Poll showed that 28% of respondents asked about the health benefits of alcohol use believed moderate alcohol use (1 or 2 drinks per day for men, 1 drink per day for women) was unhealthy. The percentage of respondents who perceived moderate drinking as bad has remained consistent over the past 14 years. Only 17% of respondents believed moderate alcohol use is healthy (Riffkin, 2015).

In the past decade, the belief that moderate alcohol use was healthy decreased from 25% to 17% (Gallup, 2015). A greater percentage of men (26%) and women (30%) report moderate alcohol use is bad (Gallup, 2015). However, men have a higher percentage of positive beliefs (20%) about health benefits of moderate drinking as compared to women (14%) (Gallup, 2015). Gallup found groups with higher incomes and more education have more favorable beliefs about the benefit of moderate alcohol use. Results from the 2012 National Health Interview Survey indicate higher income and more education predict increased percentages of regular drinking, and decreased percentages of lifetime abstinence (Blackwell, Lucas, & Clarke, 2014). Differing opinions about alcohol use appear to be influenced by income, education, and gender. Those with higher income and education drink more frequently and believe moderate drinking is healthy. Men drink more as compared to women and a higher percentage report health benefits. Women are more divided than men over the health benefits. Twice as many women (30% vs. 14%) report moderate alcohol use is unhealthy versus healthy.

In sum, trend data from repeated national surveys of youth over the past four decades do not sustain the worrisome conclusion that young people drink more (or differently) today than in times past. While there do appear to be short-term fluctuations in how often and how much young people drink, there is no sustained long-term trend that supports the notion that the

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incidence of alcohol consumption is increasing. The moral panic over "today's college students" appears to be an ideological frame more than an empirically justified observation.

Ambivalence about drinking is not unique to the past 200 years. As early as the 6th century BCE, elders denounced drinking parties hosted by young men (Standage, 2005). Apparently, throughout history young adults have perfected a penchant for using alcohol as a means for loosening their attachment to institutional authority. In place of the aforementioned social bonds, young adults engage in behaviors that both alienate agents of social control and bolster the esprit de corps among their peers.

In Thomas Vander Ven's book *Getting Wasted: Why College Students Drink Too Much and Party So Hard,* he described a deviant campus drinking subculture as the "Shit Show" (Vander Ven, 2011, p. 1). To better understand why college students drink excessively, he interviewed hundreds of students over several years. His research found excessive drinking fulfilled a desire by many to "get fucked up" in order to deal with stress and boredom.

These attitudes are consistent with Erving Goffman's 1974 concept of "make believe." Make believe allows participants to step out of character and away from their "in-frame" responsibilities. Vander Ven (2011) observed that drinking games often led to an atmosphere of playfulness that inhibits recognition of the consequences of intoxication. Because popular culture traditionally creates expectations of what is "normal" for young adults, "fitting-in" is a potent form of social capital. Vander Ven notes that not unlike their 6th-century peers, excessive alcohol use among college students may provide an arena for testing the boundaries of their independence.

Contemporary Alcohol Education

Our study raises questions about the current emphasis on teaching college students how to avoid negative consequences of alcohol or how to counsel those students who drink too much. The following summary provides an overview of the three-in-one framework. This framework is based on the socio-ecological approach to prevention, a mainstay of public health initiatives.

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) funded numerous studies concerning alcohol use and college students. College student alcohol use prevention studies are by far the most comprehensive studies related to young adult drinking available to date. The tone and tenor of the binge drinking narrative has been successful in rallying institutional support for action. Describing college student drinking as pathological has led to funding new strategies designed to prevent binge drinking and related negative consequences. These efforts have mixed results. While binge drinking has slightly decreased from 2002 to 2007, paradoxically, sexual assault, injury and deaths have increased (U.S. Department of Health and Human Services, 2007).

Public health strategies inform efforts to curb binge drinking and associated negative consequences. The Institute of Medicine (IOM) prevention framework explains contemporary alcohol use, misuse, and abuse prevention approaches (IOM; NIDA, 1997). IOM prevention frameworks include the study of universal, selected, and indicated populations. Universal prevention strategies, including social marketing, policy development, and community engagement, address the entire population without any prior screening to assess risk. Selective prevention strategies target subsets of people identified as being vulnerable to alcohol misuse. Indicated prevention strategies are designed to prevent the onset of substance abuse in

individuals. Indicated prevention strategies identify and intervene with individuals who are abusing alcohol who do not currently meet medical criteria for abuse or dependency.

Health Protection—Indicated Prevention

The Alcohol Skills Training Program (ASTP) is a 6- to 8-session intervention developed in the early 1990s. ASTP incorporates cognitive-behavioral skills-based training and motivational enhancement techniques. Time and resource allocation constraints limited the widespread use of ASTP. The Brief Alcohol Screening and Intervention for College Students (BASICS; Dimeff, Baer, Kivlahan, & Marlatt, 1999), which consists of two 50-minute sessions that incorporate motivational interviewing techniques and personalized feedback, is designed to provide an alternative to ASTP.

BASICS was associated with a significant decrease in alcohol consumption and related negative consequences (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001; Murphy et al., 2001). Baer et al. (2001) found post-intervention results lasting as long as four years. In addition to BASICS, an electronic personalized feedback intervention called e-CHECKUP TO GO (e-CHUG) is an effective indicated prevention strategy. A group intervention (CHOICES) modeled after BASICS is also available as an indicated prevention strategy.

Alfonso, Hall, and Dunn (2013) conducted a random clinical trial to test the effectiveness of individual, electronic, and group interventions. The study conditions included individual (BASICS), electronic (e-CHUG), and group (CHOICES) interventions. The study compared the differences between baseline and 90-day follow-up measurements for each intervention and measured the effect of each condition on the incidence of alcohol-related negative consequences,

peak number of drinks consumed in one sitting, and average and peak Blood Alcohol Content (BAC).

The study showed significant decreases in negative alcohol-related consequences between baseline and follow-up measurements of the individual and electronic condition. Additionally, peak BAC was significantly reduced between baseline and follow-up measurements for the individual condition. None of the conditions found significant differences between baseline and follow-up measurements for average BAC.

Interventions Designed for General Campus/Community Audiences—Universal Prevention

The public health model informs universal prevention. Sir Geoffrey Rose wrote in 1992, "A large number of people exposed to a small risk may generate many more cases than a small number exposed to a high risk" (p. 59). Instrumental campus efforts that attempt to shape norms include health marketing that are designed to reduce college student drinking by challenging deviant drinking norms (Borsari & Carey, 2003). Norms marketing is designed to motivate individuals to reflect on their behavior and embrace "correct" campus behavioral norms. Social norms campaigns attempt to re-define not drinking as a dominant peer belief in hopes of modifying behavior (Perkins, 2002; Perkins & Berkowitz, 1986).

Online educational programs such as My Student Body or AlcoholEDU are also utilized to provide education and help set normative expectations. These programs provide content designed to identify risk factors related to drinking. Online educational interventions have demonstrated evidence of effectiveness in decreasing negative consequences and leading to the acquisition of protective behaviors (Donovan, Wood, Frayjo, Black, & Surette, 2012; Hustad,

Barnett, Borsari, & Jackson, 2010; Paschall, Antin, Ringwalt, & Saltz, 2011; Walters, Miller, &

Chiauzzi, 2005).

Because of the relatively small number of students who meet diagnostic criteria for

alcohol abuse, universal strategies have a greater overall effect in reducing alcohol risk factors

and increasing the adoption of protective strategies. Protective behavioral strategies—"behaviors

that individuals can engage in while drinking alcohol in order to limit negative alcohol-related

consequences"—are important components of universal prevention (Martens et al., 2004, p.

390).

Assessment of Campus Efforts—Prevention Domain

Determining the scope of alcohol use on college campuses is the starting point to evaluate

the efficacy of prevention efforts, yet many campuses have never assessed their programs in a

systematic manner. In 2012 Maureen Miller and I reviewed the alcohol prevention literature and

developed an assessment tool under the direction of the Florida Board of Governors to guide

campuses in assessing their alcohol prevention programming. The guide outlined many

evidence-informed strategies. The following rubric provides campuses guidelines for assessing

campus programs and policies.

- How are university prevalence rates measured?

- How is student knowledge of campus policies and local laws measured?

- What steps has the university taken to address underage alcohol consumption?

- What steps has the university taken to address concerns relative to binge drinking?

- What educational programs related to alcohol use does the university provide?

- How does the university measure changes in student knowledge, skills, self-efficacy, and behavioral intentions related to alcohol use?

- Does the university have any programs that foster or encourage the responsible use of alcohol by students?

Policy Development and Enforcement Domain

Poorly designed policy or inconsistent enforcement of existing policies correlate with higher rates of alcohol abuse (Brand, Saisana, Rynn, Pennoni, & Lowenfels, 2007; Grube & Nygaard, 2001; Vicary & Karshin, 2002). Thus, policy development and consistent enforcement is an essential strategy to evaluate alcohol misuse or abuse. The institution is responsible for creating a mechanism to capture the following data.

- Does the university have a written policy regarding alcohol possession/consumption on campus?

- If yes, does the policy address alcohol consumption in university-sponsored housing or during campus events frequented by students?

- Are campus alcohol use policies consistently enforced?

- When campus policy violations occur are sanctions administered consistently?

- What training is in place for staff responsible for enforcing substance-use policies?

- How does the university evaluate the effectiveness of its training of employees who enforce campus substance-use policies?

- Is there a department within the university responsible for developing alcohol abuse prevention plans?

- If yes, what is the reporting structure for the person or department responsible for coordinating campus alcohol prevention and intervention services?

- Does the university identify alcohol use reduction goals in its risk management efforts?

In addition, what, if any policies related to the restriction of on-campus alcohol promotions are in place?

- Does the university identify campus traditions or events associated with binge or high-risk drinking?

- Does the university sponsor or promote alcohol-free social activities?

- Do university sports teams utilize any off-campus or on-campus venues that serve alcoholic beverages during the team's sporting events?

- If yes, does the school limit the sale and service of alcoholic beverages to set times or limit the types of alcoholic beverages that may be served during the event?

- What policies govern the fraternities' and sororities' service of alcoholic beverages during social events?

- Does university policy or regulation prohibit possession or use of common-source alcohol containers on-campus, e.g. kegs?

Health Protection Domain

A relatively small number of students engage in high-risk alcohol consumption. However, egregious alcohol-related incidents (e.g., hazing) can erode public confidence in the institution.

- Does the university have any programs to assist individual students with an alcohol abuse or dependency problem?

- Does the university have any programs to support students who have self-identified as being in recovery from alcohol dependence?

- Has the university adopted or considered a "good Samaritan" policy that waives campus disciplinary policy in the event a student or group calls 911 to report an alcohol-related medical emergency?

- What is the number of alcohol-related student deaths reported in the past five years?

- How many DUI citations occurred within 5 square miles of the campus in the past years? How many citations were for individuals ages 18-25? How many students from your institution received a DUI citation? What percentage of the student body is under the age of 21?

Effective prevention strategies work when they are relevant to the target population. Alcohol prevention programs are dynamic and if not continually re-evaluated, become irrelevant. The NIAAA tiers of effectiveness are the best-researched prevention models to date. It is unfortunate that prevention strategies identified by the 2002 NIAAA *Call to Action* are too often based on research dating back to the 1990s (U. S. Department of Health and Human Services, 2002). The greatest opportunity for growth is acknowledging the lag that exists between research and dissemination of innovation. The college drinking prevention field is no different than other dynamic public health services. The challenge to disseminate innovative practices is how to lessen the time lag for applying research to practice (Green, Ottoson, Garcia, & Robert, 2009).

Social Control Theory

Control perspectives use both a macro and micro sociological perspective, and both are influenced by a systems approach. The systems approach is not concerned with individual behavior, but rather how social bonds are developed and maintained. On a macro level, institutions that create and support social bonds include formal systems. Institutional actors use formal systems to constrain rule-breaking activities (Shaw, 2002). Formal systems have the necessary influence to generate a narrative that engenders both a sense of safety and instills fear, alienation, and social stigma for deviant behavior (Shaw, 2002).

In contrast to macro-systems, micro-systems include informal systems. Informal systems leverage family, school, and peer influences on the development of control systems of individual actors. Self-esteem plays an important role in the acquisition of social bonds that support adherence to normative behaviors.

Social Control Theory borrows from Thomas Hobbes' state of nature philosophy. Hobbes envisaged the challenge for civilizations to operate smoothly; he observed state of nature of the human species was "the war of all against all" (Korab-Karpowicz, 2011, p.168). Hobbes' metaphorical beast referred to as Leviathan described how individual members of society consent to a sovereign to protect each other from the humankind-inherent natural condition. A social bond is a means by which individuals' subjugate their individual interests for the purpose of maintaining order.

Social control may be direct, but the most effective control strategy is indirect. External coercion leads to anti-social behavior and an escalation of a struggle to obtain power. Gottfried Leibniz commented on the idea of social control in a letter to a friend:

As for ... the great question of the power of sovereigns and the obedience their peoples

owe them, I usually say that it would be good for princes to be persuaded that their

people have the right to resist them, and for the people, on the other hand, to be

persuaded to obey them passively. (Leibniz & Loemker, 1969, p. 59, fn.16)

Leibniz describes the importance of social bonds in this passage. He implores princes to recognize the autonomy of individuals and comments that passive obedience is an outcome of pragmatic social control. Hirschi (1969) outlined four components to the social bond: attachment, commitment, involvement, and belief. Hirschi explained deviance from the perspective that individuals are born with an inclination to break rules and deviate from normative behavioral patterns. The theory suggests that deviant behavior is present when the connection between the individual and society is inadequate (Shoemaker, 1996).

Attachment is an important element in maintaining order. The motive that precedes attachment can be goodwill or fear. Attachment legitimizes the interests of institutional authority over individual autonomy. Indirect mediators of social bonds may be positive or negative, nurturing or oppressive. Social bonds increase the likelihood of benevolence. On the micro level, parents, families or caregivers lay the foundation for attachment early in the life cycle. The smooth operation of the family unit contributes to one's level of attachment. However, as adolescents mature, it is natural for parental and family attachments to loosen and be redefined. For example, leaving home to go to college creates a natural boundary, both emotionally and physically, from the actor's parents and family. Emphasis on peers and romantic partners replaces strong parental attachments. This developmental process is described as individuation and separation from one's family of origin. Mezzo and macro level attachment includes the presence or absence of ties to one's neighborhood, schools, community, and country.

Attachment defines how actors relate to significant others or instrumental authority figures. The strength of relationship may impede or promote deviant behavior from incubating (Hirschi, 1969). The Delta Tau Chi fraternity members in the movie *Animal House* (Reitman et al., 1978) offer a fictional example of Hirschi's attachment construct. It is unclear if Dean Wormer, institutional policies, environmental factors, parenting, or socio-economic status led to the lack of regard for Faber College by members of the Delta Tau Chi fraternity. The lack of a social bond provided a context in which it was acceptable to violate several social conventions, including drunkenness, lawlessness, and adultery. Attachment is difficult to mandate and typically requires compromise at the individual and institutional level. However, oppressive authority figures may create a pseudo attachment that appears to maintain order.

Commitment is another component of the social bond. Commitment symbolizes emotional and physical assets that result in community engagement (Hirschi, 1969). Actors engage in activities that lead to outcomes that are rewarding socially. These are normative and socially supported outcomes. Commitment is more likely to be observed when actors exhibit loyalty to institutional or instrumental leaders. A perceived lack of commitment is stigmatizing for actors who deviate from prescribed norms. The inability to develop and maintain commitment portends conflict and negotiation. The members of the Delta Tau Chi fraternity did not place any value on commitment to scholarship or investment in campus activities. Dean Wormer did not seek opportunities to build trust between the institution and brothers. Thus the fraternity had little to lose. Commitment requires a greater degree of investment between individual and institutional actors. Examples of investment include social support, physical support, and reasonable accommodations for individual members. Developing balance between

the interests of individual and groups falls on institutional actors. Commitment predicts a greater stake in law-abiding behavior (Conger, 1976).

Commitment protects one's previously earned social capital. A real or perceived lack of engagement negatively impacts reputation and may undo previous high-stakes/high-reward activity. Commitment is associated with rational actors who are capable of introspection; they are better equipped to examine the costs and benefits of their behavior (Hirschi, 1969).

Involvement, the next element of the social bond, encompasses engaging the individual in meaningful activities. Examples of involvement include unsolicited participation in family activities, organized social groups, houses of worship, and direct or indirect participation in sports or entertainment activities. Involvement requires action or activity. Whereas attachment and commitment are perceptual, involvement is corporal. It represents participation and engagement with others. These activities provide an arena for engaging in socially promoted, non-deviant behaviors. There are exceptions to the socialization benefits of involvement. The members of the Delta Tau Chi fraternity provided legitimate opportunities for involvement. However, they disaffiliated from activities that were in agreement with institutional goals. Despite being associated with legitimate social groups, weakened social bonds led to deviant actions among group affiliates.

The final element of the social bond is belief. Hirschi (1969) conceived belief as a joint set of ideas with a set of prescribed norms. Social order is possible because of trust in the institution. The institution may be family, employment, school, or government. Belief is the basis of traditional authority; it empowers social control agents with permission to impose institutional rules. Whatever the source, an internalization of standards and values is necessary to cultivate belief. Beliefs lead to agreement about normative behavior.

Social control is precarious, leading institutional actors to balance cooperation with coercion. Institutional actors attempt to shape beliefs that reinforce proscriptive ideologies. Those who value the proscriptions of institutional authority will act in agreement with their perceived social role. Traditional authority rests on the shoulders of instrumental leaders who may or may not reflect the interests the population. Hobbes predicted that the absence of shared beliefs would lead to a state of nature that is "nasty, brutish, and short" (Korab-Karpowicz, 2011). In correspondence with a friend, Leibnitz commented on the institutional pragmatism of cultivating trust: "one ought to obey, as a rule, the evil of revolution being greater beyond comparison than the evils causing it" (Leibniz & Loemker, 1969, p. 59, fn.16).

Fictitious fear and threat appeals reflect a lack consensus regarding social bonds. With regard to the binge drinking narrative, fear appeals continue despite data that do not support the narrative. This study questions assumptions about the association between binge drinking and negative consequences. The influence of social control on the prevalence of negative consequences was considered in our study design. A brief summary of Social Learning Theory follows, and a similar question is addressed regarding the association between binge drinking and negative consequences.

Social Learning Theory

Because humans are able to think about future consequences of behavior, they can plan and evaluate their behavior. Edwin Sutherland is credited with developing the concept of differential association that led to Akers' development of Social Learning Theory (SLT) (Shaw, 2002). In 1966, Robert Burgess and Ronald Akers published an article based on Sutherland's concept of differential association and Bandura's behaviorism. Akers theorized that cognitive

processes were important for an individual in observing, interpreting, and acting on information. He perceived that learning was facilitated through imitation, trial and error, and other cognitive processes in relationship to an individual's primary and secondary group affiliations (Burgess & Akers, 1966).

Interaction between actors shapes norms and leads to behavioral choices that support or challenge boundaries between acceptable and unacceptable substance use. SLT explains cognitive processes as a result of symbolic interaction between individuals and their community. Cognitive processes are an important function for the individual in observing, interpreting, and acting on information. Four general principles explain social learning theory: differential reinforcement, values and attitudes about deviance, reciprocal determinism and vicarious learning (Bandura, 1977).

The first element of social learning, differential association, is adapted from Sutherland's (1947) theory. Sutherland believed he could train any person to adopt deviant behavior through differential association (Shaw, 2002). He understood interactions with influential others that occur in critical developmental stages leave a greater impression on the learner than other interactions. Differential association influences the adoption of normative beliefs. Akers believed differential association is a component of an awareness of self versus not-self. Interactions with others differ in importance, regularity, and time interval. The intensity and duration of external events shape and ultimately influence one's behavior vis-a-vis differential association. To a greater or lesser extent, both non-criminal and criminal individuals are motivated by the need for status and social gain (Akers, 1998).

Second, the maintenance of beliefs or definitions influences cognitions and behaviors associated with perceptions. The college milieu provides new frames for in-group beliefs,

attitudes, and actions. Many students choose to drink in a low-risk way based on the social context and peer group affiliation (Cox & Bates, 2011). Social norms theory posits that people are influenced by the behavior of others, and others modify their behavior based on perceptions of attitudinal norms (Perkins & Berkowitz, 1986). Referent group proximity often predicts drinking along the use continuum. Akers and colleagues explained definitions as the significance ascribed to any behavior as right or wrong (Akers, Krohn, Kaduce, & Radosevich, 1979).

Interactions between actors with similar world views result in consensus (Cohen, 1985, Becker, 1963; Schunk, 1987), which creates an alternative definition or supports an existing one. A considerable amount of energy is expended to maintain definitions that result in consensus within and across groups. Definitions are inclusive of both general and precise definitions. Universal definitions reveal normative beliefs and values that are generalized across place and time. Attention to a particular action or set of actions is referred to as an explicit definition (Akers et al., 1979). Similar to Goffman's description of frames (1967), definitions play a role in determining how an individual is to act in a particular setting or situation. Definitions may excuse or justify conduct.

Fabrication is a type of definition. Goffman (1967) defined fabrications as intentional efforts to manage the actions of others by inducing false beliefs. He commented on the use of an elaborate set of rules to "help" individuals adopt normative behavior out of "self-interests" (Goffman, 1967).

According to Akers et al. (1979) differential reinforcement is the most important and most influential of the four aspects of social learning theory. Differential reinforcement suggests that operant conditioning or reinforcement is critical to the process of acquiring new behaviors and attitudes. B. F. Skinner developed the concept of operant conditioning. He believed that the

best way to understand behavior is to look at the triggers for action and associated costs (Skinner, 1938).

Three types of stimulus responses influence differential reinforcement: neutral operant conditioning, reinforcement, and punishment (Skinner, 1948). Neutral operant conditioning is a stimulus-response to environmental cues that do not have any effect on behavior. Reinforcement is a stimulus-response to environmental cues that increase the chance of behavior re-occurring.

Reinforcement is bi-directional; stimulus-response to environmental cues may be negative or positive. Differential reinforcement distinguishes how individuals determine whether the negative consequences related to deviant behavior outweigh the benefits. Differential reinforcement leads individuals to discriminate between deviant and acceptable behaviors. For example, it is socially acceptable to consume beer at a college party, while is it not acceptable to do the same in class (Biddle, Bank, & Marlin, 1980; Burgess & Akers, 1966). When ties to primary affiliates are weakened in the practice of redefining attitudes, beliefs, and behaviors, differential reinforcement provides a mechanism to assess the costs of changing versus not changing, and pragmatically to consider what provides the most perceived benefit for the perceived cost.

Punishment is a response to environmental cues that decrease the chances of behavior recurring. Punishment is believed to weaken behavioral responses to adverse conditions. Typically this process occurs after the introduction of negative reinforcement. Behavior is reinforced when an individual acts in a deliberate way as a means of avoiding punishment (Akers & Lee, 1999).

Rewards and punishments are categorized as social and non-social. Social reinforcements are rewards or punishments for actions that are determined by influential persons or institutions.

Non-social reinforcements can be the experienced or predicted effects of an act, such as undergraduate alcohol use (Akers & Lee, 1999). A decisional balance tilts in one direction or another. If the anticipated effect is ego-syntonic, the balance will tip in the direction of normalizing the behavior. If the anticipated effect is ego-dystonic, the scales will move in the direction of avoidance. When the odds of reward or support are greater, so too are the odds that the act will be committed. The inverse is also accurate: if the consequences subsequent to the act, such as risk of penalty or reprimand, are perceived as inherently hazardous, the odds of committing the act are decreased (Akers & Sellers, 2004). Finally, after the reward (or lack of punishment) is realized, differential reinforcement becomes the dominant factor in the continued expression of recently acquired behavior.

Last, imitation is an important concept in social learning theory. Observing the activities of peers or aspirant others influences our interest in both conforming and non-conforming behaviors (Donnerstein & Linz, 1995). Ultimately, imitation is a bridge that leads from ambivalence to action. Initial associations such as family structure and the relative safety of the environment predict imitation. The association between the actor and the role model influences whether or not the behavior is internalized. Imitation may also be an initiation into deviant behavior. Imitation often occurs through vicarious means. The use of celebrities or actors with idealized physical characteristics creates expectations of "normal." All manner of trends is made possible by imitation.

Among young adults, imitation is especially potent. Imitation may create a new identity to replace an identity that is not developmentally consonant. If others are rewarded or positively reinforced for their actions, it makes those behaviors more enticing to imitate (Kuntsche et al., 2006). If performances are perceived as traumatic or punishing, they are less likely to be

emulated (Akers, 1977; Bandura, 1977). However, mezzo or macro level performances that result in punishment perceived to be symbolic of standing against tyranny or domination may galvanize support for imitation. At the micro level punishment may strengthen the resolve of the individual to engage in deviant behavior if the "cause" results in increased social capital amongst respected peers.

Applications of Theoretical Constructs: College Student Drinking

Efforts to comprehend college student drinking from a sociological perspective are hampered by the implicit message that research ultimately leads to action that corrects problematic drinking instead of an end being a new understanding of the context of drinking. In some segments of higher education, any drinking is problematic. Multiple studies have applied Social Control Theory and/or Social Learning Theory to college student adoption and maintenance of deviant behavior (Akers et al., 1979; Bailey & Hubbard, 1990; Borsari & Carey 2005; Capece & Lanza-Kaduce, 2013; Durkin, Wolfe, & Clark, 2005; Lanza-Kaduce & Capece, 2003). Both control theory and learning theory suggest that public health, medicine, mental health, faith communities, law enforcement, and bureaucratic institutions frame the context of alcohol use. Social Control Theory and Social Learning Theory are examined to explore the context of alcohol use versus negative outcomes.

Social Control Theory

Sociologists understand the importance of family and community systems in developing and sustaining social bonds. Implicit social contracts define the transition from adolescence to adulthood. Social bonds determine the degree to which an individual follows culturally defined

rules or norms. Bonds or the lack thereof are influential during the late adolescent/early adult life cycle developmental phase of individuation and emancipation. An actor's internalized narratives reflect a continuum of strong-to-weak social bonds. Weak social bonds are a threat to the development of interpersonal competence and autonomy. Students who struggle with maintaining a strong sense of interpersonal competence may use alcohol as a strategy to self-medicate feelings of isolation, stress, anxiety or depression (Keough et al., 2015; Tomlinson & Brown, 2012). College student alcohol abuse may be moderated or exacerbated by the degree to which personal autonomy is realized (Hanson, 1996).

Social Bonds—Attachment

Hirschi (1969) presumed attachment leads individuals to support group norms over a Hobbesian conviction of individualism. The degree of individual attachment to social institutions may restrain, permit, or even encourage deviant behaviors. Social institutions such as family, faith communities, schools, and larger communities are influential in the process of socialization.

According to Hirschi, attachment denotes a reciprocal relationship of mutual benefit between an individual and the community. However, for college students, acquiring a sense of self is precipitated by a loosening of primary family/community attachments. College students routinely are exposed to new communities and norms. The presence or absence of familial/community attachment plays an important role in resolving ambivalence related to responding to new social norms. Attachment or its lack plays an important role in the development of self versus not self. Individuals who have strong attachment are likely to be more conscious of potential outcomes related to their adoption of deviant behaviors.

Social Bonds—Commitment

Commitment implies individual actors are supportive of institutional norms. Commitment is the basis for non-coerced social control. The smooth working of social control is possible because of commitment. Hirschi (1969) described an inverse relationship between commitment and deviance. College students who are invested in non-sanctioned community activities are less likely to outright reject their commitment to esteemed social institutions. Pragmatism underlies commitment. There may be a real or perceived loss regarding previous investments of time and energy in non-deviant activities. A cost–benefit analysis leads to choosing to maintain established social bonds rather than adopt deviant behaviors.

Academic achievement is an example of time and energy invested in the social institution of education. Hindelang (1973) found commitment was especially influential concerning academic achievement, and Conger (1976) found academic commitment decreased the likelihood of deviant behavior. While commitment wavers in the absence of oversight previously provided by primary caregivers, students who have a strong sense of commitment to traditional norms find a way to compensate for the destabilization of previously held beliefs and community norms.

Social Bonds—Involvement

Hirschi (1969) posited that social bonds predict the types of activity individuals choose. Involvement in traditional activities limits opportunities to adopt deviant behavior. Involvement provides opportunities to be engaged in activities consistent with individual ethics. However, the campus milieu often does not support traditional definitions of social bonds. College students living independently have increased opportunities to become involved in behaviors previously defined as deviant. Campus life provides students with new opportunities for involvement and,

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perhaps for the first time, increased access to a continuum of actions that range from altruistic to hedonistic.

Involvement in university-supported activities such as college athletic events and fraternity and sorority organizations may actually weaken not strengthen traditional social bonds. Portrayals of college life as a time of institutionally approved disinhibition can be found in historical depictions of college life. The perception persists to this day that college is a time to "sow wild oats" before assuming traditional responsibilities such as employment, marriage, and family. The pervasive nature of the "rite of passage" narrative may merit an asterisk with regard to Hirschi's (1969) definition of involvement and the academy. Notwithstanding the confounding aspects of the college milieu, involvement in traditional activities that foster self-control and responsibility protects against the adverse effects of weakened social bonds.

Social Bonds—Beliefs

Hirschi (1969) speculated that beliefs reflect macro level values and norms. Beliefs are the basis of conventional societal values. These beliefs are often immutable; they are social facts that guide action. Strong social bonds are understood to reflect adherence to broader norms embedded in cultural beliefs. Individuals who question beliefs are more likely to be labeled deviant. As discussed previously, college campuses often have norms that are inconsistent with community norms. Institutional support for behavior and activities defined as deviant in the community but normalized on campus leads to confusing and contradictory messages that challenge the maintenance of beliefs. This is especially true with regard to substance abuse and sexuality.

Involvement and commitment are Social Control Theory constructs included in this study. Involvement is measured by academic engagement and self-control scales. Commitment is measured by intrinsic and extrinsic religiosity.

Social Learning Theory

Social Learning Theory emphasizes the actor's cognitive processes as compared to the macro and mezzo function of social control systems that function to maintain order. Learning is a process of trial and error. Micro-level cognitions permit opportunities for observing, interpreting, and acting on information in real time. Social learning is accelerated through cognitive processes in relationship to an individual's primary and secondary group affiliations. Social Learning Theory informed this study's choice of two scales intended to test associations between non-alcohol related negative consequences and both alcohol expectancies and sensation-seeking behaviors. For this research, the alignment of two of Akers and Lee's (1999) four constructs is included in these analyses.

Differential Association

For this research the alignment of alcohol expectancy covariates corresponds with differential association. Alcohol expectancies pair beliefs about the effects of alcohol with vicarious experiences. That is, people's alcohol use is in part determined by what they perceive the consequences of their drinking will be. Similar to Pavlov's theory of placebo effects, the association of positive expectancies is paired with alcohol use, resulting in beliefs that alcohol causes positive social and behavioral effects that are not pharmacological effects (Rohsenow & Marlatt, 1981). This research implies that expectancies become automatic thought processes

through repeated exposure to misperceptions with regard to the physical effects of drinking. Over time beliefs evolve into definitions that determine effects of drinking.

<div align="center">Beliefs</div>

It is conceivable that efforts to reduce binge drinking are at odds with popular culture. The development of alcohol expectancies is influenced by how alcohol use is portrayed in popular media. Children learn about the effects of alcohol—either positive or negative—before their first drink. A study of top box office hits from 1998 to 2003 reported teens between 10 and 14 years of age who watched popular movies were exposed to almost six hours of alcohol use and exposed to over 240 alcohol brands (Dal Cin, Worth, Dalton, & Sargent, 2008). A study published in 2005 found children recognized alcohol brands as early as 1st grade (Cruz & Dunn, 2003). The Center for Alcohol Marketing and Youth at Johns Hopkins School of Public Health reports youth exposure to alcohol advertising on television increased by 71% between 2001 and 2009. Not surprisingly, the estimated cost of alcohol advertising during this time exceeded 8 billion dollars (CAMY 2010). Youth exposure to alcohol marketing is an effective means of creating normative positive or beneficial beliefs about alcohol effects (Hastings, Anderson, Cooke, & Gordon, 2005).

An individual's belief about the effects of alcohol is a powerful intrinsic motivator for drinking. The term "alcohol expectancies" refers to information stored in the brain and nervous system about the anticipated effects of alcohol (Rather & Goldman, 1994). This information, as it is processed in memory, has been identified as a component in explaining alcohol use. Expectancies may be a part of the causal chain by which precursors of alcohol influence the consumption and pattern of drinking in individuals (Cruz & Dunn, 2003). Expectancy theory posits that drinking behaviors are activated at the individual level as opposed to the group.

Psychologists attribute attitudes and behaviors about drinking to neural networks, whereas sociologists attribute attitudes and behaviors about drinking to social networks.

Differential Reinforcement

Differential reinforcement is a process that frames how individuals predict the effects of their actions. Akers and Sellers (2004) observed:

> Whether individuals will refrain from or commit a crime at any given time (and whether they will continue or desist from doing it in the future) depends on the past, present, and anticipated future rewards and punishments for their actions. (p. 87)

Perceived rewards or consequences of certain conduct predict the frequency of specific actions. Differential reinforcement informs how people interpret risk. Sensation-seeking behaviors influence perceptions of threat and place individuals at risk for poor decision making, especially with regard to alcohol use. High urgency centers attention on immediate gratification rather than longer-term consequences (Cyders, Flory, Rainer, & Smith, 2009).

In this study, differential reinforcement is represented by sensation-seeking covariates. A continuum of sensation seeking (high to low) is connected with alcohol-related negative consequences. Risk taking may be a form of social capital among peers who are high sensation seekers. Conversely low sensation seeking may be valued among young adults who are risk averse. The company of peers appears to reinforce the propensity to take social and behavioral risks.

Imitation

Conformity to peer-group pressure is believed to be a significant motivational factor with regard to alcohol use. Students who drink to cope with feeling ostracized or for conformity reasons drink more than others (Ham & Hope, 2003). Goffman (1963) stated "[T]he nature of an individual, as he himself and we impute to him, is generated by the nature of his group affiliations" (p. 113). Clark, Crockett, and Archer (1971) identified the "risk-as-value" hypothesis as an explanation for individual behavior in the context of a reference group. They formulated the hypothesis that adoption of moderate risk-taking is a strong cultural value among young adults. Clark and colleagues proposed that individuals who perceive risk-taking within their peer group as less than moderate experience dissonance. They feel pressure to modify their risk-taking behavior to restore their view of themselves as "normal." Goffman (1967) referred to risk-taking as "Hobson's" choice; danger is recast into risk, opportunity, and need to assert self into the situation. Their sense of self and autonomy is remade to fit the expectations of their group affiliation (Goffman, 1967).

Sometimes vicarious association with risk-taking groups allows students not engaged in risky alcohol use the opportunity to adopt deviant behavior vicariously. Goffman (1967) observed, "When persons go to where the action is, they often go to a place where there is an increase, not in the chances taken, but in the chances that they will be obliged to take chances" (p. 149). Goffman added, "should action occur it is likely to involve someone like themselves but someone else. Where they have to go, then, is a place where another's involvement can be closely watched and vicariously enjoyed" (p. 149). The social learning perspective explains differential reinforcement as the context in which new behavior is acquired and rationalized. The college milieu provides learning opportunities about peer group beliefs, attitudes, and actions.

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Social learning offers a conscious process of adopting "in-group" beliefs, attitudes, and actions (Goffman, 1974).

The challenge for sociologists is to locate college student alcohol use within a sociological perspective. The sociology of alcohol consumption, misuse, and abuse considers the function and characteristics of drinking situated in both historical and contemporary societies—effectively sidestepping the hazards of remarking on problems of good and evil, right and wrong, moral or immoral, sick or healthy.

CHAPTER 3: METHODOLOGY

Study Design

University students enrolled in sociology and psychology classes as well as those randomly selected through intercept surveys participated in this study. Students were invited to complete a survey that measured social control covariates (academic engagement and commitment) as well as social learning theory covariates (alcohol expectancies and sensation seeking). The study was designed to test the relationship between alcohol use and social and behavioral harms of various sorts.

Sample

A sample of "traditional" college students was selected for this study. The Monitoring the Future (MTF) study defines traditional undergraduate college students as those taking 12 or more credit hours and are one to four years post–high school graduation. MTF is a longitudinal survey conducted annually by the Survey Research Center associated with the Institute for Social Research at the University of Michigan.

Survey data for our study were collected via random as well as convenience sampling. The type of survey administration was coded as a variable and other key demographics such as gender, race, undergraduate major, age, and class standing allow for comparison between the sample frame and the university undergraduate population.

Instrumentation

In October 2014, students were invited to complete a survey. Study respondents were asked to complete a questionnaire about attitudes, beliefs, and behaviors related to alcohol use (Appendix A). A group of students under the direction of the Institute for Social and Behavioral Sciences (ISBS) conducted on-campus interviews over a six-week period in fall 2014. Surveyors were located in several campus high traffic walking paths on different days and times. Participants in the interview condition were selected to participate at random. After consenting, respondents were offered the opportunity to complete the interview on the way to class or other campus destinations.

Students attending undergraduate Sociology classes were invited by their professor to participate in the study. Finally, undergraduates attending psychology classes were asked to participate in this study. Respondents from both the Sociology and Psychology departments were provided extra credit for participating. The survey was analyzed for ease of readability. The survey scored 69.8 on the Flesch Reading Ease test and 5.5 on the Flesch-Kincaid Grade Level test.

The survey instrument comprised 83 items. Survey items included questions adapted from four existing measures. Additional indices that measure attitudes, beliefs, and behaviors were identified based on theoretical considerations and Principal Component Factorial Analyses (PCA) factor loadings. Alcohol use subscales were based on the Alcohol Use Disorder Identification Test (AUDIT). The Negative Consequence scale was based on the Brief Young Adult Alcohol Use Consequences Questionnaire (BYAACQ). The Duke University Religion Index (DUREL) measured religiosity, and items selected from the Comprehensive Effects of Alcohol (CEOA) questionnaire informed alcohol expectancy items. The survey instrument

included items related to respondents' fall 2014 drinking quantity and frequency, as well as preferred locations to drink (e.g., bar, house party, home alone) and preferred type of alcoholic beverage.

Dependent Measures

The Negative Consequence scale was the outcome variable for this study. The scale included questions related to negative consequences that may occur with or without alcohol consumption. Selected items on the Brief Young Adult Alcohol Consequences Questionnaire (BYAACQ) made up this study's Negative Consequence scale. The BYAACQ is a valid measure of negative consequences for young adults (Read, Kahler, Strong, & Colder, 2006). The BYAACQ has good psychometric characteristics concerning the frequency of negative consequences associated with alcohol use (Kahler, Hustad, Barnett, Strong, & Borsari, 2006).

Items included in the BYAACQ that were contained within the negative consequences scale consisted of the following seven items. In the past month, on days you did not drink or have a hangover, did you:

- Say or do embarrassing things?

- Take avoidable risks?

- Miss class or work because of other responsibilities?

- Feel badly about something you said, did, or thought?

- Feel tired or run down because of school, work, or other commitments?

- Fail to turn in class work on time because you were too busy with other responsibilities?

- Fail to follow through or forget something you planned to do because you were too busy with other responsibilities?

- Have a sexual encounter you later regretted?

Response options for selected BYAACQ items are 0=No and 1=Yes.

Independent Variables

Alcohol Use Disorders Identification Test

Alcohol consumption was measured by the Alcohol Use Identification Test (AUDIT), a quantity and frequency measure. This measure estimates light, moderate-risk, and high-risk/severe alcohol use categories. The AUDIT is utilized in a variety of clinical and non-clinical settings (Allen, Litten, Fertig, & Babor, 1997; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; Bradley et al., 2003; Reinert & Allen, 2002; Volk, Steinbauer, Cantor, & Holzer, 1997). Several studies previously tested the AUDIT with college students (Borsari & Carey, 2005; O'Hare & Scherrer, 1999) and found the measure demonstrated internal consistency with a college student population (Fleming, Barry, & MacDonald, 1991).

Each item is has a range of 0 to 4. Total AUDIT scores range from 0 to 40. A subscale of the AUDIT is also used in these analyses. The AUDIT-C subscale includes the first three AUDIT questions, and scores range from 0 to 12.

- How often did you have a drink containing alcohol in the past year?

- How many drinks did you have on a typical day when you were drinking in the past year?

- How often did you have 5 or more drinks on one occasion in the past year?

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- How often in last year have you found that you were not able to stop drinking once you had started?

- How often during the last year have you failed to do what was normally expected from you because of your drinking?

- How often in the last year have you been unable to remember what happened the night before because you have been drinking?

- How often have you needed an alcoholic drink first thing in the morning to get yourself going after a night of heavy drinking?

- How often over the year have you felt guilt or remorse after drinking?

- Have you or someone else been injured as a result of your drinking?

- Has a relative, friend, doctor, or another health professional expressed concern about your drinking or suggested you cut down?

The AUDIT has good psychometric characteristics across drinker groups. It is a well-established test with good reliability (consistency) and validity (construct) (Bohn, Babor, & Kranzler, 1995). The AUDIT includes quantity/frequency measures as well as the frequency of intrapersonal and interpersonal alcohol-related negative consequences.

Binge Drinking

The "5/4" or Binge Drinking measure is a popular measure of alcohol abuse. Binge drinking is a quantity measure that estimates negative consequences associated with alcohol consumption. It is a theoretical "tipping point" for the increased incidence of self-reported alcohol-related negative consequences. For men the tipping point is 5 drinks in a sitting, whereas for women a binge is 4 drinks in a sitting. Binge drinking is not intended to be a measure of

alcohol abuse. Binge drinking as applied to harm associated with alcohol use misappropriates the clinical definition of binge drinking—almost continuous drinking over a period of one or two days.

Social Control Items

Social bonds make order possible as they support traditional authority and impede deviant behavior. Commitment is the basis for non-coerced social control and implies that individual actors are supportive of institutional norms. The smooth working of social control is possible because of commitment. Resistance is diminished and tangible rewards are realized through institutionally legitimized performances. In this study academic engagement is defined within the context of normative behavior that aligns with institutional expectations for responsible actions.

Involvement is associated with commitment but involvement requires action. Commitment infers the willingness to support normative behavior; however, involvement demonstrates readiness to change. Involvement provides opportunities for interacting with like-minded actors who value conventional activities and is reinforced by the outcome of action. Engagement begins with a commitment and is sustained by involvement. In this study, academic engagement measures respondents' commitment to completing course assignments in a timely manner.

Several studies indicate that a commitment to achieving goals decreases the incidence of deviant behavior (Hirschi, 1969). Conversely, lower levels of academic commitment are associated with higher levels of alcohol use (Hawkins, Catalano, & Miller, 1992). Self-control is demonstrating a commitment to goal-related behavior. It is associated with decisional balancing,

a process of weighing the benefits and costs of an action. In this study, four scales measure commitment and involvement; Academic engagement, The Self-Control Scale, and two subscales associated with the Duke University Religion scale (DUREL).

Academic Engagement

Commitment to education is an expectation of college students. Social complications tend to distract students from academic commitments. The Academic Engagement scale measures commitment. This item estimates the commitment of survey respondents to their academic pursuits. A single question, "I usually put off studying to the end of the semester" measures academic engagement.

Duke University Religion Scale

Religiosity measures either involvement in faith communities or the integration of spiritual values into actions that are central to the actor's worldview. The Duke University Religion Index (DUREL) is a five-item, three-factor measure of religious involvement. Koenig and Büssing (2010) reported that the scale has high test-retest reliability (intra-class correlation = 0.91), high internal consistency (Cronbach's alpha's = 0.78–0.91), and high convergent validity with other measures of religiosity (r's = 0.71–0.86). Koenig and Büssing reported that the DUREL has been used in over 100 published studies conducted throughout the world and is available in 10 languages.

Two of three DUREL subscales are examined in our study. Four items make up two subscales of religiosity. The first question (About how often do you attend church or other religious meetings?) is a subscale for Organizational Religious Activity (ORA). Item response options for question one are measured on a scale of 1=never to 6= more than once a week.

Three questions (In my life, I experience the presence of the Divine (*i.e.*, God). My religious beliefs are what really lie behind my whole approach to life. I try hard to carry my religion over into all other dealings in life) measure Intrinsic Religiosity (IR). Item response options for question three through five are measured on a scale of 1=Definitely true for me to 5=Definitely not true for me.

Self-Control Scale

Deviant behavior is more likely among actors whose behavior is viewed by the community as irresponsible or unproductive. Irresponsible behavior loosens social bonds between the individual and agents of social control. High versus low self-control is evidence of the actor's willingness to delay gratification in pursuit of external priorities. In the Weberian tradition, the absence of self-control indicates decreased motivation for "zweckrational" or instrumental action. Weber held instrumental action to be the highest form of rational conduct (Rutgers & Schreurs, 2004).

Self-control is a composite measure of seven items. Each item is scored on a four-point scale: (1) Rarely (2) Occasionally (3) Often (4) Always. Principal Component Factor Analysis of these items renders an Eigenvalue of 2.81, and the index has a Cronbach's alpha of .75. The following seven questions define Self-Control:

1. I do not plan tasks carefully.

2. I do things without thinking.

3. I do not pay attention.

4. I am not self-controlled.

5. I have trouble with concentration.

6. I am not a careful thinker.

7. I say things without thinking.

Social Learning Items

Social Learning Theory explains deviance as a dynamic process of responding and reacting to social situations. Social Learning Theory assumes all behavior is learned. This study includes two social learning constructs: differential association and differential reinforcement. For this study the alcohol expectancies scale is based on differential association. Differential association is a learning process similar to the social control perspective of belief. Differential association is a process that influences perceptions of negative consequences or punishments by virtue of modeling by high status actors such as parents, peers, and athletes or other celebrities. Exposure to influential actors influences the development of how individuals understand and predict the positive or negative effects of their behaviors.

Alcohol Expectancy Scale

Expectancy beliefs are both influenced by interaction with others and influence others. Expectancies are learned through informal exposure to drinking traditions within the family or community. Expectancies are also portrayed in the various print and electronic media. The Alcohol Expectancy scale includes five items related to common expectancies or beliefs associated with the effects of alcohol use.

Items in the Alcohol Expectancy scale are adapted from the Comprehensive Effects of Alcohol (CEOA) questionnaire. Each question is dichotomous, and dummy scored 0=NO, 1=Yes. The scales Cronbach's alpha is .82. This indicates the items in the measure are related. The following five questions define alcohol expectancies. After consuming consume alcohol:

1. I would act sociable.

2. It would be easier to talk to people.

3. I would feel brave and daring.

4. I would feel unafraid.

5. I would take risks.

Sensation Seeking Scale

Sensation seeking characterizes a temperament that predisposes actors to take risks to get anticipated levels of elation or thrill (Stephenson, Hoyle, Palmgreen, & Slater, 2003; Zuckerman, 1979, 1994). Risk taking denotes a break from traditional pursuits or interests. The Sensation Seeking Scale is intended to investigate the degree to which risk aversion influences negative consequence scores. Sensation Seeking is a composite measure of three items. Each question is scored on the following four-point scale: (1) Rarely (2) Occasionally (3) Often (4) Always. Principal Component Factor Analysis of these items renders an Eigenvalue of 2.0, and the index has a Cronbach's alpha of .75.

The following three questions define Sensation Seeking:

1. I act on the spur of the moment.

2. I do dangerous things for fun.

3. I do exciting things even if they are dangerous.

Alcohol Use Quantity and Frequency Items

In addition to the Binge Drinking or "5/4" measure, two items were included in the survey instrument to ascertain the quantity and frequency of respondents' alcohol use in the fall semester. The frequency item was How often did you have a drink in the fall 2014 semester? Response options for this question were (1) monthly or less, (2) two to four times a month, (3)

three to four times per week, (4) four or more times per week. The quantity item was How many

drinks did you have on a drinking day in the fall semester? Response options for this question

were (1) one or two, (2) three or four, (3) five or six, (4) seven to nine, (5) ten or more.

Control Variables

General demographic control measures are included in the survey. Because this study is

formative, the choice of control variables is based on previous findings that show race and

gender are associated with drinking patterns. To wit, college women engage in binge drinking

less frequently than college males, and non-White college students engage in binge drinking less

frequently than White college students.

Research Questions

This study was designed to test the assumption that drinking causes negative

consequences. Two types of negative consequences are reported. First, direct negative

consequences are defined in this study as outcomes exclusively explained by drinking. Examples

of direct negative consequences included in this study are driving while intoxicated, passing out

or blacking out from drinking. Second, indirect negative consequences are defined in this study

as outcomes perceived to be negative that occur during or after drinking or while sober.

Examples of indirect negative consequences included in this study are skipping class, engaging

in regretful sexual behaviors, or saying or doing embarrassing things.

Research related to negative consequences is primarily concerned with social and

behavioral negative consequences associated with drinking. Direct negative consequences are

not relevant to the present analysis. This study is chiefly concerned with the prevalence of

indirect negative consequences. Research questions one through five test null hypotheses related to the effect of social control and social learning theory covariates on indirect negative consequences.

Research Question 1- Are non-alcohol related negative consequences equally distributed among drinkers and non-drinkers?

- Hypothesis 1a. No difference is observed between drinker type and non-alcohol related negative consequences scores

Research Question 2 – Does religiosity predict indirect negative consequences?

- Hypothesis 2a. Participation in Organized Religious Activities is not associated with decreased non-alcohol related negative consequence scores.

- Hypothesis 2b. Intrinsic Religiosity is not associated with decreased non-alcohol related negative consequence scores.

- Hypothesis 2c. Participation in Organized Religious Activities is not associated with decreased alcohol-related negative consequence scores.

- Hypothesis 2d. Intrinsic Religiosity is not associated with decreased alcohol-related negative consequence scores.

Research Question 3 – Does academic engagement predict indirect negative consequences?

- Hypothesis 3a. Academic engagement is not associated with decreased non-alcohol related negative consequence scores

- Hypothesis 3b. Academic engagement is not associated with decreased alcohol-related negative consequence scores

- Hypothesis 3c. Self-Control is not associated with decreased non-alcohol related negative consequence scores.

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- Hypothesis 3d. Self-Control is not associated with decreased alcohol-related negative consequence scores.

Research Question 4 – Do beliefs about the effects of alcohol predict indirect negative consequences?

- Hypothesis 4a. Positive alcohol expectancies are not associated with increased non-alcohol related negative consequence scores.

- Hypothesis 4b. Positive alcohol expectancies are not associated with increased alcohol-related negative consequence scores.

Research Question 5 – Does sensation-seeking behavior predict indirect negative consequences?

- Hypothesis 5a. The frequency of thrill-seeking behaviors is not associated with increased non-alcohol related negative consequence scores

- Hypothesis 5b. The frequency of thrill-seeking behaviors is not associated with increased alcohol-related negative consequence scores

Statistical Analysis

This study is proposed to identify and quantify associations and to test hypotheses about non-alcohol related negative consequences. A descriptive analysis of population versus sample demographics is provided. Sample characteristics of alcohol use are compared to data reported by the Monitoring the Future study. These data will compare the degree to which our sample estimates of alcohol use mirror national data on college student binge drinking and additional quantity/frequency measures of drinking. In keeping form within the coding standards of the alcohol studies literature the dependent variable "Binge Drinking" is recorded as a dummy variable, 0 = NO, 1 =Yes. The dependent variable "Indirect non-alcohol related negative

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consequence scores" is treated as an interval variable. Additionally, univariate and bivariate descriptive analyses for all theoretically grounded covariates in the study are provided. Bivariate analyses included chi-square tests, t-tests, and ANOVA.

Bivariate analyses investigate associations between the dependent and independent variables. First, the primary interest in these bivariate analyses is to determine to what degree indirect non-alcohol related negative consequence scores are associated with alcohol use. These analyses are important for testing the assumption that indirect non-alcohol related negative consequence scores are equally distributed across the sample.

The OLS linear regression model explores Social Control and Social Learning Theory influence on the prevalence of indirect non-alcohol related negative consequences. The baseline regression model includes race and gender. The following covariates are included in the full model:

1. Social Control Theory Model

    a. Control Variables

    b. Intrinsic religiosity

    c. Extrinsic religiosity

    d. Academic engagement

    e. Self-control

2. Social Learning Theory Model

    a. Control Variables

    b. Alcohol Expectancies

    c. Sensation seeking

3. Full Model

    a. Control Variables

    b. Intrinsic Religiosity

    c. Extrinsic Religiosity

    d. Alcohol Expectancies

    e. Sensation Seeking

The Logistic regression model explores how Social Control and Social Learning Theory covariates influence the prevalence of indirect alcohol-related negative consequences. The baseline regression model includes race and gender. The following covariates were included in the full model:

1. Social Control Theory Model

    a. Control Variables

    b. Intrinsic religiosity

    c. Extrinsic religiosity

    d. Academic engagement

    e. Self-control

2. Social Learning Theory Model

    a. Control Variables

    b. Alcohol Expectancies

    c. Sensation seeking

3. Full Model

    a. Control Variables

    b. Intrinsic Religiosity

    c. Extrinsic Religiosity

    d. Academic engagement

    e. Self-control

    f. Alcohol Expectancies

    g. Sensation Seeking

CHAPTER 4: RESULTS

Data Collection

Participants were recruited in the fall 2014 semester. Three data collection strategies were employed: Computer-Assisted Personal Interviews (CAPI), classroom paper and pencil administration, and an online survey. The CAPI sample was an intercept survey of students walking through three high foot-traffic campus areas, executed by surveyors who had completed extensive training prior to being selected for the survey team. In addition, students enrolled in four discrete sociology courses participated in the survey. An in-class sample was drawn from an Introduction to Sociology (SYG2000) course. Participants enrolled in Social Power and Juvenile Delinquency (SY03530), Patterns of Alcoholism in Society (SYP3551), and Research Methods (SYA4300) were invited to complete an online survey.

In addition to the intercept interviews and classroom invitations, the study was one of several projects offered to undergraduate psychology students interested in participating in research. Students were invited to participate in this study through SONA, a web-based software program that manages research study participation for a college Psychology Department. Online survey participants received extra credit for taking the survey.

The response rate for the CAPI administration was 40%. The in-classroom survey administration yielded a 65% response rate, and the online sociology courses survey yielded a 60% response rate. The response rate for the SONA survey could not be determined. The age range for sample participants was 17 to 70. The sample used to test hypotheses related to non-

alcohol related negative consequences did not include part-time students between 18 and 21 years of age nor part-time or full-time students under 18 or over 21 years of age. Our sample includes 595 traditional undergraduate students, with 375 excluded due to their age or student status. Inclusion criteria were based on the Monitoring the Future definition of traditional college student undergraduates. Traditional undergraduates are described as full-time students 1 to 4 years post high school graduation.

Prior to testing the study hypotheses, descriptive statistics and distributions were examined to identify potential outliers. The cut-off point for our measure of influence is 2*sqrt(k/n). Eleven participants were removed from the analysis based on a review of each value that exceeded this cut-off point. It was apparent that responses from the 11 participants were coding errors or erroneous responses. A Shapiro-Wilk test for normality indicated we cannot reject the null hypothesis and that the dependent variable is normally distributed. In addition a standardized normal probability (P-P) plot verified that the theoretical distribution fits the observed distribution. The Breusch-Pagan test indicated the variance of the residuals is homogenous, no evidence of homoscedasticity was detected. The Variance Inflation Factor (VIF) scores indicate multicollinearity is within reasonable bounds for the regression model. An augmented component-plus-residual plot did not detect evidence of nonlinearities in the data. A Ramsey Regression Equation Specification Error Test (Reset) indicates the model is correctly specified.

Sample Characteristics

Table 1 shows the sample demographics by each data collection strategy. The sample demographics are reasonably consistent across collection approaches. Females were more

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prevalent in the SONA and online Sociology classes. The SYA online and SONA collection

models included more female participants than the SYA classroom and CAPI samples. These

data may reflect self-selection bias.

Table 1: Sample Demographics by Collection Method

Item	SONA	CAPI	SYA online	SYA classroom	Total
Female	.67	.56	.70	.59	.63
Average age	19.4	19.6	19.8	18.7	19.4
	(SD=1.1)	(SD=1.1)	(SD=1.0)	(SD=0.95)	(SD=1.1)
Race					
White	58	47	61	60	56
Black	10	14	10	8	11
Hispanic	22	30	20	24	24
Asian	6	7	3	3	5
American Indian	0.4	1	--	2	1
Pacific Islander	1	1	1	--	1
Multiracial	2	1	3	2	2
Not specified	1	--	1	2	1
N=592	245	150	70	127	592

Table 2 shows the sample and university demographics for the fall 2014 semester.

University demographics were comparable to the sample on many key variables. Race is within

two percentage points across all racial categories. Age is slightly lower in the sample as

compared to the population (19.3 vs. 19.7). In addition, females are overrepresented in the

sample compared to the population (63% vs. 56%). Despite concerns about self-section bias the

sample percentages are comparable to the population for most demographic categories.

Table 2: Demographic Comparison of Sample Frame and Population Parameters

Item	Sample (%)	University Statistics (%)
Female	.63	.56
Average Age	19.3	19.7
	(SD=1.3)	(SD=1.1)
Race		
White	56	56
Black	11	10
Hispanic	24	22
Asian	5	6
American Indian	1	1
Pacific Islander	1	2
Multiracial	2	4
Not Specified	1	0.5

Sample N = 592, Population N = 23,417

Table 3 shows that the difference between sample and population percentages for academic majors other than the College of Sciences is no greater than 4%. The College of Sciences is over-represented in our sample as compared to the population (31% vs. 20%). However, this is expected given that students enrolled in Sociology and Psychology departments were invited to participate in our survey. The demographic characteristics of the sample appear to be representative of the population, which is somewhat remarkable given the use of a convenience sample.

Table 3: Demographic Comparison of Sample Academic Major and Population Parameters

	Sample			Campus		
Academic College	Freq	Percent	Cum	Freq	Percent	Cum
College of Arts and Humanities	50	8	8	1959	8	8
College of Business Administration	68	11	19	3585	15	23
College of Education and Human Performance	23	4	23	1476	6	29
College of Engineering and Computer Sciences	76	13	36	3626	16	45
College of Health and Public Affairs	74	13	48	3402	15	60
College of Medicine	47	8	56	1735	7	67
College of Nursing	34	6	62	718	3	70
College of Optics	-	-	-	32	1	71
Rosen College of Hospitality Management	21	4	66	1344	6	77
College of Sciences	187	31	97	4787	20	97
Undeclared	17	3	100	753	3	100

Sample N = 594; Population N = 23,417

Drinking Benchmark Comparison

Our sample data are unremarkable with regard to benchmarking against national data on binge drinking. Study results are comparable to national benchmark surveys, the Core Survey of Alcohol and Drug Use and the Monitoring the Future Survey. In our sample 37% of all respondents reported binge drinking (consuming 5 or more drinks in a sitting). The 2014 Monitoring the Future study estimated binge-drinking rates to be 35% (Johnston et al., 2015). However, when non-drinkers are excluded from our survey 41% of all drinkers reported binge drinking. The Core Institute at Southern Illinois University reported the national average for binge drinking in 2013 was 43%. The lifetime prevalence of alcohol use is 86% among our study

participants. This percentage is higher than the lifetime prevalence reported by the 2013 Core Survey (81%) and 2014 Monitoring the Future study (76%).

<div align="center">Prevalence of Negative Consequences</div>

Little attention is paid to explaining the prevalence of non-alcohol related consequences in the alcohol studies literature despite the relative frequency of these consequences as compared to the same or similar alcohol-related negative consequences. Tables 4-6 show the frequencies of three negative consequence scales. Items on the direct alcohol-related negative consequences scale may occur only as a direct result of drinking. These include alcohol blackouts, driving under the influence, and being unable to stop drinking after starting. The indirect alcohol-related and non-alcohol related scales include indirect items that can occur regardless of alcohol consumption. In other words, these consequences often overlap. Participants may endorse a negative consequence on a day they are sober; on another day the same or similar consequence may occur during or after drinking.

Table 4 describes the Non-Alcohol Related Consequence scale (NARCS). The scale is a composite measure of eight social or behavioral negative outcomes. The items presented in the scale are routinely associated with alcohol use. However, because response options to these questions are limited to days in the past month, respondents who did not drink or have a hangover after alcohol use cannot account for any of these items. The mean number of consequences indicates non-alcohol related negative consequences are quite common among study participants.

Table 4: Descriptive Analysis of the Non-Alcohol Related Consequence Scale

Item	Mean (Std. Dev)	Range	
		Min	Max
NARCS (α=.63)	4.5 (1.8)	0	8
I said or did something embarrassing	73%	0	1
I took avoidable risks	45%	0	1
I missed class or work	57%	0	1
I felt badly about something I said, did, or thought	78%	0	1
I was tired or had less energy	90%	0	1
Poor academic performance	35%	0	1
I failed to follow through on a commitment	59%	0	1
I had a regretted sexual encounter	16%	0	1

N = 572

Table 5 explains the Indirect Alcohol-related Consequence Scale (IARCS). The scale is a composite measure of seven social or behavioral negative outcomes. The items presented in the scale are routinely associated with alcohol use. However, because of the nebulous definition of these items, it is plausible they can occur during times of either intoxication or sobriety. Notwithstanding the low mean number of alcohol-related consequences, 42% of survey participant reported yes to the single item "While drinking I have done or said embarrassing things." Almost one in three reported taking avoidable risks while drinking.

Table 5: Descriptive Analysis of the Indirect Alcohol-Related Consequence Scale (IARCS)

Item	Mean (Std. Dev)	Range	
		Min	Max
IARCS (α=.72)	1.3 (1.5)	0	7
While drinking I said or did something embarrassing	42%	0	1
While drinking I took avoidable risks	29%	0	1
I missed class or work because of drinking, a hangover or illness caused by drinking	10%	0	1
I have had less energy or felt tired because of my drinking	26%	0	1
The quality of my school work has suffered because of drinking	5%	0	1
I failed to follow through on a commitment because of my drinking	5%	0	1
I had a regretted sexual encounter during or after drinking	9%	0	1

N = 491

Table 6 shows the percentages of direct alcohol-related negative consequences. Table 6 includes items from the Direct Alcohol-related Consequence Scale (DARCS). The scale is labeled direct as opposed to indirect because the items included in Table 6 ask specifically about events tied to drinking. In other words, these social and behavioral consequences cannot occur exclusive of the consumption of alcohol.

A majority (77%) of respondents report zero direct alcohol-related negative consequences. As compared to the IARCS, the mean number of consequences (driving under the influence, alcohol blackout…) for the DARCS was less than one-half a percent. Overall the mean NARCS score is about three times higher than the mean IARCS score and over ten times higher than the mean DARCS score.

Tables 5 and 6 show that consequences defined by DARCS are lower that consequences defined by IARCS. Fifty-four percent of respondents indorsed items on both the DARCS and IARCS as compared to 23%t of respondents who indorsed simply DARCS items. However, the number of respondents who reported memory loss after drinking is troubling. Almost one in five drinkers reported being unable to remember what happened the night before because of drinking alcohol. It is noteworthy that two-thirds of respondents who reported they were unable to stop drinking after they started also reported "blacking out" or not being able to remember what happened the night before. This finding indicates that drinkers who could not remember what happened the night before might underreport their consequences of drinking.

An additional concern is the prevalence of drinking and driving and uncontrolled drinking. One in 17 drinkers reported either driving a car when they were too impaired to drive safely or being unable to stop drinking once they started. Despite concerns related to DARCS scores, almost half of all drinkers did not report any consequence of drinking in the past 30 days.

Table 6: Descriptive Analysis of the Direct Alcohol Related Negative Consequence Scale

Item	Mean (Std. Dev)	Range	
		Min	Max
DARCS (α=.55)	.34 (.72)	0	4
I have spent too much time drinking	4%	0	1
I have driven a car when I had too much to drink	6%	0	1
I have blacked out after drinking	18%	0	1
I have been unable to stop drinking once I started	6%	0	1

N = 491

Tables 7 and 8 show a comparison of negative consequences. Table 7 reports on females; Table 8 reports on males. Participants who abstain from alcohol use are not included in the drinker comparisons for obvious reasons. Our data findings deviate from popular narratives highlighting negative outcomes associated with drinking. For example, the percentage of female moderate drinkers who miss class or work is significantly higher when they are sober as compared to drinking 68% vs. 8%), and heavy drinkers twice as often miss class or work while they are sober. In addition, the percentage of female moderate drinkers who report poor academic performance is also significantly higher when they are sober as compared to drinking (42% vs. 6%) and similar results are reported for heavy drinkers. More heavy drinkers report poor academic performance when they are sober as compared to drinking (42% vs. 15%). Last, the percentage of female moderate drinkers who report regretted sexual encounters is almost three times higher when they are sober than when they are drinking. It is remarkable that females report a greater percentage of regretted sexual encounters at times they are sober versus after drinking. This is counter-intuitive to existing ideas related to alcohol use and sexual behavior and merits additional investigation.

Table 7: Female Comparison of Alcohol and Non-Alcohol Related Negative Consequences

Drinker type Yes to any of the following:	Non-alcohol related consequences					Alcohol-related consequences			
	Abstain %	Light %	Mod %	Heavy %	(N)	Light %	Mod %	Heavy %	(N)
I said or did something embarrassing	79	70	75	81	354	17	55	70	311
I took avoidable risks	27	30	43	57	353	7	34	58	311
I missed class or work	46	52	68	66	354	--	8	30	311
I was tired or had less energy	91	97	92	99	353	12	25	53	310
Poor academic performance	20	32	42	42	354	--	6	15	309
I failed to follow through on a commitment	63	55	62	69	354	2	5	12	310
I later regretted a sexual encounter	7	8	16	34	354	2	6	21	311

Table 8 shows a comparison of negative consequences among males. A few items are highlighted in Table 7 that vary from Table 8. The percentage of regretted sexual encounters does not follow the same pattern for males as it did for females. Heavy-drinking males reported a greater percentage (31%) of alcohol-related regretted sexual encounters as compared to non-alcohol related regretted encounters (19%). However, for males the percentage of non-alcohol related regretted sexual encounters is highest among moderate drinkers. Overall the prevalence of regretted sexual encounters is similar between males and females. Sixteen percent of males and females reported a regretted sexual encounter while they were sober. Alcohol-related regretted sexual encounters were slightly higher for males (10%) than for females (8%).

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With the exception of saying or doing something embarrassing, or missing class or work, male moderate drinkers reported the highest percentage of non-alcohol related consequences. The percentage of male moderate drinkers who reported missing class or work is greater when they are sober (53%) as compared to drinking (11%). In addition, the percentage of male moderate or heavy drinkers who report poor academic performance is greater when they are sober (moderate 35%, heavy 31%) as compared to drinking (moderate 7%, heavy 8%). These results are difficult to reconcile with the idea that failure to persist to graduation is a result of drinking. Moderate and heavy male drinkers reported making fewer poor decisions while drinking as opposed to not drinking.

Table 8: Male Comparison of Alcohol and Non-Alcohol Related Negative Consequences

Drinker type	Non-alcohol related consequences					Alcohol-related consequences			
	Abstain	Light	Mod	Heavy	(N)	Light	Mod	Heavy	(N)
Yes to any of the following:	%	%	%	%		%	%	%	
I said or did something embarrassing	61	64	75	81	209	17	62	81	177
I took avoidable risks	48	44	67	64	209	13	45	58	177
I missed class or work	41	58	53	64	209	3	11	28	178
I was tired or had less energy	85	81	91	80	209	8	38	53	178
Poor academic performance	35	29	35	31	209	1	7	8	178
I failed to follow through on a commitment	51	54	58	54	207	1	4	11	178
I later regretted a sexual encounter	9	8	29	19	207	--	13	31	178

Drinker Type and Indirect Non-Alcohol Related Negative Consequences

Research question one is primarily concerned with examining the distribution of indirect negative consequences across drinker typologies. Examination of the distribution of indirect negative consequences across drinker types may provide useful information about the relationship or lack thereof between negative consequences and alcohol use. At present, alcohol studies literature focuses on consequences associated with drinking and does not control for the same or similar consequences occurring when alcohol is not consumed. Little is known about non-alcohol related consequences. The professional literature does not differentiate between direct and indirect alcohol related negative consequences. For instance, based on *prima facie*

evidence, alcohol use is reported as the sole contributor to missing class if respondents say it is so; however, missed class can occur for a variety of reasons entirely unassociated with drinking as well.

Drinker Typology

Our study recognizes two drinker typologies. Type-1 represents binge drinking. Binge drinking is the most recognizable drinker type. However, the binge drinking definition may inflate estimates of alcohol abuse (Perkins, DeJong, & Linkenbach, 2001). A concern related to this typology is how to account for non-drinkers. The binge/non binge dichotomy does not differentiate non-drinkers.

Our study addresses this concern by including a categorical measure that identifies non-drinkers. Type-2 drinker categories are based on the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT is an empirically validated alcohol use diagnostic tool commonly used to screen for alcohol abuse disorders. Type-2 represents drinker categories divided into discrete groups: abstainers, light drinkers, moderate drinkers, and heavy drinkers.

Drinker Type 1: Binge Drinking

As can be seen by the frequencies cross tabulated in Table 9, a possible association may exist between gender and binge drinking among study participants. The relationship is significant X^2 (1, N=481) = 15.71, $p < 0.001$. Men are more likely to be classified as binge drinkers. In our study, over one-half of male participants report binge drinking (53%) compared to about one-third of females (35%). Based on the frequencies previously cited, the differences between males and females in our study are higher than those of the 2014 MTF nationwide study of college student males (43%) and females (30%) (Johnston, O'Malley, Bachman, & Schulenberg, 2015).

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It is not clear how to explain these differences. Additional study is merited to determine whether our binge drinking rates are representative of the university 18-21 year old population.

Table 9: Percentages of Males and Females Who Report Binge Drinking

Drinker Type: Binge	Males		Females	
	Freq.	Percent	Freq.	Percent
No	82	47	200	65
Yes	93	53	106	35
Total	175	100	306	100

Drinker Type 2: Drinker Categories

Frequency measures in the survey instrument such as "How many days did you drink in the past month?" estimate the number of times alcohol is used but fall short with regard to determining a degree of alcohol impairment. Quantity measures with arbitrary cut points do not differentiate 5 drinks from 25. Quantity measures describe single drinking episodes, but do not provide information related to the number of times participants consumed alcohol. The AUDIT-Condensed or AUDIT-C is based on a validated quantity/frequency measure.

Table 10 presents four categories of alcohol use based on the AUDIT-C. The results are separately reported for males and females. In our sample, 17% of females report abstaining from alcohol use in the past semester, 34% are light drinkers, 28% are moderate drinkers and 22% of females are heavy drinkers. The AUDIT-C quantity/frequency measure indicates a greater percentage of females report heavy drinking (22% vs. 17%) as compared to males.

Table 10: Percentages of Male and Female Non, Light, Moderate, and Heavy Drinkers

Drinker Type	Males[1]			Females[2]		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
Abstain	48	23	23	60	17	17
Light	72	34	57	122	34	51
Moderate	55	26	83	99	28	78
Heavy	36	17	100	77	22	100

[1]Mean: 2.37; Std. Dev: 1.02; Scale 1-4; N=211

[2]Mean: 2.54; Std. Dev: 1.01; Scale 1-4; N=358

Bivariate Analyses—Control Variables

Several steps were taken to assess the relationship between race, gender, drinker type, and non-alcohol related negative consequences. The results indicated no significant differences between either race or gender and the prevalence of non-alcohol related negative consequences. An independent t-test failed to detect any significant differences in non-alcohol related negative consequences between White and non-White participants, females and males.

However, significant differences in non-alcohol related negative consequences between non-binge and binge drinkers were detected. A t-test of non-alcohol related consequence scores and binge drinking is statistically significant $t(476) = -314$, $p < .001$. Binge drinkers experience more non-alcohol related negative consequences (4.1) as compared to non-binge drinkers (3.6).

A one-way ANOVA was conducted to determine whether non-alcohol related negative consequences were different for students in different drinker categories. Participants were classified into four alcohol use categories: No Risk ($n = 107$), Low Risk ($n = 175$), Moderate Risk ($n = 195$), and High Risk ($n = 91$). There was a statistically significant difference between groups as determined by one-way ANOVA (F(3, 555) = 7.11; $p = 0.001$). A Bonnerroni post-hoc

test revealed that the number of non-alcohol related negative consequences was significantly higher in the High-risk drinker category (M = 4.2, SD = 1.6) and Moderate-risk drinker category (M = 4.0, SD = 1.8) compared to the Low-risk drinker category (M = 3.5, SD = 1.5) and No-risk drinker category (M = 3.3, SD = 1.6). In addition, the number of consequences reported by the High-risk drinker category (M = 4.2, SD = 1.6), and Moderate-risk drinker category (M = 4.0, SD = 1.5), was significantly higher as compared to the Low-risk drinking category (M = 3.4, SD = 1.5). These results indicate that the prevalence of non-alcohol related negative consequences are significantly influenced by categories of drinking: high-risk drinkers report the greatest number of non-alcohol related negative consequences.

<p style="text-align:center">Multivariate Analyses—Control Variables</p>

Tables 11 and 12 present a multivariate analysis of the relationship between drinker type, race, and gender on non-alcohol related consequences. The model predicts significant differences between drinker groups and non-alcohol related consequences. First, based on AUDIT-C categories there is a significant protective relationship between abstainers (b = -.932, $p < .001$), light drinkers (b = -.825, $p < .001$), and moderate drinkers (b = -.454, $p < .01$), as compared to heavy drinkers. Heavy drinkers report significantly more non-alcohol related negative consequences as compared to all others. Second, based on the definition of binge drinking the model predicts a protective relationship (b = -.521, p < .001) for non-binge drinkers compared to binge drinkers.

Table 11: Baseline Model—Unstandardized Coefficients From OLS Regression of Type 1

Drinkers on Non-Alcohol Related Negative Consequences

Item	b (SE)
White	.008 (.155)
Female	.249 (.160)
Binge	-.524 (.157)***
Model F	4.08**
Adjusted R^2	0.019

N = 477; *$p < .05$; **$p < .01$; ***$p < .001$

Table 12: Baseline Model—Unstandardized Coefficients From OLS Regression of Type 2

Drinkers on Non-Alcohol Related Negative Consequences

Item	b (SE)
White	-.065 (.142)
Female	.219 (.145)
Abstain	-.932 (.217)***
Light	-.825 (.186)***
Moderate	-.454 (.194)**
Model F	5.57***
Adjusted R^2	0.040

N = 552; *$p < .05$; **$p < .01$; ***$p < .001$

The difference between the Type-1 and Type-2 coefficients illustrates why a categorical

measure is superior to a dichotomous measure of drinking. The inability to account for the effect

of non-drinkers and moderate drinkers limits the utility of the binge drinking measure in multivariate analyses. The difference is illustrated by the difference in the size of coefficients between non-drinkers and light drinkers as compared to the non-binge category.

Overall, the baseline model indicates heavy and binge drinkers differ from all other participants with regard to reporting negative consequences that happen while they are sober. Additional variables in our model will attempt to identify beliefs, attitudes, and behaviors that differentiate heavy drinkers from the rest of the sample.

Table 13 shows that drinker type and gender predict alcohol-related negative consequences. In other words, increases in alcohol use predict alcohol-related negative consequences. Females as compared to males have significantly greater odds (OR = 1.706) of reporting alcohol-related negative consequences. Binge drinkers have greater odds (OR= 3.350) of reporting alcohol-related negative consequences than do non-binge drinkers. Moderate drinkers as compared to light drinkers have greater odds (OR = 3.309) of alcohol-related negative consequences. Not surprisingly, heavy drinkers as compared to light drinkers have the highest odds of reporting alcohol-related negative consequences. These data are consistent with previous research related to alcohol-related negative consequences. However, pairing the prevalence of alcohol and non-alcohol related consequences as described in Tables 11, 12, and 13 has not been previously studied. An unanticipated pattern emerged in the process of comparing negative consequences between drinkers and non-drinkers. The percentage of non-alcohol related negative consequences increased with alcohol use. Heavy drinkers described a greater number of non-alcohol related negative consequences than those who abstained or described their drinking as low risk.

Table 13: Baseline Model—Unstandardized Coefficients From Logistic Regression of Drinker Type on Alcohol-Related Negative Consequence Scores

Item	b (SE)
White	0.203 (0.286) [1.226]
Female	0.534 (0.431)* [1.706]
Binge	1.210 (1.023)*** [3.350]
Moderate	1.197 (0.922)*** [3.309]
Heavy	2.328 (3.855)*** [10.255]
Model X^2	169.90***
Nagelkerke R^2	.407
N = 468; *$p < .05$, **$p < .01$, ***$p < .001$	

Note: Table includes unstandardized coefficients with standard errors in parentheses. Exp(B) is displayed in brackets

Alcohol and non-alcohol related negative consequences were found to be associated with alcohol use. Thus the null hypothesis for research question 1 is rejected. These results indicate that a moderating variable or variables may influence the incidence of negative consequences regardless of alcohol use. These results are promising for better predicting negative consequences. If alcohol use is not the primary driver of negative consequences, health promotion strategies might be re-designed to account for reductions in both alcohol and non-alcohol related negative consequences.

Theoretical Models

Based upon the above findings, the research shifted to look at two theoretical assumptions concerning the distribution of negative consequences among study participants. Social Control and Social Learning covariates were modeled to determine if involvement, commitment, differential association, and reinforcement were related to both alcohol and non-alcohol related consequences. The next section will examine covariates of social control and social learning to determine whether either theory can explain the occurrence of negative consequences reported by drinkers during times they are either sober or intoxicated.

Social Control

Involvement and commitment are important constructs of Hirschi's Social Control Theory. According to Hirschi (1969), social bonds function to maintain the smooth operation of social order and community life. Social control covariates are included in this study to test the effect of involvement and commitment on the frequency of non-alcohol related negative consequences.

This study defines involvement as extrinsic and intrinsic religiosity. Extrinsic religiosity is expressed through organized religious activities, whereas intrinsic religiosity consists of deeply felt personal convictions that may or may not be expressed through formal religious activities. In previous studies commitment to faith communities or a heightened sense of spirituality is associated with a great degree of communalism. In addition to involvement, commitment is an important social control construct. In our study, commitment covariates include academic engagement and self-control.

Tables 14, 15, and 16 present the distribution of extrinsic and intrinsic religiosity variables. Extrinsic religiosity was examined first. Most participants in our study did not attend

religious services frequently. Over two-thirds report attending services a few times a year. About one-third of participants report attending a few times a month or more. A statistically significant difference between attendance at organized religious activities and non-alcohol related negative consequence scores is not observed. Non-alcohol consequence scores are not significantly lower for participants who attend religious services more frequently as compared to those who do not. An analysis of variance did not detect any differences between negative consequences and attendance at organized religious activities or intrinsic religiosity/spirituality.

Table 14: Frequency Estimates of Attendance at Organized Religious Meetings (ORA)

How often do you attend church/religious meetings?	Freq.	Percent	Cum.
Never	167	29	29
Once a year or less	94	16	46
A few times a year	134	23	69
A few times a month	72	12	82
Once a week	66	11	93
More than once a week	40	7	100

Mean = 2.8; SD = 1.6; Scale: 1 – 6; N = 571

Table 15: Intrinsic Religiosity Scale (α = .93)

Subscale Item	Mean (SD)
In my life, I experience the presence of the divine	3.20 (1.56)
Typically my religious beliefs guide my life decisions	2.87 (1.54)
I try to integrate my religion into all dealings in my life	2.70 (1.51)

Mean = 2.70; SD = 1.43; N = 572; Scale 1 – 5

Table 16: Frequency Count for the Intrinsic Religiosity Scale

Intrinsic Religiosity	Freq.	Percent	Cum.
Definitely not true	180	31	31
Tends not to be true	84	15	46
Unsure	115	20	66
Tends to be true of me	115	20	86
Definitely true of me	80	14	100

The results showed that the effect of extrinsic religiosity on non-alcohol related negative consequence scores was insignificant ($F(2, 566) = 0.53$; $p = 0.5878$). In addition, a significant effect of intrinsic religiosity on negative consequence scores was not observed ($F(4, 566) = 0.62$; $p = 0.6460$). Participants' prevalence of non-alcohol related negative consequences did not significantly differ among those who described themselves as unmotivated, were unsure, or those who were highly motivated by intrinsic religiosity. Neither the frequency of attendance at organized religious activities nor internalized spirituality accounts for the prevalence of non-alcohol related negative consequences in our study. Evidently, neither extrinsic nor core religiosity influenced the prevalence of taking avoidable risks, failing to follow through on a commitment, missing class because of other priorities, or reporting a regretted sexual experience. Especially, the lack of sway that religiosity held on the prevalence of regretted sexual encounters was unanticipated.

Commitment

Commitment is a measure of social bonds and is important for the maintenance of institutional goodwill between community members and institutionally appointed officials. Academic engagement and self-control are tested to determine whether there is an association between non-alcohol related negative consequences and respondents' commitment to institutional expectations for academic excellence. Academic engagement was measured by the survey question "I usually put off studying until the end of the semester."

A relationship exists between putting off studying until the end of the semester and negative consequences. Participants who are engaged academically are less likely to miss class, fail to follow through on a commitment, say or do embarrassing things, or take avoidable risks than those who routinely put off studying. The effect of academic engagement on non-alcohol related negative consequences is significant ($F(4, 568) = 24.56$; $p = 0.001$). Participants who strongly agreed or agreed to put off studying reported significantly higher non-alcohol related negative consequence scores as compared to those who disagreed.

In addition to examining the relationship between non-alcohol related negative consequences and academic engagement, study investigators found a significant relationship between academic engagement and alcohol-related negative consequences ($X^2 (1, N = 488) = 14.23$; $p = 0.001$). Increases in academic engagement are associated with lower alcohol and non-alcohol related negative consequence scores.

Table 17 presents items included in the self-control scale. Mean scores indicate sample subjects have a high degree of self-awareness and self-control. The self-control scale represents beliefs about individual responsibility and involvement. The presence or absence of self-control is often linked with "responsible" action. Self-control is typically connected to an awareness of

risk, increased self-awareness, and strong social bonds. Higher levels of self-control are typically related to discipline and greater capacity to delay gratification.

Table 17: Self Control Scale ($\alpha = .75$)

Subscale Item	Mean (SD)
I plan carefully	2.1 (0.8)
I do not act without thinking	1.8 (0.7)
I typically pay attention	1.8 (0.7)
I am self-controlled	1.8 (0.7)
I do not have trouble with concentration	2.3 (0.8)
I am a careful thinker	1.8 (0.8)
I do not say things without thinking	1.8 (0.8)

Mean = 1.5; SD = 0.5; Scale = 1 – 3; N = 563

The effect of self-control on non-alcohol related negative consequence scores is significant ($F(2, 557) = 42.18$; $p = 0.001$). Negative consequence scores are significantly higher ($p < .001$) for respondents who often lacked self-control versus those who occasionally or rarely lacked self-control. In addition, a chi-square test of independence was performed to examine the relationship between self-control and alcohol-related negative consequences. The relation between these variables is significant (X^2 (1, N=476) = 25.83; $p = 0.001$). There is an association between perception of self-control and the incidence of both alcohol and non-alcohol related negative consequences.

Table 18 presents the effect of control variables on non-alcohol related negative consequence scores. The relationship tested in the model is not significant. Neither race nor

gender predicts any significant increase or decrease in non-alcohol related negative consequence scores.

Table 18: Model 1—Unstandardized Coefficients From OLS Regression of Gender on Non-Alcohol Related Negative Consequences

Item	b (SE)
White	-.010 (.129)
Female	.341 (.132)**
Model F	0.70
Adjusted R^2	-0.001

N = 566; *$p < .05$; **$p < .01$; ***$p < .001$

Table 19 presents the effect of control variables on alcohol-related negative consequences. Race is significant for increased alcohol-related negative consequences. Non-White as compared to White respondents report significantly fewer incidents (OR = 1.565) of alcohol-related negative consequences. The differences in relationship between males and females who reported alcohol-related consequences is not significant.

Table 19: Model 1—Unstandardized Coefficients From Logistic Regression of Gender on

Alcohol Related Negative Consequences

Item	b (SE)
White	0.448 (.291)*
	[1.565]
Female	-0.016 (.187)
	[0.984]
Model X^2	5.85
Nagelkerke R^2	0.016

N = 487; *$p < .05$, **$p < .01$, ***$p < .001$

Note: Table includes unstandardized coefficients with standard errors in parentheses.

Exp(B) is displayed in brackets

Table 20 presents the effect of social control covariates on non-alcohol related negative consequence scores. Race did not significantly predict negative consequences. However there is a significant difference between genders (b = .34; $p < .01$). Females reported a greater incidence of non-alcohol related negative consequences. The effects of involvement are not significant in predicting non-alcohol related negative consequences. Neither intrinsic nor extrinsic religiosity appears to significantly increase or decrease negative consequences. Yet, measures for commitment were significant for predicting non-alcohol related negative consequences. Academic disengagement (b = .44; $p < .001$) and inconsistent self-control (b = .78; $p < .001$), predicted increased negative consequence scores. Commitment appears influential in safeguarding individuals from non-alcohol related negative consequences. In our study, the strength of social bonds is demonstrated through commitment rather than involvement. Self-control and academic engagement as opposed to religiosity are protective for selected social and behavioral negative consequences.

Table 20: Model 2—Unstandardized Coefficients From OLS Regression of Social Control

Covariates on Non-Alcohol Related Negative Consequence Scores

Item	b (SE)
White	-.010 (.129)
Female	.341 (.132)**
Participation in Organized Religious Activities	.088 (.054)
Intrinsic Religiosity	-.049 (.061)
Academic Engagement	.435 (.058)***
Self-Control	.779 (.123)***
Model F	25.52***
Adjusted R^2	.213

N = 545; *$p < .05$; **$p < .01$; ***$p < .001$

Table 21 presents the effect of social control covariates on alcohol-related negative

consequences. The prevalence of alcohol-related negative consequences is significantly

influenced by academic engagement (OR = 1.263) and self-control (OR = 2.193). The odds of

alcohol-related consequences increase with each unit decrease in academic engagement and/or

self-control. In addition, race is also significant for increased alcohol-related negative

consequences. Non-White as compared to White respondents report significantly fewer incidents

(OR = 1.492) of alcohol-related negative consequences. The difference between males and

females who reported alcohol-related consequences is not significant. In addition, extrinsic or

intrinsic religiosity is not significantly associated with the prevalence of alcohol-related negative

consequences. Evidently higher academic engagement and self-control predict decreases in both

alcohol and non-alcohol related negative consequences. Yet, the influence of gender and race is

mixed; females report significantly more non-alcohol related consequences than males in the OLS regression model. However, non-Whites have lower odds of reporting alcohol-related consequences than Whites. Surprisingly intrinsic and extrinsic religiosity is not significant for predicting the prevalence of negative consequences in either model. This result is not consistent with other studies. Stoltzfus and Farkas (2012) study found the relationship between "typical" or "normal" stress and alcohol use among female college students faded with "increased participation in religious coping" (p. 1134). Apparently, female students who reported they were engaged in a faith community described greater levels of overall life satisfaction. Jankowski, Hardy, Zamboanga, and Ham (2013) reported intrinsic religiosity was more protective for high-risk drinking than extrinsic religiosity. Jankowski and colleagues found extrinsic religiosity and alcohol use was only marginally significant. In our study religiosity was irrelevant to estimating alcohol or non-alcohol related negative consequences.

Table 21: Model 2—Unstandardized Coefficients From Logistic Regression of Social Control

Covariates on Alcohol Related Negative Consequence Scores

Item	b (SE)
White	.400 (.296)* [1.492]
Female	.065(.217) [1.067]
Participation in Organized Religious Activities	-.304 (.187) [0.737]
Intrinsic Religiosity	.015 (.082) [1.015]
Academic Engagement	.234 (.110)** [1.263]
Self-Control	.785 (.442)*** [2.193]
Model X^2	39.879***
Nagelkerke R^2	.108

N = 473; *$p < .05$, **$p < .01$, ***$p < .001$

Note: Table includes unstandardized coefficients with standard errors in parentheses.

Exp(B) is displayed in brackets

Social Learning Theory

Social Learning Theory informs the choice of two scales intended to test associations between non-alcohol related negative consequences. The Alcohol Expectancy scale measures beliefs about alcohol use, and the Sensation Seeking scale measures imitation related to risk taking behavior. The present model tests associations between alcohol expectancies and sensation-seeking behaviors on non-alcohol related consequence scores. Social learning theory

recognizes the role of an actor's cognition for observing, interpreting, and acting on information. Beliefs about self and others are dynamic not static, and life cycle transitions reaffirm previously held beliefs or challenge existing core beliefs. Ambivalence plays an important role in re-shaping behavior, especially as it relates to definitions. This study posits alcohol expectancies and sensation seeking are significantly associated with the prevalence of negative consequences.

Alcohol Expectancies

Alcohol expectancies define the anticipated effects of drinking that lend to favorable attitudes toward drinking. Alcohol is a central nervous system depressant, not unlike prescription benzodiazepine drugs (Xanax, Klonopin, and Ativan); nonetheless eight in ten study participants reported alcohol made them act sociable, seven in ten believed alcohol made it easier to talk with people, and over half believed alcohol made them brave and daring. Study respondents' misperceptions related to the pharmacological effect of alcohol use was evident by their inability to differentiate between expectancy and the pharmacological effects of alcohol.

Table 22 presents items that make up the Alcohol Expectancy scale. Item response options are dichotomous (0 = No 1 = Yes). The scale was re-coded to reflect higher versus lower expectancies. Higher expectancies were composite scores greater than two. A chi-square test of independence was performed to examine the relationship between alcohol expectancies and alcohol-related negative consequences. Higher alcohol expectancy scores as compared to lower scores are associated with an increased prevalence of alcohol related negative consequences X^2 (1 N = 476) = 88.73; $p < .001$). This finding is similar to other results consistently reported in the alcohol-studies literature related to the association between positive alcohol expectancies and increased levels of alcohol use.

Table 22: Alcohol Expectancy Scale (α = .82)

Subscale Item	Percent
I would act sociable	83
It would be easier to talk with people	74
I would feel brave and daring	57
I would feel unafraid	52
I would take risks	43

Mean = 2.7; SD = 1.9; N = 554; Scale Range 0 – 5

Alcohol expectancies are known to influence drinking behaviors; however, less is known about the relationship between expectancies and non-alcohol related consequences. A t-test was used to compare the number of non-alcohol related consequences for respondents who reported positive alcohol expectancies. Students who reported higher positive expectancies had higher non-alcohol related negative consequence scores (M = 4.2, SD = 1.57) than did students who reported fewer positive alcohol expectancies (M = 3.2, SD = 1.61; t (537) = -6.96, p <. 001). Further study of the relationship between alcohol expectancies and non-alcohol related negative consequences is merited.

Sensation Seeking

Table 23 presents items that make up the Sensation Seeking scale. The scale measures the degree to which respondents engage in thrill seeking. Sensation seeking is associated with imitation. The link between risk taking and social capital or peer approval is a powerful motivator (Clark et al., 1971). In this study, sensation seeking is described on a continuum from rarely to often. Increased incidence of sensation seeking is thought to predict alcohol-related

negative consequences, while less frequent sensation seeking predicts fewer negative

consequences.

Table 23: Sensation Seeking Scale (α= .75)

Subscale Item	Mean (SD)
I act on the spur of the moment	2.11 (.77)
I do dangerous things for fun	1.60 (.79)
I do exciting things even if they are dangerous	1.85 (.82)

Mean = 1.55; SD = 0.55; N = 588; Scale: 1 – 4

Our results indicate sensation seeking is associated with increased prevalence of alcohol

related negative consequences as well as non-alcohol related negative consequences. The

relationship between sensation seeking and alcohol-related negative consequences is significant,

$(X^2 (2 N = 487) = 40.98; p = 0.001)$.

In addition, a one-way ANOVA was conducted to determine whether non-alcohol related

negative consequences were different for students with different levels of sensation seeking.

Participants were classified into three sensation seeking groups: Rarely (n =319), Occasionally

($n = 196$), and Often ($n = 52$). There was a statistically significant difference between groups as

determined by one-way ANOVA (F(2, 566) = 19.37; $p = 0.001$). A Bonnerroni post-hoc test

revealed that the number of non-alcohol related negative consequences was significantly higher

in the often (M = 4.3; SD = 1.7) category compared to the rarely category (M = 3.3; SD = 1.6)

and the occasionally category (M = 4.1; SD = 1.6) compared to the rarely category.

Table 24 presents the effect of social learning theory covariates on the prevalence of non-alcohol related negative consequence scores. Race did not significantly predict negative consequences. However, there is a significant difference between females and males ($b = .36$; $p < .05$). Female study participants reported a greater number of non-alcohol related negative consequences compared to men. The effect of alcohol expectancies and sensation seeking are significant for predicting non-alcohol related negative consequences. Positive alcohol expectancies ($b = .82$; $p < .001$) and high sensation seeking ($b = .51$; $p < .001$), predicted negative consequences. In addition to social control covariates, social learning constructs may be helpful for understanding dynamics related to the prevalence of non-alcohol related negative consequences.

Table 24: Model 3—Unstandardized Coefficients From OLS Regression of Social Learning Theory Covariates on Non-Alcohol Related Negative Consequence Scores

Item	b (SE)
White	-.100 (.137)
Female	.336 (.142)*
Alcohol Expectancies	.824 (.140)***
Sensation Seeking	.510 (.109)***
Model F	19.34***
Adjusted R^2	.155

N = 532; *$p < .05$; **$p < .01$; ***$p < .001$

Table 25 presents the effect of social learning theory covariates on alcohol-related consequences. This model estimates the prevalence of alcohol-related negative consequences. The covariates in this model are the same social learning covariates selected to estimate non-alcohol related negative consequences. The relationship of gender is not significant in this model. Race is significant; non-Whites have lower odds (OR = 1.576) for reporting alcohol-related negative consequences compared to Whites. The endorsement of positive alcohol expectancies increases the odds (OR = 1.752) of reporting alcohol-related negative consequences. Reports of higher levels of sensation seeking also increase the odds (OR = 1.905) of reporting alcohol-related negative consequences.

Table 25: Model 3—Unstandardized Coefficients From Logistic Regression of Social Learning Theory Covariates on Alcohol Related Negative Consequences

Item	b (SE)
White	.410 (.322)* [1.510]
Female	.332 (.311) [1.394]
Alcohol Expectancies	1.750 (.126)*** [5.745]
Sensation Seeking	.687 (.346)*** [1.987]
Model X^2	111.55***
Nagelkerke R^2	.281

N = 472; *$p < .05$, **$p < .01$, ***$p < .001$

Note: Table includes unstandardized coefficients with standard errors in parentheses.

Exp(B) is displayed in brackets

Full Model—Non-Alcohol Related Negative Consequences Model

Table 26 includes both social control and social learning theory covariates. Among the control variables race is not significant but gender better predicts negative consequences. Females as compared to males report a significant increase—almost a one-half unit increase in non-alcohol related consequences (b = .40; p < .01). Both involvement and commitment variables are significant. Based on previous analysis in this study, extrinsic religiosity is also unexpectedly significant (b = .15; p < .01) for increases not decreases in non-alcohol related negative consequences. It is counter-intuitive that increased attendance at religious services is associated with a greater prevalence of non-alcohol related negative consequences. However, participants who attend organized religious activities more frequently may possess increased levels of self-awareness and thus be more likely to report negative consequences. They may also attend religious services more frequently because they engage in deviant behavior and perceive a greater need for extrinsic religious activities.

Table 26: Full Model—Unstandardized Coefficients From OLS Regression of Social Control and Social Learning Covariates on Non-Alcohol Related Negative Consequence Scores

Item	b (SE)
White	-.135 (.128)
Female	.405 (.133)**
Participation in Organized Religious Activities	.155 (.053)**
Intrinsic Religiosity	-.137 (.093)
Academic Engagement	.412 (.058)***
Self-Control	.547 (.128)***
Alcohol Expectancies	.670 (.132)***
Sensation Seeking	.253 (.106)**
Model F	25.01***
Adjusted R^2	.272

N = 514; *$p < .05$; **$p < .01$; ***$p < .001$

Decreased levels of academic engagement (b = .41; $p < .001$) are associated with increased non-alcohol related negative consequences. This is consistent with previous models in our study. A high level of academic engagement implies a strong social bond. The "endorsement" of positive alcohol expectancies increases the prevalence of non-alcohol related negative consequences. Participants who reported positive expectancies (b = .67; p < .001) are more likely to experience a non-alcohol related negative consequence. It appears that changing positive alcohol expectancies can decrease alcohol use, so perhaps the same outcome will hold for decreases in non-alcohol related negative consequences.

Finally, sensation seeking (b = .25; $p < .01$) is associated with increased non-alcohol related negative consequences. The literature suggests that sensation-seeking behavior presents opportunities for experiencing negative consequences by virtue of differential association within a community of like-minded peers. Reinterpreting sensation seeking as an asset for career development in selected professions, and/or appealing to reducing overall negative outcomes versus exerting instrumental action may prove more beneficial for students.

Previous models concerned with only alcohol use and negative consequences have not highlighted the context of non-alcohol related consequences. Associations between poor academic performance, interpersonal conflicts, regretted behaviors, and sobriety are well established in the alcohol studies literature. However, typical alcohol prevention efforts do not account for non-alcohol related negative consequences—as if non-drinkers don't miss class, take avoidable risks, and regret sexual encounters. This assumption is shortsighted, based on the findings of the current research study. These findings have important implications for designing harm reduction educational programs.

Full Model—Alcohol-Related Negative Consequences Model

Table 27 presents study control variables as well as Social Control and Social Learning Theory covariates associated with alcohol-related consequences. Among the control variables, race is significant in the final model. White as compared to non-White participants have higher odds (OR = 1.546; $p < .10$) of reporting alcohol-related consequence. The p-value (.51) of the control variable non-White is close enough to warrant inclusion in this study as statistically significant. Future research would be useful to determine what is protective about being non-White with regard to alcohol-related consequences. Gender is not a significant control variable for this alcohol-related model.

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Table 27: Full Model—Unstandardized Coefficients From Logistic Regression of Social Control and Social Learning Covariates on Alcohol Related Negative Consequences

Item	b (SE)
White	.435 (.3450)* [1.546]
Female	.338 (.325) [1.402]
Participation in Organized Religious Activities	.053 (.098) [1.054]
Intrinsic Religiosity	-.172 (.135) [0.842]
Academic Engagement	.183 (.118) [1.201]
Self-Control	.362 (.315) [1.436]
Alcohol Expectancies	1.710 (.125)*** [5.411]
Sensation Seeking	.533 (.313)** [1.704]
Model X^2	120.27***
Nagelkerke R^2	.309

N = 458; *$p < .05$, **$p < .01$, ***$p < .001$

Note: Table includes unstandardized coefficients with standard errors in parentheses. Exp(B) is displayed in brackets

Surprisingly, social control covariates are not significant in the final alcohol-related consequences model. While self-control and academic engagement are associated with lower non-alcohol related negative consequences, the same is not true with regard to alcohol use and

associated negative consequences. Participants who report alcohol-related negative consequences are not differentiated by academic engagement, self-control, or religiosity. Consequently, academic engagement, self-control, and extrinsic or intrinsic religiosity are not significantly associated with the prevalence of indirect alcohol-related negative consequences. However, results from additional studies suggest that alcohol-use attitudes partially mediate the relationship between religiosity and frequency of alcohol use (Vaughan, de Dios, Steinfeldt, & Kratz, 2011). Apparently, risky drinkers in our sample are not more likely to attend religious services. Religiosity did not significantly influence the prevalence of alcohol-related negative consequences. The same is true for self-control and academic engagement.

Both of the social learning theory covariates are significantly associated with alcohol-related negative consequences. For example, the endorsement of positive alcohol expectancies increases the prevalence of alcohol-related negative consequences. Participants who report positive expectancies increased their odds (OR = 5.541; $p < .001$) of reporting higher alcohol-related consequence scores.

In addition to positive alcohol expectancies, sensation seeking is significantly associated with increases in alcohol related negative consequence scores. Participants who expressed more versus less favorable attitudes with regard to risk-taking report higher odds (OR = .1.704; $p < .01$) for alcohol-related negative consequence scores. Positive alcohol expectancies and sensation seeking are known to increase alcohol use. These results are consistent with previous studies related to drinking and alcohol-related negative consequences.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

Hypothetical Conclusions

Despite the evidence that most students don't abuse alcohol, narratives about drinking tend to focus on harm not health. For example, when one in five students reports an alcohol-related negative consequence, four in five have not. Notwithstanding these statistics, the association between alcohol consumption and negative consequences is practically unquestioned in alcohol-studies literature. Heretofore alcohol use research assumed a causal relationship between drinking and social and behavioral harm. Unlike consequences attributed to alcohol use, non-alcohol related negative consequences remain overlooked in the alcohol studies literature. Our study addressed this oversight. Negative consequences coupled either with intoxication or sobriety were studied, resulting in alternative explanations for negative consequences.

Nomenclature for negative consequences or harms is described based on two types of negative consequences. First, items on the direct alcohol-related consequences scale may only occur as a direct result of drinking. These include alcohol blackouts, driving under the influence, and being unable to stop drinking after starting. Second, items on the indirect negative consequences scale may occur with or without alcohol use. These include skipping class or engaging in regretful sexual behaviors. The prevalence of direct alcohol-related negative consequences is very low as compared to the prevalence of consequences that occur with or without alcohol use. Almost half of all drinkers did not experience any alcohol-related negative

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consequences in the past 30 days and only one-quarter reported an alcohol-related consequence that could only be explained as a result of drinking.

Our study does not contest the validity of direct alcohol-related negative consequences. The inherent association between alcohol use and direct negative consequences goes unquestioned. Twenty-three percent of survey participants reported a negative consequence directly associated with drinking. But at the same time, college students experience many more negative consequences when they are not drinking than when they are. For instance, 97% reported an indirect negative consequence that occurred when they were sober. This number was reduced by half, fifty-three percent when reporting an indirect negative consequence as a result of drinking.

At present it is unknown what variables are shared by alcohol and non-alcohol related indirect consequences. Study results show that students miss class, take avoidable risks, fail to honor commitments, and report regretted sexual encounters on days they drink as well as on days they do not. In other words our study found alcohol use alone couldn't explain similar indirect negative consequences that occur during times of sobriety. That is, it is not just alcohol that gets college students in trouble or that causes them to do risky, foolish, or regrettable things.

Research question one is concerned with the distribution of non-alcohol related negative consequences by drinker type. The binge drinking measure is most often used for measuring college student problem drinking. In our study a stronger measure of alcohol use replaced the dichotomous binge/non-binge measure. A four-category measure of alcohol use based on the AUDIT-C outlined non-use, light, moderate, and heavy alcohol use. Using this scale, significant differences between drinker type and indirect negative consequence scores were found. Study participants who drank more reported a greater number of non-alcohol related negative

consequences. Heavy alcohol consumption predicted significant increases for both alcohol and non-alcohol related consequences. In other words, the heavy-drinking students experienced the same or similar negative consequences irrespective of whether they were drinking or not. Results suggest rates of alcohol use and non-alcohol related consequences are associated. The prevalence of both alcohol and non-alcohol related social and behavioral consequences rises with alcohol quantity and frequency increases.

The distribution of non-alcohol related consequences among study participants was not random. Study results support rejecting the null hypothesis in favor of the alternative hypothesis. An alternate hypothesis for research question one holds that negative consequences are associated with the quantity and frequency of study participants' alcohol use. Research questions two through five consider influences of social control and social learning variables on indirect negative consequences. Four regression models assessed the effect of social control and social learning theory covariates on the prevalence of alcohol and non-alcohol related consequences.

Social Control Covariates

Research questions two and three pertain to involvement and commitment. Involvement and commitment variables are selected to assess whether variables related to anticipation of reward or fear of failure or reprisal are associated with negative consequences. Involvement is measured by extrinsic and intrinsic religiosity, and commitment is measured by self-control and academic engagement. The null hypothesis for social control covariates posits that there is no significant association between self-control, academic engagement, and religiosity on direct alcohol-related consequences scores. Alternative hypotheses related to research questions two

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and three predicted that involvement and commitment would have a significant effect on the prevalence of direct alcohol-related consequences and indirect alcohol-related consequences.

Sociologists understand the importance of family and community attachment for developing and sustaining social bonds. An actor's internalized narratives reflect a continuum of strong to weak social bonds. Bonds or the lack thereof influences college students' individuation and emancipation from their families of origin. Attitudes about social order are reinforced by beliefs including, but not limited to, anticipation of reward, fear of failure or reprisal, and abandonment. While social control theory does not directly explain the prevalence of negative consequences, societal bonds may restrain, permit, or even encourage deviant behaviors.

In our study, the frequency of attendance at religious activities defined a level of extrinsic religiosity. Core beliefs about spirituality measured intrinsic religiosity. Study findings failed to reject the null hypothesis related to extrinsic religiosity. Increased participation in organized religious activities is not associated with decreased non-alcohol related negative consequences. On the contrary, extrinsic religiosity is significantly associated with increased scores on the non-alcohol related negative consequences measure. This finding indicates respondents who are more actively engaged in organized religious activities experience more negative consequences compared to those respondents less engaged in organized religious activities. This finding merits further study to better explain the influence of extrinsic religiosity on the prevalence of non-alcohol related negative consequences.

The prevalence of alcohol related negative consequences did not significantly increase or decrease the endorsement of lesser or greater levels of either intrinsic or extrinsic religiosity. Alcohol-related negative consequences were not significantly different for participants who reported that their frequency of attendance at religious activities was monthly or more as

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compared to participants who reported attending religious activities less than monthly. No

significant change in negative consequences was observed between participants who felt

spirituality was central to their daily lives and those who did not. Evidently, a strong sense of

spirituality, whether accompanied by organized religious activities or not, does not predict an

increase or decrease in alcohol related negative consequences for our study participants. Study

results support accepting the null hypothesis in favor of the alternative hypothesis.

However, our study found support for alternative hypotheses related to self-control and

academic engagement. The null hypothesis related to commitment was rejected in favor of the

alternative hypothesis. Participants who reported a weaker level of academic commitment as

compared to participants with a greater level were more likely to experience indirect negative

consequences. This finding is consistent for both alcohol and non-alcohol related negative

consequences. For example, low levels as compared to higher levels of academic engagement are

significantly associated with increases in negative consequences. Participants classified as less

rather than more academically engaged or self-controlled are more likely to miss class, fail to

follow through on a commitment, say or do embarrassing things, or take avoidable risks after

drinking or during times they are sober. Participants who reported higher levels of self-control

were significantly less likely to miss class or work and fail to follow through on a commitment

or report regretted sexual encounters compared to those prone to lower levels of self-regulation.

On the other hand, low self-control is associated with a higher prevalence of both alcohol and

non-alcohol related consequences. Academic engagement and self-control appear useful for

predicting both alcohol and non-alcohol related consequences. Study results suggest that

intentional strategies to increase self-control and academic engagement may reduce both alcohol

and non-alcohol related consequences.

Social Learning Theory Covariates

Literature suggests that peers disproportionally influence social learning covariates. Conversely, bureaucratic rules and roles disproportionally influence social control. Social learning theory shifts the focus from institutions to groups. Social learning theorists perceive behavior as a product of "reciprocal interaction between cognitive, behavioral, and environmental determinants" (Bandura, 1977, p. vii). Learning is hypothesized to occur through several processes. Imitation, trial and error, and other cognitive processes contribute to an actor's primary and secondary group affiliations.

Research questions four and five pertain to social learning theory. Differential association is represented by alcohol expectancies, and differential reinforcement by sensation seeking. Alcohol expectancies and sensation seeking measures test the association between attitudes and behaviors linked with negative consequences. The alternate hypotheses related to research questions four and five predicted that positive alcohol expectancies and sensation seeking have a significant effect on the prevalence of indirect negative consequences.

Anticipated effects of drinking alcohol define alcohol expectancies. Positive alcohol expectancies are generally distorted perceptions about the physical effects of alcohol use. Positive alcohol expectancies are derived from exposure to customs, beliefs, and attitudes about the benefits of alcohol use. Positive or arousal expectancies include "liquid" courage, excitement, and enhanced sociability. Study results support the alternative hypothesis for the relationship between alcohol expectancies and negative consequences. In our study positive alcohol expectancies are significantly associated with a higher prevalence of both non-alcohol and alcohol-related negative consequences. Interestingly, higher positive expectancy scores predict respondents are almost twice as likely to say or do something embarrassing at times they

are sober. Additionally, these participants with higher expectancy scores are one-and-a-half times more likely to report taking avoidable risks and engaging in incidents of regretted sexual encounters.

Sensation seeking is defined by variables related to the Brief Sensation Seeking Scale (BSSS). Study participants who acted on the spur of the moment, did dangerous things for fun, or regularly took risks reported significantly higher indirect negative consequence scores. However, alcohol use predicted sensation seeking less often than non-alcohol use. For example, 47% of high sensation seeking respondents took avoidable risks during or after drinking. Yet, 80% of high sensation seeking respondents also took avoidable risks while they were sober. These students risked harm much more often when they were sober as compared to being under the influence of alcohol. This finding should be surprising to those who primarily attribute risk-taking to heavy drinking.

Investigating the effect of sensation seeking on non-alcohol related consequences is promising. Our study found that concerns about high sensation-seeking behavior are greater for sober versus intoxicated participants. Yet efforts to better understand sensation seeking are largely associated with alcohol use. In recent years the binge drinking narrative has been exclusively focused on alcohol-related negative consequences and thus has missed a greater opportunity to investigate overall behavioral harm whether resulting from alcohol use or other factors entirely. Our findings are promising for rethinking binge drinking paradigms. It appears there is an inherent alcohol-use bias related to preventing negative consequences associated with sensation-seeking behaviors.

Accurate information is critical to developing strategies that promote safety regardless of alcohol use. This study questions the utility of harm-reduction plans that are predisposed toward

alcohol-related negative consequences. A starting point for researchers is to prioritize measuring negative consequences in relation to all activities of daily living. Further study may isolate variables unrelated to drinking that would be capable of decreasing the overall prevalence of both alcohol and non-alcohol related negative consequences.

Full Model—Non-Alcohol Related Negative Consequences

Our study found that low levels of academic engagement, decreased self-control, and at least monthly attendance at organized religious activities was associated with significant increases in non-alcohol related consequence scores. The finding that lower levels of academic engagement and decreased self-control predict increases for social and behavioral harms was expected. Previous models in our study found similar results. However, the significance of participation in organized religious activities in predicting negative consequences was not consistent with previous regression estimates in this study. Participants who attended religious services at least monthly, occasionally took risks, and held positive alcohol expectancies experienced a significant increase in non-alcohol related negative consequences. Further study is warranted to investigate how attending religious services monthly or more is associated with sensation-seeking behaviors, positive alcohol expectancies, or both.

Our study indicates that self-reported non-alcohol related negative consequences are close to twice as frequent as alcohol-related consequences. The percentage of sober negative consequences invites thoughtful study of social structures that may support or deter academic success and overall mental health. For example, in our study academically engaged students reported decreased incidence of regretted sexual encounters as compared to those less engaged. Conversely, students who are more academically engaged drink less than disengaged students.

However, social and behavioral harms are not simply an effect of drinking. Sobriety does not offer a free pass on negative consequences. Yet at this juncture, rather than focusing on preventing negative consequences that occur when students are sober, prevention specialists and campus administrators prioritize strategies directed toward preventing alcohol related social and behavioral stressors.

These findings offer prevention specialists alternatives for reducing negative consequences. Developing programs to deal with influences that weaken self-efficacy, resilience, and matriculation—not binge drinking—may deserve greater concern for today's educators in handling alcohol use and related consequences. Perhaps one-dimensional explanations need to be replaced by multidimensional approaches to complex social problems. A promising starting point would be measures to make educational experiences meaningful and professionally rewarding.

Full Model—Alcohol-Related Negative Consequences

The final logistic regression model estimates alcohol-related negative consequences. The results are consistent with previous research on alcohol-related negative consequences. Race was significant across all models, while gender was not. White participants reported greater alcohol-related consequences. Whites drank more often and more heavily than non-Whites. This finding is consistent with previous alcohol studies research. Previous studies have also found that ethnicity-specific norms appear to play a role in the differences between White and non-White drinkers. Heavy drinking may be less stigmatizing for White versus non-White students.

Social learning covariates are influential in predicting alcohol-related negative consequences. Several studies reported that sensation seeking and positive alcohol expectancies are associated with increased alcohol-related negative consequences. These findings are well

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established in the alcohol-studies literature. Our study also finds that positive alcohol expectancies are associated with alcohol-related negative consequences. Participants experienced a greater number of negative alcohol-related consequences if they held positive expectancy beliefs.

Students in our study who reported more versus less sensation-seeking behavior experienced additional negative alcohol-related negative consequences. Among drinkers, social learning covariates predicted increased alcohol use and alcohol related consequences. However, social control covariates have no effect on the prevalence of alcohol related social and behavioral harms. In our study, social control covariates do not predict significant changes in the prevalence of negative alcohol-related consequences.

Mills (2000) described the sociological imagination as "the capacity to shift from one perspective to another" (p. 211). This study is a shift from one perspective to another. It describes negative consequences and life experiences of college students within an unfamiliar framework. The alcohol-studies literature appears preoccupied with individual deviance; little consideration is given to other contexts. There is an unintended consequence of describing drinking behavior in terms of the most dangerous, but infrequent, extremes. The prevailing belief regarding social and behavioral harm and alcohol use is based on *prima facie* evidence. In other words, alcohol use causes negative consequences because respondents report it to be true.

The purpose of this study was to begin a conversation about the evidence supporting alcohol use as a causal factor for negative consequences. Hypotheses about negative consequences that cannot be solely explained by alcohol use were examined vis-à-vis negative consequences attributed to alcohol use. It is inconceivable that alcohol use accounts for all of the social and behavioral harm that befalls college students. The apparent causes of random

occurrences of accidents and poor decisions prior to or subsequent to alcohol use are unknown. To better understand negative consequences associated with college student drinking, it is first important to describe the frequency and distribution of self-reported injury independent of any alcohol use.

Based on this premise, this study was designed to explore alternative hypotheses to explain the prevalence of negative consequences ordinarily attributed to alcohol use. The first step was to assess the distribution of non-alcohol related negative consequences in an independently collected sample of college students. Drinking measures and demographic characteristics of study participants informed the first step. Remarkably, the distribution of non-alcohol related negative consequences was skewed by drinker type. A greater number of binge drinkers as compared to non-binge drinkers reported both alcohol and non-alcohol related negative consequences. The second step was to determine the degree to which social control and social learning theory covariates explain non-alcohol related negative consequences. It was not surprising that theoretical constructs related to social control and social learning theory did in fact predict the prevalence of non-alcohol related negative consequences. Finally, this study attempted to determine the merit of a paradigm shift about causal factors for selected negative consequences. The results of this investigation indicate that rethinking consequences associated with drinking is indeed important.

Limitations

There are a few limitations to this investigation that could influence these findings and lead to concerns about some aspects of this study. This study did not prove causation between negative consequences and social control or social learning covariates. The results show

correlation but do not explain finite causes between negative consequences and selected predictor/control variables. Nor do these results offer specific, concrete means to address the relationship between negative consequences, alcohol use, and routine activities of daily living.

Second, questions about the generalizability of study findings are in order. These results rest on a convenience sample of cross-sectional data drawn from students attending classes in sociology and psychology departments from a single institution. While response rates were over 62% for classroom-based surveys, the sample was not random. Because the sample frame is drawn from a single institution it does not account for all geographical regions and college types (public, private, religious, etc.). Our chosen data collection strategy increases the risk of bias. Although the sample characteristics regarding alcohol use did not greatly differ from estimates published by well-respected researchers, our study hazards environmental and geographical anomalies that cannot be ignored. Thus restraint is suggested before endeavoring to apply these findings outside this sample.

Last, concerns about survey design need to be addressed. The time allotted to complete the survey was 20-25 minutes. The survey questionnaire was limited to 84 items because of concerns related to exceeding time constraints. The limited number of questions did not permit additional inquiries related to negative alcohol expectancies and additional measures of academic engagement. Furthermore, items related to characteristics of family closeness versus distance were not included. Finally, study participants' estimates of negative consequences are subjective and thus susceptible to inaccuracies. Self-reported data inherently include biases, as participants do not always report their behaviors accurately, making it difficult to determine whether students answered in a socially desirable or truthful manner. However, bias is minimized and response validity increased when participants are assured confidentiality (Babor et al., 1987). Because this

topic has important public health policy implications, the total survey error framework should inform future studies. This framework gives needed attention to "the decomposition of errors, the separation of phenomena affecting statistics in various ways, and its success in forming the conceptual basis of the field of survey methodology, pointing the direction for new research" (Groves & Lyberg, 2010, p.875).

Implications

The paradigm shift proposed by this study makes public health initiatives more complicated. Existing health promotion campaigns, aka "Posters and Coasters," that target binge drinkers reflect institutional beliefs that alcohol causes harm. Negative consequences associated with activities of daily living are not considered in measures of alcohol-related social and academic harm. Prevention efforts focused only on alcohol–related negative consequences fail to account for the same or similar negative consequences (e.g., missed class, risk taking, or regretted sexual encounters) occurring among sober actors. Apparently, if actors experience negative consequences when drinking less than the proscribed amount or do not drink at all, these consequences are a lesser concern and need not be addressed by public health professionals. Whether by omission or commission the implicit message of posters and coaster campaigns is that non-alcohol related negative consequences are unimportant (or non-existent).

Prevention strategies that primarily attempt to thwart binge drinking are not helpful in addressing more complex definitions of harm such as those identified in our study. By focusing on alcohol use as the primary cause of negative consequences, health promotion campaigns miss the point. Institutional departments responsible for campus-wide health and wellness initiatives are confronted with the dilemma of managing a complex enterprise: how to encourage student

resilience, develop effective coping skills, and prepare for stress characteristic of college life. The reductionist view that alcohol use causes negative consequences limits our understanding of latent sociological forces at work.

Challenging old saws offers sociologists a chance to re-think popular beliefs about drinking, sobriety, and negative consequences. For instance, previous estimates of failure to persist to graduation routinely point out a strong association with drinking (Martin et al., 2012; Singleton & Wolfson, 2009; White & Hingson, 2013). However, failure to persist may have less to do with drinking and more to do with the quality of relationships between the individual, the institution, caregivers, and peers. Nevertheless, there are few references in the alcohol-studies literature that explain missing class due to a lack of interest or preparation, although obviously this is quite common. Investigating why students miss class for reasons other than drinking raises the possibility that class attendance may be attributed to variables other than hangovers or "food poisoning." Overall, our study results give pause for thought that alcohol studies research be more mindful of the intersection between the campus milieu, peer affiliation, and individual characteristics such as resilience, self-control, and academic engagement rather than primarily counting how many drinks one consumes.

Future Directions

Belief is the antithesis of the sociological imagination. Belief rests on the certainly of the status quo; thus, doubt must be constrained to make belief possible. Charles Pierce theorized that doubt is the beginning of all laboratory science. He remarked, "The irritation of doubt is the only immediate motive for the struggle to attain belief" (Mills, 2000, p. 155). C. Wright Mills

elaborated on Peirce: "The framework that Peirce projects is such that belief is a state of fact denoting a termination of inquiry" (p. 151).

An "irritation of doubt" about the relationship between social and behavioral negative consequences and alcohol use prompted this study. The results succeeded in creating doubt about the binge drinking narrative and causes of social and behavioral negative consequences. Doubt opened a window to perceive a different approach to campus-based prevention strategies. Messages that do not explicitly or implicitly prohibit alcohol use (or, what amounts to the same thing, counsel complete abstinence as the only "safe" strategy) may be more successful in facilitating change consistent with academic achievement and development of interpersonal skills. The sole focus of reducing alcohol-related consequences does not account for the greater frequency of negative consequences unrelated to alcohol use. Alternative strategies may be developed to ameliorate both alcohol and non-alcohol related consequences. However, the first step to developing new strategies may be to recognize the impact of "sober" negative consequences in the lives of our students.

While this study has unique characteristics and advances novel additions to the body of literature regarding binge drinking, there are a few areas in which this investigation can be furthered. First, a more in depth examination of gender differences and negative consequences is necessary. In our study alcohol-related risk was defined by a non-gender specific measure. Increasing the number of respondents will allow for regression analyses of gender specific classifications of alcohol use. Second, future research could look at additional macro-level dynamics that warrant additional study. For instance, how does the degree of parental involvement support or prevent students from achieving late adolescent developmental tasks? Do negative consequences provide the context for so-called "helicopter parenting?" Or does

helicopter parenting lead to the increased prevalence of negative consequences? Additional survey items related to negative consequences, social control, and social learning covariates are also necessary to answer these questions.

Last, an important question is unanswered by this study. Mills (2000) admonished researchers to be mindful of the influence of social structure when defining disorder. "We must ask what values are cherished yet threatened, and what values are cherished and supported, by the characterizing trends of our period" (p. 11). This study did not address questions related to the nature of a campus binge drinking milieu, specifically, how does milieu attract or deter students from choosing one college versus another? In addition, to what degree do campuses juggle their responsibility to "protect" students from foreseeable harm while maintaining inherently risky traditions or symbols that define a "traditional" college experience? Mills (2000) further noted, "In the case of both threat and of support we must ask what salient contradictions of structure may be involved" (p. 11).

It is reasonable to conduct the same study again with another independently collected sample to compare to the current one used here. This would address questions centered on college type, size, and geographical location, and adding more data to the current pool will improve the likelihood that the findings are representative of the population of interest.

A better understanding of the function of negative consequences—either to prolong adolescence or to loosen bonds associated with over parenting—is necessary to describe new dynamics linked to adolescent emancipation. Instead of the use of cross-sectional data a panel study of 18-21 year old students may be more useful. Students surveyed several times annually over their academic career offers a better opportunity to examine social and behavioral changes.

A panel study design might go a long way toward establishing causal relationships between theoretical constructs and social and behavioral harms.

Conclusion

A modern sociology of alcohol use, misuse, and abuse pursues Weberian methods to discern through objective, dispassionate research and scholarship the social practices that influence the way persons reflect, feel, and act in a societal context about alcohol use. Sociologists have an advantage over other social scientists because of their objectivity. Sociologists are more apt to approach alcohol research with curiosity and to question the impartiality of "facts" made apparent to others. In addition, "The sociologist is, therefore, a little quicker to point out the hidden moral and ideological assumptions behind supposedly "objective" descriptions" (Goode, 1972, p. 11). A distinctly sociological narrative about alcohol use exists; however, according to Roman (2007) the narrative is dormant. Our study offers fodder for pursuing hypotheses seeking to explain what alcohol and non-alcohol related negative consequences have in common.

Today's binge drinking narratives too often reduce alcohol use and negative consequences to a cause-and-effect relationship. However, simple definitions obstruct our view and thus our understanding of the social forces at work. Abraham Kaplan (1964) remarked, "Give a small boy a hammer, and he will find that everything he encounters needs pounding" (p. 28). In 1984 Seldon Bacon recognized how metaphorical hammers shaped public perception of alcohol use. He said, "To approach this subject (alcohol use) with a predetermined scorn or animus, an approach not unknown in the field, could only lead to meager results and to an underestimation of the forces at work" (Vander Ven, 2011, p. 16). On contemporary college

campuses binge drinking is the hammer, negative consequences are the nail, and generalizations about negative consequences associated with drinking frequently go unquestioned. Despite the evidence that most students don't abuse alcohol, popular narratives about drinking tend to focus on harm not health. Binge drinking has become a chief concern of parents and campus administrators by virtue of the negative consequences typically associated with drinking.

Wechsler et al.'s 1995 seminal research on binge drinking emphasized the incidence of negative consequences. Binge drinking was envisaged as a tipping point, a drink count that tipped the scale from incidental effects to more serious social and behavioral negative consequences. He estimated four drinks for females and five for males was that tipping point. In his study and research that followed, alcohol-related negative consequences cast a long shadow over alternative hypotheses explaining the prevalence of social and behavioral consequences. Binge drinking became the "wheelhouse" of college student alcohol studies.

Few researchers have ventured beyond the association between drinking and negative consequences. Research findings related to college student drinking focus primarily on preventing the progression of alcohol use to disorder and disease. However, this study demonstrates that alcohol alone does not account for impulsive and careless behavior. Yet associations between alcohol-related and non-alcohol related consequences are essentially untested and unnoticed. On the other hand, students' perceptions and expectations are that binge drinking provides them an opportunity to engage in deviant behavior and all of its associated benefits. Risk taking also may offer a degree of social capital among deviant peers where risk is rewarded. The binge drinking narrative provides a relatively low threshold for being labeled deviant. However, the binge drinking narrative risks creating deviants where there are none, thus

having the potential of weakening the ability of institutions to mediate those negative consequences during a time they will be tested.

This study is novel in that it speaks to the symbolic functions of health, illness, social control, and chaos. The purpose of this study was to begin a conversation about college student drinking causing negative consequences. An empirical question was presented and reasonable doubt was raised. In the end, new interventions may be developed that reduce both alcohol and non-alcohol related negative consequences. This reduction in negative consequences will not be accomplished by labeling, punishing wrongdoers, forced education, or intervention but by fostering community, shared goals, and purpose. Perhaps this is the most efficient place to start the process of rethinking the predominant narrative about causes of negative consequences on college campuses.

APPENDIX A: SURVEY INSTRUMENT

Please answer the following questions. Please bubble only <u>one</u> option.   Like this: ● Not like this: ⊘ ⊗ ⊘

<u>Demographic Information</u>

1. Gender

Male	Female
O	O

2. Ethnicity

Hispanic	Non-Hispanic
O	O

3. Student Status

Full-time	Part-time
O	O

4. Class standing

Freshman	Sophomore	Junior	Senior	Graduate Student
O	O	O	O	O

5. Race

White	Black	Asian	Multi-racial/Bi-racial	American Indian	Pacific Islander	Other/Not Specified
O	O	O	O	O	O	O

6. Age in years

⑱   ⑲   ⑳   ㉑   ㉒   ㉓   ㉔

7. What academic major are you currently pursuing or plan to pursue?

College of Arts and Humanities	O		College of Nursing	O
College of Business Administration	O		College of Optics and Photonics	O
College of Education and Human Performance	O		Rosen College of Hospitality Management	O
College of Engineering and Computer Science	O		College of Sciences	O
College of Health and Public Affairs	O		Interdisciplinary Studies	O
College of Medicine	O			

Please choose the response that most often characterizes you. Please bubble only <u>one</u> rating per item.

Like this: ●   Not like this: ✓   ✕   ⊘

	Rarely/Never	Occasionally	Often	Almost Always/ Always
8. I plan tasks carefully.	○	○	○	○
9. I do things without thinking.	○	○	○	○
10. I don't "pay attention."	○	○	○	○
11. I am self-controlled.	○	○	○	○
12. I concentrate easily.	○	○	○	○
13. I am a careful thinker.	○	○	○	○
14. I saw things without thinking.	○	○	○	○
15. I act on the spur of the moment.	○	○	○	○
16. I do dangerous things for fun.	○	○	○	○
17. I do exciting things even if they are dangerous.	○	○	○	○

Please answer the following True/False statements. Please bubble only <u>one</u> rating per item.

Like this: ●   Not like this: ✓   ✕   ⊘

In the <u>past month</u>, on days you did <u>not</u> drink or have a hangover, did you:

	0. No	1. Yes
18. Say or do embarrassing things?	○	○
19. Take avoidable risks?	○	○
20. Miss class or work because of other responsibilities?	○	○
21. Feel badly because something you said, did, or thought?	○	○
22. Feel tired or run-down because of school, work or other commitments?	○	○
23. Fail to turn in class work on time because you were too busy with other responsibilities?	○	○
24. Fail to follow-through or forget something you planned to do because you were too busy with other responsibilities?	○	○
25. Have a sexual encounter you later regretted?	○	○

Please answer the following questions about your academic coursework. Please bubble only one rating per item. Like this: ● Not like this: Ⓙ Ⓧ ⊘

	1. Strongly Disagree	2. Disagree	3. Neither disagree or agree	4. Agree	5. Strongly Agree
26. My coursework challenges me academically.	O	O	O	O	O
27. I feel my friends and the people I meet at UCF are very important to my academic success.	O	O	O	O	O
28. I typically turn in assignments on time.	O	O	O	O	O
29. I usually find ways to make course material relevant to my life.	O	O	O	O	O
30. I think having fun in class is important to learning.	O	O	O	O	O
31. I usually put off studying until the end of the semester.	O	O	O	O	O
32. Drinking helps me to deal with the stress of coursework.	O	O	O	O	O

Please answer the following questions about your school spirit. Please bubble only one rating per item. Like this: ● Not like this: Ⓙ Ⓧ ⊘

	1. Strongly Disagree	2. Disagree	3. Neither disagree or agree	4. Agree	5. Strongly Agree
33. I am satisfied with the variety of majors available at UCF.	O	O	O	O	O
34. After graduation, I will continue to support my alma mater.	O	O	O	O	O
35. After graduation, I will support UCF athletic events.	O	O	O	O	O
36. I am proud of my affiliation with UCF.	O	O	O	O	O
37. The UCF administration cared about my undergraduate education.	O	O	O	O	O
38. I am satisfied with the variety of extracurricular activities available to me at UCF.	O	O	O	O	O
39. My decision to become a Knight was influenced by UCF's reputation as a "party school".	O	O	O	O	O

The following section contains 2 questions about your frequency of religious or spiritual activities. Please mark the extent to which each statement is true or not true for you.

	1. Never	2. Once a year or less	3. A few times a year	4. A few times a month	5. Once a week	6. More than once a week
40. How often do you attend church or other religious meetings?	O	O	O	O	O	O
41. How often do you spend time in private religious activities, such as prayer, meditations, of Bible study?	O	O	O	O	O	O

The following section contains 3 statements about religious belief or experience. Please mark the extent to which each statement is true or not true for you.

	1. Definitely not true	2. Tends not to be true	3. Unsure	4. Tends to be true	5. Definitely true of me
42. In my life, I experience the presence of the Divine (i.e., God).	O	O	O	O	O
43. My religious beliefs are what really lie behind my whole approach to life.	O	O	O	O	O
44. I try hard to carry my religion over into all other dealings in life.	O	O	O	O	O

Please answer the following questions about your alcohol use:

45. Have you ever drank alcohol in your life?

0. No	1. Yes
O	O

46. How old were you the first time you felt drunk?

Never	15 or younger	16	17	18	19	20	21 or older
O	O	O	O	O	O	O	O

47. How often did you have a drink containing alcohol in the past year?

0. Never	1. Monthly or less	2. 2 to 4 times a month	3. 3 to 4 times per week	4. 4 or more times per week
O	O	O	O	O

48. How many drinks did you have on a typical day when you were drinking in the *past year*?

0. 1 or 1	1. 3 or 4	2. 5 or 6	3. 7 to 9	4. 10 or more
○	○	○	○	○

48a. How often did you have 6 or more drinks on one occasion in the *past year*?

0. Never	1. Less than monthly	2. Monthly	3. Weekly	4. Daily or almost daily
○	○	○	○	○

	0. Never	1. Less than monthly	2. Monthly	3. Weekly	4. Daily or almost daily
49. How often in the *last year* have you found that you were not able to stop drinking once you had started?	○	○	○	○	○
50. How often during the *last year* have you failed to do what was normally expected from you because of your drinking?	○	○	○	○	○
51. How often in the *last year* have you been unable to remember what happened the night before because you have been drinking?	○	○	○	○	○
52. How often have you needed an alcoholic drink first thing in the morning to get yourself going after a night of heavy drinking?	○	○	○	○	○
53. How often over the *last year* have you felt guilt or remorse after drinking?	○	○	○	○	○

	0. No	2. Yes, but not in the past year	4. Yes, during the last year
54. Have you or someone else been injured as a result of your drinking?	○	○	○
55. Has a relative, friend, doctor, or another health professional expressed concern about your drinking or suggested you cut down?	○	○	○

56. How often did you have a drink containing alcohol in the _fall semester_?

1. Monthly or less	2. 2 to 4 times a month	3. 3 to 4 times per week	4. 4 or more times per week
O	O	O	O

57. How many drinks did you have on a typical day when you were drinking in the _fall semester_?

1. 1 or 2	2. 3 or 4	3. 5 or 6	4. 7 to 9	5. 10 or more
O	O	O	O	O

58. How many drinks did you have on a peak-drinking day in the _fall semester_?

1. 1 or 2	2. 3 or 4	3. 5 or 6	4. 7 to 9	5. 10 or more
O	O	O	O	O

59. What type of drink do you drink most often?

1. Beer	2. Wine	3. Liquor (shots or mixed drinks)
O	O	O

In the fall semester, when you drink, where do you prefer to drink?

	1. Strongly Agree	2. Agree	3. Neither agree or disagree	4. Disagree	5. Strongly Disagree
60. I prefer to drink at a Bar or Nightclub.	O	O	O	O	O
61. I prefer to drink at a private party or to celebrate a sporting event.	O	O	O	O	O
62. I prefer to drink at home by myself.	O	O	O	O	O

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Below is a list of things that sometimes people experience either during, or after, they have been drinking alcohol.

Next to each item below, please mark either the YES or NO to indicate whether that item describes something that has happened to you in the past MONTH.

In the past month...	0. No	1. Yes
63. While drinking, I have said or done embarrassing things.	o	o
64. While drinking, I have taken avoidable risks.	o	o
65. I have missed work or missed class at school because of drinking, a hangover, or an illness caused by drinking.	o	o
66. I have had less energy or felt tired because of my drinking.	o	o
67. The quality of my work or schoolwork has suffered because of my drinking.	o	o
68. I have spent too much time drinking.	o	o
69. I have failed to do what was normally expected of me because of my drinking.	o	o
70. I have driven a car when I had too much to drink to drive safely.	o	o
71. I have been unable to remember what happened the night before because of my drinking.	o	o
72. I have been unable to stop drinking once I started.	o	o
73. I had a sexual encounter I later regretted.	o	o

Below is a list of things that sometimes happen to people either while or after they have been drinking alcohol. Choose the response that best fits your drinking experiences in the past semester.

	0. No	1. Yes
74. I would act sociable.	o	o
75. It would be easier to talk to people.	o	o
76. I would feel calm.	o	o
77. I would feel brave and daring.	o	o
78. I would feel unafraid.	o	o
79. I would feel clumsy.	o	o
80. I would feel dizzy.	o	o
81. I would take risks.	o	o
82. I would feel irritable.	o	o
83. I would feel guilty.	o	o

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APPENDIX B: INSTITUTIONAL REVIEW BOARD LETTER

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
          FWA00000351, IRB00001138

To: **Thomas V. Hall and Co-PIs: Amy M. Donley, Chelsea J. Nordham, James D. Wright,**
Michael E. Dunn

Date: **November 04, 2014**

Dear Researcher:

On 11/04/2014, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Modification Type:	Total number of participants was increased from 800 to 2400. A revised protocol has been uploaded in iRIS.
Project Title:	Contributing factors to student achievement
Investigator:	Thomas V. Hall
IRB Number:	SBE-14-10630
Funding Agency:	
Grant Title:	
Research ID:	N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Kanielle Chap

IRB Coordinator

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