

EXPLORING PERSONAL VALUES, ATTITUDES, PERCEIVED INJUNCTIVE AND  
DESCRIPTIVE NORMS, AND INTRAPERSONAL VALUE-ATTITUDE RELATIONSHIPS  
IN RELATION TO ALCOHOL USE AND ALCOHOL-RELATED PROBLEMS AMONG  
COLLEGE STUDENTS

by

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A DISSERTATION

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## ABSTRACT

Alcohol use among college students continues to be a public health issue in spite of health promotion activities and programming. College alcohol use literature regularly examines the impact of perceived norms on alcohol use; however, little research has been done on the influence of personal values on alcohol use and alcohol-related problems. The purpose of this study was to examine the relationships between personal values, attitudes, perceived injunctive and descriptive norms, alcohol, and alcohol-related problems. The study also conceptualized and tested an idea termed intrapersonal value-attitude relationship, which was an interaction between values and attitudes. The current study employed a cross-sectional design utilizing a paper-and-pencil survey administered to college students (n=910) within the classrooms. Personal attitudes and perceived descriptive norms of alcohol-related problems consistently predicted alcohol use and alcohol-related problems even after controlling for potential confounding variables. The exploration of the innovative concept of intrapersonal value-attitude relationship is a first step to examine the complex relationships between values and attitudes. Findings from this study suggest that the examination of values, attitudes, injunctive and descriptive norms are relevant and worth investigating further in regard to alcohol use and other health behaviors.

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## CHAPTER 1

### Introduction

#### *College Alcohol Use as a Public Health Issue*

College life for some is an exciting new world of adventure, friendships, and self-discovery; however, for others, college can be stressful, lonely, and a time of self-doubt or self-destruction (Hicks & Miller, 2006). Parents still appear to be influential in the college student's life; however, peers tend to have more direct and indirect influence on day-to-day decisions once a young adult enters college (Wood, Read, Mitchell & Brand, 2004). These and other adjustments to new responsibilities and freedom can be both liberating and demanding. High levels of stress may lead students to participate in risky coping behaviors like drinking alcohol (Vaez & Laflamme, 2003).

Alcohol use among college students is prevalent with approximately 85% of college students reporting alcohol use at least once in the past year (Core Institute, n.d.; Johnston, O'Malley, Bachman & Schulenberg, 2009), and almost three-fourths reporting use at least once in the past 30 days (Core Institute, n.d.). Thirty-one percent of college students met criteria for a diagnosis of alcohol abuse and 6% for alcohol dependence based on self-reported use and habits in the past 12 months (Knight, Wechsler, Kuo, Seibring, Weitzman & Schuckit, 2002). Students who drink the most excessively and frequently include whites, males, fraternity or sorority members, and athletes (Borsari, Murphy & Barnett, 2007; Capone, Wood, Borsari & Laird, 2007; Johnston, O'Malley & Bachman, 2001; Johnston et al., 2009; Meilman, Leichliter & Presley, 1999; & Wechsler, Lee, Kuo & Lee, 2000). Since the majority of college students do not turn 21 until potentially junior or senior year, underage drinking continues to pose a problem on college campuses.

Aggregate data from the 2006 Core Alcohol and Drug Survey (Core Survey) reveal 55% of the students in the sample engaged in heavy drinking at least once in the last two weeks and 24% of students were categorized as heavy and frequent drinkers. Heavy and frequent drinking has been described as consuming five or more drinks in one sitting and a self-report of drinking 3 times a week or more (Core Institute, n.d.). Heavy and frequent drinking is considered especially high-risk (Core Institute, n.d.).

Alcohol consumption does not necessitate alcohol-related problems; however, it can lead to physical, personal, emotional, and social problems such as issues with alcohol poisoning, academics, relationships, and the law. Although some college students experience serious consequences because of their drinking, others do not experience alcohol-related negative consequences. Negative alcohol-related outcomes can impact both alcohol users and non-users to varying degrees of severity. For example, some college students experience minimal consequences related to their drinking, such as having a hangover, drunk dialing someone, or skipping class (Dodd, Glassman, Arthur, Webb & Miller, 2010), while others may experience more serious outcomes. Severe negative outcomes include alcohol poisoning, drinking and driving, being a passenger in a car with a drunk driver, academic problems that can lead to withdrawal or expulsion from college (Weschler, Lee, Kuo, Seibring, Nelson & Lee, 2002), risky or unwanted sexual encounters (Cooper, 2002; Hingson, Zha & Weitzman, 2009), sexual assault and abuse (Hingson et al., 2009), and engaging in or becoming a victim of aggressive or violent behaviors (Hingson et al., 2009; Weschler et al., 2002).

Alcohol poisoning can occur when an individual drinks more alcohol than his or her body can filter; therefore causing the alcohol to reach a toxic level. This usually occurs when an individual drinks large quantities of alcohol over a short period of time (Young-Hee, Stinson,

Hsiao-ye, & Dofour, 2003). Alcohol poisoning can result in death and therefore should be considered a potentially serious problem among college students.

Based on data collected in 1998 – 2005 from the Centers for Disease Control and Prevention, National Highway Traffic Safety Administration, and other published reports, Hingson et al. (2009) estimated the number of college students who would experience negative consequences related to alcohol use. An estimated 97,000 college students are victims of alcohol-related sexual assault or date rape; 400,000 had unprotected sex and more than 100,000 reported being too intoxicated to know if they had given consent to having sex (Hingson et al., 2009). In 2005, it is estimated that 696,000 students were assaulted by another student who had been drinking and 599,000 were unintentionally injured while under the influence of alcohol (Hingson et al., 2009). Also in 2005, Hingson and colleagues estimate that 468 college students died from alcohol-related unintentional injury. Although these numbers are estimations, they still provide a useful approximation of problems experienced among college students.

Drinking and driving can lead to fatal consequences especially among inexperienced drivers. Hingson et al. (2009) estimate that 1,357 college students between the ages of 18 and 24 years died from alcohol-related motor vehicle crashes in 2005. Drinking and driving does not just affect the driver who has been drinking, but also the passengers in the vehicle and others (e.g., pedestrians, drivers and passengers in other cars) on the road.

### *Addressing the Alcohol Problem*

#### *Healthy People and Healthy Campus*

In an attempt to address health issues in the United States (US) and on college campuses, health professionals have constructed documents containing national goals and objectives called Healthy People and Healthy Campus, respectively. Healthy People 2020 (HP2020) contains one

vision, “a society in which all people live long, healthy lives.” There are four goals of HP2020: “attain high quality, longer lives free of preventable disease, disability, injury, and premature death, achieve health equity, eliminate disparities, and improve the health of all groups, create social and physical environments that promote good health for all, promote quality of life, healthy development, and healthy behaviors across all life stages” (United States Department of Health & Human Services [USDHHS], 2011). HP2020 and Healthy Campus 2010 (HC2010) include leading health indicators identified as the most significant, preventable threats to the health of the nation and college students (American College Health Association [ACHA], n.d.; USDHHS, 2011). These documents, HP2020 and HC2010, provide researchers with a common goal to target specific health issues that plague the nation.

The government and other health professionals identified the urgent need to reduce the amount of alcohol used by underage individuals, heavy drinking by legal drinkers, and alcohol-related problems such as alcohol-related motor vehicle crashes. Substance abuse, including alcohol use, has been identified as a leading health indicator for the nation according to HP2020. Substance Abuse objectives in the HP2020 guidelines include 21 objectives regarding substance abuse. Some examples of alcohol-specific objectives include: reduce the percentage of adolescents who have been a passenger with someone who has been drinking (SA-1), increase percent of adolescents who have never used substances (SA-2), reduce percentage of persons who binge drank (SA-14), reduce proportion of adults who drank excessively in past 30 days (SA-15), reduce average annual alcohol consumption (SA-16).

Healthy People and Healthy Campus are just two examples of national attempts to expose the crucial need to reduce alcohol use and alcohol-related problems. Information regarding HP2020 is abundant; however, HC2010 documents were difficult to locate and expensive to

access. It is important to make this needed information readily available for researchers, policy makers, and college administrators in order to bring the urgency of the issue to the attention of the public. The Healthy People and Healthy Campus objectives provide a framework for researchers and practitioners to justify further work with alcohol-reduction campaigns and research. Researchers need to find innovative approaches to address this salient public and college health issue.

### *Current Alcohol Research*

Attitudes towards alcohol and perceived injunctive and descriptive norms are common factors examined in the college alcohol literature. In addition to these three factors, the current study will explore two new concepts to alcohol research: personal values and intrapersonal value-attitude relationship. The assessment of alcohol use and alcohol-related problems among college students could benefit from this investigation of new variables.

Attitudes refer to an individual's evaluation, either positive or negative, of a specific behavior or situation (Fishbein, von Haeften & Appleyard, 2001). The construct of attitudes is important in health education and health promotion because many theories postulate attitudes directly or indirectly influence behavior (e.g., Theory of Reasoned Action, Integrated Behavioral Model, Health Belief Model). Direct and indirect relationships have been identified between alcohol use and an individual's attitudes towards alcohol (Chawla, Neighbors, Lewis, Lee & Larimer, 2007; Wall, Hinson & McKee, 1998; Webb, Baer, Getz & McKelvey, 1996; Wood et al., 2004).

Researchers examine the influence of perceived parental and peer attitudes towards alcohol and alcohol-related behaviors in an effort to further explain and prevent negative health outcomes among college students (Wood et al., 2004). Adolescents, including college students,

tend to put a high value on what they perceive their peers think (Hicks & Miller, 2006).

Perceived norms is a common concept examined in college alcohol research. Perceived norms are an individual's perception of his or her peer's acceptance or participation in a behavior such as alcohol use.

There are two types of norms: injunctive and descriptive (Borsari & Carey, 2003).

Injunctive norms are behaviors and attitudes that are judged correct within a group of peers (Larimer, Turner, Mallett, & Geisner, 2004). Descriptive norms are the perceived engagement in a behavior such as alcohol consumption (Borsari & Carey, 2003). When an individual believes most college students engage in heavy drinking even though the reality is that less than half of college students engage in this risky behavior is an example of descriptive norms. Injunctive and descriptive norms have been associated with and predictors of alcohol use and alcohol-related problems among college students (Borsari & Carey, 2003; Neighbors, O'Connor, Lewis, Chawla, Lee, & Fossos, 2008; Neighbors, Lee, Lewis, Fossos & Larimer, 2007; Wood, Read, Palfai, and Stevenson, 2001) and specifically among athletes (Turrisi, Mastroleo, Mallett, Larimer & Kilmer, 2007), and students who are members of a sorority and fraternity (Larimer et al., 2004).

Examination of perceived norms should take into account the type and level of specificity of the peer reference group (Chawla et al., 2007). The further removed the participant is from the reference group, the weaker the relationship between the perceived norm and the participant's personal drinking habits (Larimer, Kaysen, Lee, Kilmer, Lewis, Dillworth, Montoya, & Neighbors, 2009). Norms are often a strong predictor of alcohol use and alcohol-related problems and, therefore, should continue to be examined. Norms may influence or be

influenced by variables that are not often examined in the college alcohol literature such as personal values, which is why perceived norms should continue to be studied.

### *Theoretical Framework*

The theoretical framework for this study was eclectic but methodically chosen. Personal attitudes, injunctive norms, and descriptive norms were concepts chosen from the Integrated Behavioral Model (IBM). Incorporating the ideas of values into this theoretical framing was a natural progression of this theory based on the ideology of Homer and Kahle's (1988) value-attitude-behavior relationship. The value theory chosen for this study was Shalom Schwartz' conceptualization of human values. These three theories influenced the rationale for the first two research questions in this research study.

The third research question was based loosely on these theories, but also founded on Festinger's theory of Cognitive Dissonance (1957) and self-other differences in the alcohol literature. Cognitive Dissonance simply suggests that a person feels psychological discomfort when beliefs and behavior are not cohesive. Self-other differences or discrepancies (SOD) in the alcohol literature examine the influence of the individual's perceptions of others (other) on the individual (self). For example, an individual perceives the average college student drinks on average 20 drinks of alcohol each week; however, the individual only reports drinking 15 drinks a week. This difference between what the individual thinks others drink and what he or she drinks is the SOD. Research has shown that a larger SOD is predictive of alcohol-related problems. These two concepts were the impetus of the intrapersonal value-attitude relationship conceptualized by the researcher. This idea is that a discrepancy between an individual's values and attitudes (self-self difference) would potentially lead the individual to increased alcohol use and alcohol-related problems. The idea of intrapersonal value-attitude relationships also

included the idea that if there was an agreement between permissive values and attitudes, it would cause an increase in alcohol use and alcohol-related problems experienced by the individual.

### *Gaps in the Alcohol Literature*

A useful concept to investigate within the realm of college alcohol is personal values. A large portion of value research has been conducted in the fields of psychology and business; however, personal values may play an important role in addressing individual health behaviors. Values have been described as desirable goals that span across situations (transsituational), vary in importance, and act as guiding principles in an individual's life (Schwartz, 1992). Values are not specific to an action or situation, which is one aspect that makes values distinct from attitudes or perceived norms. Values are subjective beliefs that are intertwined with emotion, motivational constructs, and goals an individual struggles to attain (Schwartz, 2006).

Few studies have focused on the relationship between personal values and alcohol consumption or alcohol-related outcomes (Kropp, Lavack & Holden, 1999; Young & West, 2010). No studies, to the researcher's knowledge, have examined the relationship of personal values, attitudes towards alcohol, and perceived injunctive and descriptive norms in relation to alcohol use and alcohol-related problems.

Kropp et al. (1999) examine the relationship between personal values and tobacco use and beer consumption among college students. Findings from this study reveal there are value differences between beer and non-beer drinkers. Beer drinkers are more likely than non-beer drinkers to rate Excitement as an important value and Security as a less important value. Another study was conducted among Black South African university students and it examines the relationship between personal values and alcohol use (Schwartz, Melech, Lehmann, Burgess,

Harris & Owens, 2001). Results from this study reveal positive significant associations between alcohol use and Self-Direction, Stimulation, and Hedonism values; and negative significant relationships between alcohol use and Security, Conformity, and Tradition values (Schwartz et al., 2001).

Based on current theory published in the literature, the researcher postulates a theoretical construct termed intrapersonal value-attitude relationship. This relationship examines the concordant or discordant relationship between values and attitudes within the individual (intrapersonal). Intrapersonal value-attitude discordance is a disagreement between an individual's personal values and attitudes towards alcohol (e.g., an individual holds a conservative value like Tradition and has an attitude that it is permissive about alcohol use such as it is acceptable to get drunk). Intrapersonal value-attitude concordance is a consistent relationship between personal values and attitudes towards alcohol (conservative values and attitudes, or permissive values and attitudes). A review of the literature revealed no studies have addressed this concept of intrapersonal value-attitude relationships and therefore it has not been examined in relation to alcohol use or alcohol-related problems.

### *Purposes of the Study*

This study had three main purposes. First, the study provided a novel examination of the college alcohol problem by investigating personal values. Second, the study explored the relationship between personal values, attitudes towards alcohol, perceived injunctive and descriptive norms, alcohol use, and alcohol-related problems among college students. The third purpose of this study was to examine the relationship between intrapersonal value-attitude relationships, alcohol use, and alcohol-related problems.

### *Significance of the Study*

Few published studies have addressed the relationships between personal values, attitudes towards alcohol, perceived injunctive and descriptive norms, alcohol use, and alcohol-related problems in the realm of college alcohol. However, exploring these relationships could be useful to health education professionals (Kropp et al., 1999 & Neighbors et al., 2007). Results from a study examining these constructs could be utilized for audience segmentation (Kamakura & Novak, 1992) and to create tailored messages to reduce high-risk alcohol use and alcohol-related consequences among college students. Findings could also be used to predict individuals who are at a higher risk of using alcohol or experiencing problems associated with alcohol use.

This study is also the first step at examining a new theoretical concept to the college alcohol use literature, intrapersonal value-attitude relationship. This value-attitude relationship is based on other concepts in the literature like SOD in the alcohol literature (Borsari & Carey, 2003), Cognitive Dissonance (Festinger, 1957), and the value-attitude-behavior relationship described by Homer and Kahle (1983). This intrapersonal value-attitude relationship is innovative and could provide insight into alcohol use as well as other health behaviors.

Another significant aspect of this study is the utilization of diverse, yet methodically selected constructs to create a theoretical framework for the project. This modernized theory includes salient constructs (e.g., injunctive and descriptive norms) to better understand and predict alcohol use and alcohol-related problems among college students.

### *Research Questions*

The following research questions were addressed in the study.

1. What are the relationships between personal values, attitudes toward alcohol, and perceived injunctive and descriptive norms of alcohol use and descriptive norms of alcohol-related problems?
2. What best predicts alcohol use and alcohol-related problems among college students when examining personal values, attitudes towards alcohol, perceived injunctive and descriptive norms of alcohol use, and norms of alcohol-related problems?
3. Does an individual's intrapersonal value-attitude relationship predict alcohol use and alcohol-related problems?

### *Overview of Methods*

This cross-sectional study utilized a paper-and-pencil instrument administered to college students at a large, public university in the Southeastern US. The researcher contacted course instructors and asked permission to attend a class and administer the survey to enrolled students. The 114-item, gender-specific survey consisted of four parts. Section 1 included demographic items such as classification in school (e.g., freshman, sophomore), gender, age, race, athletic status, involvement in Greek organization, and religious influence. Section 2 consisted of the Portrait Value Questionnaire (Schwartz, 2001) that examined personal values of the participant, and four items concerning personal attitudes toward alcohol. Section 3 comprised items regarding the participant's personal alcohol use (e.g., average drinks consumed per week) and

alcohol-related problems. The last section, Section 4, included an examination of perceived injunctive and descriptive norms. The questions contained in Section 4 asked participants their perceptions of close friends' attitudes about alcohol (injunctive norms), the percentage of close friends who engage in alcohol use (i.e., alcohol consumption, underage drinking, binge drinking, and getting drunk), and the number of problems the close friends experienced in the past 30 days as a result of alcohol use. The survey took approximately 10 to 20 minutes for students to complete.

### *Delimitations*

Participants of this study consisted of college students who were enrolled in a class at a large public university in the southeastern US during the fall 2010 semester. Students enrolled in a course in the College of Business and Human Environmental Sciences in fall 2010 and who consented to participate in the classroom-administered survey were recruited. Students who had completed the survey in another class were instructed to only complete the survey one time. Surveys of non-traditional students including graduate students, students under the age of 18 and over the age of 24 were excluded from analysis in this study.

### *Limitations*

A number of limitations in this research study should be mentioned. As with any research utilizing self-report data, there is the potential for respondents to intentionally or unintentionally misrepresent their alcohol use (Rehm, 1998). Although a study by Midinak (1988) suggests that although there are some limitations to self-reported data on alcohol use, it is still a valid measure of use. The anonymity of surveys may have helped reduce some of the potential misrepresentation by respondents.

Another limitation of the study is the potential for recall bias since the survey asks about past alcohol use. In order to assuage this limitation, a timeframe of one-month (30 days) or less was used for all survey items related to alcohol. Many current valid and reliable instruments used in alcohol research also utilize a 30-day or less (i.e., two weeks or last week) time frame. For example, the Core Alcohol and Drug Survey (Presley & Vineyard, 2004), Monitoring the Future (Johnston et al., 2009), and National College Health Assessment (ACHA, 2009) use at least one of the following timeframes: “last 30 days”, “last month”, “last two weeks”, and “last week.” This shorter recall period should be recent enough to allow for accurate responses by participants.

Another potential limiting factor of this study is the cross-sectional research design. The cross-sectional design does not allow the researcher to make causal inferences about relationships between the variables (e.g., personal values, perceived injunctive and descriptive norms, alcohol use). However, this study provided the realization that a more extensive, complex study design should be employed with the current variables.

Lastly, the study utilized a convenience sample of college students. The use of a convenience sample reduced the ability to generalize the results to the overall university (Cozby, 2001). However, for this study, this limitation was deemed acceptable.

### *Terms*

*Alcohol.* The intoxicating chemical in drinks such as beer, wine, and distilled liquors. Alcohol is a colorless, volatile liquid with the chemical formula  $C_2H_5OH$ , also called ethanol or ethyl alcohol. It is a central nervous system depressant. (NIAAA, n.d.).

*Alcohol use.* The consumption of alcohol.

*Alcohol abuse.* A condition in which the user has many alcohol use-related problems, including work or school performance and social, financial, legal, physical, and mental health problems (Jung, 2010).

*Alcohol addiction.* A chronic disease characterized by a strong craving for alcohol, a constant or periodic reliance on use of alcohol despite adverse consequences, the inability to limit drinking, physical illness when drinking is stopped, and the need for increasing amounts of alcohol to feel its effects (NIAAA, n.d.).

*Alcohol poisoning.* An acute toxic condition occurring when an individual drinks a large quantity of alcohol in a short period of time; symptoms can include confusion or stupor, vomiting, seizures, slowed or irregular breathing (< 8 breaths per minute), blue-tinged or pale skin, hypothermia, or unconsciousness (Mayo Clinic, 2008; Young-Hee et al., 2003)

*Alcoholism.* Commonly used term for alcohol dependency; however, dependency is used more often by researchers (Jung, 2010).

*Attitudes.* An individual's evaluation, either positive or negative, of a specific behavior (Fishbein et al., 2001).

*Beliefs.* Assumptions made by an individual based on observed, underlying states of expectancy (Rokeach, 1969).

*Belief system.* An individual's exhaustive collection of his or her beliefs about the physical and social reality (Rokeach, 1973).

*Binge Drinking.* A pattern of drinking alcohol that increases blood alcohol concentration (BAC) to 0.08 or above (NIAAA, 2004). "Drinking five or more drinks in a row for men and four or more drinks in a row for women in the previous two weeks" (Wechsler, Moeykens,

Davenport, Castillo & Hansen, 1995, p. 922). Also called heavy episodic drinking (Borsari et al., 2007).

*Blood Alcohol Concentration (BAC)*. Measure of alcohol from blood or breath samples that is correlated with how much alcohol has been consumed in the past 1 to 2 hours (Jung, 2010).

*Cognitive Dissonance Theory*. Theory conceptualized by Festinger (1957) that is based on the premise that individuals strive for consistency between what they believe and what they do. As an individual experiences inconsistency between beliefs and behavior, he or she feels dissonance, or psychological discomfort, which can then motivate the individual to reduce the dissonance and strive for psychological comfort or consonance.

*College Alcohol Problem Scale – revised (CAPS-r)*. A brief measure created by Maddock, Laforge, Rossi, and O’Hare (2001) that measures alcohol problems associated with alcohol use among a college population. This scale contains 8 items that asks respondents such things as, “How often have you had any of the following problems as a result of drinking alcohol?”...“Felt bad about myself”, “engaged in unprotected sex,” etc.

*Core Alcohol and Drug Survey*. A survey created by researchers at Southern Illinois University Carbondale that examines drug and alcohol use among students at 2-year and 4-year institutions.

*Current Drinker*. Someone who has used alcohol in the past month (Kinney, 2009).

*Dependence*. A condition in which a user of a drug (e.g., alcohol) is unable to control its use; synonymous with alcoholism (Jung, 2010).

*Descriptive Norms*. Perceived quantity and frequency of other’s drinking; the norms of “is” (Borsari & Carey, 2003).

*Driving under the influence (DUI).* Alcohol- or other-drug impaired operation of a motor vehicle (Jung, 2010).

*Driving while intoxicated (DWI).* Alcohol- or other-drug-impaired operation of a motor vehicle (Jung, 2010).

*Drunk dialing.* Calling a former or current love interest while under the influence of alcohol (Dodd et al., 2010). In a more general sense, it is when an individual makes a phone call while intoxicated that he or she would not necessarily make if sober.

*Expectancies.* The values an individual places on a given outcome (Baranowski, Perry & Parcel, 2002).

*Gateway drug.* A drug that some believe increases the chances of taking more harmful drugs (Jung, 2010).

*High-Risk Drinking.* Individuals may be at risk for alcohol-related problems if a male's alcohol consumption exceeds 14 standard drinks per week or four drinks per day and if females consume more than 7 standard drinks per week or 3 drinks per day (NIAAA, 2006).

*Injunctive Norms.* Behaviors and attitudes that are judged to be acceptable, expected, or correct within a social system (Larimer et al., 2004); the norms of “ought” (Borsari & Carey, 2003).

*Instrumental values.* Personal traits or states of existence or preferred ways of doing things (Rokeach, 1969); examples include: being polite, capable, and courageous (Rokeach, 1973).

*Integrated Behavioral Model.* A health education and promotion model that incorporates constructs from several of the current leading theories (e.g. TRA, TPB, and SCT) and models (e.g. HBM) in the field. Researchers utilizing IBM suggest behavior is influenced by intention to

perform the behavior and three main pathways: attitudes about the behavior, perceived norms associated with the behavior and personal agency (i.e., self-efficacy and perceived control) about the behavior (Fishbein et al., 2001).

*Intrapersonal value-attitude Conservative Concordance.* An agreement between an individual's conservative personal values and conservative attitudes towards a health-related behavior; in this study towards alcohol.

*Intrapersonal value-attitude Conservative Discordance.* A discrepancy between an individual's permissive personal values and conservative attitudes towards a health-related behavior; in this study towards alcohol.

*Intrapersonal value-attitude Permissive Concordance.* An agreement between an individual's permissive personal values and permissive attitudes towards a health-related behavior; in this study towards alcohol.

*Intrapersonal value-attitude Permissive Discordance.* A discrepancy between an individual's conservative personal values and permissive attitudes towards a health-related behavior; in this study towards alcohol.

*Light to moderate drinker.* A male who drinks less than two drinks a day, and a female who drinks less than 1 drink a day.

*Monitoring the Future (MTF) study.* An annual national survey conducted by researchers at the University of Michigan to assess alcohol and other drug use of high school students (Jung, 2010).

*Portrait Value Questionnaire (PVQ).* Schwartz and colleagues (2001) created an indirect measure to examine personal values that has been used extensively and tested across populations in every inhabited continent in the world; this multi-item scale contains 40 questions to compute

10 values: Conformity, Tradition, Security, Universalism, Benevolence, Self-Direction, Stimulation, Hedonism, Achievement, and Power.

*Proof.* A measure of the alcohol concentration in a drink that is calculated by doubling the percentage of alcohol within the beverage. For example, the average percentage of alcohol in beer is 5%, so beer has a proof of 10.

*Pseudo-Greek.* Participants in this study who identified as a non-Greek individual who occasionally or regularly attends a Greek social event, also called social, non-Greek.

*Self-Other Discrepancies/Differences (SOD).* The difference between what an individual does (i.e. “self”) and what the individual perceives others (“others”) do (Borasri & Carey, 2003). For example, a large SOD would occur when an individual perceives a typical college student drinks an average of 15 alcoholic drinks a week, but the individual only drinks an average of 3 drinks a week.

*Standard drink.* A standard drink consists of approximately 14 grams or 0.6 fluid ounces of pure alcohol. The following are examples of one standard drink: 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80 proof distilled spirits (NIAAA, 2005).

*Terminal values.* Desirable end-states of existence (Rokeach, 1969); examples include: a world at peace, security, and self-respect (Rokeach, 1973).

*Theory of Basic Human Values.* Postulated by Schwartz (1992) and validated by Schwartz and colleagues (1995, 2001); it consists of a set of 10 motivationally distinct value orientations based on three universal requirements of the human condition: biological needs of individuals, coordinated social interaction, and group survival and welfare needs (Schwartz, 2006; Schwartz & Boehnke, 2004; Schwartz et al., 2001).

*Transsituational.* Trans is a Latin prefix meaning spans across, through, or between; situation is a combination of circumstances at a given time; transsituational is something that spans across a combination of circumstances. For example, an individual's personal values are not specifically linked to a behavior the way attitudes are, but rather values should stay consistent across different situations.

*Value systems.* An individual's integrated, prioritized set of values (Schwartz, 1994).

*Values.* "Desirable, transsituational goals, varying in importance, that serve as guiding principles in people's lives" (Schwartz, 1992).

Table 1.1

*Table of Abbreviations*

Abbreviation	Term
AUD	Alcohol Use Discouraged
AUND	Alcohol Use Not Discouraged
BAC	Blood Alcohol Concentration
CAPS-r	College Alcohol Problem Scale – revised
CAS	College Alcohol Survey
DUI	Driving under the influence
DWI	Driving while intoxicated
HIV	Human Immunodeficiency Virus
HBM	Health Belief Model
IBM	Integrated Behavioral Model
IRB	Institutional Review Board
LOV	List of Value Scale
MTF	Monitoring the Future
NCHA	National College Health Association
PASW	Predictive Analytics Software
PVQ	Portrait Value Questionnaire
RAPI	Rutgers Alcohol Problem Index
RVS	Rokeach Value Scale
SCT	Social Cognitive Theory
SOD	Self-other difference/discrepancy
SVS	Schwartz Value Survey
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
YAAPST	Young Adult Alcohol Problem Screening Test

## CHAPTER 2

### Literature Review

Despite the increasing number of college students who abstain from using alcohol, heavy alcohol consumption is still a major health concern on college campuses. Students who tend to drink the most frequently and excessively include Caucasians, males, individuals who associate with a Greek student organization, and athletes (Borsari et al., 2007; Capone et al., 2007; Johnston et al., 2001; Johnston et al., 2009; Meilman et al., 1999; & Wechsler et al., 2000). Although purchasing and consuming alcohol is illegal for most college students, there is still widespread use and alcohol-related consequences among this population (Main, 2009).

#### *College Alcohol Surveillance*

Several research studies in the US examine alcohol use and problems among college students. Three projects that address alcohol use among college students include the College Alcohol Survey (CAS), Core Alcohol and Drug Survey (Core Survey), and National College Health Assessment (NCHA). Although each of these studies has limitations, findings from these projects provide important information to researchers, administrators, and the general public regarding alcohol use among college students.

Henry Wechsler and colleagues at the Harvard School of Public Health created the College Alcohol Survey (CAS). This survey was designed to take a nationally representative snapshot of the alcohol use and behaviors of college students in 1993, 1997, 1999, and 2001 (Wechsler & Nelson, 2008). The CAS began in 1992 and data were collected from over 14,000 students at 120 four-year colleges in the US (Harvard School of Public Health, 2005). In 2005, data were collected from 18 universities that participated in the CAS and that were identified as

having high levels of drinking among students. Most of the data from the CAS is now outdated since the last large-scale data collection was 2001; however, Wechsler and colleagues provided much to the field in the realm of college alcohol.

The Core Alcohol and Drug Survey (Core Survey) was developed in the late 1980s by individuals at the US Department of Education and researchers from several colleges and universities. Today the Core Institute is located at Southern Illinois University Carbondale. The survey is used by various two- and four-year universities and colleges to assess drug and alcohol use and abuse on campus. Colleges and universities around the nation collect data that is then compiled by the researchers at the Core Institute. All colleges and universities who use the Core Survey must follow similar methods of data collection to ensure consistency. The 2006 Core Survey aggregate data consist of a sample of 71,189 undergraduate students from 134 two- and four-year colleges in the US. Reports of the aggregate data are available for use on the Core Institute's website (<http://www.core.siuc.edu/>) (Core Institute, n.d.). The most current aggregate data available from the Core Survey is from 2006.

The American College Health Association (ACHA) NCHA is a research survey that was first administered in 2000. NCHA examines the general health of college students including alcohol use and alcohol-related consequences. NCHA is administered bi-annually, once in the fall and spring. Annual reports of aggregate data are published and posted on the ACHA website (<http://www.achancha.org/>). The fall 2009 NCHA data are based on a reference group consisting of 34,208 students from 57 universities and the spring 2009 data are based on a sample of 87,105 respondents from 117 universities (ACHA, 2009).

### *Prevalence of Alcohol Use among College Students*

As adolescence comes to an end and adulthood begins, life changes become more frequent and significant (Hicks & Miller, 2006). Transition to college is a process that involves leaving family and friends and making new relationships and memories. It is a time of discovering oneself and assessing the values and beliefs that have been previously accepted. Typically, the first-year college student has moved away from the structure provided by parents and high school and into the ambiguity of college-life (Bray & Born, 2004). Adjustments often occur in academic, social, emotional, physical, and financial aspects of life (Gall, Evans, & Bellerose, 2000), which can cause increased stress in college students. High levels of stress may lead college students to participate in negative coping behaviors such as alcohol use.

In the US, it is against the law for individuals under the age of 21 to purchase or consume alcohol (National Minimum Drinking Age Act, 23 US § 158, 1984); however, this has not always been the case (Main, 2009). Between 1970 and 1976, 29 states decided to lower the legal drinking age to 18 years (Main, 2009). Shortly after reducing the legal drinking in the late 1970s and early 1980s, there was a sharp increase in the number of highway traffic deaths among teens and young adults. Due to the steep increase in deaths caused by alcohol-related crashes, Congress passed the National Minimum Drinking Age Act in the summer of 1984 that mandated all states must legislate and enforce the legal drinking age of 21 years (Main, 2009; Wechsler & Nelson, 2008).

The minimum legal drinking age not only immediately protected individuals from inexperienced intoxicated drivers, but there may also be distal benefits to delaying alcohol consumption until 21 years of age. A large, nationwide study conducted by Hingson, Heeren, Levenson, Jamanka, & Voas (2002) established that individuals who started drinking prior to the

legal drinking age of 21 years were more likely to engage in impaired driving in the past year and ever. These individuals were also more likely to be involved in an alcohol-related motor vehicle crash in the past year or ever.

In addition to being too young to legally drink, underage drinkers are often inexperienced drivers. A lack of experience coupled with alcohol increases the risk of sustaining or causing injuries or fatalities. Lessons from history (i.e., short-lived reduction in the drinking age that led to increased traffic fatalities among youth and young adults) should remind policy makers of the need for the higher minimum drinking age (Main, 2009).

Regardless of legal ramifications, teens and young adults still consume alcohol and do so excessively. Researchers examining data collected in 2008 from the MTF project found 72% of twelfth graders and 85% of college students have tried alcohol (Johnston et al., 2009).

According to the 2006 Core Survey findings, 84.1% of college students have reported using alcohol in the last year, which is similar to the findings of the spring 2009 NCHA which reveal 81.7% of respondents have consumed alcohol (Core Institute, n.d.; ACHA, 2009). In addition, proportions for alcohol use in the last 30 days are relatively consistent between the 2006 Core Survey (71.8%) and the spring 2009 NCHA (68.8%).

Based on results from the MTF, Core Survey, and NCHA, the majority of college students consume alcohol even though approximately half of the respondents (47.5% of NCHA and 53.8% of Core Survey respondents) are under the legal drinking age of 21 (Core Institute, n.d.; ACHA, 2009). Although the majority of college students are underage until potentially junior or senior year, many still consume alcohol illegally (Main, 2009). Over eighty percent of underage respondents to the 2006 Core Survey reported alcohol use in the last year and 66.4% had used in the last 30 days (Core Institute, n.d.)

Del Boca, Darkes, Greenbaum, and Goldman (2004) found approximately two-thirds of college students did not report drinking alcohol during any specified week; however, when those students did drink, approximately half reported engaging in heavy episodic drinking also known as binge drinking. Heavy episodic drinking is defined as five or more drinks on one occasion in the past two weeks for men and four or more drinks for women (Borsari et al., 2007). This study by Del Boca et al. (2004) also found that the majority of drinking occurred on Thursday, Friday, and Saturday.

Aggregate data from the 2006 Core Survey supports the finding by Del Boca et al. (2004) that alcohol use among all college students (and not just first-year students) is still high. Results from the 2006 Core Survey reveal 55% of the students in the sample engaged in heavy drinking at least once in the last two weeks and 24% of students were categorized as heavy and frequent drinkers (Core Institute, n.d.). Heavy and frequent drinking is defined as five or more drinks in one sitting (heavy) and drinking 3 times a week or more (frequent) (Core Institute, n.d.). Binge drinking among college students has continued to increase over the past decade. Hingson et al. (2009) reviewed published findings associated with alcohol-related morbidity and mortality that revealed the proportion of college students aged 18- to 24-years old who reported binge drinking in the past 30 days steadily increased 10% from 1999 to 2005.

### *Prevalence of Alcohol-Related Consequences among College Students*

It is established in the literature there are negative outcomes associated with alcohol use. Negative consequences affect both the individual who consumes alcohol (e.g., alcohol poisoning) and those who do not (e.g., motor vehicle crash with intoxicated driver). There are varying levels of consequences associated with alcohol consumption ranging from missing class to risky sexual encounters to death. Some studies have addressed the positive alcohol-related

outcomes since college students' motivation for drinking is often based on positive concepts such as a desire for mood enhancement, fun, or social connectedness (Corbin, Morean, & Benedict, 2008). Dodd et al. (2010) found college students perceived the positive outcomes of social approval or acceptance by peers outweighed negative consequences that could arise from underage alcohol consumption.

Many researchers have published studies that examine the negative alcohol-related consequences college students may encounter when drinking. Death, injury, assault, sexual abuse, risky sexual behaviors, academic problems, health problems, suicide attempts, drunk driving, vandalism, police involvement, and alcohol dependence are just a few of the negative consequences described in the literature (Ham & Hope, 2003; Hingson et al., 2009; Hingson et al., 2002; Knight et al., 2002; Wechsler et al., 2002). Although some studies have examined specific consequences associated with alcohol use, often an individual's alcohol-related problems are reported as an overall score.

The most commonly used instruments to measure alcohol-related problems in a college population include the College Alcohol Problem Scale-revised (CAPS-r), Core Alcohol and Drug Survey (Core Survey), Rutgers Alcohol Problem Index (RAPI), and Young Adult Alcohol Problem Screening Test (YAAPST). Items from these instruments can be summed or averaged to create a number that represents an overall alcohol-related problem score for the individual. However, this overall score does not represent the severity or specificity of the problem since all items are equally weighted (Kahler, Read, Strong, Palfai & Wood, 2004). If a female indicates she missed class 10 or more times, she will have the same score as her boyfriend who indicated he drove while intoxicated 10 or more times in the same time period. Even though these overall,

un-weighted measures are not always descriptive (Martens et al., 2007); these measures are still able to yield significant findings that aid in creating effective policies and programs.

### *Social Consequences*

Although some would argue social benefits are not actually positive outcomes of alcohol use, a holistic perspective of health would disagree. An individual's health is comprised of four aspects: physical, mental, emotional, and spiritual (Caton & St. Clair, 2003). Each component of health plays an active role in determining the overall health status of the individual. With this holistic perspective, social health would have an impact on overall health and should be included in an examination of an individual's overall health status.

Murphy, McDevitt-Murphy, and Barnett (2005) found heavy drinking was related to higher levels of social satisfaction in male college students. The threshold for this positive interaction was three to four heavy drinking episodes per week and after that, there was an inverse relationship between heavy drinking and social satisfaction (Murphy et al., 2005). In addition to social benefits of heavy drinking episodes, there may also be negative outcomes associated with these drinking patterns (e.g., impaired driving, hangover, academic problems).

Perceived social consequences can also be deterrents to drinking excessively for some college students (Dodd et al., 2010). Negative social consequences identified by college students include participating in embarrassing or annoying behavior (e.g., being loud and obnoxious) and engaging in actions or conversations that would later be regretted (e.g., embarrassing photographs of drunken females posted on social media sites, "drunk dialing," etc.). The males also indicated a fear of being perceived by females as sexually aggressive or "the sketchy drunk guy" (Dodd et al., 2010, p. 97). Results from another study by Usdan, Martin, Mays, Cremeens, Aetzel and Barnhardt (2008) specified that individuals who engaged in drinking games (e.g.,

beer pong) or consumed hard liquor experienced alcohol-related problems more frequently than those who did not. Drinking games are often played with peers and therefore incorporate the concept of social interaction.

### *Physical Health Consequences*

Age, sex, genetics, and the environment are all factors that influence the impact alcohol consumption has on an individual's physical health. Although the amount of alcohol consumed may be standardized, the drinkers consuming it are not (Gunzerath, Faden, Zakhari & Warren, 2004), which suggests a beneficial amount of alcohol for one individual may be harmful for another. For example, two people drink 5 ounces of alcohol during a three-hour time period. One person may feel buzzed, while the second person experiences nausea and vomiting due to excessive alcohol consumption. The first person may be a 250 pound, thirty-year-old male who consumes alcohol regularly, while the second person could be a 95 pound high-school junior who is having her first experience with alcohol.

The only consistently agreed upon health benefit of regular moderate alcohol use is the impact of alcohol on cardiovascular disease and myocardial infarction (i.e., heart attack). Alcohol use, mortality, and morbidity follow a J- or U-shape curve (Gunzerath et al., 2004). One to four drinks daily reduces the risk of disease or death caused by CVD; however, daily consumption of five or more alcoholic beverages increases the risk. This relationship between CVD and alcohol has been shown to be independent of age, sex, smoking habits, and body mass index. There is still insufficient evidence regarding the lifetime accumulation effects of moderate drinking that begins in young adulthood (Gunzerath et al., 2004). Therefore, as with most things, moderation is important concerning alcohol use and heart disease.

Negative health outcomes also frequently occur with alcohol use, especially excessive use. The imminent physical danger associated with excessive alcohol consumption is alcohol poisoning. Alcohol poisoning is an acute toxic condition occurring when an individual drinks a large quantity of alcohol in a short period of time (Young-Hee et al., 2003). Symptoms of alcohol poisoning can include any of the following: confusion or stupor, vomiting, seizures, slowed or irregular breathing (< 8 breaths per minute), blue-tinged or pale skin, hypothermia, or unconsciousness (Mayo Clinic, 2008; Young-Hee et al., 2003). Excessive alcohol can reduce the gag reflex of an individual thus increasing the risk of alcohol poisoning. Hypothermia caused by alcohol poisoning can lead to cardiac arrest that can quickly lead to death. Alcohol can also cause an unsafe drop in blood sugar levels that can lead to seizures and potentially death. Even if an individual survives alcohol poisoning, irreversible brain damage can occur (Mayo Clinic, 2008). More distal health outcomes associated with excessive alcohol use include cirrhosis of the liver and increased risk of cancers (Gunzerath et al., 2004; Rehm, Gmel, Sempos, & Trevisan, 2002).

#### *Factors Associated with Alcohol Use and Alcohol-related Problems*

Several groups of individuals are at an increased risk for heavy drinking based on specific characteristics. Three groups at an increased risk include college students in general, athletes, and students who pledge a Greek sorority or fraternity (Nelson, Xuan, Lee, Weitzman & Wechsler, 2009). College students tend to drink more regularly and heavier than non-college counterparts (Hingson et al., 2009). Individuals who participated in high school or collegiate athletics tend to have higher rates of heavy drinking and alcohol-related consequences as compared to non-athletes (Doumas, Turrisi, Coll & Haralson, 2007; Ham & Hope, 2003). Students affiliated with Greek organizations (i.e., members of a Greek sorority and fraternity)

have higher rates of alcohol use and alcohol-related problems compared to non-Greek students (Capone et al., 2007; Murphy et al., 2005; Nelson et al., 2009).

There are gender differences concerning alcohol consumption in general and especially with high-risk drinking (e.g. binge drinking). Men have been recognized as the heaviest, most frequent and problematic drinkers among college students (Ham & Hope, 2003). Johnston et al. (2009) reported college males tend to have higher rates of daily drinking (5.1%) compared to female college students (3.3%). Johnston et al. also found approximately half (49%) of all college males report binge drinking over the past two weeks compared to one-third (34%) of college females, which has been widely supported in the literature (Dreer, Ronan, Ronan, Dush & Elliott, 2004; Ham & Hope, 2003; Weschler et al., 1995). Results from the MTF study (Johnston et al., 2009) suggest the gender discrepancy in binge drinking is narrowing as the rate of male binge drinking is slightly declining and female rates are seeing mild increases.

Racial differences in alcohol consumption and alcohol-related consequences are established in the literature. A review of the literature by Borsari et al. (2007) reveals that White students tend to drink the most followed by Hispanic students and Black students tend to consume the least amount of alcohol. These findings are supported by other studies including the 2006 Core Survey data that reveal Whites and Native Americans tend to drink the most, followed by Latino/a students, with Black students consuming the least amount of alcohol (Presley et al., 1996a, 1996b).

In the past two decades, investigators have looked at the relationship between religion and alcohol use (Patock-Peckham, Hutchinson, Cheong & Nagoshi, 1998). Studies have found a relationship between alcohol use and religion variables. Students with no religious affiliation reported significantly higher levels of drinking quantity and frequency, heavy drinking, and

perceived drinking when compared to students who affiliated with the Catholic or Protestant church (Patock-Peckham et al., 1998). Another study ascertained that Americans who identify with no religion tend to have higher percentages of heavy drinkers than individuals who identify with a religion (Michalak, Trocki & Bond, 2007). In addition to religious affiliation, the level of importance an individual places on religion appears to have an indirect influence on alcohol use by means of the individual's attitudes and perceived injunctive norms (Chawla et al., 2007).

As an individual's quantity and frequency of alcohol consumption increases, academic success tends to decrease (Perkins, 2002; Wechsler, 1995). High school GPA has been associated with college GPA and heavy alcohol use (Paschall & Freisthler, 2003). Pritchard and Wilson (2003) reveal a negative association between a college student's frequency of alcohol consumption and grade point average (GPA) which has been supported by other studies (Perkins, 2002; Wood et al., 2000).

### *Attitudes*

Attitudes refer to an individual's evaluation, either positive or negative, of a specific behavior or situation (Fishbein, et al., 2001). Attitudes can be delineated as either experiential (affect) or instrumental (cognitive). Experiential attitudes are emotional responses elicited by the thought of performing a behavior and are based on feelings about the behavior (Fishbein et al., 2001). Instrumental attitudes are based on cognitive beliefs about the outcomes of performing a behavior.

Many health education/promotion theories incorporate the concept of attitudes even if the construct is not always termed "attitude." Noar (2005) suggests all of the following health education theories contain some form of an attitudinal construct: Health Belief Model (HBM), Theory of Reasoned Action/Planned Behavior (TRA/TPB), Social Cognitive Theory (SCT),

Transtheoretical Model, Precaution Adoption Process Model, Protection Motivation Theory, Extended Parallel Process Model, and Information-Motivation Behavioral Skills Model. Ajzen and Fishbein (1980) have incorporated attitudes into TRA and since TPB is an extension of TRA, by default, attitudes are included in TPB. SCT (Bandura, 1986) has a construct termed expectancies which some suggest are similar to attitudes (Baer, Stacy & Larimer, 1991). HBM contains constructs that include the individual's beliefs about susceptibility and severity of a disease and benefits and barriers to taking action. Each of these HBM constructs could be identified as either experiential or instrumental attitudes. A recent addition to the historic health education models, the Integrated Behavioral Model (IBM), also uses the construct of attitudes to help explain behavior (Fishbein et al., 2001).

Although attitudes are sometimes examined in the college alcohol literature, expectancies are more commonly studied. Expectancies are the values an individual places on a given outcome (Baranowski et al., 2002). Some believe expectancies are essentially the same as attitudes (Baer et al., 1991), while others have found expectancies to be better predictors of alcohol consumption when compared with attitudes (Wall et al., 1998) thus revealing differences. The literature investigating expectancies is more abundant; however, based on the theoretical framework for this project, attitudes will be examined.

### *Attitudes and Alcohol*

Although few recently published articles have examined the influence of college student's attitudes towards alcohol, a study conducted by Webb and colleagues (1996) studied alcohol attitudes of fifth graders, perceived peer attitudes, and perceived parental influences. The purpose of this study was to determine if these attitudes towards alcohol and perceived attitudes of peers and parents (i.e., perceived norms) in fifth grade predicted alcohol use in

seventh grade. Perceived parental and peer attitudes had an indirect relationship on alcohol use in seventh grade. Personal attitudes also had an indirect relationship on later alcohol use mediated by intention to use alcohol (Webb et al., 1996).

A handful of recent studies have found a link between attitudes towards alcohol, alcohol use, and alcohol-related outcomes. Martinez, Garcia & Sher (2009) found individuals who were heavy or risky drinkers believed the minimum legal drinking age of 21 should be reduced. This study reveals a link between permissive alcohol attitudes (i.e., wanting to reduce legal drinking age) of college students and increased alcohol use.

Attitudes have also been used to explain the variance associated with alcohol-related problems or consequences. Benton, Benton, and Downey (2006) found college students' attitudes towards potential risks associated with alcohol use explained significant variance in drinking consequences. This finding was significant even after controlling for gender, alcohol use, and protective strategies (e.g., having a designated driver, limiting the number of drinks).

Chawla et al. (2007) examined undergraduate college students' alcohol consumption, importance of religion, attitudes towards alcohol, and perceived norms. Results from the study suggest personal attitudes are a stronger mediator than perceived norms in the relationship between the importance of religion and alcohol use. The importance of religion appears to be a similar concept to values since values are measured as the most important guiding principles in life. This similarity in the aforementioned variables may suggest a comparable relationship could exist between personal values, attitudes towards alcohol, injunctive and descriptive norms of alcohol-related behaviors, and alcohol use.

A study conducted by leading alcohol researchers identified a deficiency in their study design and a gap in the literature that the current study will address. The study examined social

(injunctive and descriptive) alcohol norms, drinking motives, and alcohol expectancies.

Neighbors et al. (2007) stated that in retrospect, they wished they had also examined attitudes due to the association between attitudes and alcohol use among college students.

### *Perceived Norms*

Peers have a strong influence on the behavioral choices of others. This peer influence or pressure has been recognized as having a significant role in drinking decisions and patterns of young adults (Reed, Lange, Ketchie, & Clapp, 2007). Peers can have a direct influence on an individual by providing opportunities for alcohol consumption or pressure could come in the form of bullying. Individuals can also experience a more passive influence from peers through a concept called perceived norms. Perceived norms are an individual's perception of his or her peer's acceptance or participation in a behavior such as alcohol use.

There are two types of norms: injunctive and descriptive. According to Larimer et al. (2004), injunctive norms are behaviors and attitudes that are judged acceptable, expected, or correct within a social system. Descriptive norms of alcohol-related behaviors are the perceived quantity and frequency of drinking. Injunctive norms are the norms of "ought" where descriptive norms are the norms of "is" (Borsari & Carey, 2003). Perceived norms are simply what the individual believes to be accurate based on preconceived notions, personal experience or observation; however, there is often a discrepancy between what is perceived and what actually occurs.

The type and specificity of the norms measured will influence the ability of the researcher to explain or predict alcohol use. Normative information based on at least one level of specificity to the participant (e.g., gender, ethnicity, or residence) may have a strong impact on intervention strategies (Chawla et al., 2007; Larimer et al., 2009). Larimer et al. (2009) found

perceived norms for more specific groups were strongly related to the individual's personal drinking habits. An individual is more likely to be exposed to the drinking habits of close friends and these habits are more influential than the typical college student. An individual is able to more accurately estimate the drinking habits of his or her close friends especially because close friends may also be "drinking buddies."

### *Perceived Norms and Alcohol*

Norms have been found to be associated with and predictors of alcohol use and alcohol-related problems. Wood et al. (2001) found injunctive and descriptive norms were consistently associated with alcohol use and alcohol-related problems. Neighbors et al. (2007) found social injunctive and descriptive alcohol norms are better predictors of college student drinking than drinking motives or alcohol expectancies. Larimer et al. (2004) examined alcohol use among Greek students (i.e., students who were members of a sorority and fraternity) and found injunctive norms to significantly predict alcohol-related consequences, dependency symptoms, and drinking 1 year later. Turrisi et al. (2007) found peer norms were a significant mediator of the relationship between heavy drinking and athletic status. Athletes reported more permissive peer approval of use (injunctive norms) and heavier drinking among peers (descriptive norms) (Turrisi et al., 2007). Norms are often a strong predictor of alcohol use and should continue to be examined.

Injunctive norms are potentially more complex than descriptive norms. Neighbors et al. (2008) ascertain that injunctive norms of friends and parents (proximal reference groups) are positively associated with drinking behavior, and more distal reference groups (e.g., typical students) are negatively associated with alcohol behavior. As would be expected, descriptive norms of proximal and distal groups were positively associated with alcohol use.

Students tend to overestimate the frequency, quantity, and approval of others' alcohol use (Borsari et al., 2007). When there is a discrepancy between what is believed to be true (e.g., perceived use) and what is actually true (e.g., actual alcohol use among sample), there can be consequences. Research has shown when individuals perceive others to drink more frequently and heavily than they do, the individual is at a higher risk to consume more alcohol. This concept in the alcohol literature has been termed self-other differences (SOD).

The SOD is calculated by subtracting the actual data from the sample (e.g., average number of drinks of sample) from data of what the individual perceives (e.g., perceived average number of drinks of peers) to create a score. A positive score would indicate there is an overestimation of peer use (Carey, Borsari, Carey, & Maisto, 2006). For example, the actual average number of drinks per week within a sample is 15, but an individual perceives the average number of drinks per week among peers is 35. The SOD would be calculated (i.e.,  $35 - 15 = 20$ ) for this individual. The size and sign associated with the SOD provides descriptive information about the relationship between perceived and actual data (Carey et al., 2006).

Carey and colleagues (2006) report the average college student believes other students are more accepting of excessive drinking and others drink more. When an individual perceives others to drink more or that others are more permissive of alcohol, this is called a positive discrepancy. Positive discrepancies or exaggerated norms can lead to justification of the individual's drinking behaviors or it can give the individual a false sense of safety in his or her current, potentially dangerous, drinking habits. Rarely have negative self other discrepancies been examined as this is unusual in a college population. A negative self-other difference would suggest the individual has more permissive attitudes about alcohol than the individual perceives of peers. Carey et al. (2006) did not include negative self-other differences in statistical analyses

for their study; however, this seems to be a potentially interesting and informative group of individuals who should not be overlooked.

The size of the SOD (i.e., large or small) has been found to be indicative of certain outcomes. A larger SOD often occurs with lighter drinkers (e.g., females and non-Greek students) and when an individual drinks less than he or she perceives peers to drink. According to Carey et al. (2006), gender and baseline drinking level influence the size of the SOD. The larger SODs were found to predict increases in drinking habits of college students. Smaller SODs occur when an individual drinks almost as much as they perceive others to drink. Overestimating the drinking rates and approval of drinking of peers may be an important risk factor for heavy drinking (Borsari et al., 2007).

#### *Values, Attitudes, and Beliefs*

The majority of value research has been done in the fields of psychology (Nilsson, von Borgstede, & Biel, 2004; Schwartz & Boehnke, 2004; Schwartz et al., 2001) and business (Allen, 2001; Becker, 1998; Kropp et al., 1999); however, the concept of values may play an important role when addressing health behaviors. Health promotion is similar to marketing and consumerism. Health behaviors are often marketed to individuals who decide whether they want to “consume” the behavior through implementing a positive health behavior change. Therefore, values, as they are measured in the business arena could potentially be extrapolated into the field of health promotion. Psychology and health education/promotion also have a history of overlapping theories and concepts, so values that have been measured in the psychology literature would also potentially provide an adequate measure for health behavior research. It is important to understand what values are to determine how to best measure them. This section

will describe personal values, provide a history of some of the influential scholars and instruments available for use, and the Theory of Basic Human Values.

Rokeach (1969) describes beliefs as assumptions made by an individual based on observed, underlying states of expectancy. Beliefs cannot be directly observed, but must be indirectly measured based on an individual's words or actions (Rokeach, 1969). A belief system is an individual's exhaustive collection of his or her beliefs about the physical and social reality (Rokeach, 1973). Beliefs play an active role as the abstract building blocks for attitudes and values. Attitudes are beliefs that focus on a specific object or situation. Values, on the other hand, are "an enduring belief that a specific mode of conduct or end-state of existence is personally and socially preferable to alternative modes of conduct or end states of existence" (Rokeach, 1969, p. 160) or transsituational goals that serve as the guiding principles in life and vary in importance to an individual (Schwartz, 1992).

According to Homer and Kahle (1988), attitudes are more adaptable to experimental manipulation than values. Homer and Kahle (1988) suggest individuals have fewer values that are more ingrained and thus harder to alter, whereas, attitudes are more prolific and easier to modify in a short amount of time. Since values do not appear to change as readily as attitudes, values could act as a tool to segment the audience and/or tailor messages to individuals. This segmentation and tailoring of messages in the health promotion realm could be similar to advertising professionals in the business arena (Becker, 1998).

### *History, Persons, and Instruments of Personal Values*

Milton Rokeach has been influential in explaining and expanding the concepts of beliefs, belief systems, values, value systems, and attitudes (Agle & Caldwell, 1999). Other influential

value researchers include Shalom Schwartz and Lynn Kahle. Each individual has brought a new aspect and measurement device to aid in furthering value research.

Rokeach (1969) first explained the idea of terminal and instrumental values and created the Rokeach Value Scale (RVS). Terminal values are desirable end-states of existence whereas instrumental values are personal traits or states of existence or preferred ways of doing things (Rokeach, 1969). Examples of terminal values include a world at peace, security, and self-respect; whereas, examples of instrumental values include descriptions such as polite, capable, and courageous (Rokeach, 1973). The RVS consists of 18 terminal values and 18 instrumental values that individuals are instructed to rank in the order of importance (Rokeach, 1973). Although this instrument was relatively comprehensive, it was also very bulky and hard for respondents to conceptualize. Others have expanded Rokeach's value concept by finding ways to examine values less intrusively and more descriptively (Kamakura & Novak, 1992).

Lynn Kahle furthered Rokeach's concept, but created a new instrument that minimized the RVS into a 9-item scale. Kahle (1983) developed this new, shorter instrument, the List of Values (LOV), based on the ideology and work of Rokeach's terminal values and other contemporaries of value research. The LOV is a widely used measure of personal values in consumer behavior contexts as well as in the field of business as a market segmentation device (Kamakura & Novak, 1992). Nine values constitute the LOV: sense of belonging, excitement, warm relationships with others, self-fulfillment, being well respected, fun and enjoyment in life, security, self-respect, and a sense of accomplishment (see Table 2.1 for a description of each value). These nine values can be ranked from least important to most important, or rated on a Likert-type scale, or ranked-then-rated (McCarty & Shrum, 1997).

The LOV has been found to be a reliable and valid scale (Becker, 1998); however, there are some drawbacks in its use. The LOV contains one item per value measured. An instrument with multi-item measurement for each value would potentially be a stronger tool since values are abstract and may be challenging for some respondents to rank or rate the importance of the abstract values.

Table 2.1

*Description of List of Values Scale values as described by Kahle (1983)*

<i>Value</i>	<i>Description</i>
Sense of belonging	Be accepted and needed by your family, friends, and community
Excitement	Experience stimulation and thrills
Warm relationships with others	Have close companionships and intimate friendships
Self-fulfillment	Find peace of mind and to make the best use of your talents
Being well-respected	Be admired by others and to receive recognition
Fun and enjoyment in life	Lead a pleasurable, happy life
Security	Be safe and protected from misfortune and attack
Self-respect	Be proud of yourself and confident with who you are
Sense of accomplishment	Succeed at what you want to do

Another value researcher attempted to overcome the limitation of measuring values, a multi-dimensional concept, with a single-item measurement tool. Shalom Schwartz created a new instrument containing multiple items to measure 10 values based on both the terminal and instrumental values described by Rokeach. Schwartz has continued the work of Rokeach and has contributed copious research in the field of cultural and personal values. Schwartz (1996, p. 122) defines values as “desirable, transsituational goals, varying in importance, that serve as guiding principles in people’s lives.” Schwartz and colleagues (2001) have created a direct measure of values called the Schwartz Value Survey (SVS) and an indirect measure called the Portrait Value Questionnaire (PVQ). The SVS and PVQ consist of multi-item scales that include

anywhere from 3 to 8 items for each of the 10 values (see Table 2.2 for a description of the 10 values). Schwartz's scales have been used extensively and tested across populations in every inhabited continent in the world (Schwartz et al., 2001).

### *Theory of Basic Human Values*

The Theory of Basic Human Values postulated by Schwartz (1992) and validated by Schwartz and colleagues (1995, 2001) consists of a set of 10 motivationally distinct value orientations based on three universal requirements of the human condition: biological needs of individuals, coordinated social interaction, and group survival and welfare needs (Schwartz, 2006; Schwartz & Boehnke, 2004; Schwartz et al., 2001). Individuals hold these 10 values (described in Table 2.2) in varying degrees of importance as guiding principles in life. Based on Schwartz's updated Theory of Basic Human Values, there are six main aspects common to all values (Schwartz, 2006). First, values are subjective beliefs that are intertwined with emotion. Second, values are motivational constructs and are the goals that an individual struggles to attain. Third, unlike attitudes or norms, values are not specific to an action or situation, but rather values are transsituational. Fourth, values act as standards or criteria for individuals. Schwartz (2006) explains that values form an ordered system for individuals because an individual will rank values by importance relative to one another. Sixth, actions are guided by the relative importance of multiple values.

### *Value Relations Structures*

The Theory of Basic Human Values identifies values that are constructed along a continuum. This continuum is arranged in a circular pattern (as depicted in Figure 2.1) with dynamic relationships (i.e., conflict and congruence) between the values. Values that are abreast

in the visual diagram (e.g. Power and Achievement) are congruent values whereas values that are on opposite sides of the circle (e.g. Achievement and Universalism) are in conflict (Schwartz, 1992 & Schwartz et al., 2001). These conflicting and congruent relationships constitute value structures.

Table 2.2

*Description of Schwartz's values as described by Schwartz (1992)*

<i>Value</i>	<i>Description</i>
Power	Social status and prestige, control or dominance over people and resources
Achievement	Personal success through demonstrating competence according to social standards
Hedonism	Pleasure and sensuous gratification for oneself
Stimulation	Excitement, novelty, and challenge in life
Self-Direction	Independent thought and action-choosing, creating, exploring
Universalism	Understanding, appreciation, tolerance and protection for the welfare of all people and for nature
Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact
Tradition	Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide the self
Conformity	Restraints of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms
Security	Safety, harmony, and stability of society, or relationship and of self

A universal organization of values would occur if the value structures were consistent across culturally diverse groups. Cultural values (values of the group) are different than individual's values because individual's values make up the culture's values (Schwartz, 2006); therefore, individuals and groups have different hierarchies or priorities concerning values. The SVS and PVQ are two instruments used to measure individual or personal values.

In addition to the 10 motivationally distinct values, Schwartz (2006) also describes four integrated, higher-order values HOV that include Openness to Change, Self-Enhancement, Self-

Transcendence, and Conservation. Openness to Change incorporates the values of Self-Direction, Stimulation, and Hedonism. The next higher-order value on the continuum is Self-Enhancement, which consists of Hedonism, Achievement, and Power. Conservation is the next higher-order value and includes Security, Conformity, and Tradition. Self-Transcendence comprised of Benevolence and Universalism.

As is true with the lower ordered values, the higher-order values also have congruent and conflicting relations. Openness to change is in opposition to conservation because the motivational goals of independence of thought, action and feelings and readiness for change (Openness to Change) opposes an emphasis on order, self-restriction, preservation of the past, and resistance to change (Conservation). An emphasis on the concern for the welfare and interests of others (i.e., Self-Transcendence) is in conflict with the pursuit of one's own interests and relative success and dominance over others (i.e., Self-Enhancement).

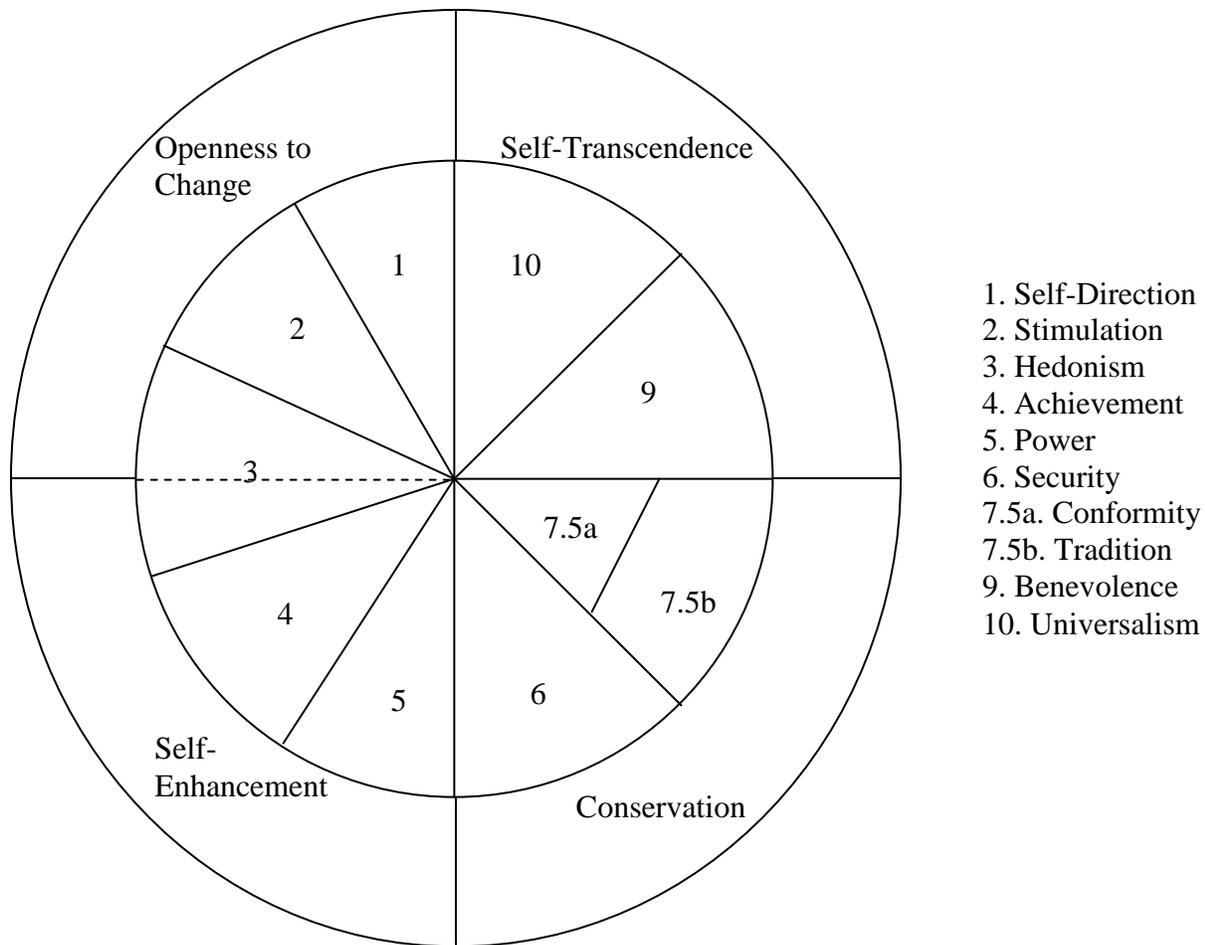


Figure 2.1. Visual depiction of Schwartz's values based on the Theory of Basic Human Values as described by Schwartz (1996)

### Values and Alcohol

Few studies have examined the relationship between personal values and alcohol consumption (Kropp et al., 1999). A consumer research study by Kropp et al. uses the List of Value Scale (LOV) to examine tobacco use and beer consumption in college students. This study examines the personal values and susceptibility to interpersonal influence of smokers and beer drinkers. The authors identified differences in the values of beer drinkers compared to non-drinkers. Beer drinkers were more likely than non-beer drinkers to rate Excitement as an important value and Security as a less important value.

A study among college students in South Africa examines the relationship of personal values and alcohol use (Schwartz et al., 2001). Results from the study reveal a significant, positive association within Openness to Change values (i.e., Self-Direction, Stimulation, and Hedonism) and significant, inverse relationships within Conservation values (Security, Conformity, and Tradition). Furthermore, the remaining values of Benevolence, Universalism, Achievement, and Power did not have significant associations with alcohol use among this population (Schwartz et al., 2001).

### *Theoretical Framework*

The theoretical framing of this project will include constructs from a health education model called the Integrated Behavioral Model (IBM), a postulation regarding the values-attitudes-behavior relationship (Homer & Kahle, 1988), the Theory of Basic Human Values (Schwartz, 1992), and Cognitive Dissonance Theory (Festinger, 1957). Each of these theories will be discussed. Also, the researcher's theoretical concept of intrapersonal value-attitude relationship will be described.

#### *Integrated Behavioral Model*

IBM (Fishbein et al., 2001) incorporates constructs from several of the current leading theories (e.g. TRA, TPB, and SCT) and models (e.g. HBM) in the field of health education and health promotion (Kasprzyk, Montaño & Fishbein, 1998). The creators of IBM culled the most salient constructs from other established theories to create this inclusive model (see Figure 2.2 for a visual depiction of IBM). IBM suggests behavior is influenced by intention to perform the behavior and three main pathways: attitudes about the behavior, perceived norms associated with

the behavior, and personal agency (i.e., self-efficacy and perceived control) in regard to the behavior (Fishbein et al., 2001).

Constructs from IBM have been chosen as part of the theoretical framework for the current study due to the entire model's versatility and comprehensiveness. IBM has general advantages for use over other theories in health education. First, IBM is an amalgamation of the most useful constructs from the leading theories in health education thus providing strong rationale for utilizing the entire model or constructs from the model when possible. The present study will employ only a few constructs from IBM (i.e., the bolded variables in Figure 2.2); however, the researcher hopes to expand the study to incorporate other IBM constructs in future studies.

There are no published studies to the author's knowledge utilizing IBM as a framework for alcohol research; however, TPB (Hutchings, Lac & LaBrie, 2008) and constructs from the Social Learning Theory (LaBrie, Huchting, Pedersen, Hummer, Shelesky, & Tawalbeh, 2007; Wood et al., 2001) have been used with alcohol research. Since these theories have overlapping constructs with IBM, there is support for utilizing constructs from IBM within the context of college alcohol. Another reason IBM may provide insight into alcohol use is that IBM has been used in other high-risk health behaviors such as condom usage (Kasprzyk et al., 1998).

IBM in its entirety could potentially be a stronger framework for alcohol use than TRA because IBM incorporates self-efficacy and perceived behavioral control within the construct of personal agency. IBM may also be stronger than TPB, even though TPB incorporates the concept of perceived behavioral control, because IBM incorporates other potentially important constructs to alcohol research such as environmental constraints, salience of the behavior, and

habit. Although these additional constructs will not be assessed in this study, they could be examined in future college alcohol studies.

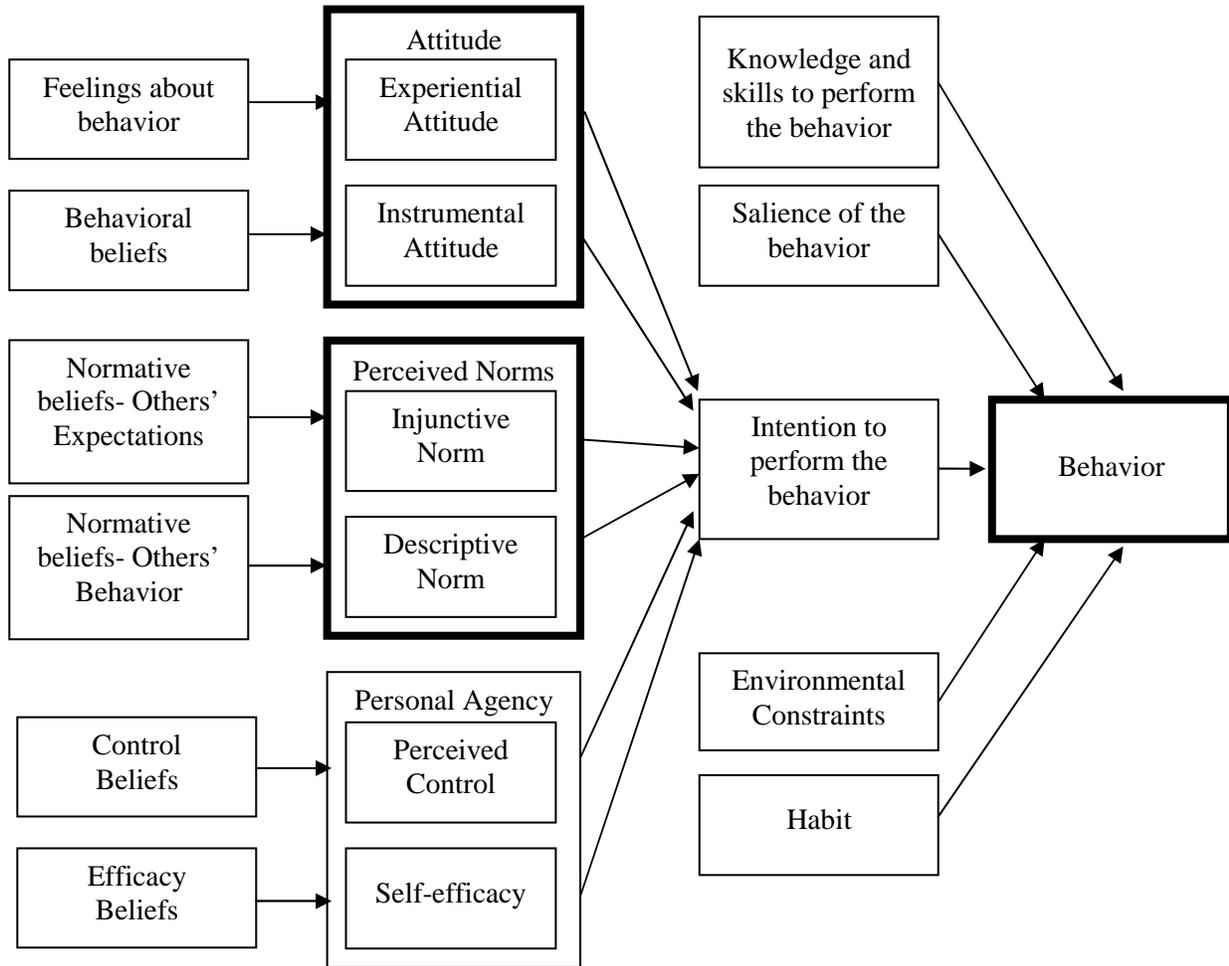


Figure 2.2. The Integrated Behavioral Model. Reproduced from depiction by Montaño and Kasprzyk (2008). *Bolded items are constructs used in the current study*

Although TRA/TPB incorporates the concept of subjective norms, IBM includes both injunctive and descriptive norms in the theoretical design. The TRA/TPB construct of subjective norms are comprised of normative beliefs (i.e., an individual’s belief that others approve or disapprove of a behavior) and motivation to comply (i.e., an individual’s desire to comply with

these “others”; Ajzen & Fishbein, 1980). The study will incorporate the constructs of injunctive and descriptive norms, which are IBM constructs.

#### *Values-Attitudes-Behavior Relationship*

In addition to IBM, a theoretical concept suggested by Rokeach (1973) and proposed by Homer and Kahle (1988) will be incorporated into the current study. Rokeach suggests that once an individual internalizes a value, it becomes a standard for determining behavior, engendering attitudes, guiding evaluations and comparisons, and justifying actions of self and others (Rokeach, 1973). Values are therefore determinants of attitude and behavior (Rokeach, 1969; 1973; Homer & Kahle, 1988). Homer & Kahle (1988) posit a link between values and behavior, but theorize it may be weak due to poor methodological or measurement techniques.

Many health education theories suggest they measure an individual’s values; however, rarely are personal values actually depicted in a theory. Moreover, if personal values are used, it is often not consistent with current value literature. Kasprzyk et al. (1998) applied IBM to predict condom use among a group at high-risk for contracting HIV. In this study, the researchers incorporated a construct termed “values attached to consequences.” Although this values construct by Kasprzyk and colleagues is inconsistent with the concept that values are transsituational and cannot be tied to a specific action, person, or circumstance (Schwartz, 1992), it does reveal the desire for researchers to utilize values in theoretical design.

Based on the hypothesis of Homer and Kahle (1988), the concept of personal values will be added to the selected constructs from IBM for this research study. Personal values will be conceptualized with Schwartz’s Theory of Basic Human Values as described earlier in this chapter. Figure 2.3 contains a concept model of constructs that will be examined in this project.

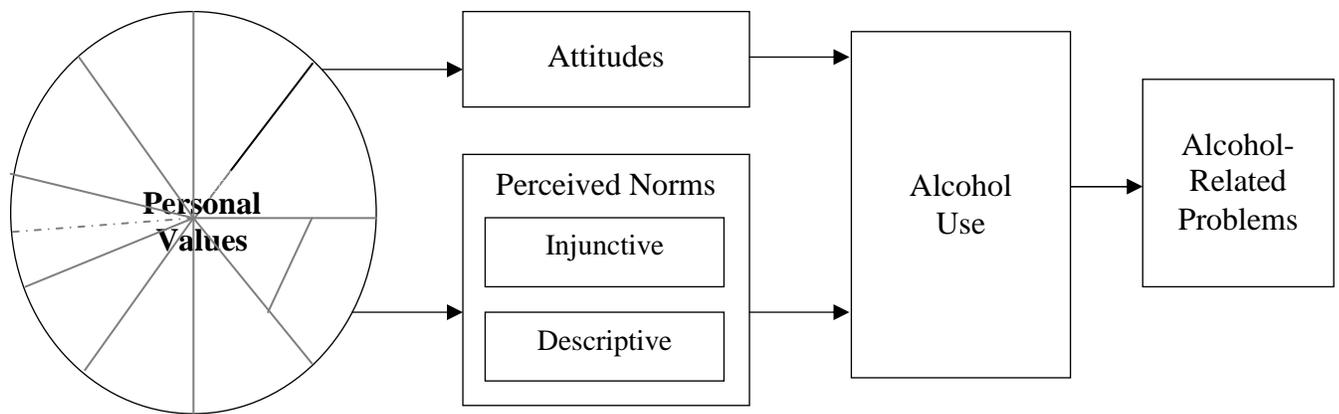


Figure 2.3. Concept model of theoretical constructs developed for the current study

### *Cognitive Dissonance Theory*

Based on the premise that individuals strive for consistency between what they believe (value) and what they do (behavior), Festinger (1957) birthed the Cognitive Dissonance Theory. Festinger hypothesizes that as an individual experiences inconsistency between beliefs and behavior, he or she feels dissonance, or psychological discomfort. This discomfort will then motivate the individual to reduce the dissonance and strive for psychological comfort or consonance (Festinger, 1957). However, if an individual is unable to reduce this dissonance, it could lead to other manifestations such as guilt or regret, which could in turn lead to maladaptive behaviors such as alcohol use.

### *Intrapersonal Value-Attitude Relationship Theory*

Drawing from the relationship between values-attitudes-behaviors (Homer & Kahle, 1988), SOD in the college alcohol norms literature (Carey et al., 2006), the Theory of Basic Human Values (Schwartz, 1992), Cognitive Dissonance Theory (Festinger, 1957), and other published literature; the researcher has created a theoretical concept regarding intrapersonal value-attitude relationships. Values have been determined to be permissive or conservative

based on the type of value it is, and were validated by correlations discussed in Chapter 4. Permissive values include the values of Self-Direction, Stimulation, Hedonism, Power, and Achievement. Conservative values include Universalism, Benevolence, Tradition, Conformity, and Security.

Permissive intrapersonal discordance is a discrepant relationship between an individual's conservative personal values and permissive attitudes towards alcohol. Conservative intrapersonal discordance occurs when an individual holds permissive values and conservative attitudes. Concordant relationships occur when an individual's values and attitudes are aligned. Permissive concordance occurs if values and attitudes are both permissive, while conservative values and attitudes indicate conservative concordance among participants.

Intrapersonal concordance can be either healthy or unhealthy in its potential impact on health behavior. Conservative intrapersonal concordance would be a personal value and attitude relationship that theoretically is consistent and therefore would promote abstinence or low-risk drinking habits (i.e., light-to-moderate drinking) and fewer alcohol-related problems. An example of conservative concordance is an individual who values Tradition and disapproves of getting drunk. This individual will theoretically drink responsibly or abstain from alcohol especially when compared to someone who value Hedonism and approves of getting drunk. Permissive concordance would include a personal value-attitude relationship that is consistent, but promotes high-risk drinking habits. An example of permissive concordance is an individual who values Hedonism and approves of drinking to get drunk. This individual will likely drink heavily and experience more alcohol-related consequences.

Intrapersonal value-attitude discordance would occur when an individual's values and attitudes do not align. This discordant relationship may suggest an internal battle or conflict

within the individual that potentially could be associated with an increased likelihood for the individual to participate in high-risk alcohol use and experience alcohol-related problems. The intrapersonal value-attitude discordant relationships would follow a similar pattern to the concordant relationships in that there will be permissive discordance and conservative discordance. An individual who holds conservative values and permissive attitudes towards alcohol will have permissive discordance, while an individual who hold permissive values and conservative attitudes will have conservative discordance. The researcher has outlined these theoretical relationships between personal values and attitudes towards alcohol (see Table 2.3).

As previously discussed, few studies examine the relationship between personal values and alcohol (Kropp et al., 1999; Schwartz et al., 2001); however, in the studies that do examine these relationships, some associations have been made that will aid in supporting the intrapersonal value-attitude relationship theory.

Table 2.3

*Theoretical relationships for intrapersonal value-attitude relationships*

	<b><i>Permissive Values</i></b> (Self-Direction, Stimulation, Hedonism, Achievement, Power)	<b><i>Conservative Values</i></b> (Security, Conformity, Tradition, Benevolence, Universalism)
<b><i>Permissive Attitudes</i></b> (Approve of alcohol behaviors)	Permissive Concordance	Permissive Discordance
<b><i>Conservative Attitudes</i></b> (Disapprove of alcohol behaviors)	Conservative Discordance	Conservative Concordance

In the literature, alcohol use was associated with certain personal values. Findings from a study among university students in South Africa suggest there is a significant, inverse relationship between alcohol use and the following values: Security, Conformity, and Tradition (Schwartz et al., 2001). Significant, direct relationships were identified between alcohol use and Self-direction, Stimulation, and Hedonism. The remaining values (i.e., Benevolence, Universalism, Achievement, and Power) were not significantly associated with alcohol use

(Schwartz et al., 2001); however, this is only one study, which suggests a need for more studies examining these relationships in a US sample. One study examined the values of beer drinkers within US college students by Kropp and colleagues (1999). This business research study utilized the List of Value (LOV) scale to measure values rather than Schwartz' value scales; however, the concepts behind the values are the same. Results from the study by Kropp et al. indicated that those who consumed beer identified Excitement (similar to Stimulation in Schwartz' values) as the most important value and Security as the least important value guiding their lives.

Based on the results of these studies and the theoretical basis of the grouping of values by Schwartz in the circle, the researcher has identified some relationships between values, attitudes, and alcohol use and alcohol-related problems. Permissive concordance will occur in individuals who hold more permissive attitudes about alcohol (e.g., approve of getting drunk) and value Self-direction, Stimulation, Hedonism, Power, and Achievement. Conservative concordance will occur when an individual holds conservative attitudes about alcohol (e.g., disapproves of drinking to get drunk) and values Security, Conformity, Tradition, Benevolence, and Universalism. When an individual holds permissive attitudes about alcohol and conservative values, this will be permissive discordance. An individual who has permissive values and conservative attitudes will be considered having conservative discordance.

### *Conclusion*

Alcohol use and alcohol-related problems among college students continue to be a leading public health issue. An examination of personal values, attitudes, perceived injunctive and descriptive norms, and intrapersonal value-attitude relationships provided some useful insight and strategies for health educators to address this continuing problem. Although college

alcohol researchers have examined attitudes towards alcohol, injunctive, and descriptive norms of alcohol use; the unexplored concepts of personal values and intrapersonal value-attitude relationships proved useful in further addressing the alcohol problem among college students.

## CHAPTER 3

### Methods

#### *Introduction*

This cross-sectional study utilized constructs from the Integrated Behavioral Model (IBM) (Fishbein et al., 2001) to examine alcohol use and alcohol-related problems in undergraduate college students attending a large, public university in the southeastern US. A paper-and-pencil instrument was administered within the classroom to collect data from a convenience sample of undergraduate college students. The compiled instrument consisted of scales and questionnaires currently used in the published literature that were modified for use in this study. Instruments used in the current study assessed the participants' personal values (Portrait Value Questionnaire), attitudes towards alcohol, perceived injunctive and descriptive norms of alcohol-related behaviors (Wood et al., 2004), alcohol use (Core Survey), and alcohol-related problems (College Alcohol Problem Scale-revised and Core Alcohol-Related Problems Index). Numerous studies have examined college students' perceived norms of alcohol-related behaviors and attitudes towards alcohol; however, little research has been conducted on the influence of personal values and intrapersonal value-attitude relationships on alcohol use and alcohol-related problems (Kropp et al., 1999).

#### *Purposes*

There are three main purposes of this study. The first purpose is to provide an innovative look at the college alcohol problem by examining personal values. The second purpose of the study is to examine the relationship between personal values, attitudes towards alcohol, perceived injunctive and descriptive norms, alcohol use, and alcohol-related problems among college students. The third purpose of this study is to examine the relationship between

intrapersonal value-attitude relationships, alcohol use, and alcohol-related problems. Although little research has been conducted on the influence of personal values on health behaviors, researchers have examined values within consumerism, which may have implications in the consumption of health behaviors.

### *Research Questions*

The following questions have been examined in the current study.

1. What are the relationships between personal values, attitudes toward alcohol, and perceived injunctive and descriptive norms of alcohol use and descriptive norms of alcohol-related problems?
2. What best predicts alcohol use and alcohol-related problems among college students when examining personal values, attitudes towards alcohol, perceived injunctive and descriptive norms of alcohol use, and norms of alcohol-related problems?
3. Does an individual's intrapersonal value-attitude relationship predict alcohol use and alcohol-related problems?

### *Participants*

Participants in this study consisted of undergraduate college students who were enrolled in specific courses (e.g., Introduction to Athletic Training, Life Span Human Development, and Introduction into Human Nutrition) in the colleges of Business and Human Environmental Sciences at a large university in the southeastern US. The entire sample consisted of 977

students; however, after controlling for non-traditional students, the sample was reduced to 910 participants.

The surveys were collected at least 30 days after the start of the semester so first-year students had been at college for at least a month. Since the purpose of the study was to look at alcohol use while in college, data collection could not begin until September 20 because some of the survey items included questions about alcohol use in the last 30 days. The survey was administered to students in the classrooms during a one-month window (September 23 – October 25) in the fall semester of 2010.

Prior to collecting data, the researcher obtained approval from the Institutional Review Board (IRB) at the University. The researcher recruited participants by contacting course instructors in the colleges of Business and Human Environmental Sciences. An email was sent to selected course instructors who had a large number of enrolled students and asked if the researcher could attend a class to administer a survey to the students (see Appendix A for a copy of the recruitment email to instructors). The survey took participants approximately 10 to 20 minutes to complete. All instructors who were contacted agreed to allow the researcher into their classrooms to administer the survey.

### *Instrument*

The instrumentation used for this study was modified from several valid and reliable assessment measures found in the published literature. These already established tools included the Portrait Value Questionnaire (PVQ), Injunctive Norms Questionnaire, College Alcohol Problem Scale – revised (CAPS-r), Core Alcohol and Drug Survey alcohol-related consequences items, and demographic questions commonly used in large research projects with college students. Appropriate permission was obtained or surveys were available in the public domain

for use by researchers. Although many of the instruments were valid and reliable based on previous research among college students, the researcher of the current study adjusted the majority of the instruments. To determine the reliability of the newly adjusted instruments, internal consistencies were examined using Cronbach's Alpha.

The instrument for the current study contained four sections: Section 1: Demographic Information, Section 2: Personal values and attitudes toward alcohol, Section 3: Alcohol use and alcohol-related problems, and Section 4: Injunctive and descriptive norms. In attempts to avoid complicated and clumsy skip pattern responses that would be necessary for gender-specific language and questions, a male and female survey were created and administered. Surveys had different colored cover sheets that provided instructions and differentiated the gender-specific surveys (i.e., pink cover page for females and blue for males). All items measured the exact same constructs in the same manner; however, the wording for the Portrait Value Questionnaire (PVQ) was gender-specific so the respondent identified with someone of the same gender. Refer to Appendices B and C for a copy of the gender-specific surveys.

### *Section 1. Demographic Information*

Generic demographic items included in the American College Health Association's National College Health Assessment (ACHA-NCHA) (ACHA, 2009) were used as a template to collect information from participants of this study. Demographic items collected include enrollment status (i.e., freshman, sophomore, junior, senior, graduate, and other), age, gender (i.e., male or female), college GPA, racial/ethnic origin, and athletic status.

Greek involvement was assessed using a modified version of the response options created by Capone et al. (2007). Capone and colleagues used three groups: "member", "nonmember who regularly or occasionally attends Greek social events", and "nonmember who does not

attend Greek events”. Modifications to this response set included a further distinction between members to include the following options: “member who does not attend Greek events” and “member who regularly or occasionally attends Greek social events.”

The last two variables in this first section examined religious influence. The participant was asked, “Are you religious?” with a yes or no response option. The participant was then asked, “Does your religious affiliation discourage alcohol use?” The main interest of the researcher was to identify if the individual was religious and if so, did the participant perceive alcohol use was discouraged within his or her religious affiliation. A three category religious influence measure was created based on these two questions by differentiating between non-religious, religious participants whose religious affiliation discouraged alcohol use (Religious [AUD]), and religious individuals whose religious affiliation did not discourage alcohol use (Religious [AUND]).

## *Section 2. Personal Values and Attitudes*

*Portrait Value Questionnaire (PVQ).* The Portrait Value Questionnaire (PVQ) was created by Schwartz et al. (2001). The PVQ is a more concrete measure of values compared to similar questionnaires like the Schwartz Value Survey (SVS) or the List of Value Scale (LOV; Kahle, 1983). The SVS and LOV ask the respondent to rank, rate, or rank-then-rate the importance of single-value items (e.g. Excitement, Wisdom, and Security) as a guiding principle in life. Although the SVS is a 57-item scale to measure 10 values compared to the LOV that contains nine items measuring nine values, the abstract nature of both of these surveys makes the response challenging within some populations (Schwartz et al., 2001). Due to the difficulty for some populations to answer the SVS, Schwartz and colleagues created a new, more concrete measure, the PVQ.

The PVQ consists of 40 gender-specific descriptions of an individual (e.g., “He seeks every chance he can to have fun. It is important to him to do things that give him pleasure” and “She likes to take risks. She is always looking for adventures.”). The respondent identified “how much like you is this person” with a 6-point Likert-type response option ranging from “Not like me at all” to “Very much like me.” The PVQ contains questions that include gender-specific language (i.e., “he”, “she”, etc.); therefore, gender-specific surveys were instituted for this research study. Schwartz and colleagues specifically avoided gender neutral wording because gender-specific wording allows the respondent to better identify with the description of the individual within the questionnaire. If the researcher changed the gender-specific to gender-neutral language, the items would become very awkward and clumsy. A clumsy questionnaire would negate the benefit of a more concrete measure of personal values.

According to Schwartz et al. (2001), the internal reliability of the PVQ was not very high with scores ranging from .37 (tradition) to .79 (hedonism). Although this seems like a negative finding, internal reliabilities are not always indicative of a highly reliable instrument. There are two potential reasons why the internal reliability was low. First, the indexes of values contain few items; and second, many of the values have broad theoretical definitions incorporating multiple factors (Schwartz et al., 2001).

Even though internal reliability scores were low, the values of the PVQ yielded good convergent and discriminant validity based on the multi-trait-multi-method technique (Schwartz et al., 2001). Test-retest reliability of the PVQ was analyzed among a sample of university students in Israel (Schwartz & Sagiv, 1995) with moderate to high reliability ranging from .66 (Self-direction) to .88 (Security). The internal reliabilities of the values of participants in this

study range from moderate ( $\alpha=0.55$ ) consistencies for Tradition to strong ( $\alpha=0.89$ ) for the overall PVQ. Table 4.15 contains the internal consistencies for the value variables in this study.

*Attitudes towards alcohol.* Attitudes regarding alcohol were measured by adapting injunctive norms questions used by Wood et al. (2004) to reflect the individual's attitudes about the acceptability of alcohol use. Turrisi et al. (2007) measured alcohol-related attitudes of participants by modifying injunctive norms questions typically used in a college population. Modifying the injunctive norms items to include questions that ask about the individual's attitudes about alcohol, allowed the researcher to analyze the differences between personal attitudes and perceived norms, as well as, test the intrapersonal value-attitude relationship theory. An individual's attitudes were assessed by 4-items regarding the individual's beliefs about the acceptability of alcohol use, underage drinking, getting drunk, and binge drinking. Response options included a forced choice, 6-point Likert response scale from "strongly disapprove" to "strongly approve." No validity or reliability data were available for this measure; however, the internal consistency were analyzed for these measures and found to be high ( $\alpha=0.91$ ). The injunctive norms questions have been used within a college population (Wood et al., 2004), so this modification of the questions should also be appropriate within a college population.

### *Section 3. Personal Alcohol Use and Alcohol-Related Problems*

*Alcohol Use.* Participants were identified as current drinkers based on their response to the question, "During the past 30 days, on how many days did you have alcohol (beer, wine, liquor)?" The response option was open-ended allowing the respondent to write-in a response. Individuals could also bubble an item that states, "N/A, I do not drink." This variable was used to identify individuals who were current drinkers versus non-drinkers for statistical analyses.

Average alcohol use was assessed by the question, “What is the average number of drinks you consume a week?” (Core Survey). This question is similar to the Core Institute’s Core Alcohol and Drug Survey’s average weekly alcohol use variable.

*Alcohol-Related Problems.* The College Alcohol Problem Scale – revised (CAPS-r) was developed by Maddock et al. (2001). The CAPS-r measures problems an individual may experience because of drinking alcohol. Although this measure is not intended to be a comprehensive list of problems, it does include many of the problems administrators and researchers are interested in examining regarding social and personal problems associated with alcohol use (Maddock et al., 2001). The CAPS-r is highly correlated with more comprehensive measures like the YAAPST ( $r=0.78$ ) and is widely used because of its brevity and utility (Maddock et al., 2001).

The CAPS-r contains eight items that have participants “rate how often you have had any of the following problems over the past year as a result of drinking alcoholic beverages.” Two examples of the eight problems described in the scale include “Drove under the influence” and “Did not use protection when engaging in sex.” Response options included a 6-point response set (e.g., “Never” to “10 or more times”). For the purposes of this study, the timeframe of the original CAPS-r was reduced from “the past year” to “the past 30 days” to reduce the potential recall bias of the participant and to assess alcohol use while in college. Due to the reduction of time, the response options were also modified to account for the shorter recall. An 8-point response set replaced the original 6-point options. Response options for this study included “Never”, “Yes, but not in the last 30 days”, “Once”, “Twice”, “3 times”, “4 times”, “5 times”, and “6 or more times.”

The CAPS-r consists of two subscales, personal and social problems, with four questions in each subscale. The items can be summed or averaged to create an overall and subscale scores. The CAPS-r has been used with adjudicated and non-adjudicated college students (Earleywine, LaBrie & Pedersen, 2008; Larimer & Cronce, 2007; Talbott, Umstatted, Usdan, Martin, & Geiger, 2009). Maddock et al. (2001) examined the criterion and construct validity of the CAPS-r and found the scale to be valid; they also found the CAPS-r to be reliable with strong internal consistency rates (social  $\alpha=0.75$  and personal  $\alpha=0.79$ ). Results from Talbott et al. (2009) reveal internal consistency within a college sample to be moderate to high (social,  $\alpha=0.71$ ; personal,  $\alpha=0.69$ ; and overall  $\alpha=0.76$ ).

Researchers at the Core Institute developed the Core Alcohol and Drug Survey to be used by 2- and 4-year institutions of higher education to examine drug and alcohol use on college campuses (Presley & Vineyard, 2004). The Core Survey consists of items that assess different aspects of drug and alcohol use including perceived norms, alcohol and drug use, and alcohol-related problems. The alcohol-related problems section of the Core Survey includes 19 items assessing outcomes that may have occurred in the last year because of consuming alcohol (e.g., had a hangover, performed poorly on a test). The response options for the Core Survey include a Likert-type response scale ranging from “Never” to “10 or more times”; however, for the purpose of this study, it was modified to the same 8-point scale as the CAPS-r.

For the purposes of this study, 14 items from the Core Survey were added to the negative outcome items. An additional item was added to the negative consequences section that states, “been a passenger in a car with a driver who has been drinking.” Only 14 of the original 19 items were retained for the assessment of alcohol-related problems because the other 5 were redundant with the items from the CAPS-r or were not likely to occur in the population.

The Core Survey was specifically created for a college population; therefore, the alcohol-related problems items from the Core Survey have been used with college populations (Presley & Vineyard, 2004; Zullig, Young & Hussain, 2010). The Core Survey has strong construct validity and content-related validity with an inter-rater agreement for item inclusion of 0.90 among a panel of experts. The test-retest reliability among the alcohol consequences items is high (Presley & Vineyard, 2004).

The Core Survey will provide more detailed information than the CAPS-r does in regard to college-specific negative outcomes associated with alcohol use. The CAPS-r will be used in combination with the Core Survey because the CAPS-r contains questions overlooked by the Core Survey (e.g., engaging in unprotected sex) and is often used in published studies of college alcohol use. For analyses in the study, a summed score of 15 alcohol-related problems was used to examine alcohol-related consequences of participants. These 15 items mirrored those of the descriptive norms of alcohol-related problems, which will be described in the next section.

#### *Section 4. Perceived Descriptive Norms*

*Perceived injunctive norms.* Perceived injunctive norms were examined through a modified version of peer alcohol norms questions presented by Wood et al. (2001). Wood and colleagues adapted their version from the original measure by Jessor, Jessor, and Donovan (1981). These questions measure the respondent's perception of close friend's attitudes about drinking, namely perceived injunctive norms. Wood et al. (2004) found the injunctive norms questions to be highly reliable ( $\alpha=0.89$ ) within a college sample. The injunctive norms questionnaire has often been used with college populations (Capone et al., 2007; Wood et al., 2001; 2004).

The original Wood et al. (2001) injunctive norms questionnaire contains three items regarding the individual's perceptions of peer's acceptance of drinking. For the purposes of this study, some adjustments have been made. Three items have been added to the original questionnaire that address binge, underage, and heavy drinking. Also, the question that assesses the participant's approval of drinking to get drunk was removed from the item. In addition, the original 5-point Likert response option (i.e., Strongly Disapprove to Strongly Approve) was expanded to a 6-point Likert scale to mirror the response options of the attitudes. After all additions and modifications, this portion of the survey contained four questions (e.g., "How do most of your close friends feel about getting drunk?") with a forced choice, 6-point Likert response set (i.e., Strongly Disapprove to Strongly Approve).

*Perceived descriptive norms.* Perceived descriptive norms items have been adapted from the questionnaire described by Wood and colleagues (2004). Descriptive norms items were adjusted based on wording from the injunctive norms questions and a response option similar to items on the ACHA-NCHA survey. Therefore, descriptive norms of alcohol use were assessed by asking participants to identify the percentage of close friends who drink alcohol, get drunk, drink/drank while they were underage, and drink 4/5 or more drinks at one sitting (binge). Although this specific measure was not identified in the literature, the internal consistency of the 4 items was high ( $\alpha=0.93$ ).

Perceived descriptive norms of alcohol-related problems were also assessed. In a study with college students, Wood and colleagues (2004) modified the YAAPST to measure college students' perceived norms regarding alcohol-related problems among peers. The perceived norms of alcohol problems followed a similar format to the alcohol-related problems items used in Section 3 of this survey (CAPS-r and Core Survey alcohol consequences items). However,

the respondent answered the questions about the consequences his or her close friends experienced. The 30-day timeframe and response options were adjusted in the same way as the alcohol-related problems described in Section 3. Several of the items that were measured in regard to the participant's alcohol-related problems were not measured in the perceived descriptive norms because the participant may simply not know the frequency of the consequence. For example, the participant may not know how frequently his or her close friends were sad, blue, or depressed because of alcohol consumption. Therefore, descriptive norms of alcohol-related problems comprised 15 items.

Table 3.1

*Summary of Survey Instruments*

Scale/Variable	Constructs	Items	Items in analyses
<b>Section 1: Demographic Information</b>			
Demographic Information	Potential Confounders	13	6
<b>Section 2: Personal Assessment</b>			
Portrait Value Questionnaire	Personal Values	40	40
Attitudes towards alcohol use	Attitudes	4	4
<b>Section 3: <u>Your</u> personal alcohol use</b>			
Alcohol Use	Alcohol Use (Behavior)	7	1
College Alcohol Problem Scale – revised	Alcohol-Related Problems	8	2
Core Survey Alcohol-Related Consequences	Alcohol-Related Problems	15	13
<b>Section 4: What you perceive <u>your close friends</u> think and do</b>			
Injunctive Norms Questionnaire	Injunctive Norms	4	4
Descriptive Norms of Use	Descriptive Norms: Use	8	4
Core Survey Alcohol-Related Consequences (Norms)	Descriptive Norms: ARP	13	13
College Alcohol Problem Scale-revised (Norms)	Descriptive Norms: ARP	2	2

### *Data Collection*

Data collection occurred for a month during the 2010 fall semester (September 23 – October 25) after the study was approved by the University’s Institutional Review Board (IRB). Class recruitment was based on the willingness of the instructor to allow the surveys to be administered in his or her class. The paper-and-pencil surveys were administered in the classrooms. Students took approximately 10 to 20 minutes to complete the anonymous surveys. Since the researcher administered the survey to multiple classes, the participants were verbally instructed to complete only one survey.

### *Data Entry*

The paper-and-pencil instrument was designed in TeleForm, a software program the researcher used to create a survey where participants bubbled and/or wrote-in responses (Autonomy Cardiff, 2009). The completed surveys were then scanned and verified by the researcher rather than being hand entered. In order to check the accuracy of the data entry, a 10% data verification occurred after the data was entered in TeleForm and exported into an excel spreadsheet (Van den Broeck, Argeseanu Cunningham, Eeckels, & Herbst, 2005). The data was reliably entered based on results from the 10% check. Validity checks revealed an error rate of less than 0.00006 with only six data entry errors amidst the 11,058 potential errors (114 survey items for 97 surveys checked). Following data entry, data were analyzed descriptively and inferentially using Predictive Analytics Software (PASW) Statistics 18.0 (SPSS, 2009).

## *Data Cleaning*

### *Values*

The Portrait Value Questionnaire (PVQ) was scored as per the instructions described by the author, Shalom Schwartz. The overall mean was calculated for the PVQ, which was termed MRAT. Each of the 10 values was then calculated based on the scoring instructions (e.g., Hedonism is scored by averaging the scores of items 10, 26, & 37). The “centered score” is then computed by subtracting the MRAT from each of the 10 value scores. These centered scores were standardized to account for individuals who just indicated “3” all the way throughout the survey. The centered scores were the scores that were used in all of the statistical analyses.

### *Personal Attitudes and Injunctive Norms*

The four categories (i.e., alcohol, underage drinking, getting drunk, and binge drinking) for attitudes and injunctive norms were summed as long as three of the four variables were present. If fewer than 75% of the variables were present, then the overall value was not scored. No attitude or injunctive norms items exceeded the 25% missing rule and therefore all items were retained for scoring.

### *Descriptive Norms*

Descriptive norms of alcohol use consisted of four variables, “percentage of close friends you think drink alcohol”, “participated in underage drinking”, “get drunk”, and “drink 4/5 or more drinks at one sitting.” The overall descriptive norms measure was averaged based on the responses of these four variables. Again, if fewer than three (75%) of the variables were present, then the overall value was not scored. In addition, if any percentage was reported for a descriptive norm item that was greater than 100, it was excluded and treated as a missing

variable. Descriptive norms of alcohol-related problems were summed to create an overall problem score. If more than 25% of the variables were missing, the descriptive norms of alcohol-related problems were not scored.

#### *Average Use and Alcohol-Related Problems*

Average weekly alcohol use was based strictly on self-report data. No responses were identified as outliers and therefore all weekly alcohol use variables were retained. Alcohol-related problems were summed in the same fashion as the descriptive norms of alcohol-related problems. Fifteen of the alcohol-related problem items were summed to create the overall score. The 15 alcohol-related problems chosen for this summed variable were the same 15 items used to calculate the descriptive norms of alcohol-related problems.

#### *Statistical Analyses*

Various statistical analyses were used in this study. Descriptive statistics were explored to better understand the data. Mann Whitney U and Kruskal Wallis analyses were used to determine differences in variables based on the potential confounding variable groups (e.g., male, female, underage, legal drinking age). In order to answer the research questions, chi-square, Spearman Rank correlations, multiple stepwise regressions with backward elimination, and General Linear Model (GLM) were employed. Power calculations were also conducted using Power and Precision, version 3 to determine if the analyses had ample power.

#### *Descriptive Statistics*

Appropriate descriptive statistics were analyzed for all variables. Demographic variables of gender, race, age, athletic status, religious influence, and Greek involvement were examined as potential confounders in the statistical analyses. Analyses for the research questions were

based on the type of data collected (continuous, categorical, etc.) and the normality of the distribution of the data. Almost all data collected for this study were non-normal, so non-parametric analyses were run when available.

### *Confounding Variables*

Mann Whitney U tests were used on non-normally distributed continuous data to assess the statistical significance of the difference between sample medians for a single outcome variable. Mann Whitney U test is the non-normal equivalent of the t-test. Kruskal Wallis was used to examine the differences between the medians of non-normal data among predictor variables that were categorical and contained three or four categories. When the Kruskal Wallis test was found to be significant, follow-up Mann Whitney U tests were conducted to evaluate pair wise differences among the three- and four-group categorical variables, controlling for Type 1 error across tests by using the Bonferroni approach.

### *Reliability*

Cronbach's Alpha assesses the reliability of an instrument. The reliability coefficient measures the consistency by which participants responded to the entire scale. A score of .60 is considered the lower range of acceptable of this measure of reliability (Hair, Black, Babin, Anderson, Tatham, 2006). Cronbach's Alpha was analyzed for the overall instruments and for each of the confounding variable categories (e.g., Male, female, Black, White).

*Research Question 1: What are the relationships between personal values, attitudes toward alcohol, and perceived injunctive and descriptive norms of alcohol use and descriptive norms of alcohol-related problems?*

Several analyses were conducted to examine the relationships between personal values, attitudes towards alcohol, and perceived injunctive and descriptive norms of alcohol-related

behaviors. Age, gender, race, religious influence, and Greek involvement were assessed to determine if they were confounders in the analyses. Spearman rank correlation analysis explored the differences between two or more non-normally distributed continuous variables (Gertsman, 2008). Spearman rank correlation analyses were used to determine the relationships between personal values, attitudes towards alcohol, perceived injunctive norms, perceived descriptive norms of use, and descriptive norms of alcohol-related problems.

The first set of Spearman rank correlation analyses examined the relationships between values and attitudes towards alcohol, underage alcohol use, getting drunk, and binge drinking. Then the relationship between values and overall personal attitudes toward alcohol behaviors was examined via potential confounding variables. The data file was “split” based on each of the five potentially confounding variables (e.g., gender, race) and the bivariate correlations were re-run.

The next two Spearman rank correlations examined the relationships between values and injunctive norms and descriptive norms of use. Both injunctive and descriptive norms of use had norms of alcohol use, underage alcohol use, getting drunk, binge drinking, and overall injunctive or descriptive norms. Bivariate correlation analyses were run to determine the relationship between values and the aforementioned norms variables. Confounding variables were again examined through using the “split file” function in SPSS, and then Spearman rank correlation analyses were re-run for each of the potential confounding variable groups.

The last Spearman rank correlation analysis was conducted on the descriptive norms of alcohol-related problems and values. Since the descriptive norms of alcohol-related problems was a sum score based on 15 separate variables, only one overall correlation was conducted. The relationship between the overall alcohol-related problems and values were examined via

potential confounding variables. The “split file” function in SPSS was utilized and bivariate correlations were re-run to examine the differences between confounding variable categories (e.g., White, Black, Greek, pseudo-Greek, non-Greek).

After the relationships with personal values and alcohol variables were analyzed, the relationships between personal attitudes, injunctive norms, and descriptive norms were examined. Five Spearman rank correlations were explored to observe the relationship between variables. The first correlation examined the relationships between the overall scores of the aforementioned variables. The next four analyses examined the variables regarding alcohol use specifically, underage drinking, getting drunk, and binge drinking.

*Research Question 2: What best predicts alcohol use and alcohol-related problems among college students when examining personal values, attitudes towards alcohol, perceived injunctive and descriptive norms of alcohol use, and norms of alcohol-related problems?*

Multiple regression analyses utilizing backward stepwise elimination were employed to predict the outcome variable based on the association of predictor variables, while controlling for potential confounders. Simple regression analysis explores the relationship between a dependent variable and an independent variable, while multiple regression examines the relationship between a dependent variable and two or more independent variables (Gerstman, 2008). Backward stepwise elimination starts with all of the predictor variables in the regression model and eliminates variables that do not significantly contribute to the model (Hair et al., 2006).

The relationship between an individual’s alcohol use and personal values, attitudes towards alcohol, and perceived injunctive and descriptive norms of alcohol-related behaviors were explored utilizing a stepwise multiple regression with backward elimination. Gender, race, age, religious influence, and Greek involvement were examined as potential confounding variables. A regression analysis was conducted on the overall sample to determine which

independent variables (i.e., values, personal attitudes, injunctive norms, descriptive norms of use, descriptive norms of alcohol-related problems) were predictive of alcohol use after controlling for potential confounding variables (i.e., gender, race, age, religious influence, and Greek affiliation). Due to the large sample size and the highly significant correlations between predictor variables, the alpha level for significance was set at  $\alpha=0.01$ .

After the initial regression analysis was conducted, the SPSS file was split to create a regression model for each of the confounding variable categories. Twelve more backward stepwise regression analyses were conducted using this method. Regression models included male, female, Black, White, underage, legal drinking age, Religious (AUD), Religious (AUND), Non-religious, Greek, pseudo-Greek, non-Greek.

The same multiple regression analyses were used to examine alcohol-related problems among participants. However, the variable of average drinks per week was included in the list of confounding variables for these analyses. A regression model was created for the overall model to determine which independent variables best predicted alcohol-related problems after controlling for average drinks per week, gender, race, age, religious influence, and Greek involvement. Twelve more analyses were run to examine the relationship of variables within each of the confounding variable categories. Power was calculated on both of the overall regression analyses and the power levels were above 1.0 for the entire model.

*Research Question 3: Does an individual's intrapersonal value-attitude relationship predict alcohol use and alcohol-related problems?*

In order to answer research question 3, a new variable was computed by comparing attitudes towards alcohol to predetermined “conservative” or “permissive” personal values. The scores for the four attitude items (i.e., attitudes toward alcohol use, underage drinking, getting

drunk, and binge drinking) were averaged creating a scale ranging from 1 to 6. Attitudes were dichotomized into permissive attitudes if the score was 4 or higher and conservative attitudes were less than 4. Values were also dichotomized into permissive or conservative based on the sum of conservative values subtracted from the sum of permissive values. A negative score indicated a conservative value and a positive score indicated a permissive value. Refer to Table 2.3 for a description of the how the intrapersonal value-attitude relationship variables were determined.

First, the dichotomized value and attitude variables were entered into the GLM analysis with average drinks per week as the dependent variable. This was done to determine if there was significant interaction between the personal values and attitudes when predicting alcohol use. The interaction was non-significant ( $p > .05$ ). Since the interaction between the values and attitudes was non-significant, no further analysis was needed.

The last analysis for this study was another GLM analysis to determine if there was an interaction between values and attitudes in predicting alcohol-related problems. Since there was a significant interaction between values and attitudes, the intrapersonal value-attitude relationship variable was created. This four-category intrapersonal value-attitude relationship variable was entered as the independent variable and the dependent variable was alcohol-related problems. Power was calculated and found to be sufficient in both GLM models; power was strong (0.99) for a medium effect size.

### *Conclusion*

This research study had three main purposes addressed via three research questions. This chapter has explained the methods implemented to answer these three research questions. Participants were recruited from undergraduate courses in the colleges of Business and Human

Environmental Sciences. The instrument consisted of 4 sections examining 1) demographic information, 2) personal values and attitudes, 3) alcohol use and alcohol-related problems, and 4) injunctive and descriptive norms. Data were collected, cleaned and analyzed to answer the three research questions of this study that will be discussed in Chapter 4.

## CHAPTER 4

### Results

#### *Introduction*

The three main purposes of this research study are to examine the college alcohol problem in light of personal values; the relationship between personal values, attitudes towards alcohol, perceived injunctive and descriptive norms, alcohol use, and alcohol-related problems among college students; and the interaction between an individuals values and attitudes (intrapersonal value-attitude relationship) and alcohol use and alcohol-related problems. In order to investigate these relationships, a cross-sectional examination was conducted among 910 college students. All analyses for this study were performed using Statistical Package for the Social Sciences (SPSS) version 18.0.

#### *Sample Population*

Participants for the study were recruited from courses in the colleges of Business and Human Environmental Sciences. The researcher contacted fifteen course instructors asking permission to attend one class to administer a paper-and-pencil survey during the fall 2010 semester. All of the instructors who were contacted agreed to allow the researcher access to their classes to administer the survey to students. An overall response rate was calculated based on enrollment numbers for the courses and the number of surveys gathered on the day of data collection. The calculated response rate is a conservative estimate because some students were enrolled in more than one course that was surveyed and not all students who were enrolled in the courses attended on the day the survey was administered. Although this calculated response rate is not entirely accurate; it is a conservative estimate of response rates for each class and the

overall sample. The calculated response rate for the overall sample was 72.7%, with individual course response rates ranging from 48.0% to 97.9% (please refer to Table 4.1 for a breakdown of the response rate in each of the classes surveyed). Nineteen classes were surveyed resulting in an original sample of n=977. However, after excluding non-traditional students (i.e., students outside the 18-24 year-old range, graduate students, and students who identified a classification of “other”) and any student who left age or classification status unanswered, a total of 67 individuals were excluded, which lead to the retention of 910 undergraduate students in the sample for this study.

A total of 249 male (27.4 %) and 661 female (72.6 %) 18- to 24-year old undergraduate students at a large university in the southeastern United States were included in the study. The sample was predominantly Caucasian (80.5%), participants average age was 19.9 (SD 1.4) with 67.3% of participants under the legal drinking age of 21. Almost one-third of students identified as being involved in a Greek organization (i.e., Greek Sorority or Fraternity student organization on campus). Of the 66.9% non-Greek students in this study, 23.6% specified they regularly or occasionally attended Greek social events (i.e., pseudo-Greek). Greek involvement was categorized into four groups: member who occasionally or regularly attends Greek social events (social Greek), member who does not attend Greek social events (non-social Greek), nonmember who regularly or occasionally attends Greek social events (pseudo-Greek), and nonmember who does not attend Greek social events (non-Greek). Approximately 15% of the sample reported being a college varsity athlete. The majority (89.7%) of participants identified as religious. Almost half of religious participants indicated their religious affiliation discouraged alcohol use while the other half identified that their affiliation did not discourage alcohol use. Three religious involvement groups were created to identify the influence of religion on alcohol beliefs:

non-religious (10.3%); religious and alcohol use is discouraged by religious affiliation (Religious [AUD]; 44.3%); and religious and alcohol use is not discouraged by religious affiliation (Religious [AUND]; 43.6%).

Table 4.1

*Response rates based on enrollment figures and total number of surveys collected in each course*

Course	Enrolled	Surveys	Response Rate (%)
Introduction to Athletic Training	99	87	87.88
First Aid, Safety, and CPR	104	60	57.69
Survey Issues Health Care Management	48	47	97.92
Life Span Human Development	120	77	64.17
Life Span Human Development	84	55	65.48
Life Span Human Development	121	87	71.90
Life Span Human Development	83	70	84.34
Leadership Development Through Service	25	12	48.00
Personal Health	48	29	60.42
Personal Health	40	29	72.50
Personal Health	38	21	55.26
Principles/Foundations of Health Promotion	46	30	65.22
Drug Awareness Education	39	28	71.79
Drug Awareness Education	37	28	75.68
Understanding Stress Management	41	40	97.56
Practical Application of Health Communication/Promotion	35	25	71.43
Introduction into Human Nutrition	100	65	65.00
Introduction into Human Nutrition	112	87	77.68
Introduction into Human Nutrition	124	100	80.65
Total:	1344	977	72.69

In order to validate the generalizability of study results, it is vital to determine if the study sample was representative of the overall population. To determine if the current study sample was an accurate representation of the university-wide population, chi-square goodness of fit tests

were conducted. University-wide statistics were extracted from the 2010 Enrollment Report released by the Office of Institutional Research and Assessment at the local university and were used to compare the study population with the university-wide statistics. Although the University report did not indicate the percentage of varsity athletes currently enrolled, the researcher was able to estimate the percentage of athletes. After summing the number of athletes listed on the online rosters of the 18 varsity sports teams (n=458), and dividing by the undergraduate student enrollment number (n=24,884). The estimated varsity athlete percentage is 1.8% at this university. Since the percentage of student athletes was estimated by the researcher and not reported by the University, the athletic status was not examined among the chi-square analyses. Table 4.2 provides a more thorough depiction of the demographic characteristics of the sample population and how the sample compares to the university-wide population.

Results from the chi-square goodness of fit tests for gender, race, classification (e.g., freshman, sophomore), and Greek involvement of participants revealed significant differences between the study sample and the university-wide percentages. This suggests that the study sample was statistically different from the population at the university. The study sample had more females, Blacks, freshmen, seniors, and Greek students compared to the university in general. The sample from this research also had a significant under representation of males, sophomores, junior, whites, other races, and non-Greeks.

#### *Normality of the data*

The majority of the data are non-normal; therefore, the analyses examining continuous data were non-parametric. Normality was determined by dividing the skewness score by the

standard error of skewness and the kurtosis score was divided by the standard error of kurtosis. If both of these scores were within 95% confidence interval (score= 1.96), the data were considered normal. The only normal distributions among all of the continuous variables included the values of Benevolence and Power. All other variables were non-normal based on their skewness and kurtosis.

Table 4.2

*Study demographics compared to the university proportions*

Characteristic	N	%	University (%)	$\chi^2$ Goodness of Fit
<b>Sex</b>				
Male	249	27.4	47.6	p<0.001
Female	661	72.6	52.4	
<b>Race</b>				
Black	135	15.0	12.4	p=0.034
White	728	81.1	82.5	
Other	10	3.9	5.1	
<b>Classification</b>				
Freshman	173	19.0	33.0	p<0.001
Sophomore	327	35.9	21.7	
Junior	178	19.6	21.3	
Senior	232	25.5	23.9	
<b>Age</b>				
Underage (< 21 years old)	612	67.3	-	
Legal Drinking Age ( $\geq$ 21 years old)	298	32.7	-	
<b>Greek Involvement</b>				
Social Greek (Greek)	266	29.8	27.0	p=0.001
Non-Social Greek (Greek)	18	2.0		
Pseudo-Greek (Social Non-Greek)	215	24.1	73.0	
Non-Greek (Non-Social Non-Greek)	394	44.1		
<b>Varsity Athlete</b>				
Yes	134	17.0	-	
No	776	83.0	-	
<b>Religious</b>				
Religious and alcohol use is discouraged (AUD) (Religious [AUD])	403	45.1	-	
Religious and alcohol use is not discouraged (AUND) (Religious [AUND])	397	44.4	-	
Non-Religious	94	10.5	-	

### *Descriptive Statistics*

This section provides an overview of the basic descriptive statistics for the variables examined in this study. Independent study variables include each of the 10 values, personal attitudes toward alcohol, perceived injunctive norms of alcohol, descriptive norms of alcohol use, and descriptive norms of alcohol-related problems. Dependent variables include average number of alcoholic beverages consumed each month and a sum of alcohol-related problems.

#### *Values*

Based on the participants' responses to the Portrait Value Questionnaire (PVQ), a 40-item assessment, 10 values were calculated. A positive value score indicates the individual holds the value while a negative score indicates the individual does not hold the value. The scores for each of the 10 values were standardized by subtracting an average of the appropriate questions (e.g., Conformity was created by averaging PVQ items 7, 16, 28, 36) from the overall average of PVQ scores (i.e., overall average from questions 1-40 of the PVQ). The range of each personal value score is from 1.0 to 6.0, and the range of the overall PVQ average is 1.0 to 6.0. The standardized value scores could theoretically range from 5 to -5. A negative score indicates the individual does not hold the value while a positive score indicates the individual does hold the value. The magnitude of the score indicates how strongly the individual holds the value. A positive score that is closer to zero indicates the individual holds the value less than if it were further from zero; however a negative score that is further from zero indicates that the individual does not hold that value. As expressed in Table 4.3, a mean of a negative score designates that the majority (>50%) of participants did not identify as having this value. Table 4.3 delineates the 10 values and the percentage of individuals who identified as having the values. Benevolence

was the value that most (84.6%) participants identified as holding and Power was the value that the fewest (13.4%) participants identified.

Table 4.3

*Descriptive statistics of personal values*

Values N=910	% of respondents with value	Median	Mean (SD)
Benevolence	84.6	0.50	0.52 (.53)
Self-Direction	74.1	0.35	0.34 (.57)
Achievement	66.0	0.28	0.23 (.65)
Hedonism	64.8	0.28	0.22 (.77)
Security	57.6	0.13	0.08 (.52)
Conformity	56.0	0.10	0.06 (.66)
Stimulation	52.3	0.05	0.01 (.79)
Universalism	35.2	-0.18	-0.21 (.59)
Tradition	35.2	-0.25	-0.30 (.70)
Power	13.4	-1.07	-1.07 (.95)

*Personal Attitudes and Injunctive Norms*

Attitudes were measured using a 6-point Likert scale. Participants were asked how strongly they approved or disapproved of drinking alcohol, underage drinking, getting drunk, and binge drinking. Table 4.4 provides a breakdown of the proportion of respondents in each of the approval categories for the four attitude items. The majority of participants held permissive attitudes toward alcohol with 82.5% approving of drinking alcohol, 57.8% approving of getting drunk, and 51.1% approving of underage drinking. Binge drinking was the only alcohol-related behavior where the majority (52.7%) disapproved of the behavior.

Injunctive norms of alcohol were measured in a similar format to personal attitudes. Participants were asked to identify how strongly they perceive their friends to approve or

disapprove of drinking alcohol, underage drinking, getting drunk, and binge drinking. Table 4.4 provides a description of the proportion of respondents in the categories for each of these behaviors. The majority of participants perceived permissive norms toward alcohol with 89.4% approving of drinking alcohol, 78.9% approving of getting drunk, 73.1% approving of binge drinking, and 72.8% approving of underage drinking.

Table 4.4

*Personal attitudes (PA) towards and injunctive norms (IN) of alcohol, underage drinking, getting drunk, and binge drinking*

	Alcohol		Underage		Drunk		Binge	
	PA (%)	IN (%)						
Strongly Disapprove	4.1	3.1	14.6	7.0	15.5	7.0	15.6	8.8
Disapprove	4.0	3.3	14.2	8.2	11.0	7.4	16.2	7.9
Slightly Disapprove	9.5	4.1	20.2	12.0	15.6	6.7	20.9	10.2
Slightly Approve	14.5	10.6	26.7	21.0	25.3	19.6	22.1	20.6
Approve	55.4	58.3	20.2	41.2	26.6	44.5	20.3	41.0
Strongly Approve	12.6	20.5	4.2	10.6	5.9	14.8	4.9	11.5
<b>Total</b>	<b>910</b>	<b>896</b>	<b>907</b>	<b>895</b>	<b>909</b>	<b>897</b>	<b>910</b>	<b>898</b>

Participants' injunctive norms were more permissive than personal attitudes about approval of alcohol (89.4% [IN] vs. 82.5% [PA]), underage drinking (72.8% vs. 51.1%, respectively), getting drunk (78.9% vs. 57.8%), and binge drinking (73.1% vs. 47.3). Chi-square analyses were conducted to determine if there were significant differences between attitudes and injunctive norms. Table 4.5 provides percentages of those who hold permissive and conservative attitudes and injunctive norms as well as the significance level from chi-square analyses. Chi-square analyses revealed significant ( $p < .001$ ) differences between conservative and permissive overall personal attitudes and injunctive norms. Individuals' personal attitudes were significantly more conservative than perceived injunctive norms toward alcohol ( $p < .001$ ), underage drinking ( $p < .001$ ), binge drinking ( $p < .001$ ), and getting drunk ( $p < .001$ ).

Table 4.5

*Descriptive differences between conservative and permissive personal attitudes (PA) and injunctive norms (IN)*

	Overall		Alcohol		Underage		Drunk		Binge	
	PA (%)	IN (%)								
Conservative (Disapprove)	49.6	24.6	17.6	10.5	49.0	27.2	42.1	21.1	52.7	26.9
Permissive (Approve)	50.4	75.4	82.5	89.4	51.1	72.8	57.8	78.9	47.3	73.1
$\chi^2$ p-value	$\chi^2=235.23$ p<0.001		$\chi^2=263.35$ p<0.001		$\chi^2=284.25$ p<0.001		$\chi^2=264.07$ p<0.001		$\chi^2=227.13$ p<0.001	

*Descriptive Norms of Alcohol Use*

Descriptive norms of alcohol use were measured by four variables; the percentage of close friends who: drink alcohol, drink/drank while underage, get drunk, and binge drink. Each of the descriptive norms of use followed a non-normal pattern; therefore, the median provides a better understanding of the participants' perceived percentage of close friends who drink alcohol (90%), drink/drank while underage (90%), get drunk (80%), and binge drink (70%). An overall score of descriptive norms of use was calculated by averaging the four descriptive norms items. The median of this overall average score of descriptive norms of alcohol use was 81.3%.

*Descriptive Norms of Alcohol-Related Problems*

Descriptive norms were examined concerning fifteen alcohol-related problems of the participants' close friends. The majority of participants perceived their close friends experienced a hangover (73.8%), felt nauseated or vomited (59.0%), or missed class (52.3%) at least once in the past 30 days due to alcohol consumption. Less than half of participants perceived their close friends had been a passenger with someone who had been drinking (49.8), had a memory loss (46.1), drove under the influence of alcohol (45.2%), did poorly on an exam (42.3%), did something they later regretted (40.9%), got into a fight (40.7%), and did not use protection

during sex (21.8%). Table 4.6 further explores the descriptive norms of alcohol-related problems. Descriptive norms of alcohol-related problems was summed to create an overall descriptive norms: alcohol-related problems (descriptive norms: ARP) variable. The summed descriptive norms of alcohol-related problems scores ranged from 0 (no problems) to 105 (every problem, very frequently). The median descriptive norms of alcohol-related problems was 16.0. This variable mirrored that of the alcohol-related problems experienced by the participant; however descriptive norms examines the perceived problems experienced by the participant's friends.

### *Alcohol Variables*

From the sample of 910 college students, 17.1% identified as a non-drinker while the majority (82.9%) of participants were current drinkers. A current drinker was defined as someone who had consumed alcohol at least once in the last 30 days (Kinney, 2009). Of current drinkers, 59.6% binged at least once in the last two weeks. Due to the non-normal nature of the data, the median will provide a more useful description of the drinking patterns among participants. The median of the number of binge episodes in the past 2 weeks among current drinkers was 1.0 and the median average drinks per week for drinkers was 4.0. The median of the sum of alcohol-related problems of current drinkers was 8.0 on a scale with scores ranging from 0 (no problems) – 105 (every problem, very frequently). This indicated that overall, individuals experienced few alcohol-related problems over the past 30 days.

The top five alcohol-related problems experienced by participants at least once in the past month included having had a hangover (52.4%), been a passenger with someone who had been drinking (32.5%), had a memory loss (29.7%), missed class (28.1%), drove under the influence (26.6%). The next five problems included were nauseated or vomited (25.5%), did something

they later regretted (22.1%), been involved in a fight (22.0%), did poorly on an exam or class project (17.9%), and did not use protection while engaging in sex (12.0%). Table 4.7 has a full description of the percentages of the alcohol-related problems among participants.

Table 4.6

*Descriptive Norms of Alcohol-Related Problems*

Variable	N	Never		Yes, but not in the last 30 days		Once		2 times		3 times		4+ times	
		%	%	%	%	%	%	%	%	%	%		
Had a hangover	890	12.9	13.4	18.7	22.5	14.3	18.3						
Felt nauseated or vomited	889	22.8	18.2	24.1	17.3	9.7	7.9						
Missed class	886	34.9	12.9	15.9	15.0	9.4	12.0						
Been a passenger with someone who has been drinking	887	35.6	14.5	16.9	13.5	7.4	12.0						
Had a memory Loss	887	38.9	14.9	17.2	10.1	9.5	9.3						
Did poorly on exam	886	39.7	18.1	21.8	10.3	5.9	4.3						
Did something they later regretted	884	41.0	18.2	16.4	12.6	6.3	5.6						
Drove under the influence	884	41.3	13.5	16.7	13.0	6.6	8.9						
Got into a fight	889	42.3	16.9	18.4	12.7	5.6	4.0						
Got in trouble with the law	881	65.9	17.5	11.0	3.3	1.0	1.3						
Did not use protection during sex	888	66.9	11.3	8.6	5.5	3.0	4.7						
Got injured	889	67.5	12.1	11.5	5.5	1.8	1.6						
Pulled a fire alarm	888	80.0	10.5	5.3	1.6	1.6	1.2						
Was a victim of sexual assault	887	80.3	9.1	5.3	2.9	1.4	0.9						
Arrested for driving under the influence (DUI)	889	82.0	11.5	4.0	1.5	0.4	0.5						

Table 4.7

*Alcohol-Related Problems among participants*

Variable	N	Frequency					
		Never	Yes, but not in the last 30 days	Once	2 times	3 times	4+ times
Had a hangover	748	30.6	17.0	19.9	12.8	8.7	10.9
Felt nauseated or vomited	749	45.0	29.4	15.6	6.5	2.1	1.3
Been a passenger with someone who has been drinking	749	47.4	20.0	13.6	8.3	4.8	5.8
Had a memory Loss	748	54.5	15.9	12.2	9.0	3.6	4.9
Did something they later regretted	747	56.2	21.6	11.6	5.6	2.4	2.5
Missed class	747	57.2	14.9	14.2	7.4	3.6	2.9
Drove under the influence	748	59.1	14.2	13.2	7.2	3.3	2.9
Got into a fight	748	61.1	16.8	14.4	4.3	2.5	0.8
Did poorly on exam	745	70.7	11.4	12.3	3.4	1.2	0.9
Did not use protection during sex	747	75.8	12.2	4.8	2.8	1.5	2.9
Got injured	749	81.2	10.1	6.4	1.1	.8	0.4
Got in trouble with the law	749	87.4	9.7	2.4	0.1	0.0	0.3
Was a victim of sexual assault	747	89.6	7.0	2.1	0.8	0.1	0.4
Pulled a fire alarm	748	94.8	3.2	0.9	0.7	0.1	0.3
Arrested for driving under the influence (DUI)	747	98.3	1.1	0.5	0.0	0.0	0.1

*Intrapersonal Value-Attitude Relationship*

Values and attitudes were both dichotomized into conservative and permissive.

Permissive attitudes reveal an approval of alcohol use behaviors (e.g., binge and underage drinking) whereas conservative attitudes indicate disapproval of these alcohol behaviors.

Permissive values were the values that hold a direct relationship with alcohol use variables and

consist of Self-Direction, Stimulation, Hedonism, Achievement, and Self-Fulfillment.

Conservative values hold an indirect relationship with alcohol variables and include Conformity, Tradition, Universalism, Benevolence, and Security.

The relationship between permissive and conservative values and attitudes were then used to create a concept termed intrapersonal relationships. Concordant relationships reveal a consistency between values and attitudes, while discordant relationships reveal an inconsistency between values and attitudes. These intrapersonal relationships have been categorized into four groups: individuals who have permissive values and permissive attitudes (i.e., permissive intrapersonal concordance [PIC]), individuals with conservative values and conservative attitudes (i.e., conservative intrapersonal concordance [CIC]), individuals who have permissive values and conservative attitudes (i.e., conservative intrapersonal discordance [CID]), and individuals who has conservative values and permissive attitudes (permissive intrapersonal discordant [PID]). Individuals were eliminated from analysis if they held equal amounts of conservative and permissive values. Table 4.8 provides a description of the percentage of individuals who have been categorized into each of the four intrapersonal categories. The largest percentage of participants held concordant intrapersonal relationships.

Table 4.8

*Intrapersonal concordance and discordance among participants*

Intrapersonal Relationships	N	%
Conservative Concordance (Conservative Value * Conservative Attitude)	232	37.7
Permissive Concordance (Permissive Value * Permissive Attitude)	190	30.9
Conservative Discordance (Permissive Value * Conservative Attitude)	86	14.0
Permissive Discordance (Conservative Value * Permissive Attitude)	107	17.4
Total:	615	100.0

### *Potential Confounding Variables*

Findings from research may be incomplete or inaccurate if potential confounding variables are not examined. Although not all confounders can be examined in every research study, it is vital to examine as many confounders as possible based on the current body of literature in an attempt to fully understand the relationships that exist. A Mann-Whitney U test was employed to examine the differences between the dichotomized confounding variables (i.e., gender, athletic status, and age) and the median of the study variables (i.e., 10 values, personal attitudes, injunctive norms, descriptive norms of use, descriptive norms of alcohol-related problems, average drinks per week, and alcohol-related problems). A Kruskal-Wallis test was conducted to evaluate the differences among the groups within the other categorical confounding variables (i.e., race, Greek involvement, and religious influence) on the median of the variables of interest in this study. Follow-up tests were conducted to evaluate pair wise differences among significant findings in the three- and four-group categorical variables, controlling for Type 1 error across tests by using the Bonferroni approach.

#### *Gender*

Differences between gender and the median of the study variables were explored via a Mann Whitney U test. Significant relationships reveal a difference between male and female median scores on the following variables: Benevolence ( $p < .001$ ), Power ( $p < .001$ ), descriptive norms of alcohol-related problems ( $p = .008$ ), average drinks per week ( $p < .001$ ), and alcohol-related problems ( $p = .007$ ). A larger percentage of females reported holding a value of Benevolence whereas a greater proportion of males reported the value of Power. Males had higher reported descriptive norms of alcohol-related problems, average drinks per week, and

alcohol-related problems compared to females. For a full description of differences, please refer to Table 4.9.

Table 4.9

*Descriptive statistical differences between males and females*

Variable		Male	Female
Benevolence*	Mean (SD)	0.37 (.54)	0.57 (.52)
	Median	0.38	0.55
	N	249	661
Power*	Mean (SD)	-0.72 (.86)	-1.20 (.95)
	Median	-0.68	-1.20
	N	249	661
Descriptive Norms: ARP*	Mean (SD)	22.14 (17.07)	18.65 (14.95)
	Median	19.0	15.0
	N	240	651
Average Drinks per week*	Mean (SD)	10.54 (10.56)	5.17 (6.25)
	Median	7.0	3.0
	N	195	534
Alcohol-Related Problems*	Mean (SD)	13.11 (12.64)	9.77 (8.97)
	Median	10.0	8.0
	N	200	549

\* $p < 0.05$

### Age

In order to determine if participants' age (i.e., underage [ $< 21$  years old] or legal drinking age [ $\geq 21$  years old]) influenced study variables, a Mann-Whitney U test was utilized. Results from this analysis reveal significant differences between individuals who are of the legal drinking age (21-24 years old) and those who are not (18-21 years old) among the medians of Tradition ( $p = .008$ ), Benevolence ( $p = .021$ ), Power ( $p = .017$ ), descriptive norms of alcohol-related problems ( $p = .035$ ), and alcohol-related problems ( $p = .017$ ). Respondents who were under 21 years of age identified as holding stronger values of Tradition and Benevolence compared to those that were the legal drinking age who held Power as a more important value, perceived more alcohol-related problems among friends (descriptive norms), and experienced more

alcohol-related problems. Table 4.10 provides a description of the differences between underage and legal drinking aged individuals.

Table 4.10

*Descriptive statistical differences between underage and legal aged participants*

Variables		Underage	Legal Age
Tradition*	Mean (SD)	-0.26 (.69)	-0.40 (.71)
	Median	-0.20	-0.35
	N	612	298
Benevolence*	Mean (SD)	0.54 (.55)	0.46 (.50)
	Median	0.55	0.48
	N	612	298
Power*	Mean (SD)	-1.12 (.96)	-0.97 (.93)
	Median	-1.13	-0.98
	N	612	298
Descriptive Norms: ARP*	Mean (SD)	18.92 (15.56)	20.96 (15.68)
	Median	15.5	17.0
	N	600	291
Alcohol-Related Problems*	Mean (SD)	10.22 (10.25)	11.45 (10.03)
	Median	8.0	10.0
	N	480	269

\* $p < 0.05$

#### *Athletic Status*

The final dichotomized variable examined via a Mann-Whitney U test was varsity athletic status (i.e., a varsity college athlete versus non-athlete). There were no significant differences between athletes and non-athletes on any of the study variables. Therefore, athletic status was not explored further as a confounder in this study.

#### *Race*

A Kruskal-Wallis test was conducted to evaluate the differences among the groups within race (i.e., Black, White, and Other) on the median of the variables of interest in this study.

Follow-up tests were conducted to evaluate pair wise differences among significant findings

between racial groups, controlling for Type 1 error across tests by using the Bonferroni approach.

Significant differences were found between Black and White participants in the following variables: Benevolence ( $p < .001$ ), Universalism ( $p = .005$ ), Self-Direction ( $p < .001$ ), Stimulation ( $p < .001$ ), Power ( $p < .001$ ), personal attitudes ( $p < .001$ ), descriptive norms of use ( $p = .004$ ), descriptive norms of alcohol-related problems ( $p = .002$ ), average drinks per week ( $p < .001$ ), and alcohol-related problems ( $p < .001$ ).

Significant differences were found between Black and other participants concerning average drinks per week ( $p = .001$ ). No significant differences were found between White and Other participants in this sample. Since there were few differences between other races and Blacks and Whites, and because the sample size is very small for the other races, the other races category was not examined in future analyses.

Whites had higher rates of Benevolence and Stimulation whereas Blacks had higher rates of Universalism, Self-Direction, and Power. Whites tended to have more permissive attitudes toward alcohol, perceive their friends used more alcohol (descriptive norms of use) and perceived their friends had more alcohol-related problems (descriptive norms of alcohol-related problems) than Blacks. Whites also had higher rates of average drinks per week and alcohol-related problems compared with Blacks. Table 4.11 includes descriptive differences between races.

Table 4.11

*Descriptive statistical differences between Blacks, Whites, and other races*

Variables		Black	White	Other
Benevolence*	Mean (SD)	0.24 (.53)	0.57 (.52)	0.39 (0.45)
	Median	0.20	0.55	0.45
	N	135	728	35
Universalism*	Mean (SD)	-0.10 (.45)	-0.24 (.61)	-0.03 (0.65)
	Median	-0.12	-0.24	-0.01
	N	135	728	35
Self-Direction*	Mean (SD)	0.50 (.45)	0.32 (.58)	0.31 (0.82)
	Median	0.55	0.33	0.37
	N	135	728	35
Stimulation*	Mean (SD)	-0.26 (.71)	0.06 (.80)	0.07 (0.76)
	Median	-0.32	0.10	0.21
	N	135	728	35
Power*	Mean (SD)	-0.79 (.95)	-1.13 (.94)	-0.91 (.82)
	Median	-0.73	-1.14	-0.79
	N	135	728	35
Personal Attitudes*	Mean (SD)	13.08 (4.92)	15.06 (4.93)	13.57 (5.30)
	Median	13.0	16.0	14.0
	N	135	728	35
Descriptive Norms: Use*	Mean (SD)	62.94 (31.74)	71.45 (29.60)	66.83 (29.65)
	Median	70.0	82.5	75.0
	N	133	715	33
Descriptive Norms: ARP*	Mean (SD)	16.20 (14.27)	20.45 (15.82)	18.20 (16.20)
	Median	13.5	17.0	16.0
	N	135	710	35
Average Drinks per week*	Mean (SD)	3.53 (6.05)	7.11 (8.23)	6.88 (6.18)
	Median	1.0	4.0	6.0
	N	105	588	26
Alcohol-Related Problems*	Mean (SD)	7.72 (9.62)	11.29 (10.32)	9.42 (7.87)
	Median	5.0	9.0	7.0
	N	135	606	26

\* $p < 0.05$ *Religious Influence*

Differences among the three religious groups (Religious [AUD – “Alcohol Use Discouraged”]; Religious [AUND – “Alcohol Use Not Discouraged”]; and non-religious) on the median of the study variables will be examined via a Kruskal-Wallis analysis. The test, which was corrected for tied ranks, was significant ( $p < .05$ ) for Benevolence, Universalism, Self-

Direction, Stimulation, Power, personal attitudes, descriptive norms of alcohol use, descriptive norms of alcohol-related problems, average drinks per week, and alcohol-related problems.

Follow-up tests were conducted to evaluate pair wise differences among significant findings, controlling for Type 1 error across tests by using the Bonferroni approach. The following significant relationships exist between those who claim to be Religious (AUD) and Religious (AUND): Conformity ( $p < .001$ ), Tradition ( $p < .001$ ), Stimulation ( $p = .012$ ), Hedonism ( $p < .001$ ), personal attitudes ( $p < .001$ ), injunctive norms ( $p < .001$ ), descriptive norms of use ( $p < .001$ ), descriptive norms of alcohol-related problems ( $p < .001$ ), average drinks per week ( $p < .001$ ), and alcohol-related problems ( $p = .003$ ). The medians of Conformity ( $p < .001$ ), Tradition ( $p < .001$ ), Benevolence ( $p = .010$ ), Self-Direction ( $p < .001$ ), Stimulation ( $p = .002$ ), Hedonism ( $p < .001$ ), Achievement ( $p < .001$ ), Power ( $p < .001$ ), personal attitudes ( $p < .001$ ), injunctive norms ( $p < .001$ ), and descriptive norms of use ( $p = .003$ ) were different between non-religious individuals and those who identified as Religious (AUD). There were significant differences in the medians of Conformity ( $p = .006$ ), Tradition ( $p < .001$ ), Self-Direction ( $p < .001$ ), Hedonism ( $p = .005$ ), Achievement ( $p = .002$ ), and Power ( $p = .008$ ) among individuals who identified as non-religious and those who indicated they were Religious (AUND).

Participants who identified as Religious (AUD) had higher values of Conformity, Tradition, and Benevolence, followed by Religious (AUND), and then non-religious participants. Non-Religious individuals had higher rates of the following values: Self-direction, Stimulation, Power, Hedonism, and Achievement compared to Religious (AUND), and then Religious (AUD). More permissive attitudes and more alcohol-related problems were found within the Non-Religious participants followed by Religious (AUND), then Religious (AUD). Religious (AUND) participants on average drank more alcohol per week, had more permissive personal

attitudes toward alcohol, perceived their friends held more permissive attitudes toward alcohol (i.e., injunctive norms), perceived their friends to drink more alcohol and experience more alcohol-related problems than did individuals who were non-religious or religious (AUD). Table 4.12 delineates the differences between religious influence categories.

### *Greek Involvement*

A Kruskal-Wallis test was conducted to evaluate the differences among the four Greek involvement groups (social Greek, non-social Greek, pseudo-Greek, and non-Greek) on the median of the study variables. The test was significant for Tradition, Universalism, Self-Direction, Hedonism, Achievement, Power, personal attitudes, injunctive norms, descriptive norms of alcohol use, descriptive norms of alcohol-related problems, average drinks per week, and alcohol-related problems. After controlling for Type 1 error across tests by using the Bonferroni approach, follow-up tests were conducted to evaluate pair wise differences among significant findings.

There were no statistically significant differences between social Greek members and non-social Greek members; therefore, since these categories are similar in nature (i.e., all Greek members) and there are no differences between groups, these categories will be combined for future analyses. Since these categories have been collapsed, the Kruskal-Wallis test was re-run using the three-group Greek Involvement variable.

Table 4.12

*Descriptive statistical differences between religious influence categories*

Variables		Religious (AUD)	Religious (AUND)	Non-Religious
Conformity*	Mean (SD)	0.22 (0.62)	-0.02 (0.64)	-0.24 (0.81)
	Median	0.25	0.03	-0.21
	N	403	397	94
Tradition*	Mean (SD)	-0.09 (0.65)	-0.32 (0.64)	-1.12 (0.57)
	Median	-0.05	-0.25	-1.11
	N	403	397	94
Self-Direction*	Mean (SD)	0.28 (0.56)	0.33 (0.54)	0.69 (0.68)
	Median	0.30	.35	0.60
	N	403	397	94
Stimulation*	Mean (SD)	-0.08 (0.79)	0.06 (0.75)	0.22 (0.90)
	Median	-0.03	0.07	0.29
	N	403	397	94
Power*	Mean (SD)	-1.20 (0.94)	-1.02 (.91)	-0.73 ( 1.01)
	Median	-1.17	-1.02	-0.70
	N	403	397	94
Hedonism*	Mean (SD)	0.04 (0.80)	0.32 (0.72)	0.57 (0.64)
	Median	0.14	0.38	0.60
	N	403	397	94
Benevolence*	Mean (SD)	0.57 (.55)	0.50 (0.50)	0.40 (0.59)
	Median	0.55	0.50	0.38
	N	403	397	94
Achievement*	Mean (SD)	0.15 (.68)	0.25 (0.61)	0.49 (0.64)
	Median	0.20	0.30	0.49
	N	403	397	94
Personal Attitudes*	Mean (SD)	12.55 (5.05)	16.67 (3.99)	15.77 (5.00)
	Median	13.0	17.0	17.0
	N	403	397	94
Injunctive Norms*	Mean (SD)	15.64 (5.60)	18.82 (3.59)	18.22 (4.45)
	Median	17.0	20.0	19.0
	N	397	393	92
Descriptive Norms: Use*	Mean (SD)	60.18 (33.41)	78.75 (24.12)	72.01 (27.73)
	Median	70.0	87.5	81.88
	N	396	392	90
Descriptive Norms: ARP*	Mean (SD)	17.39 (14.34)	21.75 (16.49)	20.37 (16.11)
	Median	15.0	18.0	17.0
	N	395	389	91
Average Drinks per week*	Mean (SD)	5.09 (6.36)	7.84 (9.05)	6.53 (6.98)
	Median	3.0	5.0	4.0
	N	278	361	77
Alcohol-Related Problems*	Mean (SD)	9.31 (9.33)	11.67 (10.59)	11.81 (11.16)
	Median	7.0	9.0	9.0
	N	287	371	77

\* $p < 0.05$

The Kruskal-Wallis test between the three groups (i.e., Greek, pseudo-Greek, and non-Greek) included significant differences between Universalism ( $p=.005$ ), Self-Direction ( $p=.002$ ), Achievement ( $p=.009$ ), personal attitudes ( $p=.003$ ), injunctive norms ( $p=.026$ ), descriptive norms of alcohol-related problems ( $p=.001$ ), weekly alcohol use ( $p<.001$ ), and alcohol-related problems ( $p=.001$ ).

Follow-up tests were conducted to evaluate pair wise differences among significant findings, controlling for Type 1 error across tests by using the Bonferroni approach. The following significant relationships exist between pseudo- and non-Greek participants' values: Tradition ( $p=.004$ ), and Achievement ( $p=.003$ ). The differences between Greek and non-Greeks include Universalism ( $p<.001$ ), and Self-Direction ( $p=.001$ ). There were also some differences between Greek and pseudo-Greeks including Tradition ( $p=.007$ ), Universalism ( $p=.007$ ), Self-Direction ( $p=.002$ ), and Achievement ( $p=.010$ ).

Statistically significant differences existed within the median of personal attitudes, injunctive norms, descriptive norms of alcohol use and alcohol-related problems, and average drinks consumed per week among Greeks, pseudo-Greeks, and non-Greek ( $p<.012$ ). Table 4.7 provides a depiction of the descriptive data for the Greek categories.

Table 4.13

*Descriptive statistical differences between Greek involvement categories*

Variables		Greek	Pseudo-Greek	Non-Greek
Conformity*	Mean (SD)	0.11 (0.62)	-0.03 (0.64)	0.09 (0.70)
	Median	0.11	0.03	0.13
	N	284	215	394
Tradition*	Mean (SD)	-0.25 (0.66)	-0.42 (0.66)	-0.26 (0.75)
	Median	-0.20	-0.43	-0.20
	N	284	215	394
Self-Direction*	Mean (SD)	0.24 (0.53)	0.39 (0.55)	0.38 (0.61)
	Median	0.24	0.38	0.40
	N	284	215	394
Stimulation*	Mean (SD)	0.06 (0.81)	0.01 (0.75)	-0.01 (0.80)
	Median	0.13	0.03	0.04
	N	284	215	394
Power*	Mean (SD)	-0.99 (1.00)	-1.02 (0.94)	-1.19 (0.90)
	Median	-0.98	-1.03	-1.16
	N	284	215	394
Benevolence*	Mean (SD)	0.55 (0.52)	0.48 (0.50)	0.52 (0.55)
	Median	0.55	0.48	0.54
	N	284	215	394
Achievement*	Mean (SD)	0.21 (0.62)	0.34 (0.64)	0.18 (0.68)
	Median	0.25	0.45	0.23
	N	284	215	394
Personal Attitudes*	Mean (SD)	16.79 (4.42)	15.56 (4.38)	12.89 (4.97)
	Median	17.50	16.00	13.00
	N	284	215	394
Injunctive Norms*	Mean (SD)	18.90 (3.93)	17.95 (4.17)	15.97 (5.41)
	Median	20.00	19.00	18.00
	N	280	214	387
Descriptive Norms: Use*	Mean (SD)	81.39 (23.79)	73.68 (25.95)	59.84 (32.75)
	Median	90.00	82.50	70.00
	N	281	213	384
Descriptive Norms: ARP*	Mean (SD)	23.68 (16.17)	18.43 (14.74)	17.47 (15.09)
	Median	21.00	16.00	15.00
	N	276	213	385
Average Drinks per week*	Mean (SD)	9.46 (1.72)	5.82 (6.63)	4.61 (6.78)
	Median	7.00	3.50	2.00
	N	254	188	279
Alcohol-Related Problems*	Mean (SD)	13.35 (10.92)	9.84 (8.96)	8.93 (9.84)
	Median	11.00	8.00	6.00
	N	260	192	288

\* $p < 0.05$

## *Reliability*

An internal consistency method was employed to measure the reliability of the scales used in this study. Several previously validated instruments were adapted from their original form for use in this study. There was a need to identify the reliability of these measures in their new form as well the reliability of other measures in this college sample. Internal reliabilities were calculated for the overall sample as well as the confounding variables (i.e., gender, race, age, Greek involvement, and religious influence).

Overall the internal reliabilities for the scales were moderate to strong ranging from 0.55 (Tradition) to 0.94 (Injunctive Norms). The internal consistencies for males range from 0.54 (Tradition) to 0.94 (Injunctive Norms) and for females 0.56 (Tradition) to 0.93 (Injunctive Norms). For a detailed description of the findings of the internal reliabilities broken down by confounding variables, please refer to Tables 4.14 and 4.15.

Table 4.14

### *Internal Reliabilities (Cronbach's Alpha) among participants*

	Personal Attitudes (n=4)	Injunctive Norms (n=4)	DN: Use (n=4)	DN: ARP (n=15)	ARP (n=15)
Overall	0.91	0.94	0.93	0.91	0.85
Male	0.94	0.94	0.94	0.92	0.87
Female	0.90	0.93	0.93	0.90	0.82
Black	0.88	0.90	0.90	0.89	0.84
White	0.91	0.94	0.94	0.91	0.85
Underage	0.93	0.95	0.94	0.91	0.86
Legal Age	0.89	0.91	0.89	0.91	0.83
Religious (AUD)	0.92	0.95	0.94	0.90	0.84
Religious (AUND)	0.85	0.88	0.90	0.90	0.84
Non-Religious	0.93	0.93	0.91	0.92	0.88
Greek	0.91	0.92	0.93	0.90	0.84
Pseudo-Greek	0.88	0.90	0.90	0.89	0.80
Non-Greek	0.90	0.94	0.93	0.92	0.86

Table 4.15

*Internal Reliabilities (Cronbach's Alpha) for personal values variables among participants*

	Values (n=# of items)										
	PVQ* (n=40)	Conformity (n=4)	Tradition (n=4)	Benevolence (n=4)	Universalism (n=6)	Self-Direction (n=4)	Stimulation (n=3)	Hedonism (n=3)	Achievement (n=4)	Power (n=3)	Security (n=5)
Overall	0.89	0.72	0.55	0.63	0.77	0.67	0.69	0.69	0.75	0.68	0.63
Male	0.90	0.70	0.54	0.63	0.75	0.66	0.71	0.71	0.74	0.68	0.60
Female	0.89	0.73	0.56	0.61	0.79	0.67	0.68	0.67	0.75	0.67	0.65
Black	0.92	0.68	0.53	0.62	0.70	0.63	0.63	0.69	0.74	0.67	0.64
White	0.88	0.73	0.55	0.63	0.78	0.65	0.70	0.70	0.76	0.68	0.63
Underage	0.89	0.73	0.54	0.63	0.77	0.67	0.70	0.68	0.74	0.66	0.63
Legal Age	0.90	0.70	0.58	0.64	0.78	0.67	0.66	0.71	0.76	0.71	0.62
Religious (AUD)**	0.90	0.66	0.52	0.63	0.78	0.65	0.67	0.74	0.77	0.71	0.68
Religious (AUND)***	0.89	0.72	0.55	0.59	0.76	0.65	0.69	0.64	0.73	0.64	0.57
Non-Religious	0.87	0.77	0.44	0.66	0.77	0.74	0.76	0.47	0.66	0.70	0.56
Greek	0.89	0.72	0.53	0.63	0.76	0.63	0.69	0.71	0.78	0.73	0.64
Pseudo-Greek	0.90	0.73	0.53	0.61	0.77	0.63	0.67	0.54	0.73	0.67	0.61
Non-Greek	0.88	0.72	0.59	0.64	0.78	0.70	0.69	0.72	0.73	0.65	0.63

\* PVQ = Portrait Value Questionnaire

\*\* Religious (AUD) = Religious and Alcohol Use Discouraged

\*\*\* Religious (AUND) = Religious and Alcohol Use Not Discouraged

### *Research Question 1*

*What are the relationships between personal values, attitudes toward alcohol, and perceived injunctive and descriptive norms of alcohol use and descriptive norms of alcohol-related problems?*

The relationships between values, personal attitudes toward alcohol, injunctive norms of alcohol use, descriptive norms of alcohol use, and descriptive norms of alcohol-related problems are explored in this section. Spearman Rank correlations were employed to determine what associations exist between variables. Confounding variables were explored in the Spearman Rank correlation analyses that include the overall scores for the variables. Spearman Rank correlations were also conducted for each of the four behaviors examined, which include drinking alcohol, underage drinking, getting drunk, and binge drinking.

#### *Personal Attitudes*

Spearman Rank correlation coefficients indicate many statistically significant relationships between values, personal attitudes, injunctive norms, descriptive norms of alcohol use, and descriptive norms of alcohol-related problems. Participants who had more conservative attitudes toward overall alcohol use (e.g., disapprove of alcohol use) tended to hold the following values: Security, Benevolence, Universalism, Tradition, and Conformity; whereas, individuals who had more permissive attitudes toward alcohol (e.g., approve of underage alcohol use) were found to have values of Power, Achievement, Stimulation, and Hedonism ( $p < .05$ ). A non-significant relationship occurred between Self-Direction and overall personal attitudes.

The relationships between values and attitudes have been presented for the overall personal attitudes score, attitudes toward drinking alcohol, underage drinking, getting drunk, and binge drinking. Conformity and Hedonism are the only values that provide a moderate

relationship with the personal attitude variables; all other relationships were weak or non-significant. The relationship between Conformity and attitudes appears to be significant, moderate, and indirect, which reveals that as attitudes become more conservative (i.e., a lower score indicating disapproval) the individual's level of Conformity increases. The strongest association between attitude variables and the value of Conformity exists with attitudes toward binge drinking ( $r=-.367$ ,  $p<.001$ ) and the lowest association is with attitudes toward alcohol use ( $r=-.321$ ,  $p<.001$ ).

The next highest correlation is a significant moderate relationship between attitudes and Hedonism indicating that as an individual's value of Hedonism increased so does his or her approval of alcohol use variables (i.e., permissive attitudes). The relationship between Hedonism is strongest with the overall attitude score ( $r=.376$ ,  $p<.001$ ) and the lowest association is with attitudes toward alcohol use ( $r=.298$ ,  $p<.001$ ). Please refer to Table 4.16 for a breakdown of all the relationships that exist between personal attitudes and values for this study.

### *Gender*

The relationships between values and attitudes for males and females are similar; except males have a significant, weak, indirect relationship between attitudes and Benevolence where females do not. Both males and females have weak to moderate relationships between conservative attitudes (lower score) and an increase in Conformity, Tradition, and Universalism. Males and females tend to also have similar relationships between permissive attitudes (higher score) and an increase in Hedonism, Stimulation, Power, and Achievement.

Table 4.16

*Spearman Rank Correlations between personal attitudes and values*

		Overall N=910	Alcohol N=910	Underage N=907	Drunk N=909	Binge N=910
Conformity	Corr Coeff	<b>-0.387</b>	<b>-0.321</b>	<b>-0.333</b>	<b>-0.358</b>	<b>-0.367</b>
	Sig. (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Tradition	Corr Coeff	<b>-0.292</b>	<b>-0.295</b>	<b>-0.247</b>	<b>-0.292</b>	<b>-0.246</b>
	Sig. (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Benevolence	Corr Coeff	<b>-0.097</b>	-0.052	-0.061	<b>-0.099</b>	<b>-0.107</b>
	Sig. (2-tailed)	<b>0.003</b>	0.12	0.067	<b>0.003</b>	<b>0.001</b>
Universalism	Corr Coeff	<b>-0.122</b>	<b>-0.088</b>	<b>-0.118</b>	<b>-0.104</b>	<b>-0.122</b>
	Sig. (2-tailed)	<b>&lt;0.001</b>	<b>0.008</b>	<b>&lt;0.001</b>	<b>0.002</b>	<b>&lt;0.001</b>
Security	Corr Coeff	<b>-0.073</b>	-0.015	<b>-0.089</b>	<b>-0.058</b>	<b>-0.089</b>
	Sig. (2-tailed)	<b>0.027</b>	0.66	<b>0.007</b>	<b>0.082</b>	<b>0.007</b>
Self-Direction	Corr Coeff	0.058	<b>0.099</b>	0.051	0.059	0.048
	Sig. (2-tailed)	0.081	<b>0.003</b>	0.127	0.074	0.145
Stimulation	Corr Coeff	<b>0.260</b>	<b>0.225</b>	<b>0.218</b>	<b>0.224</b>	<b>0.263</b>
	Sig. (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Hedonism	Corr Coeff	<b>0.376</b>	<b>0.298</b>	<b>0.317</b>	<b>0.365</b>	<b>0.358</b>
	Sig. (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Achievement	Corr Coeff	<b>0.202</b>	<b>0.156</b>	<b>0.196</b>	<b>0.190</b>	<b>0.170</b>
	Sig. (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Power	Corr Coeff	<b>0.169</b>	<b>0.095</b>	<b>0.144</b>	<b>0.161</b>	<b>0.175</b>
	Sig. (2-tailed)	<b>&lt;0.001</b>	<b>0.004</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

*Race*

Blacks had moderate and weak, significant relationships between conservative attitudes and the values of Conformity and Tradition and between permissive attitudes and Hedonism, Stimulation, Self-Direction, and Power. Whites had moderate and weak relationships between conservative attitudes and Conformity, Tradition, Benevolence, Universalism, and Security. Among whites, there were weak to moderate relationships between permissive attitudes and Hedonism, Stimulation, Achievement, and Power.

### *Age*

Another confounder identified in the literature is age. For this research, age has been dichotomized into those who are under the legal drinking age compared to those who are at least 21 years old (i.e., the legal drinking age). The majority of the relationships between attitudes and values are similar for those who are underage and those who are of the legal drinking age. There are significant weak to moderate relationships between conservative attitudes and Conformity, Tradition, and Benevolence for both underage and legal age. There are also weak to moderate relationships between permissive attitudes and Hedonism, Stimulation, Achievement, and Power regardless of age category. The differences in values and attitudes were identified in a significant weak relationship between conservative attitudes and Universalism among underage individuals and Security and permissive attitudes in legal aged individuals.

### *Religious Influence*

All participants, regardless of their religious influence have a significant weak to moderate relationship between conservative attitudes toward alcohol and Conformity and between permissive attitudes and Hedonism, Stimulation, and Achievement. Participants who identified as religious had a statistically significant association between conservative attitudes and Tradition and permissive attitudes and Power. Individuals who were religious where alcohol use is discouraged (Religious AUD) had a weak significant relationship between conservative attitudes and Benevolence, and individuals who were religious and where alcohol use is not discouraged (Religious AUND) had a significant weak relationship with attitudes and Universalism. Refer to Table 4.17 for the spearman rank correlations between overall personal attitudes and conservative values and for Table 4.18 overall personal attitudes and permissive values for the overall sample and then among confounding variables.

### *Greek Involvement*

Moderate inverse relationships have been discovered between conservative attitudes and Conformity among Greeks, pseudo-Greeks, and non-Greeks. The value of Tradition had significant, moderate and weak associations with conservative attitudes among all participants. Non-Greek students also had a weak, significant relationship with conservative attitudes and Benevolence ( $r=-.177$ ;  $p<.001$ ). Students regardless of Greek involvement had weak to moderate significant relationships with the association between permissive personal attitudes and Stimulation ( $p<.001$ ) and Hedonism ( $p<.001$ ). Greek and non-Greek participants had weak significant associations between permissive attitudes toward alcohol and Achievement ( $p<.001$ ) and Power ( $p<.003$ ). Non-Greek students also identified a significant, weak correlation with permissive attitudes and Self-Direction ( $r=.208$ ;  $p<.001$ ).

Table 4.17

*Spearman Rank Correlations between overall personal attitudes and conservative values*

		Conformity	Tradition	Benevolence	Universalism	Security
Overall N=910	Corr Coeff Sig (2-tailed)	<b>-0.387</b> <b>&lt;0.001</b>	<b>-0.292</b> <b>&lt;0.001</b>	<b>-0.097</b> <b>0.003</b>	<b>-0.122</b> <b>&lt;0.001</b>	<b>-0.073</b> <b>0.027</b>
Male N=249	Corr Coeff Sig (2-tailed)	<b>-0.419</b> <b>&lt;0.001</b>	<b>-0.281</b> <b>&lt;0.001</b>	<b>-0.131</b> <b>0.039</b>	<b>-0.171</b> <b>0.007</b>	-0.092 0.146
Female N=661	Corr Coeff Sig (2-tailed)	<b>-0.372</b> <b>&lt;0.001</b>	<b>-0.301</b> <b>&lt;0.001</b>	-0.066 0.092	<b>-0.101</b> <b>0.009</b>	-0.063 0.105
Black N=135	Corr Coeff Sig (2-tailed)	<b>-0.367</b> <b>&lt;0.001</b>	<b>-0.310</b> <b>&lt;0.001</b>	-0.089 0.307	-0.042 0.632	-0.040 0.641
White N=728	Corr Coeff Sig (2-tailed)	<b>-0.401</b> <b>&lt;0.001</b>	<b>-.306</b> <b>&lt;0.001</b>	<b>-0.160</b> <b>&lt;0.001</b>	<b>-0.119</b> <b>0.001</b>	<b>-0.091</b> <b>0.014</b>
Underage N=612	Corr Coeff Sig (2-tailed)	<b>-0.424</b> <b>&lt;0.001</b>	<b>-.295</b> <b>&lt;0.001</b>	<b>-0.089</b> <b>0.027</b>	<b>-0.143</b> <b>&lt;0.001</b>	<b>-0.053</b> <b>0.194</b>
Legal Drinking Age N=298	Corr Coeff Sig (2-tailed)	<b>-0.302</b> <b>&lt;0.001</b>	<b>-.287</b> <b>&lt;0.001</b>	<b>-0.119</b> <b>0.040</b>	-0.077 0.186	<b>-0.133</b> <b>0.021</b>
Religious (AUD) N=403	Corr Coeff Sig (2-tailed)	<b>-0.392</b> <b>&lt;0.001</b>	<b>-.364</b> <b>&lt;0.001</b>	<b>-0.102</b> <b>0.040</b>	-0.066 0.188	-0.034 0.491
Religious (AUND) N=397	Corr Coeff Sig (2-tailed)	<b>-0.292</b> <b>&lt;0.001</b>	<b>-.152</b> <b>0.002</b>	-0.064 0.202	<b>-0.210</b> <b>&lt;0.001</b>	-0.084 0.093
Non-Religious N=94	Corr Coeff Sig (2-tailed)	<b>-0.422</b> <b>&lt;0.001</b>	-.099 0.342	-0.039 0.711	-0.106 0.310	-0.171 0.100
Greek N=284	Corr Coeff Sig (2-tailed)	<b>-0.356</b> <b>&lt;0.001</b>	<b>-.334</b> <b>&lt;0.001</b>	-0.108 0.070	-0.100 0.093	-0.059 0.326
Pseudo-Greek N=215	Corr Coeff Sig (2-tailed)	<b>-0.386</b> <b>&lt;0.001</b>	<b>-.290</b> <b>&lt;0.001</b>	0.000 0.998	-0.024 0.726	-0.083 0.226
Non-Greek N=394	Corr Coeff Sig (2-tailed)	<b>-0.467</b> <b>&lt;0.001</b>	<b>-.313</b> <b>&lt;0.001</b>	<b>-0.177</b> <b>&lt;0.001</b>	-0.091 0.070	-0.085 0.094

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

Table 4.18

*Spearman Rank Correlations between overall personal attitudes and permissive values*

		Self- Direction	Stimulation	Hedonism	Achievement	Power
Overall N=910	Corr Coeff	0.058	<b>0.260</b>	<b>0.376</b>	<b>0.202</b>	<b>0.169</b>
	Sig (2-tailed)	0.081	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>
Male N=249	Corr Coeff	0.101	<b>0.266</b>	<b>0.418</b>	<b>0.155</b>	<b>0.195</b>
	Sig (2-tailed)	0.112	< <b>0.001</b>	< <b>0.001</b>	<b>0.014</b>	<b>0.002</b>
Female N=661	Corr Coeff	0.043	<b>0.265</b>	<b>0.366</b>	<b>0.220</b>	<b>0.149</b>
	Sig (2-tailed)	0.271	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>
Black N=135	Corr Coeff	<b>0.181</b>	<b>0.193</b>	<b>0.268</b>	0.087	<b>0.226</b>
	Sig (2-tailed)	<b>0.036</b>	<b>0.025</b>	<b>0.002</b>	0.318	<b>0.008</b>
White N=728	Corr Coeff	0.052	<b>0.237</b>	<b>0.434</b>	<b>0.235</b>	<b>0.206</b>
	Sig (2-tailed)	0.161	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>
Underage N=612	Corr Coeff	0.066	<b>0.251</b>	<b>0.385</b>	<b>0.202</b>	<b>0.177</b>
	Sig (2-tailed)	0.103	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>
Legal Drinking Age N=298	Corr Coeff	0.047	<b>0.287</b>	<b>0.359</b>	<b>0.202</b>	<b>0.163</b>
	Sig (2-tailed)	0.423	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	<b>0.005</b>
Religious (AUD) N=403	Corr Coeff	<b>0.124</b>	<b>0.257</b>	<b>0.309</b>	<b>0.197</b>	<b>0.106</b>
	Sig (2-tailed)	<b>0.013</b>	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	<b>0.034</b>
Religious (AUND) N=397	Corr Coeff	-0.078	<b>0.199</b>	<b>0.416</b>	<b>0.142</b>	<b>0.219</b>
	Sig (2-tailed)	0.121	< <b>0.001</b>	< <b>0.001</b>	<b>0.005</b>	< <b>0.001</b>
Non-Religious N=94	Corr Coeff	0.073	<b>0.353</b>	<b>0.285</b>	<b>0.277</b>	0.069
	Sig (2-tailed)	0.484	< <b>0.001</b>	<b>0.005</b>	<b>0.007</b>	0.506
Greek N=284	Corr Coeff	-0.005	<b>0.210</b>	<b>0.408</b>	<b>0.234</b>	<b>0.202</b>
	Sig (2-tailed)	0.934	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	<b>0.001</b>
Pseudo-Greek N=215	Corr Coeff	0.028	<b>0.273</b>	<b>0.292</b>	0.130	0.122
	Sig (2-tailed)	0.683	< <b>0.001</b>	< <b>0.001</b>	0.057	0.075
Non-Greek N=394	Corr Coeff	<b>0.208</b>	<b>0.294</b>	<b>0.358</b>	<b>0.206</b>	<b>0.153</b>
	Sig (2-tailed)	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	<b>0.002</b>

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

### *Injunctive Norms*

Associations between injunctive norms of alcohol use and values had the same directionality of relationship as values and attitudes; however, the strength of association and level of significance varied. Significant relationships were found between perceived conservative injunctive norms (e.g., perception that friends disapprove of alcohol use) and Universalism, Tradition, and Conformity. Participants who perceived permissive injunctive norms held the following values: Power, Achievement, Stimulation, and Hedonism. Non-significant relationships existed between injunctive norms and Benevolence, Security, and Self-Direction.

All relationships examining values and perceived injunctive norms were weak, regardless of statistical significance. The strongest associations between variables included a significant relationship between permissive perceived injunctive norms and Hedonism and between conservative perceived injunctive norms and Conformity. The strongest relationship between Hedonism and specific injunctive norms is the injunctive norms of binge drinking while the weakest correlation is with underage drinking. As for Conformity, the relationship with overall conservative injunctive norms score was a statistically significant. The conservative injunctive norms of binge drinking had the strongest association with Conformity and underage drinking norms had the weakest correlation with Conformity.

### *Gender*

There was a significant, weak relationship with females between injunctive norms and Achievement ( $r=.158$ ;  $p<.001$ ) that was not found among males. All other relationships between injunctive norms and values were similar between males and females. Both genders had significant, weak relationships between conservative injunctive norms and Conformity,

Tradition, Universalism for males and females. There were also weak to moderate significant relationships between permissive injunctive norms and Hedonism, Stimulation, and Power.

Table 4.19

*Spearman Rank Correlations between injunctive norms and values*

		Overall N=898	Alcohol N=896	Underage N=895	Drunk N=897	Binge N=898
Conformity	Corr Coeff	<b>-0.228</b>	<b>-0.209</b>	<b>-0.198</b>	<b>-0.221</b>	<b>-0.232</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Tradition	Corr Coeff	<b>-0.183</b>	<b>-0.186</b>	<b>-0.181</b>	<b>-0.208</b>	<b>-0.167</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Benevolence	Corr Coeff	-0.062	-0.061	-0.027	<b>-0.082</b>	<b>-0.074</b>
	Sig (2-tailed)	0.063	0.068	0.426	<b>0.014</b>	<b>0.026</b>
Universalism	Corr Coeff	<b>-0.100</b>	<b>-0.083</b>	<b>-0.078</b>	<b>-0.085</b>	<b>-0.075</b>
	Sig (2-tailed)	<b>0.003</b>	<b>0.013</b>	<b>0.020</b>	<b>0.011</b>	<b>0.025</b>
Security	Corr Coeff	-0.056	-0.036	<b>-0.070</b>	-0.064	<b>-0.067</b>
	Sig (2-tailed)	0.093	0.282	<b>0.035</b>	0.054	<b>0.043</b>
Self-Direction	Corr Coeff	0.016	0.030	0.011	0.027	0.028
	Sig (2-tailed)	0.624	0.376	0.735	0.414	0.396
Stimulation	Corr Coeff	<b>0.163</b>	<b>0.152</b>	<b>0.148</b>	<b>0.149</b>	<b>0.169</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Hedonism	Corr Coeff	<b>0.275</b>	<b>0.248</b>	<b>0.222</b>	<b>0.273</b>	<b>0.276</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Achievement	Corr Coeff	<b>0.137</b>	<b>0.119</b>	<b>0.138</b>	<b>0.163</b>	<b>0.100</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>0.003</b>
Power	Corr Coeff	<b>0.129</b>	<b>0.098</b>	<b>0.101</b>	<b>0.146</b>	<b>0.117</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>0.003</b>	<b>0.003</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

### *Race*

Whites had a significant, weak relationship with conservative injunctive norms and Conformity. Therefore, as a participant perceives that his or her friends hold conservative values towards alcohol (conservative injunctive norm) then the participant's Conformity value increases. Black ( $r=.174$ ;  $p=.046$ ) and White ( $r=.145$ ;  $p<.001$ ) participants also had significant,

weak relationships between permissive injunctive norms and Stimulation. Black participants had a significant, weak relationship with permissive injunctive norms and Power ( $r=.196$ ;  $p=.024$ ).

Whites had significant associations between conservative injunctive norms and Tradition, Benevolence, Universalism, and Security, and between permissive injunctive norms and Hedonism, Achievement, and Power.

### *Age*

As conservative injunctive norms increased, so did the values of Conformity and Tradition among underage and legal drinking aged individuals. Underage individuals also had a weak, significant relationship between conservative injunctive norms and Universalism and between permissive values and Achievement and Power. Students regardless of age had significant, weak relationships with permissive injunctive norms and Hedonism and Stimulation. Refer to Tables 4.20 and 4.21 for a more thorough examination of the relationship between values and injunctive norm among underage and legal drinking aged participants.

### *Religious Influence*

Conformity and Hedonism were the two values that were consistently significant across religious influence groups. Conformity had weak to moderate relationships with conservative injunctive norms. As permissive injunctive norms increased so did levels of Hedonism among participants. Other weak significant relationships existed between conservative injunctive norms and Tradition among Religious (AUD) and with Universalism among Religious (AUND). Permissive injunctive norms and Stimulation have significant, weak relationships with individuals who are non-religious and Religious (AUD). Achievement had significant, weak relationships between Achievement and Religious (AUD) and Religious (AUND). Lastly, there

is a significant, weak relationship between permissive injunctive norms and Power among Religious (AUND) participants. Refer to Tables 4.20 and 4.21 for a thorough assessment of the relationship between values and injunctive norm among Religious (AUD), Religious (AUND), and non-Religious participants.

### *Greek Involvement*

Each of the Greek involvement categories had significant relationships between conservative injunctive norms and Conformity and Tradition. Concerning Conformity and Tradition, non-Greeks had the strongest relationship, followed by pseudo-Greeks, and then Greeks. Hedonism and Power have a significant relationship with permissive injunctive norms and are consistent across Greek involvement categories. Greeks have the highest association with Hedonism and pseudo-Greeks have the highest association with Power. Significant weak relationships also exist between permissive injunctive norms and Achievement with Greek and Non-Greek participants, and Stimulation among Pseudo-Greek and Non-Greeks. Lastly, Non-Greeks have a weak, significant relationship between Self-Direction and permissive injunctive norms. Refer to Tables 4.20 and 4.21 for a delineation of the relationships between values and injunctive norm among Greek, pseudo-Greek, and non-Greek participants.

Table 4.20

*Spearman Rank Correlations between overall injunctive norms and conservative values*

		Conformity	Tradition	Benevolence	Universalism	Security
Overall N=898	Corr Coeff	<b>-0.228</b>	<b>-0.183</b>	-0.062	<b>-0.100</b>	-0.056
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.063	<b>0.003</b>	0.093
Male N=245	Corr Coeff	<b>-0.286</b>	<b>-0.178</b>	-0.074	<b>-0.167</b>	-0.012
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>0.005</b>	0.246	<b>0.009</b>	0.856
Female N=653	Corr Coeff	<b>-0.205</b>	<b>-0.193</b>	-0.040	<b>-0.078</b>	-0.068
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.312	<b>0.045</b>	0.081
Black N=133	Corr Coeff	-0.089	-0.127	-0.140	-0.149	0.073
	Sig (2-tailed)	0.306	0.145	0.109	0.088	0.405
White N=719	Corr Coeff	<b>-0.255</b>	<b>-0.198</b>	<b>-0.083</b>	<b>-0.084</b>	<b>-0.103</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>0.026</b>	<b>0.024</b>	<b>0.006</b>
Underage N=605	Corr Coeff	<b>-0.266</b>	<b>-0.174</b>	-0.049	<b>-0.154</b>	-0.057
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.233	<b>&lt;0.001</b>	0.163
Legal Drinking Age N=293	Corr Coeff	<b>-0.154</b>	<b>-0.201</b>	-0.095	0.016	-0.061
	Sig (2-tailed)	<b>0.008</b>	<b>0.001</b>	0.106	0.781	0.301
Religious (AUD) N=397	Corr Coeff	<b>-0.213</b>	<b>-0.248</b>	-0.049	-0.036	-0.037
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.329	0.469	0.460
Religious (AUND) N=393	Corr Coeff	<b>-0.124</b>	-0.049	-0.073	<b>-0.215</b>	-0.040
	Sig (2-tailed)	<b>0.014</b>	0.328	0.148	<b>&lt;0.001</b>	0.431
Non-Religious N=92	Corr Coeff	<b>-0.371</b>	-0.109	0.003	-0.027	-0.078
	Sig (2-tailed)	<b>&lt;0.001</b>	0.300	0.978	0.799	0.462
Greek N=280	Corr Coeff	<b>-0.156</b>	<b>-0.146</b>	-0.059	-0.087	-0.072
	Sig (2-tailed)	<b>0.009</b>	<b>0.014</b>	0.323	0.144	0.229
Pseudo-Greek N=214	Corr Coeff	<b>-0.231</b>	<b>-0.178</b>	-0.058	-0.070	-0.028
	Sig (2-tailed)	<b>0.001</b>	<b>0.009</b>	0.403	0.310	0.682
Non-Greek N=387	Corr Coeff	<b>-0.302</b>	<b>-0.239</b>	-0.094	-0.033	-0.075
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.066	0.513	0.140

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

Table 4.21

*Spearman Rank Correlations between overall injunctive norms and permissive values*

		Self- Direction	Stimulation	Hedonism	Achievement	Power
Overall N=898	Corr Coeff	0.016	<b>0.163</b>	<b>0.275</b>	<b>0.137</b>	<b>0.129</b>
	Sig (2-tailed)	0.624	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Male N=245	Corr Coeff	0.005	<b>0.157</b>	<b>0.342</b>	0.078	<b>0.133</b>
	Sig (2-tailed)	0.938	<b>0.014</b>	<b>&lt;0.001</b>	0.222	<b>0.037</b>
Female N=653	Corr Coeff	0.027	<b>0.171</b>	<b>0.253</b>	<b>0.158</b>	<b>0.108</b>
	Sig (2-tailed)	0.491	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>0.006</b>
Black N=133	Corr Coeff	-0.014	<b>0.174</b>	0.110	0.073	<b>0.196</b>
	Sig (2-tailed)	0.873	<b>0.046</b>	0.207	0.401	<b>0.024</b>
White N=719	Corr Coeff	0.030	<b>0.145</b>	<b>0.317</b>	<b>0.168</b>	<b>0.157</b>
	Sig (2-tailed)	0.428	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Underage N=605	Corr Coeff	0.053	<b>0.164</b>	<b>0.294</b>	<b>0.152</b>	<b>0.141</b>
	Sig (2-tailed)	0.193	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Legal Drinking Age N=293	Corr Coeff	-0.064	<b>0.160</b>	<b>0.236</b>	0.113	<b>0.129</b>
	Sig (2-tailed)	0.277	<b>0.006</b>	<b>&lt;0.001</b>	0.054	<b>0.028</b>
Religious (AUD) N=397	Corr Coeff	0.031	<b>0.164</b>	<b>0.184</b>	<b>0.140</b>	0.087
	Sig (2-tailed)	0.542	<b>0.001</b>	<b>&lt;0.001</b>	<b>0.005</b>	0.085
Religious (AUND) N=393	Corr Coeff	-0.065	0.078	<b>0.309</b>	<b>0.108</b>	<b>0.180</b>
	Sig (2-tailed)	0.197	0.121	<b>&lt;0.001</b>	<b>0.032</b>	<b>&lt;0.001</b>
Non-Religious N=92	Corr Coeff	0.132	<b>0.258</b>	<b>0.308</b>	0.201	-0.030
	Sig (2-tailed)	0.211	<b>0.013</b>	<b>0.003</b>	0.054	0.779
Greek N=280	Corr Coeff	-0.042	0.112	<b>0.324</b>	<b>0.129</b>	<b>0.120</b>
	Sig (2-tailed)	0.484	0.061	<b>&lt;0.001</b>	<b>0.031</b>	<b>0.045</b>
Pseudo-Greek N=214	Corr Coeff	-0.020	<b>0.230</b>	<b>0.206</b>	0.089	<b>0.144</b>
	Sig (2-tailed)	0.769	<b>0.001</b>	<b>0.003</b>	0.193	<b>0.035</b>
Non-Greek N=387	Corr Coeff	<b>0.142</b>	<b>0.173</b>	<b>0.232</b>	<b>0.158</b>	<b>0.100</b>
	Sig (2-tailed)	<b>0.005</b>	<b>0.001</b>	<b>&lt;0.001</b>	<b>0.002</b>	<b>0.049</b>

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

### *Descriptive Norms of Alcohol Use*

Descriptive norms of alcohol use tended to follow the same pattern as injunctive norms of alcohol use and attitudes in their relationship with values. Descriptive norms evaluate the participants' perception of how many of their close friends use alcohol (e.g., percent of friends who binge drink). Conservative descriptive norms specify that participants perceive fewer of their close friends use alcohol while permissive descriptive norms reveal the perception that close friends use alcohol more frequently. Individuals who perceived lower alcohol use among friends (i.e., conservative descriptive norms) had higher levels of Security, Universalism, Tradition, and Conformity. More permissive descriptive norms (i.e., higher perceived use among friends) were identified in those with the values of Achievement, Power, Stimulation, and Hedonism. Non-significant relationships were identified between descriptive norms of alcohol use and Benevolence and Self-Direction. Refer to Tables 4.22 and 4.23 for a full description of the correlation analyses for the value and descriptive norms of alcohol use.

All relationships examining values and perceived descriptive norms were weak, regardless of statistical significance except for a moderate relationship with Hedonism. The variable that had the strongest relationship with Hedonism from within the descriptive norms variables is with getting drunk ( $r=.361, p<.001$ ) and the weakest correlation is with underage drinking ( $r=.233, p<.001$ ). Conformity had the next strongest relationship between values and descriptive norms although it is an inverse relationship. This reveals that as the value of Conformity increases, the descriptive norms of use decrease.

Table 4.22

*Spearman Rank Correlation Analyses with descriptive norms of use and values.*

		Overall N=893	Alcohol N=891	Underage N=891	Drunk N=893	Binge N=892
Conformity	Corr Coeff	<b>-0.283</b>	<b>-0.272</b>	<b>-0.218</b>	<b>-0.285</b>	<b>-0.261</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Tradition	Corr Coeff	<b>-0.190</b>	<b>-0.260</b>	<b>-0.189</b>	<b>-0.199</b>	<b>-0.147</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Benevolence	Corr Coeff	-0.022	-0.040	-0.010	-0.049	-0.030
	Sig (2-tailed)	0.502	0.231	0.770	0.144	0.374
Universalism	Corr Coeff	<b>-0.135</b>	<b>-0.115</b>	<b>-0.118</b>	<b>-0.144</b>	<b>-0.107</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>0.001</b>
Security	Corr Coeff	<b>-0.094</b>	-0.038	-0.049	<b>-0.083</b>	<b>-0.099</b>
	Sig (2-tailed)	<b>0.005</b>	0.258	0.145	<b>0.014</b>	<b>0.003</b>
Self-Direction	Corr Coeff	0.019	0.062	0.034	0.045	-0.005
	Sig (2-tailed)	0.563	0.066	0.312	0.176	0.888
Stimulation	Corr Coeff	<b>0.182</b>	<b>0.143</b>	<b>0.137</b>	<b>0.158</b>	<b>0.192</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Hedonism	Corr Coeff	<b>0.354</b>	<b>0.325</b>	<b>0.233</b>	<b>0.361</b>	<b>0.321</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Achievement	Corr Coeff	<b>0.123</b>	<b>0.133</b>	<b>0.168</b>	<b>0.131</b>	<b>0.190</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>0.007</b>
Power	Corr Coeff	<b>0.125</b>	<b>0.139</b>	<b>0.083</b>	<b>0.145</b>	<b>0.110</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>0.014</b>	<b>&lt;0.001</b>	<b>0.001</b>

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

### *Gender*

Males and females had similar, significant associations with Conformity, Tradition, Stimulation, and Hedonism ( $p < .001$ ) similar to the overall correlations. Females differed from males in a significant, weak, direct association between descriptive norms of use and Achievement ( $p = .002$ ). Conversely, males had a significant, weak, inverse relationship with descriptive norms and Universalism, Security, and Power.

### *Race*

White participants had the same strength and directionality of associations as did the overall correlations. The majority of significant associations were among White participants; however, Whites made up over 80% of the sample. Whites had stronger correlations with Tradition, Hedonism, and Achievement than did Blacks. Blacks had stronger associations with Stimulation and Power than did Whites. Please refer to Tables 4.23 and 4.24 for a full description of associations.

### *Age*

Individuals who are underage and of the legal drinking age both had significant, weak relationships with Conformity, Tradition, Security, Stimulation, Hedonism, and Power that mirrored that of the overall correlation relationships. However, there were differences between Achievement and Universalism. Underage individuals had significant relationships with increases in perceived alcohol use among friends and an increase in Achievement ( $r=.141$ ;  $p=.001$ ) and decrease in Universalism ( $r=-.163$ ). Please refer to Table 4.23 and 4.24 for a greater description of these relationships.

### *Religious Influence*

Non-Religious individuals had a significant, moderate, inverse association with Conformity and a significant, moderate, direct relationship with Stimulation and perceived alcohol use of close friends. Religious individuals had a similar, albeit, weaker relationship with Conformity. Religious individuals had a significant, weak, indirect relationship with Tradition and descriptive norms, while this association was non-significant among non-Religious individuals. Religious (AUND) individuals had a significant, inverse relationship with

Universalism and descriptive norms, and non-religious individuals had a significant, inverse relationship with Security and descriptive norms.

Religious (AUND) and non-religious individuals had significant associations with descriptive norms and Hedonism while Religious (AUD) had a weak association between these variables. As perceived peer alcohol use increased for non-religious and Religious (AUND), so did the value of Achievement. Lastly, Religious individuals' level of Power increased, as did their perception of peer alcohol use. Please refer to Table 4.23 and 4.24 for a greater description of these relationships.

### *Greek Involvement*

All participants regardless of Greek involvement had significant relationships between descriptive norms of alcohol use and Conformity, Tradition, Stimulation, and Hedonism that were similar to the overall sample's relationships. Greeks tended to have higher levels of association between norms and Hedonism, followed by non-Greeks, and then pseudo-Greeks. The value of Achievement followed a similar pattern to Hedonism. Non-Greeks tended to have significant, weak associations between perceived peer alcohol use and Self-Direction, Power, Universalism, and Security. Please refer to Table 4.23 and 4.24 for a greater description of the relationship between values and descriptive norms of use among Greek, pseudo-Greek, and non-Greek students.

Table 4.23

*Spearman Rank Correlations between overall descriptive norms of use and conservative values*

		Conformity	Tradition	Benevolence	Universalism	Security
Overall N=893	Corr Coeff	<b>-0.283</b>	<b>-0.190</b>	-0.022	<b>-0.135</b>	<b>-0.094</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.502	<b>&lt;0.001</b>	<b>0.005</b>
Male N=244	Corr Coeff	<b>-0.282</b>	<b>-0.147</b>	-0.045	<b>-0.240</b>	<b>-0.145</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>0.022</b>	0.484	<b>&lt;0.001</b>	<b>0.024</b>
Female N=649	Corr Coeff	<b>-0.281</b>	<b>-0.210</b>	-0.008	<b>-0.096</b>	-0.075
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.844	<b>0.014</b>	0.056
Black N=133	Corr Coeff	<b>-0.273</b>	-0.123	-0.086	<b>-0.194</b>	-0.033
	Sig (2-tailed)	<b>0.002</b>	0.157	0.323	<b>0.025</b>	0.706
White N=715	Corr Coeff	<b>-0.296</b>	<b>-0.215</b>	-0.043	<b>-0.114</b>	<b>-0.102</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.249	<b>0.002</b>	<b>0.006</b>
Underage N=601	Corr Coeff	<b>-0.303</b>	<b>-0.195</b>	-0.011	<b>-0.163</b>	<b>-0.086</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.792	<b>&lt;0.001</b>	<b>0.034</b>
Legal Drinking Age N=292	Corr Coeff	<b>-0.231</b>	<b>-0.167</b>	-0.046	-0.088	<b>-0.118</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>0.004</b>	0.431	0.134	<b>0.044</b>
Religious (AUD) N=396	Corr Coeff	<b>-0.266</b>	<b>-0.218</b>	-0.040	-0.063	-0.046
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.433	0.210	0.359
Religious (AUND) N=392	Corr Coeff	<b>-0.188</b>	<b>-0.106</b>	0.011	<b>-0.234</b>	-0.088
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>0.035</b>	0.833	<b>&lt;0.001</b>	0.080
Non-Religious N=90	Corr Coeff	<b>-0.463</b>	-0.069	0.000	-0.152	<b>-0.259</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	0.517	0.997	0.154	<b>0.014</b>
Greek N=281	Corr Coeff	<b>-0.248</b>	<b>-0.247</b>	-0.043	-0.082	-0.090
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.469	0.169	0.132
Pseudo-Greek N=213	Corr Coeff	<b>-0.323</b>	<b>-0.149</b>	0.038	-0.026	-0.003
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>0.030</b>	0.576	0.707	0.961
Non-Greek N=384	Corr Coeff	<b>-0.319</b>	<b>-0.221</b>	-0.067	<b>-0.137</b>	<b>-0.130</b>
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.188	<b>0.007</b>	<b>0.011</b>

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

Table 4.24

*Spearman Rank Correlations between overall descriptive norms of use and permissive values*

		Self- Direction	Stimulation	Hedonism	Achievement	Power
Overall N=893	Corr Coeff	0.019	<b>0.182</b>	<b>0.354</b>	<b>0.123</b>	<b>0.125</b>
	Sig (2-tailed)	0.563	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>
Male N=244	Corr Coeff	0.100	<b>0.160</b>	<b>0.354</b>	0.120	<b>0.188</b>
	Sig (2-tailed)	0.118	<b>0.012</b>	< <b>0.001</b>	0.061	<b>0.003</b>
Female N=649	Corr Coeff	-0.009	<b>0.192</b>	<b>0.357</b>	<b>0.124</b>	<b>0.094</b>
	Sig (2-tailed)	0.820	< <b>0.001</b>	< <b>0.001</b>	<b>0.002</b>	<b>0.017</b>
Black N=133	Corr Coeff	-0.036	<b>0.259</b>	<b>0.225</b>	0.014	<b>0.280</b>
	Sig (2-tailed)	0.678	<b>0.003</b>	<b>0.009</b>	0.869	<b>0.001</b>
White N=715	Corr Coeff	0.039	<b>0.146</b>	<b>0.409</b>	<b>0.148</b>	<b>0.114</b>
	Sig (2-tailed)	0.298	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	<b>0.002</b>
Underage N=601	Corr Coeff	0.047	<b>0.175</b>	<b>0.353</b>	<b>0.141</b>	<b>0.107</b>
	Sig (2-tailed)	0.247	< <b>0.001</b>	< <b>0.001</b>	<b>0.001</b>	<b>0.009</b>
Legal Drinking Age N=292	Corr Coeff	-0.043	<b>0.198</b>	<b>0.352</b>	0.089	<b>0.157</b>
	Sig (2-tailed)	0.462	<b>0.001</b>	< <b>0.001</b>	0.128	<b>0.007</b>
Religious (AUD) N=396	Corr Coeff	0.064	<b>0.152</b>	<b>0.243</b>	0.097	<b>0.110</b>
	Sig (2-tailed)	0.201	<b>0.002</b>	< <b>0.001</b>	0.055	<b>0.028</b>
Religious (AUND) N=392	Corr Coeff	-0.084	<b>0.102</b>	<b>0.458</b>	<b>0.125</b>	<b>0.130</b>
	Sig (2-tailed)	0.096	<b>0.044</b>	< <b>0.001</b>	<b>0.013</b>	<b>0.010</b>
Non-Religious N=90	Corr Coeff	0.117	<b>0.362</b>	<b>0.364</b>	<b>0.238</b>	0.045
	Sig (2-tailed)	0.273	< <b>0.001</b>	< <b>0.001</b>	<b>0.024</b>	0.676
Greek N=281	Corr Coeff	0.077	<b>0.135</b>	<b>0.419</b>	<b>0.118</b>	0.057
	Sig (2-tailed)	0.195	<b>0.024</b>	< <b>0.001</b>	<b>0.049</b>	0.340
Pseudo-Greek N=213	Corr Coeff	-0.014	<b>0.188</b>	<b>0.246</b>	0.001	0.099
	Sig (2-tailed)	0.843	<b>0.006</b>	< <b>0.001</b>	0.983	0.151
Non-Greek N=384	Corr Coeff	<b>0.102</b>	<b>0.211</b>	<b>0.313</b>	<b>0.198</b>	<b>0.144</b>
	Sig (2-tailed)	<b>0.047</b>	< <b>0.001</b>	< <b>0.001</b>	< <b>0.001</b>	<b>0.005</b>

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

### *Descriptive Norms of Alcohol-Related Problems*

The amount of alcohol-related problems (e.g., not using protection during sex because of drinking alcohol) the participant perceives his or her close friends experience has been defined as descriptive norms of alcohol-related problems. A lower score of descriptive norms of alcohol-related problems indicates a lower level of perceived problems. Alternatively, a higher score suggests the participant believes his or her friends experience many problems associated with alcohol use. Findings from this study reveal that lower levels of descriptive norms of alcohol-related problems were associated with Universalism ( $r=-.085$ ,  $p=.011$ ), Tradition ( $r=-.133$ ,  $p<.001$ ), and Conformity ( $r=-.143$ ,  $p<.001$ ); whereas, higher levels of descriptive norms indicate a relationship with Power ( $r=.097$ ,  $p=.004$ ), Stimulation ( $r=.109$ ,  $p=.001$ ), and Hedonism ( $r=.163$ ,  $p<.001$ ). Non-significant relationships existed between descriptive norms of alcohol-related problems and Security, Achievement, Self-Direction, and Benevolence. Tables 4.25 and 4.26 provides a visual depiction of all of the correlations between values and descriptive norms of alcohol-related problems.

### *Gender*

Males and females have two similar, significant relationships between descriptive norms of alcohol-related problems and values. The first significant, weak association is with Conformity and lower levels of descriptive norms of alcohol-related problems among men ( $r=-.196$ ;  $p=.002$ ) and women ( $r=-.125$ ;  $p=.001$ ). The second significant, weak relationship is with Hedonism and higher levels of descriptive norms among males ( $r=.192$ ;  $p=.003$ ) and females ( $r=.158$ ;  $p<.001$ ). Females also had significant relationships between lower levels of descriptive norms of alcohol-related problems and Tradition ( $r=-.148$ ;  $p<.001$ ), and Universalism ( $r=-.095$ ;  $p=.015$ ); and between higher levels of descriptive norms and Stimulation ( $r=.140$ ;  $p<.001$ ) and

Power ( $r=.081$ ;  $p=.038$ ). Refer to tables 4.25 and 4.26 for a description of the correlations between values and descriptive norms of alcohol-related problems.

### *Race*

A significant, moderate relationship exists between increases in descriptive norms and Stimulation ( $r=.330$ ;  $p<.001$ ) among Blacks. As descriptive norms decrease, Conformity increased among whites ( $r=-.156$ ;  $p<.001$ ). Whites also had significant, weak associations with Tradition, Hedonism, and Power. As descriptive norms decrease, Tradition increases and as descriptive norms increase, Hedonism and Power also increase among Whites. Refer to tables 4.25 and 4.26 for a report of the correlations between values and descriptive norms of alcohol-related problems.

### *Age*

There were significant, weak relationships between Conformity and Tradition and lower levels of descriptive norms of alcohol-related problems; and higher levels of descriptive norms when Hedonism and Stimulation increased among underage and those of legal drinking age. Underage individuals also had weak, significant associations between decreases in descriptive norms and Universalism and increases in descriptive norms and Achievement, and Power. Tables 4.25 and 4.26 provide a description of the correlations between values and descriptive norms of alcohol-related problems.

### *Greek Involvement*

Conformity is the only value that had a significant, weak relationship with each of the three Greek involvement categories. Greek and Non-Greek individuals had significant, weak, inverse relationships with Tradition; so as descriptive norms decreased, the value of Tradition

increased. Greek participants identified significant, weak, positive relationships with descriptive norms and Hedonism and Power. Non-Greek participants had a significant weak, positive association with Stimulation and descriptive norms. Refer to tables 4.25 and 4.26 for a more thorough depiction of the correlations between values and descriptive norms of alcohol-related problems.

### *Religious Influence*

The correlation between Conformity and descriptive norms of alcohol-related problems was weak, inverse and statistically significant ( $p < .05$ ) for non-religious and Religious (AUND). This means that as descriptive norms decreased, the value of Conformity increased. Tradition was inversely associated with descriptive norms of alcohol-related problems, indicating that as an individual's levels of descriptive norms decreased, his or her value of Tradition increased if he or she identified as being Religious. There were statistically significant, weak associations between increases in descriptive norms of alcohol problems and the value of Power among individuals who are Religious (AUD). Among Religious (AUND) individuals, statistically significant, weak correlations occurred with decreases in descriptive norms and increases in Universalism; and increases in descriptive norms and increases in Stimulation ( $r = .135$ ;  $p = .008$ ) and Hedonism ( $r = .250$ ;  $p < .001$ ). Refer to tables 4.25 and 4.26 for a description of the correlations between values and descriptive norms of alcohol-related problems.

Table 4.25

*Spearman Rank Correlations between overall descriptive norms of alcohol-related problems and conservative values*

		Conformity	Tradition	Benevolence	Universalism	Security
Overall N=891	Corr Coeff	<b>-0.143</b>	<b>-0.133</b>	0.024	<b>-0.085</b>	-0.023
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.477	<b>0.011</b>	0.491
Male N=240	Corr Coeff	<b>-0.196</b>	-0.118	0.041	-0.054	-0.015
	Sig (2-tailed)	<b>0.002</b>	0.069	0.528	0.402	0.814
Female N=651	Corr Coeff	<b>-0.125</b>	<b>-0.148</b>	0.044	<b>-0.095</b>	-0.027
	Sig (2-tailed)	<b>0.001</b>	<b>&lt;0.001</b>	0.258	<b>0.015</b>	0.496
Black N=134	Corr Coeff	-0.097	-0.146	-0.083	-0.112	0.041
	Sig (2-tailed)	0.264	0.092	0.341	0.199	0.638
White N=710	Corr Coeff	<b>-0.156</b>	<b>-0.136</b>	-0.010	-0.072	-0.052
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.795	0.056	0.164
Underage N=600	Corr Coeff	<b>-0.143</b>	<b>-0.118</b>	0.043	<b>-0.155</b>	-0.024
	Sig (2-tailed)	<b>&lt;0.001</b>	<b>0.004</b>	0.298	<b>&lt;0.001</b>	0.552
Legal Drinking Age N=291	Corr Coeff	<b>-0.140</b>	<b>-0.150</b>	-0.014	0.067	-0.032
	Sig (2-tailed)	<b>0.017</b>	<b>0.011</b>	0.818	0.255	0.582
Religious (AUD) N=395	Corr Coeff	-0.086	<b>-0.124</b>	-0.021	-0.083	0.030
	Sig (2-tailed)	0.089	<b>0.014</b>	0.679	0.100	0.553
Religious (AUND) N=389	Corr Coeff	<b>-0.152</b>	<b>-0.112</b>	0.067	<b>-0.125</b>	-0.042
	Sig (2-tailed)	<b>0.003</b>	<b>0.027</b>	0.188	<b>0.014</b>	0.407
Non-Religious N=91	Corr Coeff	<b>-0.251</b>	-0.090	0.044	0.049	-0.095
	Sig (2-tailed)	<b>0.016</b>	0.398	0.679	0.647	0.372
Greek N=276	Corr Coeff	<b>-0.184</b>	<b>-0.150</b>	-0.015	-0.074	-0.054
	Sig (2-tailed)	<b>0.002</b>	<b>0.012</b>	0.806	0.218	0.376
Pseudo-Greek N=213	Corr Coeff	<b>-0.155</b>	-0.103	0.001	-0.009	0.046
	Sig (2-tailed)	<b>0.024</b>	0.136	0.990	0.891	0.509
Non-Greek N=385	Corr Coeff	<b>-0.128</b>	<b>-0.172</b>	0.046	-0.067	-0.018
	Sig (2-tailed)	<b>0.012</b>	<b>0.001</b>	0.364	0.192	0.728

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

Table 4.26

*Spearman Rank Correlations between overall descriptive norms of alcohol-related problems and permissive values*

		Self-Direction	Stimulation	Hedonism	Achievement	Power
Overall N=891	Corr Coeff	-0.004	<b>0.109</b>	<b>0.163</b>	0.049	<b>0.097</b>
	Sig (2-tailed)	0.901	<b>0.001</b>	<b>&lt;0.001</b>	0.144	<b>0.004</b>
Male N=240	Corr Coeff	-0.052	0.062	<b>0.192</b>	0.023	0.100
	Sig (2-tailed)	0.421	0.342	<b>0.003</b>	0.726	0.124
Female N=651	Corr Coeff	0.018	<b>0.140</b>	<b>0.158</b>	0.061	<b>0.081</b>
	Sig (2-tailed)	0.653	<b>&lt;0.001</b>	<b>&lt;0.001</b>	0.123	<b>0.038</b>
Black N=134	Corr Coeff	0.048	<b>0.330</b>	0.074	-0.054	0.100
	Sig (2-tailed)	0.578	<b>&lt;0.001</b>	0.394	0.532	0.250
White N=710	Corr Coeff	0.002	0.065	<b>0.195</b>	0.069	<b>0.134</b>
	Sig (2-tailed)	0.954	0.082	<b>&lt;0.001</b>	0.066	<b>&lt;0.001</b>
Underage N=600	Corr Coeff	0.007	<b>0.105</b>	<b>0.139</b>	<b>0.088</b>	<b>0.101</b>
	Sig (2-tailed)	0.859	<b>0.010</b>	<b>0.001</b>	<b>0.032</b>	<b>0.013</b>
Legal Drinking Age N=291	Corr Coeff	-0.045	<b>0.128</b>	<b>0.220</b>	-0.027	0.076
	Sig (2-tailed)	0.445	<b>0.030</b>	<b>&lt;0.001</b>	0.642	0.199
Religious (AUD) N=395	Corr Coeff	0.007	0.070	0.047	0.058	<b>0.114</b>
	Sig (2-tailed)	0.890	0.164	0.349	0.252	<b>0.023</b>
Religious (AUND) N=389	Corr Coeff	-0.024	<b>0.135</b>	<b>0.250</b>	0.015	0.095
	Sig (2-tailed)	0.643	<b>0.008</b>	<b>&lt;0.001</b>	0.764	0.063
Non-Religious N=91	Corr Coeff	0.028	0.143	0.178	0.037	0.022
	Sig (2-tailed)	0.789	0.177	0.091	0.727	0.837
Greek N=276	Corr Coeff	0.064	0.065	<b>0.266</b>	0.066	<b>0.136</b>
	Sig (2-tailed)	0.289	0.281	<b>&lt;0.001</b>	0.271	<b>0.024</b>
Pseudo-Greek N=213	Corr Coeff	-0.029	0.074	0.100	-0.008	0.043
	Sig (2-tailed)	0.672	0.280	0.144	0.906	0.534
Non-Greek N=385	Corr Coeff	0.022	<b>0.134</b>	0.082	0.082	0.083
	Sig (2-tailed)	0.661	<b>0.009</b>	0.110	0.109	0.105

*Bolded items indicate significant ( $\alpha < 0.05$ ) correlations*

*Attitudes, Injunctive Norms, and Descriptive Norms*

There were significant relationships between personal attitudes, injunctive, and descriptive norms. The strongest relationships exist between descriptive and injunctive norms of alcohol use ( $r=.659$ ,  $p<.001$ ), followed by descriptive norms of alcohol use and personal attitudes ( $r=.657$ ,  $p<.001$ ), and lastly injunctive norms of alcohol and personal attitudes ( $r=.654$ ,  $p<.001$ ). Descriptive norms of alcohol-related problems had moderate, positive significant relationships with personal attitudes, injunctive norms of alcohol use, and descriptive norms of alcohol use. See Table 4.27 for a full description of these relationships.

Table 4.27

*Spearman Rank Correlations between personal attitudes (PA), injunctive norms (IN), and descriptive norms (DN) for overall variables*

	<b>PA</b>	<b>IN</b>	<b>DN: Use</b>	<b>DN: ARP</b>
Personal Attitudes (Overall)				
Correlation Coefficient	1.000	<b>0.654</b>	<b>0.657</b>	<b>0.336</b>
N	910	<b>898</b>	<b>893</b>	<b>891</b>
Injunctive Alcohol Norms (Overall)				
Correlation Coefficient		1.000	<b>0.659</b>	<b>0.451</b>
N		898	<b>890</b>	<b>887</b>
Descriptive Norms of Use (Overall)				
Correlation Coefficient			1.000	<b>0.408</b>
N			893	<b>882</b>

*Bolded items indicate significant ( $\alpha < 0.001$ ) correlations*

In order to further examine the relationships between personal attitudes and norms, each variable, which had been summed to create an overall variable (e.g., personal attitude overall score) were explored. The variables examined include personal attitudes, injunctive norms, descriptive norms of use, and descriptive norms of alcohol-related problems with the following behaviors: alcohol use, underage drinking, getting drunk, and binge drinking.

For each of the individual behavior variables (i.e., alcohol use, underage drinking, getting drunk, and binge drinking), the patterns were similar for the significance, strength, and

association. The only behavior that slightly deviated from this pattern was binge drinking. The common pattern of correlations included a significant, moderate, direct relationship between personal attitudes and injunctive norms, followed by another significant, moderate, direct association between personal attitudes and descriptive norms of alcohol use variables. The third strongest, significant, moderate, positive association for most behaviors included injunctive norms and descriptive norms of use, followed by injunctive norms and descriptive norms of alcohol-related problems, which revealed a positive, significant, moderate relationship.

Binge variables followed a different pattern than the other three behaviors. The strongest relationship within the binge correlations included a significant, moderate, positive association between injunctive norms and descriptive norms of binge drinking. Aside from this relationship having the strongest association, the rest of the relationships among the binge variables mirrored that of the other behaviors. Please refer to Tables 4.28, 4.29, 4.30, and 4.31 for a full description of the relationships between variables.

Table 4.28

*Spearman Rank Correlations between personal attitudes (PA), injunctive norms(IN), and descriptive norms (DN) for alcohol use variables*

	PA	IN	DN: Alcohol	DN: ARP
Personal Attitudes (Alcohol)				
Correlation Coefficient	1.000	<b>0.613</b>	<b>0.511</b>	<b>0.265</b>
N	910	<b>896</b>	<b>891</b>	<b>891</b>
Injunctive Norms (Alcohol)				
Correlation Coefficient		1.000	<b>0.505</b>	<b>0.353</b>
N		896	<b>886</b>	<b>885</b>
Descriptive Norms (Alcohol)				
Correlation Coefficient			1.000	<b>0.345</b>
N			891	<b>880</b>

*Bolded items indicate significant ( $\alpha < 0.001$ ) correlations*

Table 4.29

*Spearman Rank Correlations between personal attitudes (PA), injunctive norms (IN), and descriptive norms (DN) for underage drinking variables*

Variables	PA	IN	DN: Underage	DN: ARP
Personal Attitudes (Underage Drinking)				
Correlation Coefficient	1.000	<b>0.658</b>	<b>0.497</b>	<b>0.293</b>
N	910	<b>892</b>	<b>889</b>	<b>888</b>
Injunctive Norms (Underage Drinking)				
Correlation Coefficient		1.000	<b>0.495</b>	<b>0.386</b>
N		896	<b>885</b>	<b>884</b>
Descriptive Norms (Underage Drinking)				
Correlation Coefficient			1.000	<b>0.299</b>
N			891	<b>880</b>

*Bolded items indicate significant ( $\alpha < 0.001$ ) correlations*

Table 4.30

*Spearman Rank Correlations between personal attitudes (PA), injunctive norms (IN), and descriptive norms (DN) for getting drunk variables*

Variables	PA	IN	DN: Drunk	DN: ARP
Personal Attitudes (Drunk)				
Correlation Coefficient	1.000	<b>0.652</b>	<b>0.643</b>	<b>0.316</b>
Sig. (2-tailed)				
N	910	<b>896</b>	<b>892</b>	<b>890</b>
Injunctive Norms (Drunk)				
Correlation Coefficient		1.000	<b>0.631</b>	<b>0.436</b>
N		896	<b>889</b>	<b>886</b>
Descriptive Norms (Drunk)				
Correlation Coefficient			1.000	<b>0.385</b>
N			891	<b>880</b>

*Bolded items indicate significant ( $\alpha < 0.001$ ) correlations*

Table 4.31

*Spearman Rank Correlations between personal attitudes (PA), injunctive norms (IN), and descriptive norms (DN) for binge drinking variables*

Variables	PA	IN	DN: Binge	DN – ARP
Personal Attitudes (Binge)				
Correlation Coefficient	1.000	<b>0.634</b>	<b>0.614</b>	<b>0.329</b>
N	910	<b>898</b>	<b>892</b>	<b>891</b>
Injunctive Norms (Binge)				
Correlation Coefficient		1.000	<b>0.659</b>	<b>0.436</b>
N		896	<b>889</b>	<b>887</b>
Descriptive Norms (Binge)				
Correlation Coefficient			1.000	<b>0.409</b>
N			891	<b>880</b>

*Bolded items indicate significant ( $\alpha < 0.001$ ) correlations*

## *Research Question 2*

*What best predicts alcohol use and alcohol-related problems among college students when examining personal values, attitudes towards alcohol, perceived injunctive and descriptive norms of alcohol use, and norms of alcohol-related problems?*

In order to answer research Question 2, a backward stepwise multiple regression analysis was employed to examine the relationships between the independent and confounding variables and the dependent variables (i.e., average drinks per week and sum of alcohol-related problems). Due to the large sample size and the quantity of highly significant correlations, the alpha level for significance was reduced from the typical 0.05 to 0.01 in the following regression analyses. This was done to help reduce the amount of spurious associations between independent and dependent variables.

### *Alcohol Use: Multiple Regression Analyses*

For the following analyses, the dependent variable was average drinks of alcohol per week. The independent variables included in these backward stepwise multiple regression analyses are personal values, personal approval of alcohol use (personal attitudes), perceived peer approval of alcohol use (injunctive norms), perceived quantity of friends who consume alcohol (descriptive norms of alcohol use), perceived quantity of alcohol-related problems experienced by friends (descriptive norms of alcohol-related problems), and the confounding variables (i.e., gender, race, age, religious influence, and Greek involvement). For the overall analysis, all of the confounder variables will be included in analysis. Standardized betas ( $\beta$ ) provide insight into the amount of variance explained by each variable; the larger the standardized beta, the more variance of alcohol use that variable explained.

The overall model explained 45.6% of the variance ( $SE=5.94$ ) of average drinks per week  $F(4, 658) = 139.86$  and was significant ( $p<.001$ ). This model included the following significant

variables: personal attitudes, descriptive norms of alcohol-related problems, Greek involvement, and gender. Average drinks per week increased as personal attitudes became more permissive and perceptions of the amount of alcohol-related problems friends experienced increased. Males appeared to have higher rates of drinking, as do Greek students compared to pseudo- and non-Greek students. Table 4.32 provides a more thorough depiction of the significant predictors in this model.

Table 4.32

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among the overall sample*

<b>Predictor Variables</b>	Standardized $\beta$	T	Sig.
Personal Attitudes	0.41	13.06	<0.001
Descriptive Norms: ARP	0.27	8.75	<0.001
<b>Possible Confounding Variables</b>			
Gender (Female)	-0.24	-8.32	<0.001
Greek Involvement (Greek)	0.14	4.69	<0.001

Adjusted  $R^2 = 0.456$

$F(4, 658) = 139.86; p < 0.001$

### *Gender*

The male model explained 52.7% (SE=7.44) of the variance of average drinks per week and was significant  $F(2, 165) = 94.20 (p < .001)$ . The model included personal attitudes and descriptive norms of alcohol-related problems. Based on Standardized betas, it can be determined that the variable that provided the most explanation of the variance was personal attitudes then descriptive norms of alcohol-related problems. Alcohol use increased as personal attitudes were more permissive and as perceived alcohol-related problems among friends increased. Table 4.33 provides a more thorough depiction of the significant predictors in this model.

Table 4.33

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among males*

<b>Predictor Variables</b>	Standardized $\beta$	T	Sig.
Personal Attitudes	0.53	9.14	<0.001
Descriptive Norms: ARP	0.34	5.83	<0.001

Adjusted  $R^2 = 0.527$   
 $F(2, 165) = 94.20; p < 0.001$

The female model explained less variance than did the male model and the predictive variables were different. The model explained 36.1% (SE=5.05) of the variance of average drinks per week and was significant  $F(5, 489) = 56.87 (p < .001)$ . The variable that provided the most explanation of the variance included personal attitudes, then descriptive norms of alcohol-related problems, Greek involvement, Conformity, and Achievement. A female's alcohol use increased when she held permissive attitudes toward alcohol, perceived friends to experience more alcohol-related problems, and was involved in a Greek organization. Decreases in alcohol use were associated with the female holding the values of Conformity or Achievement. Table 4.34 provides a more thorough description of the significant predictors in this model.

Table 4.34

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among females*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.39	10.17	<0.001
Descriptive Norms: ARP	0.25	6.55	<0.001
Conformity	-0.11	-2.83	0.005
Achievement	-0.10	-2.67	0.008
<b>Possible Confounding Variable</b>			
Greek Involvement (Greek)	0.17	4.45	<0.001

Adjusted  $R^2 = 0.361$   
 $F(5, 489) = 56.87; p < 0.001$

*Race*

The regression model examining Black participants explained 41.8% (SE=4.27) of the variance of average drinks per week and was significant  $F(3, 91) = 23.49$  ( $p < .001$ ). The best predictors of average drinks per week for Black individuals included perceived alcohol-related problems experienced by close friends (descriptive norms), permissive attitudes, and gender. A Black individual's perceptions of alcohol-related problems among friends (descriptive norms) increased and the individual held more permissive attitudes toward alcohol as his or her alcohol use increased. Black males had higher levels of average weekly alcohol use than did Black females. Table 4.35 provides a more thorough delineation of the significant predictors in this model.

Table 4.35

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among Blacks*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.39	4.73	<0.001
Descriptive Norms: ARP	0.32	3.81	<0.001
<b>Possible Confounding Variable</b>			
Gender (Female)	-0.27	-3.31	0.001

Adjusted  $R^2 = 0.418$

$F(3, 91) = 23.49$ ; ( $p < 0.001$ )

The regression model explained 46.3% (SE=6.068) of the variance of average drinks per week among Whites and was significant  $F(5, 562) = 98.74$  ( $p < .001$ ). The variable that provided the most explanation of the variance was personal attitudes, followed by descriptive norms of alcohol-related problems, Achievement, gender, and Greek involvement. As average drinks per week increased, personal attitudes became more permissive, participants perceived more problems among close friends (descriptive norms), the value of Achievement decreased, and the

participant was more likely to be male and Greek. Table 4.36 provides a more thorough explanation of the significant predictors in this model.

Table 4.36

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among Whites*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.44	12.97	<0.001
Descriptive Norms: ARP	0.25	7.52	<0.001
Achievement	-0.09	-2.80	0.005
<b>Possible Confounding Variables</b>			
Gender (Female)	-0.25	-7.90	<0.001
Greek Involvement (Greek)	0.13	4.05	<0.001

Adjusted  $R^2=0.463$

$F(5, 562) = 98.74; p < 0.001$

### *Age*

The underage model explained 46.8% ( $SE=5.56$ ) of the variance of average drinks per week and was significant  $F(4, 419) = 93.99 (p < .001)$ . The model included Greek involvement (Greek), personal attitudes, descriptive norms of alcohol-related problems, and gender. The variable that had the largest standardized beta thus providing the most explanation of the variance included personal attitudes, then descriptive norms of alcohol-related problems, being a Greek member, and male. Average drinks per week increased as attitudes became more permissive, descriptive norms of alcohol-related problems increased, and when the individual was Greek and male. Table 4.37 provides a more thorough depiction of the significant predictors in this model.

Table 4.37

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among underage*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.37	9.50	<0.001
Descriptive Norms: ARP	0.28	7.40	<0.001
<b>Possible Confounding Variables</b>			
Greek Involvement (Greek)	0.23	6.09	<0.001
Gender (Female)	-0.22	-6.19	<0.001

Adjusted  $R^2 = 0.468$

$F(4, 419) = 93.99; p < 0.001$

The regression model examining the participants who are of the legal drinking age also explained 47.3% (SE=6.37) of the variance of average drinks per week and was significant  $F(3, 235) = 72.28 (p < .001)$ . The variable that provided the most explanation of the variance included personal attitudes, then descriptive norms of alcohol-related problems, and being male. Table 4.38 provides a more thorough depiction of the significant predictors in this model.

Table 4.38

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among legal age*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.50	9.89	<0.001
Descriptive Norms: ARP	0.23	4.96	<0.001
<b>Possible Confounding Variable</b>			
Gender (Female)	-0.24	-4.54	<0.001

Adjusted  $R^2 = 0.473$

$F(3, 235) = 72.28; p < 0.001$

### *Religious Influence*

The regression model for individuals who identified as religious and whose affiliation discourages alcohol use (Religious AUD) explained 38.3% (SE=4.83) of the variance of average drinks per week and was significant  $F(3, 257) = 54.78 (p < .001)$ . Significant predictors of alcohol use among Religious AUD included personal attitudes, descriptive norms of alcohol-

related problems, and gender. Alcohol use increased when the participant was male, held permissive attitudes, and perceived friends to experience more alcohol-related problems. Table 4.39 provides a more thorough depiction of the significant predictors in this.

Table 4.39

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among Religious (AUD)*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.44	8.69	<0.001
Descriptive Norms: ARP	0.25	4.86	<0.001
<b>Possible Confounding Variable</b>			
Gender (Female)	-0.22	-4.55	<0.001

Adjusted  $R^2 = 0.383$

$F(3, 257) = 54.78; p < 0.001$

The regression model examining participants who were religious and whose religious affiliation does not discourage alcohol use (Religious AUND) explained 47.3% (SE=6.70) of the variance of average drinks per week and was significant  $F(4, 332) = 76.45 (p < .001)$ . The variable with the largest standardized beta and thus the most predictive of alcohol use was personal attitudes, then descriptive norms of alcohol-related problems, gender, and lastly Greek involvement. Alcohol use increased among Religious (AUND) as permissive attitudes and descriptive norms of alcohol-related problems increased. Males and members of Greek organizations had higher levels of alcohol use per week. Table 4.40 provides a more thorough depiction of the significant predictors in this model.

Table 4.40

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among Religious (AUND)*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.37	8.48	<0.001
Descriptive Norms: ARP	0.28	6.58	<0.001
<b>Possible Confounding Variables</b>			
Gender (Female)	-0.25	-6.25	<0.001
Greek Involvement (Greek)	0.16	3.90	<0.001

Adjusted  $R^2 = .473$

$F(4, 332) = 76.45; p < 0.001$

The regression model that examined non-Religious participants explained 37.4% (SE=5.51) of the variance of average drinks per week and was significant  $F(2, 70) = 22.52$  ( $p < .001$ ). The variables that provided the most explanation of the variance of alcohol use included personal attitudes and then descriptive norms of alcohol-related problems. Both variables increased as alcohol use increased among non-religious individuals. Table 4.41 provides a more thorough depiction of the significant predictors in this model.

Table 4.41

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among Non-Religious*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.48	4.94	<0.001
Descriptive Norms: ARP	0.30	3.13	0.003

Adjusted  $R^2 = 0.374$

$F(2, 70) = 22.52; p < 0.001$

### *Greek Involvement*

The regression model for individuals who were involved in a Greek organization explained 49.8% (SE=6.64) of the variance of average drinks per week and was significant  $F(5, 234) = 48.43$  ( $p < .001$ ). The model included personal attitudes, descriptive norms of alcohol-

related problems, Achievement, Conformity, and gender. The variable that provided the most explanation of the variance included personal attitudes, then descriptive norms of alcohol-related problems, being male, Achievement, and lastly Conformity. Table 4.42 provides a more thorough depiction of the significant predictors in this model.

Table 4.42

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among Greek*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.44	8.57	<0.001
Descriptive Norms: ARP	0.24	4.83	<0.001
Achievement	-0.15	-3.30	0.001
Conformity	-0.13	-2.71	0.006
<b>Possible Confounding Variable</b>			
Gender (Female)	-0.23	-4.89	<0.001

Adjusted  $R^2 = 0.498$

$F(5, 234) = 48.43; p < 0.001$

The regression model examining participants who identified as pseudo-Greek explained 44.5% (SE=4.95) of the variance of average drinks per week and was significant  $F(3, 166) = 46.10 (p < .001)$ . The best predictors of average drinks per week were perceived alcohol-related problems experienced by close friends, permissive attitudes, and being male. The variable that provided the most explanation of the variance included descriptive norms of alcohol-related problems, then permissive personal attitudes, and being male. Table 4.43 provides a more thorough depiction of the significant predictors in this model.

Table 4.43

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among pseudo-Greek*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.40	6.74	<0.001
Personal Attitudes	0.30	4.95	<0.001
<b>Possible Confounding Variable</b>			
Gender (Female)	-0.28	-4.70	<0.001

Adjusted  $R^2 = 0.445$

$F(3, 166) = 46.10; p < 0.001$

The regression model explained 38.7% ( $SE = 5.27$ ) of the variance of average drinks per week among non-Greeks and was significant  $F(4, 248) = 40.79$  ( $p < 0.001$ ). The variable that provided the most explanation of the variance included personal attitudes, then gender, descriptive norms of alcohol-related problems, and age. As average drinks per week increased, personal attitudes became more permissive, age increased, participants perceived more problems among close friends (descriptive norms), and the participant was more likely male. Table 4.44 provides a more thorough depiction of the significant predictors in this model.

Table 4.44

*Multiple Regression (Alcohol Use): Significant predictors of alcohol use among non-Greek*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Personal Attitudes	0.46	8.90	<0.001
Descriptive Norms: ARP	0.18	3.49	0.001
<b>Possible Confounding Variables</b>			
Gender (Female)	-0.23	-4.52	<0.001
Age	0.16	3.15	0.002

Adjusted  $R^2 = 0.387$

$F(4, 248) = 40.79; p < 0.001$

### *Alcohol-Related Problems: Multiple Regression Analyses*

In order to finish answering research Question 2, a backward stepwise multiple regression analysis was employed to examine the relationships between the independent variables and the sum of alcohol-related problems among participants. Similar to the previous regression analyses, the alpha level was reduced from the typical .05 to .01 in these regression analyses to aid in reducing the amount of spurious associations between independent and dependent variables.

For the following analyses, the dependent variable was alcohol-related problems experienced in the past 30 days. The independent variables included in these backward stepwise multiple regression analyses include: personal values, personal approval of alcohol use (personal attitudes), perceived peer approval of alcohol use (injunctive norms), perceived quantity of friends who consume alcohol (descriptive norms of alcohol use), perceived quantity of alcohol-related problems experienced by friends (descriptive norms of alcohol-related problems), average number of alcoholic beverages consumed each week, and the confounding variables (i.e., gender, race, age, religious influence, and Greek involvement). The rest of research question 2 asks which independent variables best predict alcohol-related problems among college students.

The overall model explained 58.7% of the variance of alcohol-related problems (SE=6.67) and was significant  $F(4, 658) = 236.41$  ( $p < .001$ ). The most predictive variable in this model included descriptive norms of alcohol-related problems, followed by average drinks per week, personal attitudes, and age. Alcohol-related problems increased as perceived descriptive norms of alcohol-related problems among friends, personal attitudes, age, and average weekly

drinks increased among participants. Table 4.45 provides a more thorough depiction of the significant predictors in this model.

Table 4.45

*Multiple Regression (Alcohol-Related Problems): Significant predictors among the overall sample*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.39	13.91	<0.001
Personal Attitudes	0.21	6.26	<0.001
<b>Possible Confounding Variables</b>			
Average drinks per week	0.36	11.13	<0.001
Age	0.08	3.06	0.002

Adjusted  $R^2 = 0.587$

$F(4, 658) = 236.41; p < 0.001$

#### *Gender*

The male model explained 63.7% (SE=7.88) of the variance of alcohol-related problems and was significant  $F(2, 165) = 147.38 (p < .001)$ . The model included descriptive norms of alcohol-related problems and average drinks per week. Based on the standardized betas, the variable that provided the most explanation of the variance was average drinks per week followed by descriptive norms of alcohol-related problems. Table 4.46 provides a more thorough depiction of the significant predictors in this model.

Table 4.46

*Multiple Regression (Alcohol-Related Problems): Significant predictors among males*

<b>Predictors Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.40	7.19	<0.001
<b>Possible Confounding Variable</b>			
Average Drinks Week	0.51	9.16	<0.001

Adjusted  $R^2 = 0.637$

$F(2, 165) = 147.38; p < 0.001$

The regression model for females explained 51.8% (SE=6.33) of the variance of alcohol-related problems and was significant  $F(3, 491) = 178.16$  ( $p < .001$ ). The variable that provided the most explanation of the variance included descriptive norms of alcohol-related problems, followed by average drinks per week, and lastly personal attitudes. Alcohol-related problems among females increased as their perception of friends alcohol-related problems increased, their personal alcohol use increased, and as their attitudes became more permissive. Refer to Table 4.47 for a complete description of the significant variables.

Table 4.47

*Multiple Regression (Alcohol-Related Problems): Significant predictors among females*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.42	12.22	<0.001
Personal Attitudes	0.19	5.32	<0.001
<b>Possible Confounding Variable</b>			
Average drinks per week	0.31	8.14	<0.001

Adjusted  $R^2 = 0.518$

$F(3, 491) = 178.16$ ;  $p < 0.001$

### *Race*

The regression model examining Black participants explained 58.1% (SE=613) of the variance of alcohol-related problems and was significant  $F(1, 93) = 131.47$  ( $p < .001$ ). The only predictor of alcohol-related problems for Black participants was average drinks per week. For Black participants, as average drinks per week increased, so did alcohol-related problems. Refer to Table 4.48 for a complete description of the significant variables.

Table 4.48

*Multiple Regression (Alcohol-Related Problems): Significant predictors among Blacks*

Possible Confounding Variable	Standardized $\beta$	T	Sig.
Average drinks per week	0.77	11.47	<0.001

Adjusted  $R^2 = 0.581$

$F(1, 93) = 131.47; p < 0.001$

The regression model explained 58.8% (SE=6.70) of the variance of alcohol-related problems among Whites and was significant  $F(4, 563) = 203.52 (p < .001)$ . The variable that provided the most explanation of the variance of alcohol-related problems was descriptive norms of alcohol-related problems, followed by average drinks per week, personal attitudes, and age. As alcohol-related problems increased, participants perceived more problems among close friends (descriptive norms), consumed more alcohol beverages each week, held more permissive attitudes, and were older. Refer to Table 4.49 for a complete description of the significant variables.

Table 4.49

*Multiple Regression (Alcohol-Related Problems): Significant predictors among Whites*

Predictor Variables	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.42	13.64	<0.001
Personal Attitudes	0.20	6.09	<0.001
Possible Confounding Variable			
Average drinks per week	0.33	9.45	<0.001
Age	0.09	3.38	0.001

Adjusted  $R^2 = 0.588$

$F(4, 563) = 203.52; p < 0.001$

### Age

The underage model explained 60.4% (SE=6.52) of the variance of alcohol-related problems and was significant  $F(5, 418) = 130.00 (p < .001)$ . The model included descriptive

norms of alcohol-related problems, average drinks per week, and personal attitudes. The variables are listed in the order of impact on alcohol-related problems among underage individuals. Refer to Table 4.50 for a complete description of the significant variables.

Table 4.50

*Multiple Regression (Alcohol-Related Problems): Significant predictors among underage*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.44	12.94	<0.001
Personal Attitudes	0.16	3.92	<0.001
Power	0.08	2.66	0.008
<b>Possible Confounding Variables</b>			
Average drinks per week	0.35	8.79	<0.001
Religious Involvement (Religious [AUD])	0.09	2.69	0.007

Adjusted  $R^2 = 0.604$

$F(5, 418) = 130.00; p < 0.001$

The regression model examining the participants of the legal drinking age explained 57.7% (SE=6.74) of the variance of alcohol-related problems and was significant  $F(3, 235) = 109.40$  ( $p < .001$ ). As alcohol-related problems increased in participants who were at least 21 years old, average drinks per week, descriptive norms of alcohol-related problems and permissive attitudes also increased. Refer to Table 4.51 for a complete description of the significant variables.

Table 4.51

*Multiple Regression (Alcohol-Related Problems): Significant predictors among legal age*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.32	6.76	<0.001
Personal Attitudes	0.28	5.17	<0.001
<b>Possible Confounding Variable</b>			
Average drinks per week	0.36	6.54	<0.001

Adjusted  $R^2 = 0.577$

$F(3, 235) = 109.40; p < 0.001$

### *Religious Influence*

The regression model from the individuals who identified as Religious AUD explained 48.4% (SE=6.87) of the variance of alcohol-related problems and was significant  $F(3, 257) = 82.28$  ( $p < .001$ ). The model included descriptive norms of alcohol-related problems, average drinks per week, and personal attitudes. The aforementioned variables are ordered based on the amount of variance explained starting with the most explanative. As alcohol-related problems increased, descriptive norms, average drinks per week, and permissive attitudes increased. Refer to Table 4.52 for a complete description of the significant variables.

Table 4.52

*Multiple Regression (Alcohol-Related Problems): Significant predictors among Religious (AUD)*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.41	8.36	<0.001
Personal Attitudes	0.21	4.05	<0.001
<b>Possible Confounding Variable</b>			
Average drinks per week	0.28	5.09	<0.001

Adjusted  $R^2 = 0.484$

$F(3, 257) = 82.28$ ;  $p < 0.001$

The regression model examining the participants who were identified as Religious (AUND) explained 63.3% (SE=6.44) of the variance of alcohol-related problems and was significant  $F(4, 332) = 145.93$  ( $p < .001$ ). The variable that provided the most explanation of the variance included descriptive norms of alcohol-related problems, then average drinks per week, personal attitudes, and then age. Among Religious (AUND) individuals, as alcohol-related problems increased, so did perceived alcohol-related problems of friends (descriptive norms), average drinks per week, permissive attitudes, and age. Refer to Table 4.53 for a complete description of the significant variables.

Table 4.53

*Multiple Regression (Alcohol-Related Problems): Significant predictors among Religious (AUND)*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.39	10.15	<0.001
Personal Attitudes	0.20	4.88	<0.001
<b>Possible Confounding Variables</b>			
Average drinks per week	0.38	8.84	<0.001
Age	0.09	2.80	0.005

Adjusted  $R^2 = 0.633$

$F(4, 332) = 145.93; p < 0.001$

The regression model examining the participants who identified themselves as non-religious explained 72.9% (SE=6.10) of the variance of alcohol-related problems and was significant  $F(3, 61) = 58.38 (p < .001)$ . The variable that provided the most explanation of the variance of alcohol-related problems was average drinks per week, followed by descriptive norms of alcohol-related problems, and lastly Greek involvement. There were positive relationships between alcohol-related problems and descriptive norms and average drinks per week; however, Greek involvement had a negative beta. Since Greek involvement was dummy coded, this analysis reveals that non-religious individuals who are in a Greek organization actually have lower levels of alcohol-related problems than do those who are non-Greek. Refer to Table 4.54 for a complete description of the significant variables.

Table 4.54

*Multiple Regression (Alcohol-Related Problems): Significant predictors among Non-Religious*

<b>Predictor Variable</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.39	5.34	<0.001
<b>Possible Confounding Variable</b>			
Average drinks per week	0.62	8.33	<0.001
Greek Involvement (Greek)	-0.25	-3.70	<0.001

Adjusted  $R^2 = 0.792$

$F(3, 61) = 58.38; p < 0.001$

*Greek Involvement*

The regression model from the individuals who identified as Greek explained 63.3% (SE=6.71) of the variance of alcohol-related problems and was significant  $F(4, 235) = 103.98$  ( $p < .001$ ). The most predictive variables in the model included descriptive norms of alcohol-related problems, followed by average drinks per week, personal attitudes, and religious influence. Religious involvement was dummy coded and the model identified that Religious (AUD) individuals have more alcohol-related problems than Religious (AUND) and non-religious individuals. Refer to Table 4.55 for a complete description of the significant variables.

Table 4.55

*Multiple Regression (Alcohol -Related Problems): Significant predictors among Greeks*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.47	10.44	<0.001
Personal Attitudes	0.20	4.03	<0.001
<b>Possible Confounding Variable</b>			
Average Drinks per week	0.34	6.72	<0.001
Religious Involvement (Religious AUD)	0.12	2.91	0.003

Adjusted  $R^2 = 0.633$

$F(4, 235) = 103.98; p < 0.001$

The regression model examining the participants who were determined to be pseudo-Greek explained 48.6% (SE=6.24) of the variance of alcohol-related problems and was significant  $F(3, 166) = 54.30$  ( $p < .001$ ). The best predictors of alcohol-related problems for pseudo-Greek individuals included average drinks per week followed by perceived alcohol-related problems experienced by close friends (descriptive norms), and lastly Hedonism. As alcohol-related problems increased, so did the predictive variables. Refer to Table 4.56 for a complete description of the significant variables.

Table 4.56

*Multiple Regression (Alcohol -Related Problems): Significant predictors among pseudo-Greeks*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.34	5.37	<0.001
Hedonism	0.18	3.19	0.002
<b>Possible Confounding Variable</b>			
Average Drinks per week	0.40	6.24	<0.001

Adjusted  $R^2 = 0.486$

$F(3, 166) = 54.30; p < 0.001$

The regression model explained 56.3% ( $SE=6.77$ ) of the variance of alcohol-related problems among non-Greeks and was significant  $F(3, 249) = 109.01$  ( $p < .001$ ). As alcohol-related problems increased, so did average drinks per week, descriptive norms of alcohol-related problems, and permissive attitudes among non-religious individuals. Refer to Table 4.57 for a complete description of the significant variables.

Table 4.57

*Multiple Regression (Alcohol-Related Problems): Significant predictors among non-Greeks*

<b>Predictor Variables</b>	Standardized $\beta$	t	Sig.
Descriptive Norms: ARP	0.37	8.31	<0.001
Personal Attitudes	0.21	4.23	<0.001
<b>Possible Confounding Variable</b>			
Average Drinks per week	0.39	7.82	<0.001

Adjusted  $R^2 = 0.563$

$F(3, 249) = 109.01; p < 0.001$

### *Research Question 3*

*Does an individual's intrapersonal value-attitude relationship predict alcohol use and alcohol-related problems?*

The researcher examined the impact of values and attitudes (i.e., the main effects) and the interaction between these variables on alcohol use and alcohol-related problems. First, the

overall values of the individual were categorized into permissive, conservative, and equal permissive and conservative. Individuals with equal permissive and conservative values were excluded from this analysis, as they would not fit into a pre-specified category. Attitudes were also categorized into permissive or conservative. No “equal” category was created because the attitude questions were “forced choice” items that made the participant choose strongly agree to strongly disagree without an option of neutral or no opinion. After these two variables were dichotomized, a GLM was conducted to examine the main and interaction effects of values and attitudes on alcohol use. General Linear Model (GLM) analysis was conducted to determine the influence of the main and interaction effects on average alcoholic drinks consumed per week and then sum of alcohol-related problems. Results from GLM revealed a non-significant interaction between values and attitudes on average drinks per week ( $p = .082$ ). Results from the GLM that examined alcohol-related problems revealed a significant interaction between personal values and attitudes toward alcohol ( $p = .003$ ).

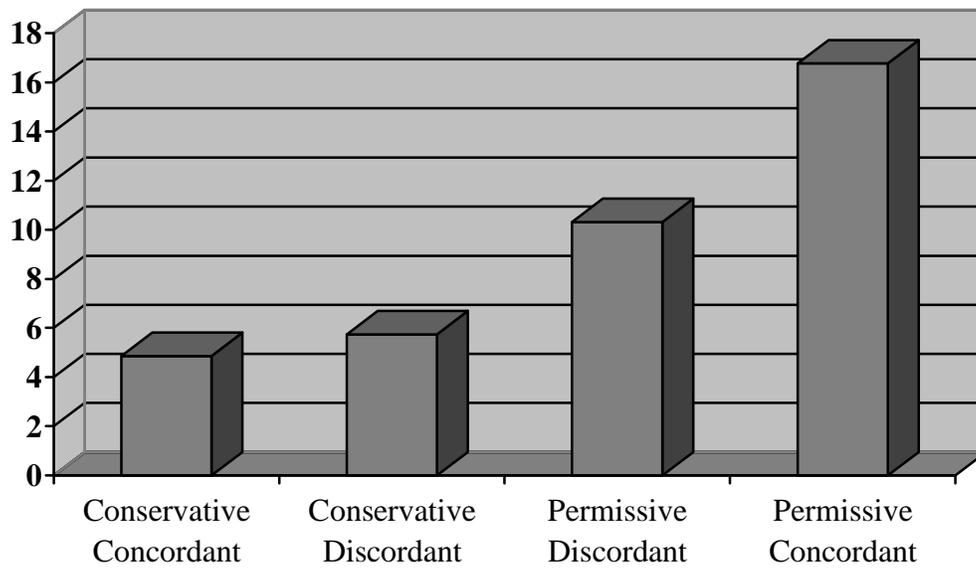
After the interaction was examined and found to be significant for alcohol-related problems, the variable of intrapersonal value-attitude relationship was calculated as described earlier in this chapter. The four categories of the intrapersonal value-attitude relationship included conservative concordance (conservative values and conservative attitudes toward alcohol), permissive concordance (permissive values and permissive attitudes toward alcohol), conservative discordance (permissive values and conservative attitudes toward alcohol), and permissive discordance (conservative values and permissive attitudes toward alcohol). The means of alcohol-related problems experienced by each of the intrapersonal value-attitude relationship categories are described below on Table 4.58.

Table 4.58

*Differences between means of alcohol-related problems experienced by intrapersonal value-attitude relationships*

Alcohol-Related Problems			
	<b>N</b>	<b>Mean</b>	<b>SD</b>
Conservative Concordance	136	4.86	6.34
Conservative Discordance	62	5.74	6.53
Permissive Discordance	107	10.32	8.67
Permissive Concordance	181	16.77	12.61

Results from the GLM revealed a significant model where 20.9% of the variance of alcohol-related problems were explained by the intrapersonal value-attitude relationships. Tukey's LSD post hoc test indicated there was no significant difference between conservative concordance and conservative discordance. There were statistically significant ( $\alpha < .05$ ) differences between the means of permissive concordance and permissive discordance. Permissive intrapersonal concordance and discordance were both statistically different from the conservative intrapersonal relationships. Figure 4.1 provides a visual depiction of the differences in means between groups in relation to alcohol-related problems.



*Figure 4.1.* Bar chart of the mean alcohol-related problems experienced within the intrapersonal value-attitude relationship categories

### *Conclusion*

The final sample for this study consisted of 910 undergraduate college students aged 18-24 years old. The majority of participants were white (80.5%), female (72.6%), and religious (89.7%). Approximately one-third of participants identified as being involved in a Greek organization and 14.7% identified as a varsity athlete at the collegiate level. Based on results from a chi-square goodness of fit test, the overall sample was not representative of the overall university population based on gender, race, classification, and Greek involvement.

The data were determined to be non-normal based on the skewness and kurtotic nature of the data. Since the data were non-normal, non-parametric analyses were conducted when appropriate. A test for internal consistencies revealed moderate to strong internal reliabilities for the value variables (i.e., overall value scale and each of the 10 value subscales), and strong reliabilities for all other variables. Potential confounders based on a literature review were

identified and analyzed in the current study. Kruskal-Wallis and Mann Whitney U tests revealed gender, race, dichotomized age (underage vs. legal drinking age), Greek involvement, and religious influence were confounders, while athletic status was not. Because these variables were identified as confounders, most analyses were run with the overall sample and then re-run to include a separate analysis examining the relationships between the groups in each of the confounding variables (e.g., Greek, pseudo-Greek, and non-Greek).

In order to answer research question 1, results revealed weak to moderate relationships with values and alcohol-related variables (i.e., attitudes, injunctive norms, and descriptive norms). There were moderate relationships between alcohol-related variables (e.g., attitudes and norms). The overall trend of the relationship between values and alcohol-related variables was consistent even after examining these relationships among confounding variables. Conformity, Tradition, Benevolence, Universalism, and Security tended to have indirect relationships with most of the alcohol-related variables thus suggesting these values are more “Conservative”. In contrast, Self-Direction, Stimulation, Hedonism, Achievement, and Power appear to be more “Permissive” values as these values tended to have more direct associations with the alcohol-related variables. When an individual held these permissive values, they were more likely to also have permissive attitudes and perceive permissive norms.

Results from backward, stepwise multiple regressions provided the answer to research question 2. Overall, the strongest predictors of average weekly alcohol use included personal attitudes and descriptive norms of alcohol-related problems. The overall model explained 45.6% of the variance in weekly alcohol use among participants. The strongest predictors of alcohol-related problems among participants appeared to also be descriptive norms of alcohol-related problems, personal attitudes toward alcohol, and personal alcohol use. As each of these three

variables increased, so did alcohol-related problems. The overall regression model explained 59.1 % of the variance of alcohol-related problems among participants.

Research question 3 provided a novel concept of intrapersonal concordance and discordance. GLM analysis reveal there was no interaction between values and attitudes in the relationship with alcohol use (i.e., average drinks per week); however, there was interaction between values and attitudes concerning alcohol-related problems. Results from the GLM analysis revealed that intrapersonal relationships explained 20.9% of the variance of alcohol-related problems. The next chapter will further discuss these findings and provide explanation and dialogue on the meaning and significance of these findings.

## CHAPTER 5

### Discussion

#### *Introduction*

Alcohol use among college students remains high in the midst of abundant alcohol reduction programming throughout the country. Due to high rates of drinking among college students, many are at risk of experiencing alcohol-related problems. It is well established in the literature there are negative outcomes associated with alcohol use that affect both the individual who consumes the alcohol (e.g., missing class) and those who do not (e.g., victim of a motor vehicle crash caused by an intoxicated driver).

Numerous studies have examined the negative consequences college students may encounter when drinking alcohol. Negative outcomes can be viewed as a continuum based on the severity of the problem(s) experienced. Minor alcohol-related problems include a hangover or nausea during or after consumption and can progress to more serious problems like assault, sexual abuse, injury, risky sexual behaviors, academic problems, health problems, drunk driving, vandalism, police involvement, and alcohol dependence (Ham & Hope, 2003; Hingson et al., 2009; Hingson et al., 2002; Knight et al., 2002; Wechsler et al., 2002).

Many alcohol-related research studies have examined concepts such as alcohol-related motivations, expectancies, norms, protective behaviors, etc. However, few studies have examined the influence of an individual's personal values on alcohol use and alcohol-related problems (Kropp et al., 1999; Young & West, 2010). College alcohol studies are typically void of an examination of the relationship between personal values, attitudes towards alcohol, and perceived injunctive and descriptive norms. In addition, no studies to the author's knowledge

have examined the relationship between values and attitudes in regard to any health behavior including alcohol use.

### *Theory*

The theoretical framework for this study was innovative in that it incorporated concepts from several existing theories and models described in the published literature. Incorporating concepts and constructs from the Integrated Behavioral Model (IBM), Schwartz' human value theory, Cognitive Dissonance, and Homer and Kahle's value-attitude-behavior theory, a new theoretical concept was developed and tested for this study. This theoretical structure was used to provide insight into the relationship between personal values, personal attitudes, perceived injunctive and descriptive norms, alcohol use, and alcohol-related problems.

### *Purpose of the Study*

The purpose of this study was to provide a descriptive examination of college alcohol use behaviors while incorporating the concept of personal values. The relationships between personal values, attitudes toward alcohol, perceived injunctive and descriptive norms, alcohol use, and alcohol-related problems were examined. Finally, the idea of a discrepancy between an individual's values and attitudes, termed by the author as *intrapersonal value-attitude relationship*, was conceptualized, and tested within this study.

### *Significance of the Study*

This study has expanded the typical purview of alcohol research by examining the influence of personal values. Few published studies have addressed the relationships between

personal values, attitudes towards alcohol, perceived injunctive and descriptive norms, alcohol use, and alcohol-related problems among college students. This study has also provided a new theoretically based concept to the literature, intrapersonal value-attitude relationships. These concordant or discrepant relationships provide new insight into the problem of alcohol-related problems. The exploration of these relationships could provide practical information to college administrators, health education professionals, and other health professionals (Kropp et al., 1999 & Neighbors et al., 2007).

Results from this study could be used to segment the audience for health promotion messaging (Kamakura & Novak, 1992) or to create tailored messages to reduce high-risk alcohol use and alcohol-related consequences among college students. Findings could also be used to predict individuals who use more alcohol or experience more problems associated with alcohol use.

### *Sample Population*

The sample population (n=910) was comprised undergraduate university students between the ages of 18-24 years. The majority of participants were White, female, and religious, with approximately half of the religious individuals indicating their religious affiliation discouraged alcohol use (Religious [AUD]), while the other half revealed religious affiliation did not discourage alcohol use (Religious [AUND]). Participants widely held the values of Benevolence and Self-Direction, reported permissive attitudes toward alcohol, perceived permissive attitudes by their close friends (injunctive norms), permissive alcohol use by close friends (descriptive norms of use), and alcohol-related problems experienced by friends (descriptive norms of alcohol-related problems). The sample consisted mostly of current alcohol drinkers who experienced, on average, relatively low levels of alcohol-related problems. The

intrapersonal value-attitude relationships had a relatively even distribution; approximately one-third of participants had conservative concordance (38%), permissive concordance (31%), and one-third had discordance (14% conservative and 17% permissive).

## *Discussion*

### *Confounding Variables*

*Gender.* As expected, males reported drinking significantly more than females in this study with the median of weekly alcoholic drinks consumed per week for males was 7.0 and 3.0 for females. Males also experienced significantly more alcohol-related problems compared to females. These study findings are supported by the gender differences found by Johnston et al. (2009) who reported that college males tend to have higher rates of daily drinking compared to female college students.

*Athletic Status.* In the current study, there were no significant differences between athletes and non-athletes concerning any of the study variables including alcohol use. This study finding deviates from a finding by Turrisi et al. (2007) who indicated athletes reported more permissive injunctive norms and heavier descriptive norms (Turrisi et al., 2007). This inconsistency could be due to the over representation of athletes in this sample.

*Age.* Few differences existed between alcohol variables among underage individuals and those who were of the legal drinking age. The only age differences existed between perceived alcohol-related problems and alcohol-related problems experienced by the individual. Participants who were 21 years or older perceived and experienced more alcohol-related problems than did underage participants. The findings from the current study are consistent with a study conducted by Martinez et al. (2009) that determined that individuals under the legal

drinking age experienced fewer alcohol-related problems than those of the legal drinking age; however, these underage individuals perceived they would drink heavily once it became a legal activity.

*Race.* In this study, Whites tended to have more permissive attitudes toward alcohol, perceived more of their friends used alcohol, and perceived more of their friends experienced alcohol-related problems than did Blacks. Additionally, White participants consumed significantly more alcohol on average each week and experienced more alcohol-related problems than did Black students.

Racial differences in alcohol consumption and alcohol-related consequences are established in the literature. A review of the literature by Borsari et al. (2007) reveals that White students tend to drink the most followed by Hispanic students and Black students tend to drink the least amount of alcohol. These findings are supported by other studies including the 2006 Core Survey data that reveal Whites and Native Americans tend to drink the most, followed by Latino/a students, with Black students consuming the least amount of alcohol (Presley et al., 1996a, 1996b). Unfortunately, the sample of Hispanics and other races for this study was simply too small to identify the relationships regarding alcohol with these other races.

*Religious Influence.* There were significant differences between religious groups and values. Religious individuals held the conservative values of Conformity, Tradition, and Benevolence more than the non-religious participants did. The non-religious participants tended to hold the more permissive values of Self-Direction, Stimulation, Power, Hedonism, and Achievement than did Religious students. This follows the rational assumption regarding religious influence on values. For the alcohol variables (e.g., attitudes, norms, and use), there

were no significant differences between non-religious individuals and individuals who were Religious (AUND). Religious (AUD) individuals had more conservative attitudes, injunctive norms, descriptive norms, fewer average drinks per week, and lower levels of alcohol-related problems than the Religious (AUND) and non-religious participants. This is a significant finding to discuss when looking at a behavior like alcohol that is moralized in holy books (e.g., Bible) and during worship services (e.g., Temple). If the religious individuals were not divided based on beliefs taught by the religious institution, the relationship between these individuals would not have been observed as profoundly. Religious (AUND) individuals appear to have similar patterns as the non-religious individuals in regard to alcohol variables and values.

Researchers have found a relationship between alcohol use and religion variables. According to Patock-Peckham and colleagues (1998), students with no religious affiliation reported significantly higher levels of drinking quantity and frequency, heavy drinking, and perceived drinking when compared to students who affiliated with the Catholic or Protestant church. Another study discovered that non-religious Americans had higher percentages of heavy drinkers than did those who identified with a religion (Michalak, Trocki & Bond, 2007).

*Greek Involvement.* There appears to be a consistent trend in regard to the alcohol variables among Greek involvement. Greeks had the most permissive attitudes, permissive injunctive norms, descriptive norms of use, descriptive norms of alcohol-related problems, alcohol use, and alcohol-related problems. Pseudo-Greeks, non-Greek members who regularly or occasionally attended Greek events, had the next highest level of the aforementioned variables, while non-Greeks had the most conservative attitudes, norms, and use. The finding that Greeks are more permissive with their beliefs and behaviors regarding alcohol has been

strongly supported in the literature (Capone, et al., 2007; Cashin, Presley, & Meilman, 1998; Scott-Sheldon, Carey, & Carey, 2008; Sher, Bartholow, & Nanda, 2001).

### *Research Question 1*

*What are the relationships between personal values, attitudes toward alcohol, and perceived injunctive and descriptive norms of alcohol use and descriptive norms of alcohol-related problems?*

Since this was a new study examining the relationship between values and alcohol variables, it is important to first gain a better understanding of the nature of the relationships between variables. The relationships between values and alcohol variables were consistent with what the researcher hypothesized. Conservative values were associated with more conservative attitudes, injunctive norms, and lower levels of perceived norms of use and alcohol related problems. Conversely, when individuals held permissive values, they were more likely to hold permissive attitudes, perceive permissive injunctive norms, and higher levels of perceived norms among friends.

Results from this study revealed direct relationships between alcohol variables and the values of Self-Direction, Stimulation, Hedonism, Achievement, and Power. These direct relationships led the researcher to determine these values were indeed “permissive.” Indirect relationships existed between alcohol variables and the values of Conformity, Tradition, Benevolence, Universalism, and Security. These indirect relationships suggested these aforementioned values were more conservative in nature. Overall, Self-Direction, Benevolence, and Security had the weakest relationships with alcohol variables and were commonly non-significant. The finding that Self-Direction, Benevolence, and Security were not associated with alcohol variables may be a result of living in the south.

Some of the relationships found in the current study are consistent with results from a study conducted by Schwartz et al. (2001). Schwartz examined the relationship between alcohol use and values among South African college students and determined the values that were significantly inversely associated with alcohol use included Security, Conformity, and Tradition. Significant, direct relationships existed between alcohol use and Self-Direction, Stimulation, and Hedonism. The remaining values of Benevolence, Universalism, Achievement, and Power were not significantly associated with alcohol use. The findings by Schwartz, provided some insight into the relationship of values on alcohol variable like attitudes toward alcohol, injunctive alcohol norms, and descriptive norms of use and alcohol-related problems. However, the results from the study by Schwartz among South African college students should not be generalized to a completely different US college student sample. And, Schwartz' study examined the influence of values on alcohol use among South Africans college students while the current study examined the influence of values on alcohol variables (e.g., attitudes toward alcohol, injunctive norms, etc.) among southern college students in the US. Not only did Schwartz' sample vary from the current study sample, but the variables examined were slightly different.

For the current study, two personal values were consistently significant among alcohol variables, Hedonism and Conformity. Hedonism had a direct relationship with each of the alcohol variables revealing it was the most consistent permissive value. Conversely, Conformity and an indirect relationship with each of the alcohol variables suggesting it was the most consistent conservative value examining alcohol use. The value of Hedonism has been defined as pleasure and sensuous gratification sought out by an individual (Schwartz, 1996). Based on this definition, Hedonism is likely to promote a more permissive conception of life and potentially more permissive behaviors. On the other hand, Conformity, which is the restraint of

actions, inclinations, and impulses likely to upset or harm others and violate social expectations (Schwartz, 1996), which suggests individuals make calculated decisions so as to not upset their perceived social norms.

Now that there is a better understanding of the relationship between values and attitudes, injunctive norms, and descriptive norms, the relationships between alcohol variables (i.e., attitudes, injunctive and descriptive norms) will be discussed. Significant chi-square results revealed that personal attitudes were more conservative than perceived approval of alcohol by close friends (injunctive norms). This is consistent with findings throughout the alcohol literature. Borsari and colleagues (2007) identified that students overestimated the frequency, quantity, and approval of others' alcohol use. The difference between what one believes ("self") and what that individual perceives others to believe ("other") is a concept in the alcohol literature termed "Self-Other Difference/Discrepancy" or SOD. Research has revealed that when individuals perceived others to hold more permissive beliefs and habits about alcohol use, the individual was at a higher risk to consume more alcohol (Borsari & Carey, 2003; Carey et al., 2006). The examination of SOD is beyond the scope of this study; however, it is an important concept that should be further explored. SOD is the impetus for the intrapersonal value-attitude relationship. It would be interesting to calculate the SOD and intrapersonal value-attitude relationship to see which concept explains more of the variance of alcohol use and alcohol-related problems. It would help provide insight into the predictive ability of self-self or self-other differences on alcohol behaviors.

Spearman rank correlations revealed significant, moderate relationships between attitudes, injunctive norms, descriptive norms of alcohol use, and descriptive norms of alcohol-related problems. The strongest relationship was between injunctive norms and descriptive

norms of use. This relationship reveals a consistency in perception and/or responses by participants. As participants perceived peers to approve of drinking, they also perceived more of their friends consumed alcohol. Another relationship that provided insight into the consistency of respondents was the relationship between injunctive norms and descriptive norms of alcohol-related problems. As an individual perceived friends approved of alcohol, this individual also perceived these friends experienced more alcohol-related problems.

There was a moderate relationship between personal attitudes and descriptive norms of use. As an individual held permissive attitudes toward alcohol, he or she perceived close friends experienced higher levels of alcohol-related problems. Although there were significant differences between injunctive norms and personal attitudes, there was still a moderate correlation between these two. This significant, moderate relationship between injunctive norms and attitudes, and the significant, moderate relationship between injunctive norms and descriptive norms of alcohol-related problems, revealed there would also be a moderate, significant relationship between attitudes and descriptive norms of alcohol-related problems.

There were also strong associations between attitudes and injunctive norms. Friends who hold similar views tend to spend time together (Hicks & Miller, 2006). Also, an individual's personal beliefs (attitudes) may have influenced his or her perceptions of close friend's attitudes.

In summary, the relationships between values, attitudes, injunctive and descriptive norms were rather straightforward and as expected. Values tended to have permissive and conservative properties concerning alcohol variables. There were moderate to strong associations between attitudes, injunctive and descriptive norms. In addition, there were differences between attitudes and injunctive norms with injunctive norms being more permissive than attitudes. Other

intuitive relationships existed between variables. Injunctive norms and attitudes were significantly correlated with descriptive norms.

### *Research Question 2*

*What best predicts alcohol use and alcohol-related problems among college students when examining personal values, attitudes towards alcohol, perceived injunctive and descriptive norms of alcohol use, and norms of alcohol-related problems?*

*Alcohol Use.* A stepwise multiple regression analysis using backward elimination was employed to identify the most predictive variables of alcohol use and alcohol-related problems among college students. Confounding variables (i.e., age, gender, race, religious influence, and Greek involvement) and predictor variables (i.e., personal values, attitudes toward alcohol, injunctive norms, and descriptive norms of alcohol, and alcohol-related problems) were entered into these regression models. The strongest predictors of alcohol and alcohol-related problems will be discussed in this section.

Two significant predictors were identified within the overall sample: personal attitudes and descriptive norms of alcohol-related problems. Two potential confounding variables, gender and Greek involvement, were also identified as predictive of alcohol use. Greeks and males tended to consume more alcohol than did non-Greeks and females. As described earlier in this chapter, published peer-reviewed literature supports the finding that Greeks and males consumed more alcohol than non-Greeks and females. Therefore, after controlling for Greek involvement and gender, personal attitudes and descriptive norms of alcohol-related problems were the two variables that still explained the variance of alcohol use among the overall sample.

The results of this regression analysis have been substantiated by the literature. A study conducted by Wood et al. (2004) found a significant relationship between descriptive norms of alcohol-related problems and heavy episodic drinking. Norms have been found to be predictive

of alcohol use throughout the literature (Capone et al., 2007; Larimer et al., 2004; Neighbors et al., 2007; Turrisi et al., 2007; & Wood et al., 2001). Personal attitudes have also been identified as an influencing factor on alcohol use (Chawla et al., 2007; Martinez et al., 2009; & Webb et al., 1996); however, more of the research focus has been on other alcohol use variables such as alcohol expectancies and drinking motivations, rather than personal attitudes. A study by Martinez et al. (2009) found individuals who held permissive attitudes toward alcohol had increased alcohol use.

Neighbors et al. (2007) examined the influence of injunctive and descriptive alcohol norms, alcohol expectancies, and drinking motives. In his published work, Neighbors and colleagues stated that one of the deficiencies of the study was that alcohol attitudes were not examined. Another study, by Chawla et al. (2007), examined undergraduate college students' alcohol consumption, importance of religion, attitudes towards alcohol, and perceived norms. Results from the study intimated personal attitudes were a stronger mediator than perceived norms in the relationship between the importance of religion and alcohol use.

Thirteen subsequent multiple backward stepwise regression analyses were conducted to examine the predictive variables among specific populations (e.g., Male, Female, Greeks, Pseudo-Greeks, Non-Greeks). All regression models identified personal attitudes and descriptive norms of alcohol use as the most predictive variables of alcohol use among college students. Each model will be briefly described and discussed in the following paragraphs.

Male and non-religious regression models included only personal attitudes and descriptive norms of alcohol-related problems. The regression model examining the relationship among males explained more variance than the overall regression model did while the non-religious model explained less variance in alcohol use. This finding suggests that among males,

personal attitudes and descriptive norms of alcohol-related problems are two relatively explanative variables of their alcohol use. However, non-religious individuals have other predictor variables that would contribute to the variance explained in alcohol use. Regression models that examined Black, legal aged, Religious (AUD), and pseudo-Greek participants all had the same predictive variables as the overall model, personal attitudes, and descriptive norms, and the same possible confounding variable: gender. Males consistently consumed more alcohol than did females in each of the respective categories.

The significant predictors of alcohol use among underage and Religious (AUND) participants included personal attitudes and descriptive norms of alcohol-related problems after controlling for gender and Greek involvement. Since the underage regression model had to control for Greek involvement, this may reveal the excessive use of alcohol during the pledging (i.e., joining) a fraternity.

The variables that predict alcohol use among non-Greek participants were similar to the overall model and included personal attitudes and descriptive norms of alcohol-related problems. Possible confounding variables included age and gender. Non-Greek participants who were male and older tended to consume more alcohol than females and younger participants.

Three of the regression models included values as predictors of alcohol use. After controlling for Greek involvement, the female regression model included personal attitudes, descriptive norms of alcohol-related problems, Conformity, and Achievement. As Conformity and Achievement increased, alcohol use decreased thus revealing the protective nature of these values. The variables that predicted alcohol use among Whites included personal attitudes, descriptive norms of alcohol-related problems, and Achievement after controlling for Greek involvement and gender. The value of Achievement in the White regression model increased

when alcohol use decreased, so it was protective in this model as well. Lastly, the Greek regression model included personal attitudes, and descriptive norms of alcohol-related problems, Achievement, Conformity, and being male. After controlling for gender, predictors of alcohol use among Greeks included permissive attitudes, higher perceived levels of alcohol-related problems among friends, and lower levels Achievement and Conformity.

The protective nature of Conformity in the regression model is consistent with previous study findings; however, the inverse relationship with Achievement and alcohol use within the female, White, and Greek populations was inconsistent with previous findings from this study and the study by Schwartz et al. (2001). Bivariate correlations between alcohol use and values reveal a positive correlation with Achievement and alcohol use, even among female, White, and Greek participants. There must be another variable that was entered into the regression model that interacted with the value of Achievement and caused it to switch from being permissive to conservative within this study. One potential answer to this conundrum is that Achievement has been defined as “personal success through demonstrating competence according to social standards” (Schwartz, 1992). The definition allows for differences in interpretation because it is based on “social standards.” Although this still does not explain why the bivariate relationship was direct between Achievement and alcohol use and the regression revealed an inverse relationship. Further research will be needed to determine the complex nature of this value.

*Alcohol-Related Problems.* After controlling for average drinks per week and age, descriptive norms of alcohol-related problems and personal attitudes were found to be significant predictor variables of alcohol-related problems. Permissive attitudes and greater perceptions of alcohol-related problems experienced by friends were predictive of increases in alcohol-related

problems in the overall sample. Results from the published literature support the findings of these predictors of alcohol-related problems among college students.

Similar to the current study, Wood et al. (2004) identified descriptive norms of alcohol consequences significantly predicted alcohol consequences of recent high school graduates. Another study by Wood and colleagues (2001) and Neighbors et al. (2007) identified injunctive and descriptive norms were consistently associated with alcohol use and alcohol-related problems. Although the current study did not find injunctive norms to be predictive of alcohol-related problems, bivariate correlations revealed a significant relationship between injunctive norms and descriptive norms. This significant moderate correlation between variables may explain why injunctive norms were excluded from the model because descriptive norms of alcohol-related problems were found to be more significantly predictive.

For the current study, perceived consequences of peers (descriptive norms) appeared to be strongly influential on alcohol-related outcomes of participants. This could be because of the subtle influence of peers on an individual's behavior or it could be the influence of the individual's behavior on his or her perceptions of peer influence (Martinez et al., 2009). This concept of an individual's behavior influencing his or her perceptions of peer influence is called motivated reasoning (Kunda, 1990). Although this is a very interesting topic of discussion, it exceeds the limits of this study.

Results from other studies have substantiated the inclusion of personal attitudes as predictive of alcohol-related problems among participants in this current study. Benton and colleagues (2006) found college students' attitudes towards potential risks related to alcohol use significantly explained variance in drinking consequences. This finding was significant even

after controlling for gender, alcohol use, and protective strategies (e.g., having a designated driver, limiting the number of drinks).

After examining the relationship of the predictor variables on alcohol-related problems for the overall sample, thirteen more regression analyses were performed. These regressions examined the relationship of variables in different groups within the sample. Results from these regressions will be explained in the following section.

Black participants did not have predictive variables of alcohol-related problems after controlling for average drinks per week. This finding suggests that Black individuals are less influenced than the overall sample by values, personal attitudes, and perceived norms of friend usage. The literature does support the idea that Blacks drink the least of racial groups (Presley et al., 1996a, Presley et al., 1996b).

Male alcohol-related problems were predicted by descriptive norms of alcohol-related problems after controlling for average drinks per week. The regression model examining the relationship between variables among males was significant and explained more variance in fewer variables than the overall model.

After controlling for Greek involvement and average drinks per week, the only predictive variable for alcohol-related problems among non-religious individuals was descriptive norms of alcohol-related problems. Four of the regression analyses yielded similar predictors of alcohol-related problems. After controlling for average drinks per week, Descriptive norms of alcohol-related problems and personal attitudes were significant predictors of alcohol-related problems among female, legal aged, religious (AUD), and non-Greek participants. As attitudes became more permissive and participants perceived more alcohol-related problems among friends, there were increases in alcohol-related problems among the previously mentioned groups.

The regression models examining White participants and participants who were Religious (AUND) followed the same pattern as the overall regression model. After controlling for average drinks per week and age, descriptive norms of alcohol-related problems and personal attitudes were predictive of alcohol-related problems among White and Religious (AUND) participants. The regression model examining White participants was intuitive since the White sample consisted of over 80% of the entire study sample. The variables that predicted alcohol use among Greek students included descriptive norms of alcohol-related problems and personal attitudes, after controlling for average drinks per week and Religious influence.

There were two multiple regression models that determined values were a part of the significant predictors of alcohol-related problems. These models include underage and pseudo-Greek participants. The predictors of alcohol-related problems include descriptive norms of alcohol-related problems, personal attitudes, and the value of Power, after controlling for average drinks per week and religious influence. After controlling for average drinks per week, descriptive norms of alcohol-related problems and Hedonism were predictive of alcohol-related problems. Hedonism has been determined to be a permissive value and provides insight into the alcohol-related problems among pseudo-Greek students. Schwartz (1996) describes Hedonistic individuals as seeking gratification and sensuous pleasure. Pseudo-Greeks are individuals who are not affiliated with a Greek organization, but still seek out corporal pleasure through partying with this population. Pseudo-Greeks would not have the same requirements as actual Greek members who are expected to participate in other aspects of Greek life such as volunteering and philanthropic activities. These pseudo-Greeks can essentially participate in the hedonistic aspects only of the Greek life, thus potentially explaining this finding.

### *Research Question 3*

*Does an individual's intrapersonal value-attitude relationship predict alcohol use and alcohol-related problems?*

Analyses conducted for this research question revealed mixed findings. Intrapersonal value-attitude relationships were first examined as the main effects, or the two variables that make up the concept: values and attitudes. It was important to evaluate the interaction between the main effects to determine if the concept of intrapersonal relationships existed concerning alcohol use. A GLM was employed to examine the main and interaction effects of values and attitudes on alcohol use. Results from the GLM indicated the main effects of values and attitudes were non-significant about alcohol use. The interaction of the values and attitudes also revealed a non-significant result, which suggested that the concept of intrapersonal relationships did not need to be further explored among alcohol use. This result was not terribly surprising because alcohol use does not necessarily equate to negative health outcomes or even negative affect among participants.

Even though the intrapersonal value-attitude relationship did not exist within the realm of alcohol use, the same concept was examined with the outcome of alcohol-related problems. GLM analysis revealed a significant interaction between values and attitudes. After conducting another GLM with the intrapersonal relationship categorical variable, almost 21% of the variance of alcohol-related problems was explained by the interaction of values and attitudes. Although this is an interesting result concerning this new concept of intrapersonal value-attitude relationship, approximately 79% of the variance was left unexplained. The concept of intrapersonal value-attitude relationship is a very interesting concept that should be further explored. The concept of intrapersonal value-attitude relationship was built on concepts

including cognitive dissonance (Festinger, 1957) in the psychology literature and self-other differences (SOD) in the alcohol literature (Borsari & Carey, 2003).

After exploring the mean differences and the post-hoc test, it was apparent the conservative concordant and discordant relationships were more protective on alcohol-related problems. The conservative concordant and conservative discordant relationships both had conservative attitudes toward alcohol, while the permissive intrapersonal value-attitude relationships (i.e., permissive concordant and permissive discordant) have permissive attitudes.

It appeared that conservative attitudes were the most protective of alcohol-related problems (i.e., conservative concordance and conservative discordance). However, permissive discordance was mildly protective on alcohol-related problems when compared to permissive concordance. Permissive attitudes seemingly outweighed the conservative nature of the values. However, there was still some interaction between the values and permissive attitudes because conservative discordant (i.e., conservative attitudes and permissive values) experienced significantly fewer alcohol-related problems compared to the permissive concordant group (i.e., permissive attitudes and values).

Permissive concordance suggests individuals will not have a desire to abstain from experiencing physical pleasure, which could explain the significant difference in the excessive amount of alcohol-related problems experienced. Not only do these permissive concordant individuals hold permissive attitudes toward alcohol (e.g., strongly approve of getting drunk), they also hold permissive values such as Stimulation and Hedonism. These individuals were the individuals who are most at-risk to experience negative alcohol-related problems.

### *Implications*

Participants in this study who held the values of Stimulation, Hedonism, Achievement, and Power also tended to hold more permissive attitudes and perceptions regarding alcohol. While those who held the values of Conformity, Tradition, and Universalism tended to hold more conservative attitudes and perceptions regarding alcohol. Incorporating these personal values into audience segmentation or specific message development for social norms campaigns would be a great addition to the social norms campaign process.

Results from this study also provided a better understanding of the influence of values on specific health outcomes (i.e., alcohol use or alcohol-related problems). The predictors of alcohol use and alcohol-related problems have been identified for the overall sample and many specific other populations (e.g., males versus females; Blacks versus Whites). The best predictors for alcohol use and alcohol-related problems allow the health promotion messages to be tailored to specific needs within each specific population.

The exploration of this new concept of intrapersonal value-attitude relationship within the college alcohol literature is very important. This study is a first step in the exploration of the relationship between discrepancies within the individual and the impact on the health behavior. As discussed previously in this section, these relationships are complex and require more research to better understand all the intricacies of the concepts.

Results from this study can be used by health educators and health promotion specialists, college administrators, and other health care professionals who work with college students. Results from this study can be used to create a social norms campaign that includes more than just the normative information, but also the value-specific messaging that could increase the effectiveness of the campaign. For example, Hedonism is a significant predictor for individuals

who are non-Greek, but socialize with the Greeks (i.e., pseudo-Greek). The knowledge that this value influences alcohol-related problems could encourage a social norms specialist to incorporate aspects of this value into the creation of messaging to reduce alcohol-related problems within the population.

Results from this study may be useful for college health educators as they plan programming for incoming college students. As Benjamin Franklin so famously stated, “An ounce of prevention is worth a pound of cure.” This adage continues to hold true concerning excessive alcohol use among college students. If health educators can prevent college students from experiencing any serious alcohol-related consequences and fewer of the less severe problems, students will be able to be more productive students and citizens. Health educators can utilize results from this study to tailor messages specific to the populations who are in greatest need.

Health educators could create messaging that focuses on social norms to reduce the perception that “everyone” is drinking excessively and experiencing alcohol-related problems. Another way to tailor messages is to incorporate values into messages. Messages could include attractive models in a message targeting Hedonistic individuals. Lastly, health education professionals could segment audiences for messaging based on values, attitudes toward alcohol, or perceived norms.

### *Limitations*

Outcomes from this study should be interpreted with caution based on several factors that may limit these results. Data were self-reported by participants. Self-report surveys examining sensitive behaviors such as alcohol use may lead to over or under representation of alcohol use among participants (Rehm, 1998). However, self-reported alcohol measures have been assessed

and found to be a meaningful way to capture alcohol use variables (Midanik, 1988). In order to reduce this limitation, participants were insured of their anonymity. The anonymous nature of the survey was explained to the participants before the surveys were administered. The data were collected within a classroom setting. Because individuals were separated from peers and discussion between students during data collection was verbally discouraged by the researcher, pressure of participants to provide socially desirable responses to this self-report survey were hopefully reduced.

The next limitation includes the potential for recall bias among participants. It can be challenging to recall all of the alcoholic beverages consumed and problems experienced, especially due to the nature of the behavior. If someone drinks excessively on a regular basis or if the recall period is too long, it may be difficult for him or her to recall every alcoholic beverage consumed and/or every problem experienced because of alcohol use. In an attempt to reduce the burden of this limitation, a timeframe of no longer than 30 days was employed to help increase the accuracy of responses. A 30-day or less time frame has been used by other valid and reliable surveys including the Core Alcohol and Drug Survey (Presley & Vineyard, 2004), Monitoring the Future (Johnston et al., 2009), and National College Health Assessment (ACHA, 2009). This shorter recall period should have allowed for more accurate responses by participants.

Another limitation of this study is the cross-sectional research design. Causal relationships between variables cannot be determined; however, this study has been a useful first step in better determining what and how these variables should be studied in future projects. A well-designed cross-sectional research study can be better than a poorly designed longitudinal study. Therefore, the researcher of this project labored over which variables and instruments to

include in the design of this study. The next step for this project is to take this cross-sectional study and follow college students over time.

In addition to the previous limitations stated, the researcher utilized a convenience sample of college students enrolled in courses offered in the colleges of Business and Human Environmental Sciences. Only one business course was utilized in this study; however it was a health care management course, which was a health focused business class. After comparing the study sample to the overall university, the sample was not representative of the entire university. The non-representative nature of the sample reduces the generalizability of study results to the University as a whole (Cozby, 2001). Another caveat to this limitation is the data were collected at only one university. Ideally, results from this study would be representative of college students in the southeastern US; however, the current study was conducted at one university in the region. In order to increase the ability to generalize results, this study would need to be conducted at several of the universities in the area to provide a more representative sample of the college students.

#### *Future Research Recommendations*

Future research should continue to explore the normative relationships influences, but should also incorporate the normative influence of parents in addition to peers. Because many college students are still financially dependent upon parents, parents may still have some control in the college student's life. The examination of parental influence may be able to provide a greater understanding of the normative influences the individual experiences regarding alcohol use.

Results from this study revealed that constructs and concepts from the IBM were shown to be very explanative within alcohol research. This health education model should be further

pursued in its totality with alcohol use. The utility of this theory seems vast and should be further explored. The concept of personal agency (i.e., perceived behavioral control and self-efficacy) seems like an especially interesting concept to examine in regard to alcohol use for populations where alcohol dependency is an issue.

Although this study identified interesting and useful results, the next step in a study like this would be a longitudinal examination of values, attitudes, and norms. It would be fascinating to investigate the way an individual adjusts these concepts over time. A longitudinal study would provide greater insight into the complex nature of values, attitudes, norms, and alcohol use.

A qualitative investigation into the concepts explored in the current study could also be useful. Many strong qualitative research questions could be asked to better understand the relationships between variables and on alcohol use and alcohol-related problems. The current data provides rationale for pursuing a quantitative approach next. Next steps could include examining why these relationships exist or why there are discordant relationships between values and attitudes. A qualitative examination would provide a better understanding of the how and why of values, attitudes, and norms.

Lastly, future research should continue to examine the influence of personal values on other health behaviors. Research to determine new, more accurate ways to measure values could also provide better insight into the relationships between values and health behaviors. Results from this study were interesting and worth pursuing in a future line of research. Many health behaviors tend to have a strong value foundation, such as sexual decisions and behaviors, tobacco use, even diet and exercise.

### *Conclusion*

This investigation was based on strong, albeit eclectic theoretical concepts, which provided an innovative look at the alcohol problem among college students. Results from this study provided a description of the relationships between personal values, attitudes toward alcohol, perceived injunctive and descriptive norms. This study provided a strong foundation to better understand the predictors of alcohol use and alcohol-related problems among college students. Descriptive norms of alcohol-related problems and personal attitudes appear to be variables that are not often examined in the current body of alcohol literature; however, this study provided the rationale to further pursue these variables when examining alcohol use and problems among college students. The intrapersonal value-attitude relationships were theorized, tested, and found to be a potential new area of research about health behavior. Although intrapersonal relationships were not predictive of alcohol use, this relationship was found to predict alcohol-related problems among college students.

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## Appendix A

### Recruitment Letter to Instructors

Dear Instructor:

I am a doctoral student in the Department of Health Science and I am currently working on my dissertation. For my dissertation, I am examining how personal values, attitudes, and perceived norms influence alcohol use among college students.

I am writing today to ask your permission to administer a survey to your **xxx** class. I am asking for approximately 20 minutes out of one of your classes in September or October. I want to respect your class time, so I will be efficient and organized to make sure that I do not take longer than 25 minutes from start to finish. I will gladly meet with you to further discuss this possibility.

Your help would be greatly appreciated. Please contact me if you have any questions, you would like to discuss this further or if there is anything I can do to help you. My faculty advisor for this project is Dr. Stuart Usdan (205.348.8373 or [susdan@ches.ua.edu](mailto:susdan@ches.ua.edu)) in case you need to contact him.

If you are willing to allow me to come into your class(es), please let me know what date and time would be best.

<b>Date:</b>	
<b>Time:</b>	
<b>Class:</b>	

Thank you,  
Meg Sheppard, MEd, CHES

Graduate Research Assistant  
Institute for Rural Health Research  
Box 870326  
Office: 205.348.4619  
Email: [mesheppard@crimson.ua.edu](mailto:mesheppard@crimson.ua.edu)

## Appendix B

### Male Version of the Instrument

# Student Health Survey

## MALE VERSION

If you are a female, please return this survey  
and get a pink survey!!!

### Instructions

- Please use a blue or black pen to complete the survey.
- Please answer the following survey by completely filling in the bubble associated with your response.

Example: 1. Gender:  
 Female  
 Male

- Some questions require that you write down your answer. Please clearly write only one number inside each box (do not write outside the boxes).

Example: 4. Current Age: 

1	9
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- You will not be personally identified in any way; therefore, **DO NOT** write your name anywhere in the survey.



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### Student Health Survey Male Version



Please make sure to fully bubble in each response with a blue or black ink pen! If you are a FEMALE, please do NOT take this version of the survey. FEMALES, please ask for a PINK survey!

#### SECTION 1

1. Gender: <input type="radio"/> Female <input checked="" type="radio"/> Male If you are a FEMALE, please ask for a PINK survey!!!	4. Current Age: <input type="text"/> <input type="text"/>	8. Greek Involvement: <input type="radio"/> Member who regularly or occasionally attends Greek social events <input type="radio"/> Member who does not attend Greek events <input type="radio"/> Nonmember who regularly or occasionally attends Greek social events <input type="radio"/> Nonmember who does not attend Greek events
2. Classification: <input type="radio"/> Freshman <input type="radio"/> Senior <input type="radio"/> Sophomore <input type="radio"/> Graduate Student <input type="radio"/> Junior <input type="radio"/> Other	5. Cumulative College GPA: <input type="text"/> <input type="text"/> <input type="text"/>	Within the last 12 months, have you participated in organized college athletics at any of the following levels? No Yes <input type="radio"/> <input type="radio"/> 9. Varsity <input type="radio"/> <input type="radio"/> 10. Club sports <input type="radio"/> <input type="radio"/> 11. Intramurals
3. Racial/Ethnic Group: <input type="radio"/> American Indian/Alaskan Native <input type="radio"/> Asian/Pacific Islander <input type="radio"/> Black (Non-Hispanic) <input type="radio"/> Hispanic <input type="radio"/> White (Non-Hispanic) <input type="radio"/> Other	6. What is your current height? <input type="text"/> ft. <input type="text"/> in.	
	7. What is your current weight? <input type="text"/> <input type="text"/> <input type="text"/> lbs.	8. Does your religious affiliation discourage alcohol use? <input type="radio"/> Yes <input type="radio"/> No

#### SECTION 2

Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Completely bubble in the box to the right that shows how much the person in the description is like you.

#### HOW MUCH LIKE YOU IS THIS PERSON?

	Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all
1. Thinking up new ideas and being creative is important to him. He likes to do things his own original way.	<input type="radio"/>					
2. It is important to him to be rich. He wants to have a lot of money and expensive things.	<input type="radio"/>					
3. He thinks it is important that every person in the world be treated equally. He believes everyone should have equal opportunities in life.	<input type="radio"/>					
4. It's very important to him to show his abilities. He wants people to admire what he does.	<input type="radio"/>					
5. It is important to him to live in secure surroundings. He avoids anything that might endanger his safety.	<input type="radio"/>					
6. He thinks it is important to do lots of different things in life. He always looks for new things to try.	<input type="radio"/>					
7. He believes that people should do what they're told. He thinks people should follow rules at all times, even when no one is watching.	<input type="radio"/>					
8. It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them.	<input type="radio"/>					
9. He thinks it's important NOT to ask for more than what you have. He believes that people should be satisfied with what they have.	<input type="radio"/>					
10. He seeks every chance he can to have fun. It is important to him to do things that give him pleasure.	<input type="radio"/>					



Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Completely bubble in the box to the right that shows how much the person in the description is like you.

## HOW MUCH LIKE YOU IS THIS PERSON?

	Very much like me (A)	Like me (B)	Somewhat like me (C)	A little like me (D)	Not like me (E)	Not like me at all (F)
11. It is important to him to make his own decisions about what he does. He likes to be free to plan and to choose his activities for himself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. It's very important to him to help the people around him. He wants to care for their well-being.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Being very successful is important to him. He likes to impress other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. It is very important to him that his country be safe. He thinks the state must be on watch against threats from within and without.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. He likes to take risks. He is always looking for adventures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. It is important to him to be in charge and tell others what to do. He wants people to do what he says.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. It is important to him to be loyal to her friends. He wants to devote himself to people close to him.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. He strongly believes that people should care for nature. Looking after the environment is important to him.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Religious belief is important to him. He tries hard to do what his religion requires.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. It is important to him that things be organized and clean. He really does not like things to be a mess.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. He thinks it's important to be interested in things. He likes to be curious and to try to understand all sorts of things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. He believes all the worlds' people should live in harmony. Promoting peace among all groups in the world is important to him.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. He thinks it is important to be ambitious. He wants to show how capable he is.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. He thinks it is best to do things in traditional ways. It is important to him to keep up the customs he has learned.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Enjoying life's pleasures is important to him. He likes to 'spoil' himself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. It is important to him to respond to the needs of others. He tries to support those he knows.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. He believes he should always show respect to his parents and to older people. It is important to him to be obedient.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. He wants everyone to be treated justly, even people he doesn't know. It is important to him to protect the weak in society.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. He likes surprises. It is important to him to have an exciting life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Completely bubble in the box to the right that shows how much the person in the description is like you.

	HOW MUCH LIKE YOU IS THIS PERSON?					
	Very much like me (A)	Like me (B)	Somewhat like me (C)	A little like me (D)	Not like me (E)	Not like me at all (F)
31. He tries hard to avoid getting sick. Staying healthy is very important to him.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. Getting ahead in life is important to him. He strives to do better than others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. Forgiving people who have hurt him is important to him. He tries to see what is good in them and NOT to hold a grudge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. It is important to him to be independent. He likes to rely on himself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. Having a stable government is important to him. He is concerned that the social order be protected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. It is important to him to be polite to other people all the time. He tries never to disturb or irritate others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. He really wants to enjoy life. Having a good time is very important to him.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. It is important to him to be humble and modest. He tries not to draw attention to himself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. He always wants to be the one who makes the decisions. He likes to be the leader.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. It is important to him to adapt to nature and to fit into it. He believes that people should not change nature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Your Personal Attitudes

Now you will be asked your opinion about certain drinking behaviors. Please indicate how strongly you approve or disapprove of the following.

	Strongly Disapprove (1)	Disapprove (2)	Slightly Disapprove (3)	Slightly Approve (4)	Approve (5)	Strongly Approve (6)
1. How do <u>YOU</u> feel about drinking alcohol?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How do <u>YOU</u> feel about getting drunk?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How do <u>YOU</u> feel about underage drinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How do <u>YOU</u> feel about drinking <i>five or more drinks</i> at one sitting?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Remember a standard drink of alcohol is:





SECTION 3: YOUR Personal Alcohol Use

1. How old were you when you first started drinking (not counting small tastes or sips) of alcohol?  <input type="text"/> <input type="text"/> years old	3. The last time you "partied"/socialized, how many drinks of alcohol did you have?  <input type="text"/> <input type="text"/>	5. What is the average number of drinks you consume a week?  <input type="text"/> <input type="text"/>
2. During the past 30 days, on how many days did you have alcohol (beer, wine, liquor)?  <input type="text"/> <input type="text"/> <input type="radio"/> N/A, I do not drink	4. The last time you "partied"/socialized, over how many hours did you drink alcohol?  <input type="text"/> <input type="text"/>	6. What is the highest number of drinks that you have consumed on a single day in the past 30 days?  <input type="text"/> <input type="text"/>
		7. Over the last two weeks, how many times have you had five or more drinks of alcohol at a sitting?  <input type="text"/> <input type="text"/>

YOUR Personal Alcohol-Related Consequences

Use the scale below to rate how often YOU have had any of the following problems over the past 30 days as a result of drinking alcoholic beverages.

	Never	Yes, but not in the last 30 days	Once	Twice	3 times	4 times	5 times	6 or more times
8. Feeling sad, blue, or depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Nervousness, irritability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Caused you to feel bad about yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Problems with appetite or sleeping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Engaged in unplanned sexual activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Drove under the influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Did not use protection when engaging in sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Illegal activities associated with drug use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Had a hangover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Performed poorly on a test or important project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Been in trouble with police, residence hall, or other college authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Damaged property, pulled fire alarm, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Got into an argument or fight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Got nauseated or vomited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Been a passenger in a car with a driver who had been drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Missed a class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Been criticized by someone I know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Had a memory loss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Done something I later regretted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Been arrested for DWI/DUI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Have been taken advantage of sexually	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Tried unsuccessfully to stop using	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Been hurt or injured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



SECTION 4: What You Perceive Your Close Friends Think and Do

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Now you will be asked your perceptions of YOUR CLOSE FRIENDS' drinking behaviors. Please answer the following questions based on *what you think* most of your close friends think and do.

	Strongly Disapprove (1)	Disapprove (2)	Slightly Disapprove (3)	Slightly Approve (4)	Approve (5)	Strongly Approve (6)
1. How do <u>YOUR CLOSE FRIENDS</u> feel about drinking alcohol?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How do <u>YOUR CLOSE FRIENDS</u> feel about getting drunk?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How do <u>YOUR CLOSE FRIENDS</u> feel about underage drinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How do <u>YOUR CLOSE FRIENDS</u> feel about drinking <i>five or more drinks</i> at one sitting?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. What percentage of <u>YOUR CLOSE FRIENDS</u> drink alcohol? <input type="text"/> <input type="text"/> <input type="text"/> %	9. Over the last two weeks, how many times do you think <u>YOUR CLOSE FRIENDS</u> have had <i>five or more drinks</i> of alcohol at a sitting? <input type="text"/> <input type="text"/>
6. What percentage of <u>YOUR CLOSE FRIENDS</u> get drunk? <input type="text"/> <input type="text"/> <input type="text"/> %	10. During the past 30 days, on how many days did <u>YOUR CLOSE FRIENDS</u> have alcohol (beer, wine, liquor)? <input type="text"/> <input type="text"/>
7. What percentage of <u>YOUR CLOSE FRIENDS</u> drink/drank alcohol while they were underage? <input type="text"/> <input type="text"/> <input type="text"/> %	11. How many drinks of alcohol do you think <u>YOUR CLOSE FRIENDS</u> had the last time they "partied"/socialized? <input type="text"/> <input type="text"/>
8. What percentage of <u>YOUR CLOSE FRIENDS</u> drink <i>five or more drinks</i> at one sitting? <input type="text"/> <input type="text"/> <input type="text"/> %	12. What is the average number of drinks <u>YOUR CLOSE FRIENDS</u> consume a week? <input type="text"/> <input type="text"/>

Alcohol-Related Consequences You Perceive Your Close Friends Experience

Please indicate how often you believe YOUR CLOSE FRIENDS have experienced the following due to drinking alcohol during the last 30 days... (mark one for each line)

	Never	Yes, but not in the last 30 days	Once	Twice	3 times	4 times	5 times	6 or more times
13. Had a hangover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Performed poorly on a test or important project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Been in trouble with police, residence hall, or other college authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Damaged property, pulled fire alarm, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Got into an argument or fight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Got nauseated or vomited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Driven a car while under the influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Been a passenger in a car with a driver who had been drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Missed a class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Had a memory loss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Done something I later regretted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Been arrested for DWI/DUI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Have been taken advantage of sexually	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Did not use protection when engaging in sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Been hurt or injured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you very much for participating in this survey today!!!

## Appendix C

### Female Version of the Instrument

# Student Health Survey

## FEMALE VERSION

If you are a male, please return this survey  
and get a blue survey!!!

### Instructions

- Please use a blue or black pen to complete the survey.
- Please answer the following survey by completely filling in the bubble associated with your response.  
**Example:** 1. Gender  
 Female  
 Male
- Some questions require that you write down your answer. Please clearly write only one number inside each box (do not write outside the boxes).  
**Example:** 4. Current Age: 

1	9
---	---
- You will not be personally identified in any way; therefore, **DO NOT** write your name anywhere in the survey.



Student Health Survey  
Female Version



Please make sure to fully bubble in each response with a blue or black ink pen! If you are a MALE, please do NOT take this version of the survey. MALES, please ask for a BLUE survey!

SECTION 1

1. Gender: <input type="radio"/> Female <input type="radio"/> Male <b>If you are MALE, please ask for a blue survey!!!</b>	4. Current Age: <input type="text"/> <input type="text"/>	8. Greek Involvement: <input type="radio"/> Member who regularly or occasionally attends Greek social events <input type="radio"/> Member who does not attend Greek events <input type="radio"/> Nonmember who regularly or occasionally attends Greek social events <input type="radio"/> Nonmember who does not attend Greek events	
2. Classification: <input type="radio"/> Freshman <input type="radio"/> Senior <input type="radio"/> Sophomore <input type="radio"/> Graduate Student <input type="radio"/> Junior <input type="radio"/> Other	5. Cumulative College GPA: <input type="text"/> <input type="text"/> <input type="text"/>	Within the <i>last 12 months</i> , have you participated in organized <u>college</u> athletics at any of the following levels? No Yes <input type="radio"/> <input type="radio"/> 9. Varsity <input type="radio"/> <input type="radio"/> 10. Club sports <input type="radio"/> <input type="radio"/> 11. Intramurals	
3. Racial/Ethnic Group: <input type="radio"/> American Indian/Alaskan Native <input type="radio"/> Asian/Pacific Islander <input type="radio"/> Black (Non-Hispanic) <input type="radio"/> Hispanic <input type="radio"/> White (Non-Hispanic) <input type="radio"/> Other	6. What is your current height? <input type="text"/> ft. <input type="text"/> <input type="text"/> in.	12. Are you religious? <input type="radio"/> Yes <input type="radio"/> No	
	7. What is your current weight? <input type="text"/> <input type="text"/> <input type="text"/> lbs.	13. Does your religious affiliation discourage alcohol use? <input type="radio"/> Yes <input type="radio"/> No	

SECTION 2

Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Completely bubble in the box to the right that shows how much the person in the description is like you.

HOW MUCH LIKE YOU IS THIS PERSON?

	Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all
1. Thinking up new ideas and being creative is important to her. She likes to do things her own original way.	<input type="radio"/>					
2. It is important to her to be rich. She wants to have a lot of money and expensive things.	<input type="radio"/>					
3. She thinks it is important that every person in the world be treated equally. She believes everyone should have equal opportunities in life.	<input type="radio"/>					
4. It's very important to her to show her abilities. She wants people to admire what she does.	<input type="radio"/>					
5. It is important to her to live in secure surroundings. She avoids anything that might endanger her safety.	<input type="radio"/>					
6. She thinks it is important to do lots of different things in life. She always looks for new things to try.	<input type="radio"/>					
7. She believes that people should do what they're told. She thinks people should follow rules at all times, even when no one is watching.	<input type="radio"/>					
8. It is important to her to listen to people who are different from her. Even when she disagrees with them, she still wants to understand them.	<input type="radio"/>					
9. She thinks it's important NOT to ask for more than what you have. She believes that people should be satisfied with what they have.	<input type="radio"/>					
10. She seeks every chance she can to have fun. It is important to her to do things that give her pleasure.	<input type="radio"/>					



SECTION 2 - Continued

Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Completely bubble in the box to the right that shows how much the person in the description is like you.

**HOW MUCH LIKE YOU IS THIS PERSON?**

	Very much like me (A)	Like me (B)	Somewhat like me (C)	A little like me (D)	Not like me (E)	Not like me at all (F)
11. It is important to her to make her own decisions about what she does. She likes to be free to plan and to choose her activities for herself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. It's very important to her to help the people around her. She wants to care for their well-being.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Being very successful is important to her. She likes to impress other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. It is very important to her that her country be safe. She thinks the state must be on watch against threats from within and without.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. She likes to take risks. She is always looking for adventures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. It is important to her always to behave properly. She wants to avoid doing anything people would say is wrong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. It is important to her to be in charge and tell others what to do. She wants people to do what she says.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. It is important to her to be loyal to her friends. She wants to devote herself to people close to her.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. She strongly believes that people should care for nature. Looking after the environment is important to her.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Religious belief is important to her. She tries hard to do what her religion requires.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. It is important to her that things be organized and clean. She really does not like things to be a mess.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. She thinks it's important to be interested in things. She likes to be curious and to try to understand all sorts of things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. She believes all the world's people should live in harmony. Promoting peace among all groups in the world is important to her.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. She thinks it is important to be ambitious. She wants to show how capable she is.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. She thinks it is best to do things in traditional ways. It is important to her to keep up the customs she has learned.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Enjoying life's pleasures is important to her. She likes to 'spoil' herself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. It is important to her to respond to the needs of others. She tries to support those she knows.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. She believes she should always show respect to her parents and to older people. It is important to her to be obedient.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. She wants everyone to be treated justly, even people she doesn't know. It is important to her to protect the weak in society.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. She likes surprises. It is important to her to have an exciting life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Completely bubble in the box to the right that shows how much the person in the description is like you.

	HOW MUCH LIKE YOU IS THIS PERSON?					
	Very much like me (A)	Like me (B)	Somewhat like me (C)	A little like me (D)	Not like me (E)	Not like me at all (F)
31. She tries hard to avoid getting sick. Staying healthy is very important to her.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. Getting ahead in life is important to her. She strives to do better than others.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. Forgiving people who have hurt her is important to her. She tries to see what is good in them and NOT to hold a grudge.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. It is important to her to be independent. She likes to rely on herself.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. Having a stable government is important to her. She is concerned that the social order be protected.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. It is important to her to be polite to other people all the time. She tries never to disturb or irritate others.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. She really wants to enjoy life. Having a good time is very important to her.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. It is important to her to be humble and modest. She tries not to draw attention to herself.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. She always wants to be the one who makes the decisions. She likes to be the leader.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. It is important to her to adapt to nature and to fit into it. She believes that people should not change nature.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Your Personal Attitudes

Now you will be asked your opinion about certain drinking behaviors. Please indicate how strongly you approve or disapprove of the following.

	Strongly Disapprove (1)	Disapprove (2)	Slightly Disapprove (3)	Slightly Approve (4)	Approve (5)	Strongly Approve (6)
1. How do <u>YOU</u> feel about drinking alcohol?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How do <u>YOU</u> feel about getting drunk?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How do <u>YOU</u> feel about underage drinking?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How do <u>YOU</u> feel about drinking <i>four or more drinks</i> at one sitting?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Remember a standard drink of alcohol is:





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SECTION 3: YOUR Personal Alcohol Use

1. How old were you when you first started drinking (not counting small tastes or sips) of alcohol?  <input type="text"/> <input type="text"/> years old	3. The last time you "partied"/socialized, how many drinks of alcohol did you have?  <input type="text"/> <input type="text"/> drinks	5. What is the average number of drinks you consume a week?  <input type="text"/> <input type="text"/>
2. During the past 30 days, on how many days did you have alcohol (beer, wine, liquor)?  <input type="text"/> <input type="text"/> <input checked="" type="radio"/> N/A, I do not drink	4. The last time you "partied"/socialized, over how many hours did you drink alcohol?  <input type="text"/> <input type="text"/> hours	6. What is the highest number of drinks that you have consumed on a single day in the past 30 days?  <input type="text"/> <input type="text"/>
		7. Over the last two weeks, how many times have you had four or more drinks of alcohol at a sitting?  <input type="text"/> <input type="text"/>

YOUR Personal Alcohol-Related ConsequencesUse the scale below to rate *how often YOU* have had any of the following problems over the past 30 days as a result of drinking alcoholic beverages.

	Never	Yes, but not in the last 30 days	Once	Twice	3 times	4 times	5 times	6 or more times
8. Feeling sad, blue, or depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Nervousness, irritability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Caused you to feel bad about yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Problems with appetite or sleeping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Engaged in unplanned sexual activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Drove under the influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Did not use protection when engaging in sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Illegal activities associated with drug use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Had a hangover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Performed poorly on a test or important project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Been in trouble with police, residence hall, or other college authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Damaged property, pulled fire alarm, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Got into an argument or fight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Got nauseated or vomited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Been a passenger in a car with a driver who had been drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Missed a class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Been criticized by someone I know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Had a memory loss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Done something I later regretted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Been arrested for DWI/DUI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Have been taken advantage of sexually	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Tried unsuccessfully to stop using	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Been hurt or injured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**SECTION 4: What You Perceive *Your Close Friends* Think and Do**

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Now you will be asked your perceptions of **YOUR CLOSE FRIENDS'** drinking behaviors. Please answer the following questions based on *what you think* most of your close friends think and do.

	Strongly Disapprove (1)	Disapprove (2)	Slightly Disapprove (3)	Slightly Approve (4)	Approve (5)	Strongly Approve (6)
1. How do <b>YOUR CLOSE FRIENDS</b> feel about drinking alcohol?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How do <b>YOUR CLOSE FRIENDS</b> feel about getting drunk?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How do <b>YOUR CLOSE FRIENDS</b> feel about underage drinking?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How do <b>YOUR CLOSE FRIENDS</b> feel about drinking <i>four or more drinks</i> at one sitting?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. What percentage of <b>YOUR CLOSE FRIENDS</b> drink alcohol? <input type="text"/> <input type="text"/> <input type="text"/> %	9. Over the last two weeks, how many times do you think <b>YOUR CLOSE FRIENDS</b> have had <i>four or more drinks</i> of alcohol at a sitting? <input type="text"/>
6. What percentage of <b>YOUR CLOSE FRIENDS</b> get drunk? <input type="text"/> <input type="text"/> <input type="text"/> %	10. During the past 30 days, on how many days did <b>YOUR CLOSE FRIENDS</b> have alcohol (beer, wine, liquor)? <input type="text"/>
7. What percentage of <b>YOUR CLOSE FRIENDS</b> drink/drank alcohol while they were underage? <input type="text"/> <input type="text"/> <input type="text"/> %	11. How many drinks of alcohol do you think <b>YOUR CLOSE FRIENDS</b> had the last time they "partied"/socialized? <input type="text"/>
8. What percentage of <b>YOUR CLOSE FRIENDS</b> drink <i>four or more drinks</i> at one sitting? <input type="text"/> <input type="text"/> <input type="text"/> %	12. What is the average number of drinks <b>YOUR CLOSE FRIENDS</b> consume a week? <input type="text"/>

**Alcohol-Related Consequences You Perceive *Your Close Friends* Experience**

Please indicate how often you believe **YOUR CLOSE FRIENDS** have experienced the following due to drinking alcohol during the last 30 days... (mark one for each line)

	Never	Yes, but not in the last 30 days	Once	Twice	3 times	4 times	5 times	6 or more times
13. Had a hangover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Performed poorly on a test or important project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Been in trouble with police, residence hall, or other college authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Damaged property, pulled fire alarm, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Got into an argument or fight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Got nauseated or vomited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Driven a car while under the influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Been a passenger in a car with a driver who had been drinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Missed a class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Had a memory loss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Done something I later regretted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Been arrested for DWI/DUI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Have been taken advantage of sexually	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Did not use protection when engaging in sex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Been hurt or injured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Thank you very much for participating in this survey today!!!*