On Your Knees or at the Bar:

A Study on Religiosity and Alcohol Use at the University of North Texas

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Abstract

This study measured relationships between religiosity, spirituality, and alcohol use by 18-25-year-olds at the University of North Texas. There were 200 respondents, and 186 of the distributed surveys were included in the results after separating out missing values. Results indicated an overall negative correlation of religiosity and spirituality with four measures of alcohol consumption with few exceptions. Results included an analysis of the correlation between different manifestations of religiosity and spirituality compared with four measures of alcohol. Respondents were also separated out between genders and underage and of-age status.

Religiosity was measured by three dimensions of public participation and practice in religious traditions and services, religious socialization, and personal religious ideology. Spirituality was similarly measured by spiritual practice, spiritual socialization, and spiritual beliefs. Alcohol measures included frequency of consumption, extent of consumption, and two measures of the sociality of consumption including with whom one drinks and where the drinking takes place. Although religiosity and spirituality are difficult to quantify, the results indicate that a negative relationship exists between religiosity/spirituality and alcohol consumption, which warrants further investigation into what can be done within religious and spiritual institutions to protect against risky health behaviors such as alcohol use in adolescents.
Introduction

Religion as a philosophical and practical institution permeates society and carries both significant macro and micro influences in society. The personal lives of millions of people worldwide are shaped and characterized by some degree of religiosity, if not through social rituals and public services, individuals express their ideologies through moral codes and both ethical and philosophical systems. On a broader scale, political, economic, and social policies are shaped by the pushing and pulling of both religious institutions and the personal religious ideologies of the leaders on governmental levels. Few elements of human culture and civilization are free from the fingerprints of religiosity, and the constant evolution of society demands that such a pervasive force be understood.

Spirituality as a philosophical and personal phenomenon remains more mysterious regarding its effect on social institutions. In social research it has been largely untouched, but it is true that research does exist on spirituality matters. Frankly, spirituality is difficult to quantify and condense; religiosity has a history of quantification and measurement that has been used multiple times by well-qualified researchers. There is little doubt about the strong prevalence of spirituality in society and the growing need to study it especially in conjunction with religiosity as an attempt to uncover the similarities and differences between these two phenomena.

College presents an opportunity for young adults to experiment with various spiritual and behavioral practices apart from those of their parents, families, and childhood friends. Separation from the home and independence from parental control allows students the freedom to make behavioral decisions that may often result in risky-behavior situations, such as when they are faced with the choice of alcohol consumption. Students are encouraged by professors and
through the diversity they encounter in institutions of higher learning to question their childhood beliefs, practices, and philosophical foundations upon which they built a framework of understanding their worlds. Students thus are faced with revisiting in depth their religious and spiritual views, often redefining their philosophies in the light of new intellectual and personal discoveries via independence, instructor and peer pressure, and growing curiosity spawned from repeated encounters with diversity.

The purpose of this study is not to explicitly determine whether or not religiosity variables have a negative effect on risky health behaviors such as alcohol use, for this conclusion has been drawn and reinforced throughout the literature. Rather, the purpose is to determine what broad expressions of religiosity and spirituality (as a subset and alternative to religiosity) have the strongest effect on alcohol use. This shall be done through grouping the religiosity and spirituality variables most prevalent in the literature into functional categories and then developing a set of core questions that represent each category and that will comprise the bulk of the survey; only religiosity variables that have been used in previous studies as expressed in the literature review will be used because they have already been shown to affect behavioral decisions because, again, the point of this study is not to define new and uncharted variables regarding religiosity but to use ones that have already been tested and refined by statistical and analytical fire by well-qualified researchers. These groups of variables will hopefully show what broad aspects of religiosity and spirituality are the strongest indicators for negatively affecting the likelihood of alcohol consumption in young people. This study is also designed to separate religiosity and spirituality to measure the differences between the effects of religiosity and spirituality on alcohol consumption, if any exist at all.
Much of the literature regarding studies done on religiosity has focused on its relationship to risky health behaviors in adolescents among a wide range of other behavior- and ideologically-based variables (such as employment status and political affiliation). This study will limit risky behaviors to alcohol use and abuse as related to the spirituality and religiosity of college-aged individuals. Past literature also has often limited religiosity to either personally, privately expressed religiosity or publicly displayed religiosity. This study will hopefully model a comprehensive way to measure both religiosity and spirituality by representing the various ways religiosity has typically been quantified in previous surveys.

This study hypothesizes that a sample of college-aged students from the University of North Texas will help to portray the negative relationship that strong religiosity and spirituality have on both alcohol use and abuse. A series of detailed hypotheses can be found further along in this study regarding the effects various categories of religiosity and spirituality have on alcohol use.

After measuring the age, gender, alcohol consumption, religiosity, and spirituality of these students, several statistical measures will be used to test this hypothesis. Results from this study carry potentially weighty implications for two separate institutions: socially active religious organizations advocating the prevention of risky behaviors in young people and current and future academic professionals interested in furthering and broadening the body of research designed to compare religiosity and spirituality to risky health behaviors.
Theoretical Framework

Religion

Religion itself permeates social, intellectual, emotional, spiritual, philosophical, political, and economic dimensions of life; as an institution it is a powerful force of social cohesion capable of building community, shaping culture, and guiding behavior. The prevalence of religion throughout modern society silences the post-modern opposition that labels it as outdated and insignificant. The function of religion as a source of normative behavior and ethical and moral standards asserts its value in creating definitions of acceptable behavior and labeling others acts as profane, vulgar, or heretical. Understanding and defining religiosity variables may lead to a more cognitive method of assessing and analyzing behavioral traits of many diverse groups of people.

Religion is still a pervasive force in modern society. “In successive Harris polls in the United States, around 90 percent of people profess a belief in God. This resilience of belief in a post-modern world has led to speculation that it is a human necessity, either as an enduring mechanism to promote social cohesion and help us deal with fear and morality or as something hard-wired into our brains and presumably important for evolutionary reasons” (King 2005:9). In defining religion and discussing its impact on society, religion cannot be reduced to a social mechanism for building rules and creating structure; indeed this would be a tragic simplification of the complexities of a personal relationship with the divine and the deep mysterious revelations that bring people to faith. However, the fact that personal religiosity is capable of shaping worldviews, attitudes, and behaviors is enough to justify the search for a sociological understanding of the transaction between personal religious ideology and action.
Religion as a source of meaning and community-building shapes the culture in which it resides. “The first great commentator on the possible role of religion in society,” (King 2005:8) Emile Durkheim, described religion as “channel of collective energy” (Bjarnason 2005:377) that creates a culture of consciousness based on religious ideas and values. Religious beliefs, religious communities, and divine support described in Emile Durkheim’s theory of social integration shifts the focus of humanity from isolation toward community where religious principles are enforced.

Religion is characterized by two causal mechanisms that promote individual quality of life, in turn preventing risky health behaviors: religious beliefs and religious community (Bjarnason 2005). Religious beliefs are defined by an individual’s personal relationship with the divine that shapes ethics and morality, offering a sense of divine support through coping and creating a particular worldview based on divine revelations and the reading of religious literature. Religious community is a series of bonding relationships that encourage religious participation and adherence through mutual encouragement social accountability. Collective ideology that is developed through beliefs and community is a guiding force for behavior in social settings (Bjarnason 2005).

Robert Putnam and Emile Durkheim discuss the role of religious institutions in promoting social capital. These institutions generate a common sense of correct behavior which builds and increases the density and quality of community. Social networks form through religious institutions and create social support for individuals. Young adolescents seeking community find a refuge in these social networks. In their most crucial stages of development and the search to form identity and build social capital, the regulating power of institutionalized
religion to stigmatize certain risky behaviors necessitates an understanding of the manifestations of religion that have the strongest effect on the behaviors of youth.

**Spirituality**

Spirituality is often viewed in two ways: as either an unstructured alternative to religion or the personal experience that takes place within religion behind the institutionalized framework. Both perspectives are important to understanding the role spirituality has on behavioral regulation in adolescents. Young people who claim spirituality as their alternative to mainstream religion do so generally for three reasons. They are expressing a resistance to the structure of rules and behavioral expectations inherent in organized religion; they find a deeper sense of purity and truth in spirituality; or in some way they have been jaded by the religious institutions themselves. Among these three perspectives, the correlation between spirituality and its effect on behavior will be very different. The youth who buck authority and consequently retreat into the freedom of open spirituality may not be affected at all by what some call a spiritual morality that would deter them from dangerous behavior. Those who seek spirituality for its purity would only be affected if their spirituality produced some moral construct of proper and improper behavior. The third scenario involves an individual that may perhaps still cling to the moral standards of their former religious affiliation but choose to label their relationship with the divine as something different. In this case, we would expect that the effect of their spiritual ideology to be the same in regulating behavior as it had been when they professed a particular religious faith. The same expectation is held for the second manner in which spirituality is viewed: as the personal experience that takes place within religion behind the institutionalized framework.

**Alcohol Use**
The importance of studying alcohol is best described by Bjarnason (2005: 376):

“Adolescent alcohol use entails a substantial risk of immediate physical, psychological, and social harm to adolescents. Such use involves serious short-term and long-term health risks, anticipates future substance abuse and is associated with a host of negative behavioral consequences, including accidents, violence, suicidality and sexual risk-taking.” Alcohol consumption as a risky health behavior for young people carries serious potential consequences when done irresponsibly. The ramifications of lackadaisical alcohol consumption foster serious social concerns that have given birth to multiple social movements fighting against such potentially devastating behavior; notable organizations include Mothers Against Drunk Driving (MADD) and Students Against Drunk Driving (SADD). Preventing adolescents from getting a hold of alcohol poses a logistical nightmare; the availability of alcohol is widespread as is the problems of underage and excessive drinking. Consequently, research concerning preventative mechanisms for alcohol use is vitally important for the health of adolescents everywhere.
Literature review

Religiosity and Adolescent Health Risk Behaviors

Introduction

“Religious social support may help buffer stressful life events and prevent people from using harmful coping mechanisms, such as drugs and alcohol” (Shahrzad, 2004:420).

Religious activities have the potential to discourage adolescents from getting involved in behaviors that negatively affect their health. These behaviors range from illicit drug use – including marijuana, cocaine, heroin, LSD, cigarettes, and alcohol – to sexually promiscuous behaviors (Stylianou, 2004). Religiosity measures the ways and the extent to which these adolescents are involved and personally invested in religious activities and ideologies. Studying religiosity variables has the potential for uncovering a better understanding of behavioral patterns in adolescents (Dunn, 2005). Spirituality, typically addressed in the literature as a subset of religiosity, is a relatively fresh topic in studying causes and deterrents of negative health risk behaviors. Furthermore, little research is available in simultaneously addressing the individual correlation between religiosity and health risk behaviors and spirituality and health risk behaviors. Even fewer studies offer an analysis of the strength of the correlation between religiosity and spirituality in regards to health risk behaviors.

Background

Interest in the relationship between religiosity, spirituality, and health risk behaviors in adolescents ranging from sixth grade to college-aged has grown steadily over the past several years; researchers from a variety of disciplines have been producing studies on this topic with more depth, analysis, and understanding than ever before (King, 2004). Early research in this
area was interested in whether or not high levels of religiosity played a preventative role in health risk behaviors; today more research is being done to examine the role religiosity may have in promoting beneficial social behaviors such as having a supportive relationship between parents and youth, being involved in extracurricular activities, displaying general altruism and empathy, and succeeding in academics (King, 2004).

**Purpose**

This literature review is designed to synthesize previous research from scholarly peer-reviewed journals across a variety of disciplines in order to establish a clearer understanding of what research and analysis have been done in the area of religiosity, spirituality, and health risk behaviors and to make connections across these studies by comparing and contrasting their variables, methodologies, and results. The purpose of this research project is to develop a new survey questionnaire that will test a hypothesis resting on the evidence provided by several other scholarly research articles on the relationship between religiosity and risky health behaviors - particularly alcohol use and abuse - and to glean from the literature review and data analysis a better understanding of this relationship and its importance in society today. The purpose also can be summarized in two simple questions: why do religiosity and spirituality matter, and how can they be measured to best communicate their relationships to alcohol use and abuse? The key concepts throughout this research process – especially the literature review – are defining variables that will aid in understanding the importance of religiosity and spirituality in the lives of the participants and their decision making processes.

**Literature Review**

*Religiosity.* Religiosity is best defined throughout the literature as the “extent of (the individual’s) religious practice, as measured by religious behavior” (Pullen, 1999, p.4). The
question lies in what constitutes religious behavior. Religion is not easily defined or quantified. There are several hundred ways religiosity variables have been defined and measured. After analyzing the broad range of approaches to measuring religiosity, there are noticeably general trends throughout the literature in asking similar types of questions. These general trends of religiosity questions can be broken into four sub-categories: demonstration of religious beliefs in public participatory activities and private personal activities, religious self-identification and personal beliefs, socialization into religious norms and practices, and questions of spirituality.

The first category is defined as both public and private physical representations of one’s religious beliefs. Public representation is measured through participation in and attendance at organized and informal religious services, church, youth gatherings, and other religious activities in social settings; public participation in traditions, ceremonies, and rituals associated with a particular religion; and having active, voluntary conversations with others about personal religious ideology and beliefs (Pullen, 1999; Shahrzad, 2004; Nonnemaker, 2003; King, 2004). Private representation is measured through personal meditation, prayer, observance of ritualistic holy days, and obedience to particular rules and regulations of religious faith. In this category, because of the wide range of participatory expectations between Christian denominations, studies typically included a survey question that would involve dividing Christianity into at least two denominational affiliations – usually Catholic and Protestant (Shahrzad, 2004).

The second category is defined as religious self-identification and personal beliefs. Self-identification questions primarily focus on what ideology the respondents affiliate themselves with, the respondents’ commitment to their ideology, the importance they place on religious activities, their reliance on religious ideology to provide significance to their lives and guide their behaviors, and the strength of their relationship with their particular ideology. These
variables also include asking the respondents the level of their self-perceived religiosity and spirituality and the value and significance they place on religion, being religious/spiritual, and participating in religious activities. (Shahrzad, 2004; Dunn, 2005; Nonnemaker, 2003; King, 2004; Suris, 2005; Pullen, 1999). Personal beliefs are measured as the respondents’ self-identified level of religious belief in and commitment to various religious ideals. The studies also measured participation as the way the individual coped with life situations in terms of using their religion to deal with pressure like stress (Shahrzad, 2004). These questions included measures of how much the respondents viewed God as a benefactor during times of stress (Shahrzad, 2004), and the frequency in which the respondent prayed in anticipation of divine intercession (Nonnemaker, 2003). This category also includes studies that focused their religiosity variables on the participants’ beliefs in traditional, fundamental foundations of several major religions. These questions asked directly whether or not the respondent believed in God, the devil, an afterlife, heaven, hell, and other religious concepts (Stylianou, 2004).

The third category of religiosity variables is socialization into religious norms and practices. These questions focus on the length of time the respondent had been affiliated with their current religious ideology and what their relationship was to the individual or group who introduced them to that particular ideology. These questions also examined the extent to which the respondents’ close family and friends were supportive of their beliefs and religious practices. Socialization questions asked the respondent to what extent they surrounded themselves with people of their same religion and people with contrasting religious views in addition to what social settings the respondent typically enjoyed expressing their faith in.

**Spirituality.** The fourth category deals with spirituality and morality as a subset of religion. Spirituality often differs from religiosity in that religiosity reflects specific behaviors
and beliefs associated with a particular religion, but spirituality exists as more of a moral
perception, an attitude, or an expressed value system (Pullen, 1999; Stylianou, 2004). Variables
in this category were measured in terms of the respondents’ perceptions on specific health risk
behaviors and assessing the morality, acceptability, and safety of those behaviors (Stylianou,
2004). Variables also included the relationships that the respondent had with parents, teachers,
and peers, and whether or not the respondent displayed good “social capital” in their abilities to
develop trusting relationships, have shared values with others, interact positively with peers and
adults in social settings, and display altruism and empathy (King, 2004; Suris, 2005).

Health risk behaviors. The spectrum of health risk behaviors examined in the literature
are generally categorized into three distinct groups based on the outcomes of these particular
behaviors as manifested in the lives of the respondents noted in the results of the research. These
categories are defined as behaviors that lead to chemical/substance abuse, behaviors that tend to
cause physical injury due through self-infliction or carelessness in conjunction with behaviors
that cause respondents to have increased susceptibility to various illnesses/diseases, and
behaviors that negatively affect the respondents’ psychological well-being.

Chemical substance abuse studies – the majority in the literature reviewed – question the
respondents’ use of alcohol, frequency of binge drinking, use of cigarettes, and exposure to and
use of illicit drugs such as cocaine, heroin, LSD, and marijuana (Pullen, 1999; Suris, 2005;
Nonnemaker, 2003; Stylianou, 2004; Dunn, 2005; Shahrzad, 2004).

Studies that examine the behavioral causes of physical injury and illness include
questions that focus on risky behavior that has greater potential to cause physical harm to the
respondent or cause serious illness/disease and its relationship to various independent variables
(like religiosity, age, gender, etc.). Behaviors with the potential to cause physical injury are
defined as the frequencies in which the respondents wear helmets/seatbelts, drive while intoxicated, ride in a vehicle where the driver is intoxicated, and so forth. (Suris, 2005). Behaviors that are associated with serious illness and disease are commonly expressed as the frequency of sexual intercourse, the number of sexual partners an individual interacts with, the use of protection during sexual intercourse, and the importance of personal hygiene (Nonnemaker, 2003; Suris, 2005).

Psychological well-being is measured in terms of the respondent’s emotional stability, frequency of suicidal thoughts and/or attempts (Nonnemaker, 2003), and his/her ability to interact socially, exhibit trust, altruism, and empathy, and establish a personal value system (King, 2004). These studies are also focused on moral perceptions of health risk behaviors, or measuring acceptability of risk behaviors and the respondents perceived level of harmfulness and immorality of each behavior (Stylianou, 2004). Studies that use psychological well-being as an effect of religiosity are often designed to show how religiosity promotes positive adolescent development.

**Alcohol use and religiosity.** The literature provides evidence to assert a positive correlation between religiosity and reduction in the likelihood that an adolescent will have consumed alcohol, particularly religious participation and what is been termed “divine support,” or the feelings on behalf of the respondent of a personal relationship with the divine (Bjarnason 2005). Although in several religious traditions (notably several Christian denominations) respondents indicated that alcohol use was not against their religious teachings, faith as a whole has been seen to be a protective factor against alcohol misuse (Pullen 1999). Not only has attendance at religious services and religious participation negatively affected alcohol
consumption in several studies, but the absence of religious participation has been associated with increased alcohol use (Pullen 1999).

A common interest in these studies centers on measuring whether or not religiosity has an independent effect on risky behavior or if it is complemented by other demographic variables (Pullen, 1999) and what specific risky behaviors religiosity most effects.

Respondents. Often in research of this nature subjects are drawn from nationally representative samples (Nonnemaker, 2003). The best way to accomplish this is to either choose subjects from diverse and densely populated areas, such as Los Angeles (King, 2004; Shahrzad, 2004), or to choose subjects from a high traffic area, such as a clinic (Pullen, 1999; Shahrzad, 2004) or a school/university (Dunn, 2005; Suris, 2005; King, 2004; Nonnemaker, 2003; Stylianou, 2004).

Adolescents in these studies were often defined as young people anywhere from the sixth grade to college aged individuals. Researchers typically chose samples based on age (Suris, 2005; Shahrzad, 2004), or educational attainment/grade level (Nonnemaker, 2003; Pullen, 1999).

In these studies, not only is the respondent asked about his/her religiosity and health behaviors, several demographic variables are included as well. These variables include age, educational attainment, marital status, family structure, gender, race/ethnicity (Shahrzad, 2004; Dunn, 2005; Stylianou, 2005; Nonnemaker, 2003; King, 2004; Suris, 2005; Pullen, 1999), employment status, and political views (Dunn, 2005).

Adolescents were chosen for these studies because of their exploratory nature and their position in a crucial physically, emotionally, intellectually, socially, and psychologically developmental stage of life. They seek a clearer understanding of themselves and the world around them, and often turn toward religion and spirituality to find answers and direction. They
are developing socially and forming new social networks so the behaviors of their peers are of particular importance to their own decision-making process. In an effort to adjust and be accepted socially, they experiment with alcohol, drugs, sex, and risk-taking. In turn, they are inclined to indulge in risky behaviors (Pullen, 1999). Studies on religiosity and adolescents often seek to better understand how religion might shape the young persons’ moral, emotional, and psychological development through research (King, 2004).

**Issues of Concern.**

Spirituality is often defined in the literature as merely a subset of religiosity or a kind of moral standard or ethnical awareness. Spirituality has even been reduced in some cases to the ability of the respondent to develop social capital through developing an awareness of their surroundings (Bjarnason 2005). Spirituality has also often been completely ignored in studies of religiosity. Often the analysis of research results in the literature is comprised of complex mathematical equations that are difficult to define and summarize; the question often arises as to how structured complex mathematical analyses are able to represent the complex relationship between religiosity, spirituality, and social behaviors.

**Summary.**

Each of these studies in the literature review was designed to accomplish one of two things. The first is to develop a profile of adolescents as a whole based on the questions asked regarding health behavior and religiosity. This information was often designed as a tool to help clinics and drug/alcohol prevention programs know how to treat adolescents in a more effective way (Pullen, 1999; Suris, 2005; Dunn, 2005).

The second purpose of these studies is to see how religion shapes the moral development, attitudes, perceptions of young people toward the use of alcohol and drugs (King, 2004;
Stylianou, 2004); these studies are also looking to see if high religiosity produces resilience in young people reducing their potential to be involved in risky behavior (Nonnemaker, 2003).

The results from these studies consistently reveal religiosity as a preventative agent “for high-risk behaviors among adolescents” (Dunn, 2005). Depending on the variables asked, each study finds a new way to say the same thing: religiosity – whether measured as belief in God, moral principles, or frequency of church attendance – has both a protective effect against risky behavior (Shahrzad, 2004) and a tendency to promote positive development and optimal health (King, 2004).
Research Questions and Hypotheses

There are eight key research questions/hypotheses that shape the analysis and discussion of this study. The hypotheses in this research project not only measure the correlation between both religiosity and spirituality and alcohol variables but also the correlation between religiosity and spirituality in the context of the alcohol variables. Furthermore, religiosity and spirituality will be primarily analyzed by clusters of questions, not individual questions. Lastly, the analysis not only includes frequency and extent of consumption but also with whom one drinks and where.

The eight key research questions are as follows:

Is there empirical justification for clustering the religiosity and spirituality variables? This study will examine the effectiveness of categorizing or “clustering” religiosity and spirituality variables in order to represent the broad spectrum of ways these variables have been measured in the literature. Clusters will be representative of groupings of individual survey questions when measuring correlations between religiosity, spirituality, and alcohol use.

What is the strength of the correlation between religiosity and spirituality? Because the religiosity and spirituality questions are structurally similar, the expectation is that they will be somewhat correlated. For individuals who do not differentiate between spirituality and religiosity, that is, their religious ideology has strong spiritual components or their spiritual ideology has structured rituals, or they simply see these two terms as on in the same, religiosity and spirituality will be highly correlated. For individuals who are resistant to either spirituality or religiosity and have a personal affection for the other, the correlation will be much weaker. This study will not go into details with the respondents on why they are more religious or more
spiritual, or how they individually view religiosity and spirituality, but the strength of correlation between religiosity and spirituality offers insight into the effectiveness of this survey in differentiating the two.

*Both religiosity and spirituality will be negatively correlated with alcohol consumption and abuse.* This hypothesis is based on evidence in the literature for the negative correlation between both religiosity and spirituality and alcohol use. Religiosity and spirituality measures were used from the literature to develop the clusters, and those measures had shown to have a protective effect against risky health behaviors.

*Religiosity will be more strongly correlated with alcohol consumption and abuse than will spirituality.* Religiosity, as opposed to spirituality, is characterized by a structure that includes specific doctrine, rituals, public services, and sacred texts that indicate rules, regulation, and behavioral expectations designed to benefit the adherent in some way and deter them from physical and/or spiritual harm. These expectations are expressed by a religious hierarchy and encouraged through collective meeting and practicing of religious traditions. Spirituality, on the other hand, is highly individualistic and lacks the communal enforcement of behavioral expectations found in established religions. Spirituality does not have formalized rituals and rules to enforce adherence to certain acceptable behaviors; the spiritual person must be deeply invested in their ideology for it to guide them towards and deter them from certain behavior. Therefore, the expectation in the study is for the protective effect of religious adherence to negatively correlate with alcohol consumption more strongly than will spirituality.

*Which religiosity/spirituality cluster will be most strongly correlated with alcohol consumption and abuse?* This research question is designed to draw out the particular cluster of religiosity/spirituality variables that most negatively correlates with alcohol consumption.
Knowing and understanding which manifestation of religious and spiritual experience will be the best gauge for protecting against risky health behaviors such as alcohol abuse has strong implications for both the religious community and those wanting to further study spirituality as a deterrent to poor behavior decisions. Furthermore, this study will briefly examine which religiosity/spirituality question within each cluster is most strongly correlated to consumption and abuse.

*What is the correlation between religiosity and spirituality and with whom one drinks and where the drinking takes place?* The literature emphasizes that religiosity and spirituality are negatively correlated with both the frequency and extent of alcohol consumption. This study will briefly examine the correlation between religiosity/spirituality and the two measures of sociality regarding alcohol consumption.

*Does the correlation of religiosity and spirituality with all four measures of alcohol consumption differ by gender?* To answer this question, we will compare the correlations between religiosity/spirituality and each alcohol measure after creating a split file data set comparing male and female responses. The anticipation based on a portion of the literature, is that the negative correlation between religiosity/spirituality and each alcohol measure will be slightly stronger among women than men (Bjarnason 2005).

*Does the correlation of religiosity and spirituality with all four measures of alcohol consumption differ when comparing underage and of-age students?* Because under-age drinking is illegal and socially stigmatized as an inappropriate behavior, we will separate the respondents into two age categories to see if the negative correlation between religiosity and spirituality is enhanced by the fact that underage drinking is illegal. If this is so, we would anticipate the
negative correlation between religiosity/spirituality and consumption to be stronger among the underage.
Method

This research project is part of an independent undergraduate research thesis through the University of North Texas Honors College. The dual purpose of this study is to examine the relationship between religion/spirituality and alcohol use/abuse and to create a new model of measuring this relationship by redefining and categorizing religiosity and spirituality variables.

Survey Development

The survey used for this study was a questionnaire written by the researcher. The questionnaire was developed through reviewing the existing literature measuring religiosity and spirituality, compiling detailed lists of the religiosity/spirituality questions asked in each survey, defining the particular manifestations of religiosity/spirituality that were measured, and categorizing them into three broad clusters. Religiosity and spirituality variables were both separately categorized and clustered. These clusters are specifically defined in the following discussion of survey variables. The purpose of the clustering was to ensure that the survey was defined by a comprehensive approach to measuring the religiosity and spirituality of the respondents (Appendix B).

The survey is broken into four sections: questions regarding the respondent’s religiosity, spirituality, alcohol use, and age/gender. Religiosity questions in the analysis are labeled as “R,” spirituality questions as “S,” alcohol questions as “A,” and age/gender questions as “V.” There are three clusters within religiosity – A, B, and C – and three questions within each cluster – 1, 2, and 3 – so each religiosity questions is labels as R; A, B, or C; and 1, 2, or 3. Thus a typical religiosity question is referenced as RB3, for example. There are three clusters of spirituality questions – D, E, or G – and two questions within each cluster – 1 or 2. Spirituality questions are
labeled as S; D, E, or G; and 1 or 2. Thus a typical spirituality question is referenced as SG2, for example. Alcohol questions are measured as A and then further subdivided into “H” for frequency, “K” for extent, “P” for who one drinks with, and “Q” for where one drinks. Alcohol questions are therefore labeled as AH, AK, AP, and AQ. Gender and age are references as V20 and V21, respectively.

Religiosity clusters A, B, and C measure different manifestations of religiosity as seen in the literature. Cluster A represents public and private participation and practice; cluster B represents religious self-identification and personal beliefs; cluster C represents socialization into religious norms and practices. Spirituality clusters D, E, and G measure different manifestations of spirituality both as seen in the literature and to express spirituality as an alternative to religiosity. Cluster D represents spiritual socialization; cluster E represents spiritual practice; cluster G represents self-perceived spiritual connection (belief and ideology). These six clusters are further discussed in the Variables section of the research method.

Design

Data was collected through a 21-question survey administered to the students at the University of North Texas in December 2006. In order to obtain a representative sample of the student body, university core (required) classes were chosen in four different departments – political science, history, English, and sociology – and the various departments heads were contacted by email via an attached letter (see Appendix D) requesting their consent to allow the surveys to be distributed in some of their classes. The department of political science complied and offered three large classes for survey administration that would provide enough students to complete the target number of 200 surveys. Professors in the department were informed of the
nature and intent of the study, and their compliance was requested via electronic mail to allow
the researcher to offer the survey to students in their classes.

The principal investigator administered the survey in the first 15 minutes of the classes in
which the professor had complied. Students were explained the nature and intent of the study and
were asked to sign a consent form prior to completing the survey (Appendix E). Participants
were informed verbally, on the consent form, and through written introduction to the survey that
they were not required to participate in taking the survey and that refusing to participate, refusing
to answer any specific question, or stopping the survey at any time was permissible and would
not have any effect on the grade they receive in the course that the test was administered in or
any other course in which they were enrolled. The participants were not required to put their
names or any form of identification on the survey. The students were encouraged to answer the
questions honestly and fully due to the anonymous nature of the study and to assist the researcher
in obtaining the most complete and accurate information possible. This consent form is also
necessary to protect the participant’s identity against any self-incrimination regarding alcohol
consumption.

Course instructors also signed a consent form that permitted the survey to be
administered in his/her class at a time specified by the course instructor based on his/her
convenience (Appendix C). The surveys were be typed, completed manually, and self
administered. Most participants were finished with the survey within 10 minutes.

**Ethical Concerns**

Approval for this study was obtained through the University of North Texas Institutional
Review Board (FWA00007479), and the principal investigator completed Human Subjects
Training through the National Institute of Health (Appendices A, F, and G).
The survey includes questions that ask respondents to disclose their participation in risky health behaviors, which includes underage drinking. In order to ensure anonymity, the course instructor was not allowed to have access to the completed surveys nor were they allowed to award extra credit as an incentive for students to complete the survey. Students were informed that the survey was completely voluntary and that participation would only benefit the goals of the researcher. The students’ names appeared nowhere on the survey. The only form of identification on behalf of the students was their signature on the consent form which was collected before the dissemination of the survey material and not shared with the course instructor.

**Participant Characteristics**

There are 26,600 undergraduate students enrolled at the University of North Texas. The student population is 56 percent female and 44 percent male. In this study, there were 107 women (57.5 percent) and 79 men (42.5 percent). UNT is located in a suburban setting and is commonly considered to be a commuter campus, so there is a large population of older, “nontraditional” undergraduate students.

**Sample**

This study is concerned with the religiosity, spirituality, and alcohol consumption of college undergraduate students ages 18 to 25 in the United States. The sample of 200 undergraduate students was drawn from the University of North Texas because of the project’s connection with the University’s Honors College. Benefits to administering surveys at the University of North Texas are its sizable population, wide age-range of undergraduate students, relatively equal distribution of males to females, and demographic diversity compared with other north Texas universities and colleges.
Variables

Religiosity, spirituality, gender, and age are the independent variables, and four factors concerning alcohol consumption are the dependent variables. This study examines the correlation between religiosity and alcohol use, spirituality and alcohol use, and will briefly examine the differences in age and gender in the correlation between religiosity/spirituality and alcohol use.

Gender. The independent variable gender is measured dichotomously (1=male, 2=female). Because college is such a developmental time for young people and men and women both develop and are often treated differently in both social and religious institutions, separating males and females in the final analysis of this study is important to observe any measurable differences in the correlation between religiosity, spirituality, and alcohol use.

Age. The independent variable age will be measure dichotomously with the legal drinking age as the threshold between the two categories (1=18-20 or “underage,” and 2=21-25 or “of age”). It is important to distinguish between these two age categories because drinking underage is considered socially and legally to be a more “risky” behavior. If higher religiosity indeed is a protective agent against alcohol use as a risky behavior, the implication is that the negative correlation between religiosity and alcohol use may be slightly stronger for those students who are underage than for their of age counterparts. General alcohol consumption is perceived as less “risky” or “rebellious” (except by various religious and spiritual denominations who condemn drinking outright) after an individual has reached the age of 21.

Religiosity. The independent variable religiosity is one of two focal points in this study. Religiosity variables were gathered from various literatures, synthesized into a master list of previously asked religiosity questions, and then categorized into three broad clusters, or types of religiosity questions. Each cluster is then represented in the survey by three questions written by
the principal investigator. These sets of three questions, therefore, are representative of a particular genre of questions concerning religiosity. The three clusters are defined as follows: demonstration of religious beliefs in public participatory activities and private personal activities – also defined as public/private participation and practice, religious self-identification and personal beliefs, and socialization into religious norms and practices.

Public/private participation and practice is represented by three questions on the survey concerning the respondent’s participation in organized religious services, the frequency with which they discuss with others their religious preferences, and the extent to which they participate publicly in traditions, ceremonies, and rituals associated with their religious beliefs. These three questions will have five responses each ranging from “Never” to “Several times per week.” Religious self-identification and personal beliefs is represented by three questions measuring the respondent’s consideration of themselves as a religious person, their reliance on religion to give direction and meaning to their lives, and the passion and fervor with which they uphold the doctrines and traditions of their religious beliefs. These three questions will have five responses each ranging from “Strongly disagree” to “Strongly agree.” Religious socialization is measured by three survey questions concerning the length of time the respondent has considered themselves affiliated with their current religion, the attitudes of their immediate family members (who were involved in their upbringing) and close friends toward the respondent’s current religious beliefs, and the degree to which they surround themselves in social settings with people of their same religion. The first of these three questions measuring the length of time the respondent has considered themselves affiliated with their current religion will have five responses ranging from “No time” to “More than 5 years.” The second and third questions
measuring religious socialization with have 5 responses each ranging from “Strongly disagree” to “Strongly agree.”

Support for this method of categorizing religiosity variables in this way can be found in the literature as well. Bjarnason, Thorlindsson, Sigfusdottir, and Welch (2005) divided religiosity in their analysis into four categories: individual religiosity, divine support, religious participation, and religious parents. In a similar manner, this present study has found justification through similarities of religiosity variables throughout the literature to cluster particular types of variables together. Religious participation is expanded to included private, personal representation of religiosity; individual religiosity and divine support are combined to form religious self-identification and personal beliefs, and religious parents was broadened to include more forms of socialization.

Spirituality. Often assessed as a subset of religiosity and measured as an ambiguous self-awareness, connection with spiritual forces, or a heightened sense of morality, this study chooses to measure religiosity and spirituality as independent ideas and both through categorization of variables found in the literature. Spirituality has been defined as a “culturally constructed notion whose meaning may change over time” (King 2005:8). Spirituality may also be described as an expression of religiosity without the formal institutions, organized services, rules and regulations, or physical icons (King 2005). Some religious traditions are also considered to be more spiritually-focused than others, emphasizing an emotional connection with the divine over participation in religious services. These factors make spirituality difficult to identify, measure, and quantify.

In this study, religiosity and spirituality will be measured similarly to determine in part if there exists a clear difference between the correlations of religiosity and spirituality with alcohol
use. By grouping religiosity and spirituality variables into similar clusters and subsequently asking questions between religiosity and spirituality that somewhat resemble each other, the survey avoids leading the respondent to view or define religiosity or spirituality in any particular way. The survey is not intended to define religiosity or spirituality for the respondent, so general questions regarding spirituality and religiosity will simply measure the respondents’ relationship with their spirituality/religiosity and avoid causing confusion with the respondents as to what constitutes religiosity or spirituality. The definitions of spirituality and religiosity are left up to the individual respondent. The questions simply measure the respondent’s affiliation with and commitment to their religiosity/spirituality.

Similar to religiosity, spirituality will be measured as three clusters, each with only two questions representing each individual cluster. These three clusters are: spiritual practice, self-perceived spiritual connection (similar to self-identification), and spiritual socialization. Spiritual practice is measured according to the level of enjoyment the respondent finds in participating in spiritually-enhancing activities, and the extent to which spirituality effects the decisions that they make. Self-perceived spiritual connection is measured as the connection the respondent feels to spiritual forces and their belief in God or a higher power. Spiritual socialization is represented by survey questions that measure the respondents’ tendency to surround themselves with what they consider to be spiritual people and the extent to which they seek to befriend spiritual people. Each spirituality question will have five response choices ranging from “Strongly disagree” to “Strongly agree.”

Alcohol consumption. Alcohol consumption will be divided into four categories: the frequency of alcohol consumption, the amount of alcohol consumed or the extent of alcohol consumption, and two measures of the sociality of alcohol consumption – who the respondent
drinks with (measured from drinking in solitude to a gathering of close friends to a large group of strangers) and where they typically drink (ranging from at their place of residence to a bar). Frequency of consumption ranges from not at all to several times per week, and the extent to which the respondent consumes alcohol ranges from none at all to more than five drinks (typically considered “binge drinking”).

Analysis

Statistics. In order to analyze the data, the responses to each survey question were assigned a number from 1 to 5 (except for age and gender where there are only two answer choices). These response numbers were entered into SPSS to run a series of correlations which were used to assess the strength of each relationship examined in the analysis of the data. Pearson’s correlation coefficient (r) was used as a statistical measuring tool; even though it is typically used with interval-ratio variables and the variables in this study are defined as ordinal, it is commonly acceptable to use Pearson’s correlation coefficient (r) with ordinal variables when there are 5 or more response choices per question. Both religiosity/spirituality and alcohol measures are considered ordinal; the sociality measures are considered to be ordinal as well because each implies an increasing size in social setting in which the behavior is taking place.

Missing values. There were 200 surveys administered, but 14 had to be excluded from the final statistical analysis due to unanswered questions. Removing the missing cases reduced the survey count to 186. All 186 cases were used in correlating religiosity and spirituality questions with the frequency of alcohol consumption. In this correlation it was important to include the responses of all non-missing surveys. However, when correlating religiosity and spirituality to the extent of alcohol consumption and the two social dimensions (with whom and where the drinking took place), the case number was reduced to 133. When asking about the extent to
which, with whom, and where alcohol consumption was taking place, it was no longer necessary to include the survey data of respondents who had answered “I do not drink” when asked the frequency of their consumption. The analysis was more concerned with those who drank when asking about these three factors of consumption. The assumption was also that if the respondent answered “I do not drink” for one of the four alcohol questions, then their response would be the same for the other three. This was true in all but two cases where the respondents claimed to not drink except on the questions of extent and with whom they drank. Most likely, the respondent had drunk once or twice so as to be able to answer a few of the questions. In an attempt to avoid problems like this, the survey included the term “typically” when addressing alcohol consumption to imply that the question is not addressing those who have had in their lifetime only one or two alcoholic drinks. These two cases were excluded from the analysis of religiosity, spirituality, and the three alcohol questions other than frequency, reducing the final survey count for these analyses to 131.

**Limiting Factors**

This study is limited by a relatively small percentage of the University of North Texas student population, and the researchers’ access to those students is tempered by course instructor approval. This study will also face a challenge to protect against bias in survey questions on religiosity that favors the Judeo-Christian perspective.
Results

Participants

Out of the 200 surveys distributed and returned, 86 were male and 114 were female. There were 156 students who reported to be between the ages of 18 and 20, and 43 were between the ages of 21 and 25. One case was missing because they did not report an age. Of the 199 who reported an age, only 186 had fully completed a survey that contained no missing data. In the 13 excluded cases, the surveys could not be used either because the respondent skipped several questions or attempted to write in their own answers. Only surveys completed in their entirety and answered according to the choices given were used. Participants were asked in the verbal instruction portion of the survey to completely fill out the survey and to refrain from taking it if they were not within the desired age range, but some either did not hear or chose to fill it out anyways.

Frequencies

Religiosity. Frequencies for each individual religiosity question can be found in Table 13. With each religiosity question, one or two answer choices generally receive a noticeably greater percentage of the responses than the others. For example, 41.9 percent of the respondents answered “Agree” (answer choice 4) to question RB4 reading “I consider myself to be a religious person.” The next most frequent response for the same question was 25.3 percent who “Strongly agree” (answer choice 5). Another example is RC7, “I have considered myself affiliated with my current religion for,” where 70.4 percent of the response went toward “3-5 years” (answer choice 5). The two exceptions to this were survey questions RA1 measuring the frequency of participation at organized religious services and RA3 measuring the frequency of
public participation in traditions, ceremonies, and/or rituals associated with the respondents’
religious beliefs. The distribution of response percentages across these two answer choices was
fairly even; RA1 response percentages ranged from 12.4 ("Two to three times per month") to
26.9 ("About one time per month or less"), and RA3 response percentages ranges from 12.9
("Two to three times per month") to 29.6 ("Never").

Spirituality. Frequencies for each individual spirituality question can be found in Table 14. Survey questions SD10 “I typically surround myself with what I consider to be spiritual
people,” SE11 “I enjoy participating in activities that enhance my spiritual journey,” SG12 “I
believe in God or a higher power,” and SE15 “My spirituality affects the decisions I make” were
characterized by a response structure in which one answer choice received noticeably more
responses than the others. For example, in response to question SD10, 52.7 percent of the
response was “Neither agree nor disagree” while the second most common response, “Agree,”
received only 23.7 percent. The other spirituality questions SG13 “I feel strongly connected to
spiritual forces” and SD14 “Most of my friends consider themselves to be spiritual people” had
more evenly distributed responses across answer choices but still had two questions pull in quite
a bit of the total percentage: “Neither disagree nor disagree” (29.6 percent) and “Agree” (38.7
percent) for SG13 and “Neither disagree nor disagree” (36 percent) and “Agree” (41.9 percent)
for SD14.

Alcohol. Tables 6, 7, 8, and 9 show detailed information on alcohol questions regarding
consumption frequency, extent, “with whom,” and “where,” respectively. The frequencies
revealed that the majority of the students either do not drink alcohol or they drink a few times per
month or less. Among those who drink, more than half have less than 3 drinks, most drink with a
few close friends, and drink either at their place of residence or at the home of a close friend.
Justifying religiosity and spirituality clusters

The individual religiosity and spirituality questions were grouped together in clusters to represent different aspects of religiosity and spirituality found in previous research. The religiosity and spirituality questions were intended to represent a broad spectrum (i.e. high content validity) rather than one or two particular manifestations of religiosity/spirituality. Before analyzing the correlation between religiosity/spirituality and alcohol use by using the clusters, it is necessary to statistically justify clustering in the first place. This was done through analyzing how closely religiosity questions correlated with other religiosity questions and spirituality questions with other spirituality questions within and between the various clusters. The clusters are representations of the six broad dimensions of religiosity and spirituality that have been previously studied in the literature. This study is designed to examine the correlation of alcohol use and broad categories of religiosity and spirituality.

Religiosity clusters, according to the correlation results, are statistically justifiable and there is no clearly more effective way to cluster the individual questions. Therefore, variables will be most effectively correlated to alcohol measures when they are clustered. For detailed Pearson correlation coefficients showing how religiosity questions are correlated, see Table 1. For the clusters to be statistically justified, the questions RA1 “I participate in organized religious services,” RA2 “I have conversations with others about my religious preference,” and RA3 “I participate publicly in traditions, ceremonies, and/or rituals associated with my religious beliefs (including worship, meditation, reading sacred texts, participating in sacramental activities, etc.)” should be more closely correlated with each other than with other groupings of religiosity questions. The same goes for the three questions RB4 “I consider myself to be a religious person,” RB5 “I rely on my religion to give direction and meaning to my life,” and RB6
“I feel passionate about upholding the doctrine and traditions of my religious beliefs,” and for the set of three questions RC7 “I have considered myself affiliated with my current religion for,” RC8 “My immediate family members (that family that I was raised in) are supportive of my current religious beliefs,” and RC9 “I usually surround myself in social settings with people of my same religion.”

We find statistical justification for the clustering of the first group which measures religious participation and practice: RA1, RA2, and RA3. For question RA1, the correlation between it and RA2 and the same with RA3 is stronger than the correlation between RA1 and any other religiosity questions, except for the correlation between it and RB4, RB5, and RB6. The correlation between RA1 with RA2 and RA3 was not drastically different, however from the correlation between RA1 and RB4, RB5, and RB6. The correlation between RA2 and other religiosity questions is strongest with RA1 and RA3, providing justification for its clustering with those questions. RA3, similar to RA1, was most strongly correlated with RA1 and RA2 but also saw relatively the same strength of correlation between it and RB4, RB5, and RB6. One might ask then why, if RA1 and RA3 had strong correlations with RB4, RB5, and RB6, they would not be clustered with these questions as well. The answer is two-fold. First of all, the correlation between RA2 and RA1 and RA3 emphasizes the need for RA2 to be clustered with RA1 and RA3. The correlation between RB4, RB5, and RB6 and RA2 is too low in comparison to its correlation with RA1 and RA3 to make sense for RA2 to be clustered with RB4, RB5, and RB6, which would be necessary if we were to cluster RA1 and RA3 with RB4, RB5, and RB6. Secondly, we see among all religiosity questions a relatively strong correlation with RB4, RB5, and RB6, but not enough to justify clustering all religiosity questions into one group, which would defeat the purpose of the clustering all together.
For several reasons, RB4, RB5, and RB6 which measure religious self-identification and ideology are clustered together with the exclusion of all other religiosity questions despite a significant correlation between these three questions and others such as RA1, RA3, RC7, RC8, and RC9. There are very strong correlations among RB4, RB5, and RB6. The correlations between each of these three questions with the other two in the cluster are stronger than the correlations between any one of these three and any other religiosity question. These three questions are not included in any other cluster, nor do they allow for any other question to be included in their cluster, because of the unique strength of their three correlations. We see that RB4, RB5, and RB6 are often strongly correlated with other questions in other clusters, but because questions RB4, RB5, and RB6 are so strongly correlated with each other without a significant influence from any other cluster, this cluster is statistically justifiable. It seems as if the questions RB4, RB5, and RB6 are indicators for religiosity questions as a whole considering their strong correlation with so many other religiosity questions.

RC7, RC8, and RC9 which measure religious socialization comprise the most loosely correlated of all thee clusters, but there is still statistical evidence to support the cluster. RC7 is significantly correlated with RC8 and RC9, but it sees a slightly (although the difference is negligible) correlation with RA1, RA3, and RB4, RB5, and RB6. The largest difference in correlation between RC7 and any other religiosity question compared to the correlation between RC7 and RC9 (the weaker of the two correlations between RC7 and RC8 and RC9) is .211 (subtracting the correlation between RC7 and RC9 from the correlation between RC7 and RC8). After discarding the correlation between RC7 and RB4, RB5, and RB6 (because, as determined earlier, it is not most beneficial to cluster RB4, RB5, and RB6 with any other grouping of questions), the biggest difference in correlation between RC7 and RC9 and any other religiosity
question is .091 (subtracting the correlation between RC7 and RC9 from the correlation between RC7 and RC1). In a manner similar to that of RC7, the strongest difference in correlation between RC8 and RC7/RC9 is .052 (after discarding RB4, RB5, and RB6; and subtracting the correlation between RC8 and RC9 from the correlation between RC8 and RC1). For both RC7 and RC8, the strongest correlation between each of these two questions and other religiosity variables (other than RB4, RB5, and RB6) is found with RA1. However, RA1 is too strongly correlated with RA2 and RA3 – compared to the strength of its correlation with RC7 and RC8 – to be grouped with either RC7 or RC8. RC9 has the weakest correlation with each of the two questions RC7 and RC8 compared to the rest of its cluster, but there is no justification to cluster it with the cluster RB4, RB5, and RB6 for reasons discussed earlier, nor is there justification to cluster it with RA1, RA2, or RA3 because of the strength of the correlations within that first cluster.

Spirituality clusters, according to the correlation results, are statistically justifiable. Therefore, spirituality variables will be most effectively correlated to alcohol measures when they are clustered. For detailed Pearson correlation coefficients showing how spirituality questions are correlated, see Table 3. For the clusters to be statistically justified, the questions SD10 “I typically surround myself with what I consider to be spiritual people” and SD14 “Most of my friends consider themselves to be spiritual people” should be more closely correlated with each other than with other groupings of spirituality questions. The same goes for the two questions SE11 “I enjoy participating in activities that enhance my spiritual journey” and SE15 “My spirituality affects the decisions I make” as well as for the pair of questions SGI2 “I believe in God or a higher power” and SGI3 “I feel strongly connected to spiritual forces.”
The first cluster of spirituality questions including SD10 and SD14 measuring spiritual socialization is statistically justified as a cluster because of the fact that among all of the spirituality questions, SD14 has the strongest correlation to SD10 when comparing the correlations of SD10 and each of the other spirituality questions. This strong correlation is reciprocated when comparing the correlation between SD14 and SD10 with those of SD14 and all of the other spirituality questions.

The second cluster of SE11 and SE15 measuring spiritual practice is also characterized by high correlations. When comparing the correlation between SE11 and SE15 with that of SE11 and each of the other spirituality questions, the only other question that correlates with SE11 slightly more strongly that SE15 is SGI3. Similarly, when comparing the correlation between SE11 and SE15 with that of SE15 and each of the other spirituality questions, the only other question that correlates with SE15 slightly more strongly than SE11 is SGI3. (Later it will also be discussed how the correlation between SGI3 and both SE11 and SE15 is slightly more strong than the correlation between the other question within the same cluster as SGI3, which is SGI2 and measures spiritual connection.) The difference between the correlations of SE11 and SE15 and that of SE11 with SGI3 is small – a mere .039. Also, the difference between the correlations of SE15 ad SE11 and that of SE15 with SGI3 is small – only .063. These negligible differences between the correlations do not provide enough doubt in the reasoning behind clustering SE11 and SE15 together to force a change in the clusters.

It might seem plausible to cluster SE11, SE15, and SGI3 together. However, the spirituality question SGI2 that was originally designated to be clustered with SGI3 is correlated with SGI3 more strongly than with any other spirituality question. The strength of this correlation is enough to pull SGI3 away from the SE11/SE15 cluster to maintain the cluster of
SG13/SG12 (spiritual connection). Furthermore, the differences between the correlations of SE11 and SE15 with SG13 compared to that of SG13 and SG12 is at most .034.

**Religiosity and spirituality correlation strength**

To examine the strength of the correlation between religiosity and spirituality, all religiosity question responses were averaged to produce a broad variable – or “mega-cluster” as affectionately termed by the research team – of religiosity across the sample. All spirituality question responses were also averaged for the same purpose. These two variables were then compared in a correlation to assess how closely correlated they were with each other first in regards to alcohol consumption alone and second in the context of the three other alcohol variables measuring the extent of consumption and the social settings regarding consumption (measured by “with whom” and “where”). These two groupings of alcohol variables were separated because, as was discussed earlier in the Methods section, the number of cases of respondents was reduced to 131 when those who reported no consumption at all were excluded from all statistical measurements regarding the extent of consumption and the “with whom” and “where” questions.

In the context of question AH16, or frequency of alcohol consumption, the correlation between the mega-cluster of religiosity questions and the mega-cluster of spirituality questions was .785. In the context of the other alcohol questions, the mega-clusters’ correlation was .752. The lower correlation in the second mega-cluster measurement has largely to do with the fact that across all religiosity and spirituality clusters, the correlations between the clusters and the three alcohol questions of extent, with whom, and where – especially regarding the latter two questions – were weaker overall, as will be discussed in more detail later.
The correlations between clusters of religiosity and spirituality were also examined to further analyze the relationship between religiosity and spirituality. For a detailed chart on the correlations between the individual clusters, see Table 2 (with just the strongest correlations listed for each cluster) and Table 4 (in which the strongest correlation for each cluster is highlighted in blue and all correlation strengths are listed). Overall, both clusters B (religiosity) and E (spirituality) seemed to be consistently the source of strongest correlation among the other clusters. Clusters A, C, E, and G correlated most strongly with cluster B; clusters B and D correlated most strongly with cluster E. The cluster correlation strengths ranged from a low of .403 between clusters D (religiosity) and G (spirituality) to a high of .733 between clusters B (religiosity) and E (spirituality). It is interesting to note that the strongest correlation between clusters occurred between the two clusters that correlated most strongly with the other four clusters. The possible reasoning and implications for this and an analysis of the clustering of particular religiosity and spirituality questions will be discussed in more detail later.

The correlations between individual religiosity and spirituality questions were also examined to analyze the relationship between religiosity and spirituality. The specific correlations can be found in Table 5. It is evident from the chart that some religiosity/spirituality questions generally correlate strongly with other questions. For example, SE15 – which in the survey reads “My spirituality affects the decisions I make” and assesses the degree to which the respondent agrees with this statement – has a strong correlation of .737 with RB5 which reads “I rely on my religion to give direction and meaning to my life” and assesses the degree to which the respondent agrees with this statement. SE15 generally correlates strongly with each of the religiosity questions as well. Its weakest correlation, with RC7, is .332. Another example of a question that generally correlates strongly with the other questions is RB5. RB5 not only
correlated strongly with SE15 but also SG12 and SG13 which read “I believe in God or a higher power” and “I feel strongly connected to spiritual forces,” respectively, and assess the extent to which the respondent agrees or disagrees with these statements.

Other questions have a very weak correlation across the board. RC7 which reads “I have considered myself affiliated with my current religion for” and ranges in responses from “No time” to “More than 5 years” is generally weakly correlated to several of the spirituality questions, especially SD10 (with a correlation of .143) which reads “I typically surround myself with what I consider to be spiritual people” and assesses the strength to which respondents agree or disagree. SD10 generally weakly correlates to other religiosity questions as well, such as RC8 (with a correlation of .188), “My immediate family members (the family that I was raised in) are supportive of my current religious beliefs” and RB4 (with a correlation of .268), “I consider myself to be a religious person.”

Religiosity and spirituality correlation to alcohol consumption and abuse

Both religiosity and spirituality were negatively correlated with alcohol consumption and abuse. Alcohol consumption was measured by survey question AH16 reading “I typically consume alcohol (approximately)” and ranging in response from “I do not drink alcohol” to “Several times per week.” Extent of alcohol consumption was measured by survey question AK17 which stated “When I consume alcohol, I typically drink (approximately)” and ranged in response choices from “I do not drink alcohol” to “More than 5 drinks.” For each of the following analyses regarding the correlations between religiosity and spirituality and all four measures of alcohol consumption, refer to Table 10.

To begin examining the correlation between religiosity and spirituality and alcohol consumption and abuse, we will start with the mega-clusters. Both mega-clusters had a negative
correlation with both alcohol consumption and abuse. Religiosity mega-cluster had a correlation of -.294 with frequency and -.119 with extent of consumption (a high frequency and a high extent are used to measure abuse in this study). Spirituality mega-cluster had a correlation of -.285 with frequency and -.115 with extent of consumption. These were not particularly strong correlations, but the results were indeed statistically significant.

Each individual cluster also had a negative correlation with both frequency and extent of alcohol consumption. Regarding frequency of consumption, the religiosity clusters ranged from -.144 with cluster C to -.311 with cluster A; spirituality clusters ranged from -.129 with cluster G to -.306 with cluster E. Regarding extent of consumption, religiosity clusters ranged from -.034 with cluster C to -.146 with cluster B; spirituality clusters ranged from -.036 with cluster D to -.196 with cluster E. For a review on the particular manifestations of religiosity and spirituality that the individual clusters represent, see the Survey Development subsection under Methods earlier in the research paper.

More specifically, each individual religiosity and spirituality question had a negative correlation with the frequency of alcohol consumption. Regarding frequency of consumption, religiosity questions ranged from -.073 with question RC7 to -.308 with both questions RA1 and RC8; spirituality questions ranged from -.087 with SG12 to -.307 with SE11. Regarding extent of consumption, religiosity questions ranged from -.031 with RA3 to -.217 with RA2; spirituality questions ranged from -.043 with SG12 to -.219 with SE11. The correlation between SD14 reading “Most of my friends consider themselves to be spiritual people” and extent of alcohol consumption was less than .01 and consequently not significant. To read specific survey questions, refer to Appendix B.

Religiosity v. spirituality correlation and alcohol consumption
Since the religiosity and spirituality mega-clusters were derived from averaging all religiosity and spirituality individual question responses, respectively, the correlation between the religiosity and spirituality mega-clusters and both frequency and extent of alcohol consumption was used to determine whether or not religiosity has a stronger correlation to both consumption and abuse than spirituality. The data shows that although religiosity does have a higher correlation than spirituality with both measures of consumption, the differences between the religiosity and spirituality correlations on both accounts are negligible. Regarding frequency of consumption, religiosity mega-cluster shows a correlation of -.294 and spirituality has a correlation of -.285 – a mere difference of .009. Regarding extent of consumption, religiosity mega-cluster shows a correlation of -.119 and spirituality, -.115 – only a .004 difference.

Religiosity/spirituality clusters, individual questions, and alcohol consumption

Cluster A representing public and private participation and practice had the strongest negative correlation (-.311) among religiosity clusters to frequency of consumption. This result implies that perhaps the aspect of personal religiosity that has the greatest likelihood of affecting the respondent’s decision to consume alcohol might be public and private participation and practice. Within Cluster A, RA1 had the strongest negative correlation with frequency of consumption, implying that perhaps the frequency of attendance at organized religious services (or questions similar in nature to this one) might have the strongest negative effect on the likelihood of the respondent to frequently consume alcohol. However, question RB4 had a slightly higher correlation (-.340) than RA1; so perhaps even though cluster A and questions concerning public participation and practice seem to have the strongest negative effect on frequency of consumption, questions like RB4 measuring the respondents’ self-conception as a religious person might be strong indicators as well.
Regarding spirituality and frequency of consumption, cluster E measuring spiritual practice, by a slightly stronger correlation than cluster D measuring socialization (-.306 and -.303, respectively), seems to be an indicator for the likelihood of the respondent to abstain from drinking or to drink less frequently. SE11 (within cluster E) measuring the extent to which the respondent enjoys participating in services that enhance their spiritual journey had the strongest negative correlation to frequency of consumption. Perhaps the personal affection that the respondent has for and the level of enjoyment they get out of their spiritual experience are the best spirituality indicators for their likelihood to have less frequency of alcohol consumption.

The strength of the correlations between religiosity and spirituality and the extent of alcohol consumption is much lower in general than frequency of consumption. The religiosity and spirituality clusters that have the strongest negative correlations are B (-.146) and E (-.196), measuring religious self-identification and personal beliefs and spiritual practice, respectively. Therefore these two manifestations for religiosity and spirituality, when seen in high levels in the respondent, may be the best indicators for a respondents’ choice to consume a smaller amount.

Within cluster B, RB4 measuring the respondents’ self-conception of religiosity had the strongest correlation (-.158), but RA2 measuring the frequency with which the respondent has conversations with others about their religious preference had the strongest correlation (-.217) among all religiosity questions. SE11 had the strongest correlation (-.219) both within cluster E and among all spirituality questions regarding frequency of consumption. Thus, we can predict that a high frequency of conversations regarding religious preference and a high level of enjoyment in activities enhancing the respondents’ spiritual journey will be indicative of a low extent of consumption.

Religiosity, spirituality, and sociality measures
In both measures of the sociality of drinking, in other words, with whom one drinks and where, the spirituality mega-cluster had stronger negative correlations (-.149 and -.168) than religiosity (-.118 and -.107). No spirituality or religiosity cluster correlation went above -.173 (cluster E regarding where consumption takes place) for either with whom or where, and individual religiosity questions regarding both of these alcohol measures stayed below a correlation of -.185 (RC9 and “with whom”). The exceptions to this generalization are SE11 and “where” (-.212), and RA2 with both “with whom” (-.295) and “where” (-.244). RA2 is the only religiosity/spirituality question with a fairly high negative correlation with both measures of consumption sociality. RA2 measures the frequency with which the respondent has conversations with others about their religious preference. Interestingly, it is a question regarding public participation and practice within religiosity that is the strongest indicator for lower values with both alcohol sociality measures. Additionally, there are two cases (RC8 and SG12 and “with whom”) where the correlations are not statistically significant (between -.01 and .01). See Table 10 for details regarding correlations with alcohol measures.

**Gender differentiation**

Table 11 provides detailed information on the correlations between religiosity/spirituality and the four measures of alcohol consumption when divided by gender. There were 186 total survey responses included in the correlation between AH16 and religiosity/spirituality clusters. After dividing these responses by gender for question AH16, 79 respondents were male, and 107 respondents were female. For questions AK17, AP18, and AQ19, there were 131 cases (you will remember that some respondents’ answers were removed because of their responses to AH16 – and how they do not drink alcohol – as discussed earlier). Of these 131, 58 were male, and 73 were female. When analyzing the correlation between religiosity/spirituality and all four
measures of alcohol consumption comparing genders, the correlations between religiosity/spirituality clusters (as opposed to individual questions) will be used.

Regarding AH16, frequency of alcohol consumption, females had much stronger negative correlations across all clusters. The biggest difference in correlations was with cluster A, measuring religious public participation and practice (-.429 for females and -.147 for males). Thus females are more likely to reduce their alcohol consumption with higher levels of religiosity and spirituality.

The correlation difference between men and women for AK17, AP18, and AQ19 was not at all like that seen with AH16. The gender correlation differences for AK17 are generally small (but still significant), and in some cases men have a stronger negative correlation (clusters A, C, D, and G) than women. In fact, women actually saw a positive correlation, although small, between AK17 and clusters C (.027), D (.016), and G (.044). Men had a negative correlation with each cluster. The correlation differences between men and women for AP18 were also small, but men has stronger correlations in clusters A, B, C, E, and G. Women again saw a positive correlation between AP18 and cluster B (.013) while men again had all negative correlations.

The correlation differences between men and women for AQ19 were also generally small. Men had a stronger negative correlation in clusters A, B, C, D, and G; women again had a slightly positive correlation, this time between AQ19 and cluster C (.075) while men again had all negative correlations.

Age differentiation

For more details on the correlations between religiosity clusters and alcohol variables when the respondents are split between two age categories, see Table 12. There were 186 total survey responses included in the correlation between AH16 and religiosity/spirituality clusters.
After dividing these responses by age for question AH16, 146 respondents were underage, and 40 respondents were of-age. For questions AK17, AP18, and AQ19, there were 131 cases (because of the respondents removed because if their answer to AH16 as discussed earlier). Of these 131, 94 were underage, and 37 were of-age.

For AH16, in all clusters but one (D), of-age respondents had a stronger negative correlation between frequency of consumption and their religiosity/spirituality. Even in cluster D, the difference between underage and of-age was a mere .002. In several clusters the differences in correlation strengths for AH16 were fairly large. For cluster G, for example, of-age students’ correlation between frequency of consumption and cluster G was -.255 while for underage students it was -.021. Another example is with cluster A where of-age students’ correlation was -.411 and underage students’ correlation was -.277.

For AK17, of-age students had a stronger correlation across all clusters with the exception of cluster E (underage students had a correlation of -.232 and of-age students -.117). Interestingly, three clusters saw a positive correlation with AK17 and underage respondents. Clusters C, D, and G were all positively correlated to increasing extent of consumption. For AP18, underage students had stronger negative correlations between religiosity and spirituality clusters and drinking in increasing sizes of social groupings. In fact, all of the of-age correlations regarding AP18 and religiosity and spirituality clusters with of-age respondents were positive while for the underage respondents these correlations were all negative. The negative correlations were all moderately strong, ranging from cluster B with -.135 to most other clusters closer to cluster E at -.267. The positive correlations were all fairly weak with cluster D at .214 as the highest but most other correlations hovering close to .05 (cluster E). For AQ19, all cluster correlations were more negative for underage students with the exception of cluster E where of-
age students had a slightly stronger negative correlation (-.179) than underage respondents (-.143). Like we saw with AK17, AQ19 also had three positive correlations between the alcohol variable and clusters C and D (excluding G), but this time it was the of-age students who were positively correlated. Cluster C had a correlation of .048, and cluster D had a correlation of .152 for of-age students.
Discussion

Frequencies

Religiosity. In survey question RA1, slightly more than one-half of the respondents reported that they never participate in organized religious services or go no more than once per month. Another third of the sample said that they never participate publicly in traditions, ceremonies, and/or rituals associated with their religious beliefs. Furthermore, nearly half of the respondents reported either never having conversations with others about their religious preferences or no more than once per month. However, two-thirds agreed with the statement, “I consider myself to be a religious person,” nearly another two-thirds agree that they rely on their religion to give direction and meaning to their life, and yet another nearly 60 percent say that they feel passionate about upholding the doctrine and traditions of their religious beliefs. These results seem to indicate that personal religiosity has retreated from the social scene and has become a private, individual characteristic. More respondents claim that their religiosity means something personal to them and that it helps them in finding meaning and direction, but they are not quick to share it with others or express their beliefs in public. Is religion becoming more of a private, personal experience without all of the public ceremonies and traditions, or is this just a result in a survey targeting young people that represents their greater resistance to structured and organized public services?

Spirituality. More than 50 percent of respondents reported neutrality about whether or not they typically surround themselves with what they consider to be spiritual people. Just over 40 percent expressed neither agreement nor disagreement with enjoying participating in activities that enhance their spiritual journey. Another third neither agrees nor disagrees with the statement,
“Most of my friends consider themselves to be spiritual people,” and nearly one fourth of the respondents are unsure about the extent to which their spirituality affects the decisions that they make. All of these responses of indifference to spirituality questions regarding ones relationship to spiritual people and activities leads us to conclude that either our society is apathetic towards spirituality that caused such a neutrality in the responses, or that there is a general uncertainty about what spirituality is and how it manifests itself in everyday life that makes these questions difficult to answer. I tend to support the latter reasoning. As discussed in the Theoretical Framework, the need for religion and spirituality is neither waning nor waxing, but the conceptualization of spirituality for many people is complicated. Understanding what the general target population defines as spiritual is vital to performing an effective research study on spirituality. Despite the possible confusion as to what specifically defines spirituality, many respondents still embrace it. Nearly 85 percent agree to a belief in God or a higher power, and nearly 60 percent agree to feeling strongly connected to spiritual forces. More than half – indeed, nearly two-thirds – of the respondents agree that their spirituality affects the decisions that they make. Their decisions could very well include healthy-risk behaviors such as alcohol consumption because as discussed previously, spirituality has a strong negative effect on frequency and extent of alcohol consumption.

Alcohol variables. About 80 percent of all respondents reported either not drinking at all or drinking only a few times per month or less. Furthermore, nearly 50 percent either do not drink or only consume one drink per occasion. These two statistical points of information are important to note because we must understand that the population we are studying does not seem to have problems with alcohol consumption, meaning they do not drink excessively. From this we ask if there is a moderating effect at work within this population to prevent high levels of
consumption, or is this just a population of students who are not interested in heavy drinking? We have seen that both religiosity and spirituality negatively correlate with alcohol consumption, often quite significantly, but in theory this is only for slightly more than half of the respondents who claimed to be religious and/or spiritual. What are the other moderating factors working in conjunction with religiosity and spirituality to keep such a large percentage of the sample population away from abusive alcohol usage? Perhaps these other students are affected by the broader culture that their peers are creating to refrain from dangerous consumption even if they do not report to be religious or spiritual themselves.

More respondents are likely to drink with a few close friends, nearly 50 percent, in fact, than anywhere else. Nearly one-third of the respondents are not drinking at all, so really all we have left is about 17 percent who like to drink with a large group of friends and less than 6 percent who drink with a large group of people and many they do not know. Again, when looking at where the respondent report drinking most frequently, we see a decrease in responses as the social framework becomes larger and more impersonal; in other words, more people report drinking at either their or a friend’s home rather than at large social gatherings or bars.

**Justifying religiosity and spirituality clusters**

Questions in each cluster were grouped together because they were worded in such a way that they would measure different dimensions of each manifestation of religiosity or spirituality. Earlier in the results section, we saw that these clustering’s were statistically justifiable, in turn providing support for the method of assessing the relationship between religiosity/spirituality and alcohol consumption by using these clusters. However, some questions arose when some questions within certain clusters correlated strongly with questions from other clusters.
Within religiosity, questions RB4, RB5, and RB6 were strongly correlated to several other questions outside of their cluster. RB4, RB5, and RB6 measure religious self-identification and personal beliefs, so it makes sense that these three questions be strongly correlated to religiosity as a whole because theoretically, the respondent that participates in public and private physical religious acts should self-identify as religious (RB4), rely on their religion for meaning (RB5), and feel passionate about upholding the traditions of the faith (RB6). If these things measured by cluster B are not true, there is little reason for the respondent to be taking part regularly in religious activities, both publicly and privately.

Within spirituality, questions SGI3 and SE15 generally have high correlations with each of the other spirituality questions. It is clear why SE15 has high correlations with other spirituality questions; SE15 measures the respondents’ feelings that their spirituality affects the decisions that they make. If they report having an influential spirituality, it would make sense that they surround themselves with spiritual people for mutual encouragement, they feel deeply connected to spiritual forces, and they enjoy their spiritual experiences. SGI3 is slightly less clear in explaining why it correlates strongly to other spirituality questions. It measures how strongly the respondent feels connected to spiritual forces. Perhaps the feeling of connectedness with the spiritual realm lays the foundation for spirituality to manifest itself in other areas of the respondents’ life, or perhaps it is because SGI3 is so highly correlated to SE15.

Religiosity and spirituality correlation strength

The mega-clusters of religiosity and spirituality, in the context of both groupings of alcohol questions (AH16 and AK17, AP18, and AQ19), had high positive correlations with each other (.785 for AH16 and .752 for the other alcohol questions). Three conclusions can potentially be drawn from this in an effort to explain the correlations. First, this high correlation may imply
that when one respondent answers that they are deeply religious; the likelihood that they are also deeply spiritual increases. Religiosity and spirituality may be more deeply intertwined both philosophically and practically than we have previously assumed. The second conclusion that is perhaps respondents have difficulty in separating out religiosity and spirituality as concepts; not that they are both deeply spiritual and religious (or have a strong aversion to both spirituality and religion) but rather that they somehow see the concepts as two manifestations of a shared underlying ideology, especially since the spirituality and religiosity questions were worded and categorized quite similarly in an effort to see if there would be a difference between religiosity and spirituality and the decisions that respondents make. The third conclusion is that perhaps religious and spiritual people make similar behavior decisions when their personal religiosities and spiritualities are strong. In this instance, high religiosity and high spirituality just have very similar negative correlations with risky health behaviors such as alcohol use.

Religiosity and spirituality clusters also correlated strongly with one another. Clusters E and B were the two with which other religiosity and spirituality clusters correlated most strongly. The strongest cluster-to-cluster correlation for A, C, E, and G was with B. As discussed earlier, B measures religious self-identification and personal beliefs. For clusters A and C measuring public/private participation and practice and socialization into religious norms and practices, a foundation of religious self-conception along with personal value and interest placed in religious ideology are important for religious practice and for religious affiliation and socialization. In a sense, strong personal religious ideology must precede religious practice, lest that practice is empty ritual and that socialization is a trivial network that has no bearing on behavioral decisions. It is more interesting to note that cluster B was so highly correlated with spirituality clusters E and G which measure spiritual practice and self-perceived spiritual connection (similar to self-
identification). So not only does strong religious self-perception and ideology create a framework to support high levels of religious practice and socialization, but also for similar dimensions of spirituality. The strong correlations between clusters seems to be a natural byproduct of the high correlations seen earlier between religiosity and spirituality mega-clusters. Additionally, cluster D measuring spiritual socialization was more highly correlated with cluster E; thus strong spiritual socialization seems to be at least partially contingent upon the strength of spiritual practice.

**Religiosity and spirituality correlation to alcohol consumption and abuse.**

Religiosity and spirituality are more strongly correlated to each other than to frequency and extent of alcohol consumption, although both religiosity and spirituality have a negative correlation with alcohol use. Within religiosity, the frequency of consumption was most negatively correlated with cluster A. Thus public and private participation and practice appears to be the strongest indicator for high levels of religiosity to negatively correlate with alcohol consumption. The same is true for cluster E within spirituality which also measure practice and participation. This is interesting to note because when looking at frequency of public and private participation in both religious services and spiritual activities, we noticed evidence for a possible trend (at least with these participants) away from high levels of participation among those with a strong religious and spiritual identity. At the same time, we notice that alcohol consumption was generally low. Based on these two observations, we have to assume that there are other mediating factors causing such low levels of alcohol consumption other then religiosity and spirituality.

The strength of the correlations between religiosity and spirituality and the extent of alcohol consumption is much lower in general than frequency of consumption. This might be
because there are fewer respondents when measuring extent or simply because religiosity and spirituality have the strongest negative effects on the frequency of health-risk behaviors, not the extent to which the behavior is performed. Within religiosity, the extent of consumption had the strongest negative correlation with cluster B (religious self-identification and personal beliefs this time, as opposed to spiritual practice), and within spirituality, cluster E.

Additionally, there is not much difference in the correlations between religiosity and alcohol use and spirituality and alcohol use. As noted in earlier discussions of the participant sample, the particular group of students surveyed appeared to generally have low levels of consumption and relatively strong levels of personal religiosity and spirituality. It is possible then religiosity and spirituality are intertwined in their inferred ability to negatively impact risky health behaviors. It would be interesting to see if, in the absence of the other, religiosity or spirituality would have a similar independent effect on alcohol consumption as when it is coupled in a survey with other religiosity/spirituality questions.

**Religiosity, spirituality, and sociality measures**

There is a negative correlation between both religiosity and spirituality and the size of the group of people and level of intimacy between the individual and who they are drinking; a higher level of religiosity/spirituality reduces the likelihood that drinking will occur in larger social settings. When looking at both sociality measures, spirituality has a slightly stronger negative effect than religiosity. This is interesting to note because typically religiosity has been characterized as an easier form of personal ideology to express publicly, and spirituality is seen more as a private and personal philosophy that doesn’t always translate well into a series of publicly observable behaviors. However, in both measures of consumption sociality it is spirituality that has a stronger negative correlation.
Survey question RA2 measuring the frequency with which the respondent has conversations with others about their religious preference has by far the strongest negative correlation with question AP18. Thus the more a respondent has conversations with others about their religious preference, the less likely they are to be drinking in large groups and with people they do not know. Two interesting points of consideration come from this correlation: the first is that our inclination to infer that a person who is comfortable sharing personal ideology surely is not against being in large social settings even if there is drinking going on and those who are more comfortable sharing their religious preferences would also be comfortable drinking in larger social settings is debunked. However, as the second point of consideration, perhaps the sharing of personal religious ideology with others is done in an intimate setting and this type of respondent would typically not be found in large social settings with many people they do not know, especially if there is drinking going on.

Again, it is survey question RA2 that has the strongest negative correlation among all religiosity and spirituality questions for the relationship between religiosity/spirituality and the other measure of consumption sociality, or where the respondent drinks. Answer choices to this question are structure by increasing degrees of potential social interaction and decreasing intimate physical space. Question SE11 follows closely behind RA2 in the strength of the negative correlation between religiosity/spirituality and “where.” Thus it appears that a higher frequency of conversations with others about one’s religious preference and greater enjoyment one has in participating in activities that enhance his or her spiritual journey are most likely to produce a more intimate environment where alcohol is consumed.

Gender differentiation
Women had much stronger negative correlations than men across religiosity and spirituality clusters regarding AH16, or frequency of consumption. The difference between men’s and women’s religiosity/spirituality correlations to frequency of alcohol consumption was especially evident when they were asked how often they participate publicly in religious traditions and organized religious services and how often they have conversations with others about their religious preferences. The frequency with which women attend service negatively correlated more than twice as strongly with frequency of consumption than men. This may be caused by the inclination of women to form social bonding networks and develop social capital through participating in community activities more than men; thus, these religious public-participatory activities, if they have a generally valid negative effect on alcohol consumption, would have a greater effect on consumption in women. There were more female than male respondents with question AH16, so the degree to which higher levels of religiosity/spirituality correlate strongly to alcohol consumption with women may be “felt” more than with men.

More women than men responded in AH16 that they did not drink alcohol. Both men and women who responded that they did not consume alcohol in AH16 were excluded from the correlation data regarding the subsequent alcohol questions AK17, AP18, and AQ19. Consequently the ratio of men to women changed somewhat between the two groups of alcohol variables; for AH16 there were 79 men (42.5 percent) and 107 women (57.5 percent), and for AK17, AP18, and AQ19, there were 58 men (44.3 percent) and 72 women (55.7 percent). Between the two alcohol question groupings, 21 men and 35 women were excluded after filtering out the “non-drinkers.”

There are several interesting conclusions to be drawn from examining the differing correlations between men and women regarding religiosity/spirituality clusters and AK17 (extent
of consumption. Men overall had a negative correlation between each cluster and extent of consumption, with the exception of clusters B and E where women had a slightly stronger negative correlation in each case. Women, however, had a positive correlation between three separate clusters and extent: clusters C measuring religious socialization, D measuring spiritual socialization, and G measuring self-perceived spiritual connection. Neither religious nor spiritual socialization negatively correlate with extent; so although women are more prone to form social networks based around their religious and spiritual ideologies, we see here evidence that these social groupings have no protective mechanism against greater extent of alcohol consumption. A stronger belief in God and feeling of connection to spiritual forces for women was the strongest among the three positive correlations. Apparently, the presence of belief is not enough to protect against high extent of consumption, but rather the woman with a higher response of spiritual practice will see less extent of alcohol consumption.

AP18 and AQ19 also found that men in all but two clusters (D for AP18 and E for AQ19) had a stronger negative correlation regarding the two sociality measures of consumption than women. Again, women actually saw two weakly positive correlations between a few religiosity clusters (B for AP18 and C for AQ19) and consumption. It appears that religiosity and spirituality in women has the strongest negative correlation with frequency but not the other three alcohol measures. Men, however, see the same general correlations across all measures of consumption regarding both religiosity and spirituality. In fact, religiosity and spirituality in men have the strongest negative correlations on alcohol consumption when looking at where men decide to drink alcohol. Higher religiosity and spirituality measures correlated positively with consumption in smaller, more intimate settings for men.

**Age differentiation**
With only three exceptions, of-age respondents had the strongest negative correlations between consumption and religiosity/spirituality regarding frequency and extent, and those underage had the stronger correlations regarding both measures of consumption sociality. Many of the correlations, although technically statistically significant, are very small. However, there are several interesting points of discussion that arise when separating alcohol consumption variables by age.

For question AH16, there were 186 total respondents; 146 were underage and 40 were of-age. For the three other alcohol questions, 94 were underage and 37 were of age. In our participant sample, only three respondents who were of-age reported not drinking alcohol at all and thus were excluded from analysis of alcohol questions other than AH16. There were 52 underage respondents who reported not drinking at all and thus were also excluded from the other three alcohol questions. The larger percentage of underage respondents who reported not drinking at all compared to the smaller percentage of of-age respondents who reported the same was not surprising because of the legal implications of underage drinking. We anticipated that more underage students would report no alcohol consumption than their of-age counterparts.

For those of-age regarding frequency of alcohol consumption, cluster A (public/private religious participation and practice) had the strongest negative correlation among all correlations between clusters and alcohol questions. The frequency of participation in religious services for respondents 21-25, then, has the greatest potential for reducing the likelihood that a respondent will frequently consume alcohol (and thus the likelihood that they will drink at all).

For the two sociality measures of alcohol consumption, underage respondents were more negatively affected by higher levels of religiosity and spirituality. Especially when considering with whom the respondent drinks, a greater degree of religiosity and spirituality are indicative
that drinking will take place in a more intimate setting with a few close individuals. This may either be a result of a protective factor of religiosity/spirituality on the respondent’s decision regarding with whom and where to drink, or this may just be a product of the reality that underage drinking is illegal so in order to avoid legal consequences, drinking must take place in smaller, more intimate social settings.

**Limiting factors**

The study was limited by a small sample relative to the size of the university in which the survey was distributed. It is therefore difficult to generalize about the broad population of the University of North Texas and its relationship between religiosity, spirituality, and alcohol consumption. The sample was also limited by survey distribution to only certain classes contingent upon professor availability and cooperation in the political science department. Even a small sample could have been more representative if more departments on campus had allowed the survey to be distributed in class. One issue of concern of behalf of the professors in other departments was that the survey was distributed two weeks before end-of-semester finals in December, and many professors, although the survey was short, did not want to dedicate class time to entertain a research survey outside of their department.

There was a larger dichotomy in the ratio between genders and age groups than would have been desirable for more accurate statistical analysis. In addition, the ratio between genders was not the same as the university as a whole. These realities hindered the depth of the analysis in separating the correlations of religiosity/spirituality variables and alcohol consumption between genders and age groups.

The analysis relied heavily on correlations and in part on frequencies, but few other statistical measures, including factor analysis which would have been useful. This was a result of
the nature of an undergraduate research thesis and the fact that generally, factor analysis is not emphasized in undergraduate research methods courses, no matter the particular discipline nor the level (upper and lower) of course the research is offered in.
Conclusion

Past and Present

Across a variety of studies regarding the relationship between religiosity and adolescent health risk behaviors, religiosity is shown to prevent high levels of substance abuse and emotional and psychological instability (King, 2004). Religious participation is beneficial to the moral and psychological development of adolescents and may be used to create preventative treatment and counseling for the young people who exhibit harmful behaviors.

Results and Theory. This study supports the assertion that religion’s prevalence throughout society has not been declining despite existing literature to the contrary. As stated in the discussion, two-thirds of the respondents agreed with the statement, “I consider myself to be a religious person,” nearly another two-thirds agree that they rely on their religion to give direction and meaning to their life, and yet another nearly 60 percent say that they feel passionate about upholding the doctrine and traditions of their religious beliefs. Harris polls also emphasize religion’s strong presence through identifying 90% of the general American population surveyed with a belief in God. Pressing on toward an understanding of how religion and spirituality motivate the behaviors of members of society, seeing that it is still widespread, is a vital task in expanding sociological thought on the causes behind risky health behaviors in young people.

Emile Durkheim described religion as “channel of collective energy” (Bjarnason 2005:377) that creates a culture of consciousness based on religious ideas and values. Religion thus has the ability to shape cultural norms and values in society where it is widely practiced and viewed as an acceptable personal ideology. Certainly this is true in the United States and especially in the “Bible Belt” where churches are sometimes more densely clustered than gas
stations, and community leaders run for election on platforms that often emphasize religious commitment and moral strength. After an analysis of the statistics in this study, the results implied that it might be the broader culture that is supportive of religion and religious ideas of morality and right-behavior, not specific personally-expressed religious commitment, which has a protective effect against consuming alcohol. When looking at frequency of public and private participation in both religious services and spiritual activities, we noticed evidence for a possible trend (at least with these participants) away from high levels of participation among those with a strong religious and spiritual identity. At the same time, we notice that alcohol consumption was generally low. Based on these two observations, we assume that there are other mediating factors causing such low levels of alcohol consumption other then religiosity and spirituality. Perhaps it is a broader culture created by the prevalence of religiosity of understanding and avoiding the dangers of risky health behaviors, not direct religious participation, that produces a negative correlation between religious ideology and alcohol consumption.

Durkheim asserts that religious beliefs, religious communities, and divine support build community and form religious culture. The strong positive correlations among religiosity clusters that represent these three manifestations of religiosity support the idea that they work cooperatively to affect consumption patterns, thus strengthening the negative correlation between religiosity and alcohol consumption. According to Bjarnason (2005), religious beliefs and religious community are the two prominent causal mechanisms for promoting individual quality of life and thus preventing alcohol use within religiosity. The results suggest that beliefs truly are strongly negatively correlation to consumption, and religious participation and practice and religious socialization, which both have much to do with building religious community, have a slightly weaker correlation with alcohol consumption but the correlation is present none-the-less.
According to the theory, religious behavior in communities is represented by religious socialization questions (clusters C and D). Religiosity and spirituality measures of socialization are negatively correlated with both measures of the sociality of alcohol consumption; therefore the results support the assertion within the theory that collective ideology guides behavior in social settings.

Results and Literature. The depth of religiosity cannot be measured fully, and its complex and mysterious manifestations in the lives of religious adherents are often too complex to understand. However, throughout the literature and even in this study it is clear that a relationship exists between the strength of individual religiosity and deterrence from risky health behaviors such as alcohol use. Furthermore, both in the study results and the in literature, there is no clear delineation of when spirituality is viewed as an alternative to religion or an expression of the depth of religiosity. Exploring the difference between these two perspectives may prove useful for future religiosity research.

Improvements

This study was limited by the number of respondents surveyed compared to the broader student population at the university as addressed in the Discussion section. A study like this would be enhanced if a larger population of students were surveyed across a wider variety of university core classes and not so close to the end of the semester as to receive more enthusiastic participation on behalf of university professors.

In a second attempt to conduct a research study on this topic, the structure of the survey would also be changed. Questions of spirituality would be organized by cluster, a few of the questions’ phrasing would be slightly changed after student feedback, and alcohol questions would be asked first so as to prevent students responding that they consume less or less
dangerously than they actually do because they just answered several questions about their religious and spiritual beliefs.

Lastly, a deeper examination into the literature between gender and age differentiation in regards to the correlation between religiosity/spirituality and health risk behaviors might enhance the analysis of the results.

**Potential contributions of paper**

This study’s significance lies in its potential to shed light on the relationship between the religious and spiritual beliefs and practices of young people and their decisions to consume or to abstain from alcohol. The advantage of this study is its access to a diverse target population of college students who are throughout their academic pursuits encouraged to question and refine their religious and spiritual understandings and experiment with new ways of thinking. These students are also often a publicity target for alcohol and “night-life” related activities that speak to youth’s inclinations to take risks, buck authority, and expand their social networks. This study has the potential to pioneer a new wave of research on social behaviors related to both religiosity and spirituality and the correlation between the two that attempts to expand beyond the traditional Christian/Judeo-Christian framework of many research projects.

As expressed in both the Results and Discussion sections, there were several interesting conclusions drawn from the analysis of the survey responses that add to the existing field of knowledge on religiosity, spirituality, and health risk behaviors. Religiosity and spirituality, although still prevalent in society, appear to be more commonly expressed through personal beliefs and personal significance than traditional services and rituals. A widespread sentiment of ambivalence in the responses to spirituality questions suggests that spirituality has a weak presence in the lives of the respondents, but its strong negative correlations to alcohol measures
suggests otherwise. The fact that more than 50 percent of respondents who reported that they drink do so in very small social settings, coupled with the relatively low correlation between religiosity and spirituality variables and sociality of consumption measures, indicates that there must be some other moderating factor in reducing the size and increasing the intimacy level of the social settings within which respondents drink. There is a strong positive correlation between many religiosity and spirituality clusters, and the difference between their individual correlations and alcohol questions are often quite small, so either religiosity and spirituality produce a similar negative correlation with alcohol consumption, or there is confusion among the respondents regarding the differences between religiosity and spirituality.

**Further Development**

Throughout the development of the Results and Discussion sections of this paper, several research questions unable to be addressed and discussed in this study led to suggestions for future research on this topic: Even if respondents do not identify themselves according to the survey questions as religious or spiritual, to what extent are their decisions and behaviors shaped by a broader religious and spiritual culture created by their peers and fostered by strong local religious organizations? What alcohol measures are most statistically affected by religiosity and spirituality? What are the strengths of the correlations between particular alcohol measures? This analysis may answer questions such as: if a respondent reports drinking a certain amount, which social setting are they more inclined to drink in, and do religiosity and spirituality have any effect on these correlations? Would the statistical results change if religiosity and spirituality questions were clustered differently or more questions were included in each cluster?

Rephrasing the survey questions in this study also might clarify the differences between religiosity and spirituality and thus produce different results. Another study might also order the
questions differently (and thus produce different results, depending the unexplored importance of
the ordering of survey questions on the survey results) and ask alcohol questions first or choose
not to ask religiosity questions within the same cluster one right after the other.

Policy and practical implications

The goal of research like this is the prevention and treatment of risky health behaviors
through alcohol consumption through research, analysis, and practical application of results.
Although the primary function of this research project is to add to the existing literature on the
relationship between religiosity, spirituality, and alcohol consumption, it is the literature that
provides evidence that particular manifestations of religiosity and spirituality carry significant
weight in deterring adolescents from risky health behaviors. If there is a clearer understanding of
what leads an individual to participate in risky health behaviors, then community leaders, parents,
and educators may create an environment for raising young people that fosters those protective
measures and encourages positive growth and personal development.

As shown in this study, religious and spiritual participation and practice have the
strongest protective effect against alcohol consumption. Knowing this may suggest to religious
and spiritual leaders that encouraging religious participation among their youth (in activities such
as contemporary services, retreats, or college youth group activities) can aid in preventing
negative health choices. If there is an awareness of the particular manifestations of religiosity
and/or spirituality that more clearly affect behavior, then religious and spiritual leaders can
promote development of these functions within their particular religious or spiritual tradition that
cater to the needs of adolescents while promoting the valuable social functions of their religious
or spiritual institutions.
Acknowledgements

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Many thanks are given to Dr. Kevin Yoder from the sociology department of the University of North Texas for his kind guidance, statistical expertise, and willingness to invest in an aspiring academic. His patience, encouragement, feedback, and friendship are deeply appreciated.

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Tables

Table 1: Religiosity Cluster Justification

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</tr>
<tr>
<td>RB6</td>
<td>0.619</td>
<td>0.389</td>
<td>0.585</td>
<td>0.688</td>
<td>0.768</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RC7</td>
<td>0.395</td>
<td>0.212</td>
<td>0.366</td>
<td>0.493</td>
<td>0.487</td>
<td>0.515</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RC8</td>
<td>0.415</td>
<td>0.244</td>
<td>0.395</td>
<td>0.421</td>
<td>0.392</td>
<td>0.424</td>
<td>0.443</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RC9</td>
<td>0.415</td>
<td>0.383</td>
<td>0.407</td>
<td>0.425</td>
<td>0.449</td>
<td>0.43</td>
<td>0.304</td>
<td>0.383</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: All correlations statistically significant at p<0.05
Note: Bolded font represent different clusters

Table 2: Religiosity/Spirituality Cluster Correlations

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Cluster with which it most strongly correlates</th>
<th>Correlation strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>0.712</td>
</tr>
<tr>
<td>B</td>
<td>E</td>
<td>0.733</td>
</tr>
<tr>
<td>C</td>
<td>B</td>
<td>0.647</td>
</tr>
<tr>
<td>D</td>
<td>E</td>
<td>0.582</td>
</tr>
<tr>
<td>E</td>
<td>B</td>
<td>0.733</td>
</tr>
<tr>
<td>G</td>
<td>B</td>
<td>0.727</td>
</tr>
</tbody>
</table>

Note: All correlations statistically significant at p<0.05

Table 3: Spirituality Cluster Justification

<table>
<thead>
<tr>
<th>Cluster</th>
<th>SD10</th>
<th>SE11</th>
<th>SG12</th>
<th>SG13</th>
<th>SD14</th>
<th>SE15</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD10</td>
<td>1</td>
<td>0.507</td>
<td>0.122</td>
<td>0.381</td>
<td>0.525</td>
<td>0.453</td>
</tr>
<tr>
<td>SE11</td>
<td>0.507</td>
<td>1</td>
<td>0.466</td>
<td>0.655</td>
<td>0.378</td>
<td>0.616</td>
</tr>
<tr>
<td>SG12</td>
<td>0.122</td>
<td>0.466</td>
<td>1</td>
<td>0.645</td>
<td>0.332</td>
<td>0.526</td>
</tr>
<tr>
<td>SG13</td>
<td>0.381</td>
<td>0.655</td>
<td>0.645</td>
<td>1</td>
<td>0.453</td>
<td>0.679</td>
</tr>
<tr>
<td>SD14</td>
<td>0.525</td>
<td>0.387</td>
<td>0.332</td>
<td>0.453</td>
<td>1</td>
<td>0.486</td>
</tr>
<tr>
<td>SE15</td>
<td>0.453</td>
<td>0.616</td>
<td>0.526</td>
<td>0.679</td>
<td>0.486</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: All correlations statistically significant at p<0.05
Table 4: Religiosity/Spirituality Cluster Correlations

<table>
<thead>
<tr>
<th>Cluster</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>0.712</td>
<td>0.544</td>
<td>0.428</td>
<td>0.665</td>
<td>0.589</td>
</tr>
<tr>
<td>B</td>
<td>0.712</td>
<td>1</td>
<td>0.647</td>
<td>0.452</td>
<td>0.733</td>
<td>0.727</td>
</tr>
<tr>
<td>C</td>
<td>0.544</td>
<td>0.647</td>
<td>1</td>
<td>0.43</td>
<td>0.515</td>
<td>0.566</td>
</tr>
<tr>
<td>D</td>
<td>0.428</td>
<td>0.452</td>
<td>0.43</td>
<td>1</td>
<td>0.582</td>
<td>0.403</td>
</tr>
<tr>
<td>E</td>
<td>0.665</td>
<td>0.733</td>
<td>0.515</td>
<td>0.582</td>
<td>1</td>
<td>0.711</td>
</tr>
<tr>
<td>G</td>
<td>0.589</td>
<td>0.727</td>
<td>0.566</td>
<td>0.403</td>
<td>0.711</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: All correlations statistically significant at p<0.05

Note: Bold font indicates strongest correlations between clusters

Table 5: Religiosity/Spirituality Individual Question Correlation

<table>
<thead>
<tr>
<th></th>
<th>SD10</th>
<th>SE11</th>
<th>SG12</th>
<th>SG13</th>
<th>SD14</th>
<th>SE15</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA1</td>
<td>0.29</td>
<td>0.524</td>
<td>0.542</td>
<td>0.462</td>
<td>0.373</td>
<td>0.55</td>
</tr>
<tr>
<td>RA2</td>
<td>0.313</td>
<td>0.52</td>
<td>0.317</td>
<td>0.449</td>
<td>0.275</td>
<td>0.411</td>
</tr>
<tr>
<td>RA3</td>
<td>0.304</td>
<td>0.535</td>
<td>0.471</td>
<td>0.495</td>
<td>0.364</td>
<td>0.534</td>
</tr>
<tr>
<td>RB4</td>
<td>0.268</td>
<td>0.504</td>
<td>0.619</td>
<td>0.618</td>
<td>0.441</td>
<td>0.646</td>
</tr>
<tr>
<td>RB5</td>
<td>0.291</td>
<td>0.548</td>
<td>0.644</td>
<td>0.663</td>
<td>0.45</td>
<td>0.737</td>
</tr>
<tr>
<td>RB6</td>
<td>0.337</td>
<td>0.512</td>
<td>0.51</td>
<td>0.565</td>
<td>0.384</td>
<td>0.644</td>
</tr>
<tr>
<td>RC7</td>
<td>0.143</td>
<td>0.291</td>
<td>0.457</td>
<td>0.377</td>
<td>0.241</td>
<td>0.332</td>
</tr>
<tr>
<td>RC8</td>
<td>0.188</td>
<td>0.303</td>
<td>0.412</td>
<td>0.356</td>
<td>0.296</td>
<td>0.406</td>
</tr>
<tr>
<td>RC9</td>
<td>0.52</td>
<td>0.359</td>
<td>0.317</td>
<td>0.419</td>
<td>0.422</td>
<td>0.463</td>
</tr>
</tbody>
</table>

Note: All correlations statistically significant at p<0.05

Table 6: Frequency of responses for AH16 “I typically consume alcohol (approximately)”

<table>
<thead>
<tr>
<th>AH16</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: I do not drink alcohol</td>
<td>55</td>
<td>29.6</td>
</tr>
<tr>
<td>2: A few times per year</td>
<td>48</td>
<td>25.8</td>
</tr>
<tr>
<td>3: A few times per month</td>
<td>46</td>
<td>24.7</td>
</tr>
<tr>
<td>4: Once a week</td>
<td>22</td>
<td>11.8</td>
</tr>
<tr>
<td>5: Several times per week</td>
<td>15</td>
<td>8.1</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 7: Frequency of responses for AK17 “When I consume alcohol, I typically drink (approximately*)”

<table>
<thead>
<tr>
<th>AK17</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: I do not drink alcohol</td>
<td>54</td>
<td>29</td>
</tr>
<tr>
<td>2: One drink*</td>
<td>33</td>
<td>17.7</td>
</tr>
<tr>
<td>3: 2-3 drinks</td>
<td>59</td>
<td>31.7</td>
</tr>
<tr>
<td>4: 4-5 drinks</td>
<td>20</td>
<td>10.8</td>
</tr>
<tr>
<td>5: More than 5 drinks</td>
<td>20</td>
<td>10.8</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100</td>
</tr>
</tbody>
</table>

*“One drink” clarified in study as “equal to one shot, one glass of wine, one beer, one wine cooler, one cocktail, etc.”

Table 8: Frequency of responses for AP18 “I typically consume alcohol (please select one)”

<table>
<thead>
<tr>
<th>AP18</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: I do not drink alcohol</td>
<td>55</td>
<td>29.6</td>
</tr>
<tr>
<td>2: Alone</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3: With a few close friends</td>
<td>89</td>
<td>47.8</td>
</tr>
<tr>
<td>4: With a large group of friends</td>
<td>32</td>
<td>17.2</td>
</tr>
<tr>
<td>5: With a large group of people, some friends and many I do not know</td>
<td>10</td>
<td>5.4</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 9: Frequency of responses for AQ19 “When I consume alcohol, I typically drink (where) (please select one)”

<table>
<thead>
<tr>
<th>AQ19</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: I do not drink alcohol</td>
<td>54</td>
<td>29</td>
</tr>
<tr>
<td>2: At my place of residence</td>
<td>39</td>
<td>21</td>
</tr>
<tr>
<td>3: At a close friend’s house</td>
<td>50</td>
<td>26.9</td>
</tr>
<tr>
<td>4: At random parties or social gatherings</td>
<td>31</td>
<td>16.7</td>
</tr>
<tr>
<td>5: At a bar</td>
<td>12</td>
<td>6.5</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 10: Correlations of four alcohol measures with mega-clusters, clusters, and individual religiosity and spirituality questions

<table>
<thead>
<tr>
<th></th>
<th>Religiosity Mega-cluster</th>
<th>Spirituality Mega-cluster</th>
<th>Cluster A</th>
<th>Cluster B</th>
<th>Cluster C</th>
<th>Cluster D</th>
<th>Cluster E</th>
<th>Cluster F</th>
<th>Cluster G</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH16</td>
<td>-0.268</td>
<td>-0.294</td>
<td>-0.311</td>
<td>-0.288</td>
<td>-0.144</td>
<td>-0.303</td>
<td>-0.286</td>
<td>-0.224</td>
<td>-0.119</td>
</tr>
<tr>
<td>AK17</td>
<td>-0.118</td>
<td>-0.145</td>
<td>-0.146</td>
<td>-0.146</td>
<td>-0.144</td>
<td>-0.306</td>
<td>-0.286</td>
<td>-0.114</td>
<td>-0.118</td>
</tr>
<tr>
<td>AP18</td>
<td>-0.073</td>
<td>-0.068</td>
<td>-0.065</td>
<td>-0.056</td>
<td>-0.056</td>
<td>-0.065</td>
<td>-0.056</td>
<td>-0.055</td>
<td>-0.056</td>
</tr>
<tr>
<td>A019</td>
<td>-0.017</td>
<td>-0.017</td>
<td>-0.014</td>
<td>-0.014</td>
<td>-0.017</td>
<td>-0.014</td>
<td>-0.017</td>
<td>-0.014</td>
<td>-0.017</td>
</tr>
</tbody>
</table>

Note: All correlations are statistically significant at p<0.05

*All correlations p < 0.01 are not statistically significant
Table 11: Religiosity/Spirituality clusters and alcohol variable correlations by gender

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>-0.147</td>
<td>-0.429</td>
</tr>
<tr>
<td>B</td>
<td>-0.275</td>
<td>-0.307</td>
</tr>
<tr>
<td>C</td>
<td>-0.098</td>
<td>-0.177</td>
</tr>
<tr>
<td>D</td>
<td>-0.188</td>
<td>-0.381</td>
</tr>
<tr>
<td>E</td>
<td>-0.246</td>
<td>-0.352</td>
</tr>
<tr>
<td>G</td>
<td>-0.097</td>
<td>-0.143</td>
</tr>
<tr>
<td>AK17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>-0.185</td>
<td>-0.09</td>
</tr>
<tr>
<td>B</td>
<td>-0.147</td>
<td>-0.158</td>
</tr>
<tr>
<td>C</td>
<td>-0.084</td>
<td>0.027</td>
</tr>
<tr>
<td>D</td>
<td>-0.085</td>
<td>0.016</td>
</tr>
<tr>
<td>E</td>
<td>-0.118</td>
<td>-0.228</td>
</tr>
<tr>
<td>G</td>
<td>-0.113</td>
<td>0.044</td>
</tr>
<tr>
<td>AP18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>-0.272</td>
<td>-0.107</td>
</tr>
<tr>
<td>B</td>
<td>-0.118</td>
<td>0.013</td>
</tr>
<tr>
<td>C</td>
<td>-0.193</td>
<td>-0.018</td>
</tr>
<tr>
<td>D</td>
<td>-0.118</td>
<td>-0.121</td>
</tr>
<tr>
<td>E</td>
<td>-0.171</td>
<td>-0.17</td>
</tr>
<tr>
<td>G</td>
<td>-0.161</td>
<td>-0.035</td>
</tr>
<tr>
<td>AQ19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>-0.24</td>
<td>-0.036</td>
</tr>
<tr>
<td>B</td>
<td>-0.119</td>
<td>-0.063</td>
</tr>
<tr>
<td>C</td>
<td>-0.207</td>
<td>0.075</td>
</tr>
<tr>
<td>D</td>
<td>-0.248</td>
<td>-0.061</td>
</tr>
<tr>
<td>E</td>
<td>-0.149</td>
<td>-0.198</td>
</tr>
<tr>
<td>G</td>
<td>-0.187</td>
<td>-0.044</td>
</tr>
</tbody>
</table>

Note: All correlations statistically significant at p<0.05
Table 12: Religiosity/Spirituality clusters and alcohol variable correlations by age

<table>
<thead>
<tr>
<th></th>
<th>Underage</th>
<th>Of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>-0.277</td>
<td>-0.411</td>
</tr>
<tr>
<td>B</td>
<td>-0.205</td>
<td>-0.372</td>
</tr>
<tr>
<td>C</td>
<td>-0.023</td>
<td>-0.245</td>
</tr>
<tr>
<td>D</td>
<td>-0.255</td>
<td>-0.253</td>
</tr>
<tr>
<td>E</td>
<td>-0.294</td>
<td>-0.303</td>
</tr>
<tr>
<td>G</td>
<td>-0.021</td>
<td>-0.255</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Underage</th>
<th>Of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>-0.089</td>
<td>-0.15</td>
</tr>
<tr>
<td>B</td>
<td>-0.097</td>
<td>-0.189</td>
</tr>
<tr>
<td>C</td>
<td>0.039</td>
<td>-0.093</td>
</tr>
<tr>
<td>D</td>
<td>0.012</td>
<td>-0.078</td>
</tr>
<tr>
<td>E</td>
<td>-0.232</td>
<td>-0.117</td>
</tr>
<tr>
<td>G</td>
<td>0.014</td>
<td>-0.108</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Underage</th>
<th>Of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>-0.258</td>
<td>0.088</td>
</tr>
<tr>
<td>B</td>
<td>-0.135</td>
<td>0.117</td>
</tr>
<tr>
<td>C</td>
<td>-0.163</td>
<td>0.017</td>
</tr>
<tr>
<td>D</td>
<td>-0.262</td>
<td>0.214</td>
</tr>
<tr>
<td>E</td>
<td>-0.267</td>
<td>0.05</td>
</tr>
<tr>
<td>G</td>
<td>-0.177</td>
<td>0.04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Underage</th>
<th>Of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>-0.14</td>
<td>-0.073</td>
</tr>
<tr>
<td>B</td>
<td>-0.056</td>
<td>-0.05</td>
</tr>
<tr>
<td>C</td>
<td>-0.031</td>
<td>0.048</td>
</tr>
<tr>
<td>D</td>
<td>-0.29</td>
<td>0.152</td>
</tr>
<tr>
<td>E</td>
<td>-0.143</td>
<td>-0.179</td>
</tr>
<tr>
<td>G</td>
<td>-0.101</td>
<td>-0.04</td>
</tr>
</tbody>
</table>

Note: All correlations statistically significant at p<0.05
Table 13: Frequency of responses for religiosity questions

<table>
<thead>
<tr>
<th></th>
<th>RA1</th>
<th>Frequency</th>
<th>Percent</th>
<th>RB4</th>
<th>Frequency</th>
<th>Percent</th>
<th>RC7</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>45</td>
<td>24.2</td>
<td>1</td>
<td>19</td>
<td>10.2</td>
<td>1</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>50</td>
<td>26.9</td>
<td>2</td>
<td>15</td>
<td>8.1</td>
<td>2</td>
<td>7</td>
<td>3.8</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>23</td>
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Table 14: Frequency of responses for spirituality questions

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References


Appendices

A. IRB Application Form
B. Survey Questionnaire
C. Instructor Consent Form
D. Instructor Participation Request Letter
E. Student/Participant Consent Form
F. IRB Approval Letter
G. Human Subject Training Completion Certificate
H. Board of Regents Presentation Poster
Appendix A

Application for Initial Review
University of North Texas Institutional Review Board
OHRP Federalwide Assurance: FWA00007479

Please save this Application as a Word document on your computer, answer all questions completely, and submit it along with all supplemental documents to the UNT Office of Research Services as described on the Signature Page. Handwritten forms will not be accepted.

1. Principal Investigator Information
Must be the same Principal Investigator named in any proposal for external or internal funding.

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebekah</td>
<td>Chase</td>
<td><a href="mailto:bekahschase@hotmail.com">bekahschase@hotmail.com</a></td>
</tr>
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If UNT faculty or staff:

<table>
<thead>
<tr>
<th>UNT Department</th>
<th>UNT Building</th>
<th>Room Number</th>
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<table>
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<th>Fax Number</th>
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</table>

If UNT student:

2916 Trailwood Lane
Home address
Flower Mound, TX 75028

City, State, and Zip Code
972 965 9166 n/a

<table>
<thead>
<tr>
<th>Home Phone Number</th>
<th>Fax Number</th>
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</table>

Kevin Yoder
Faculty Advisor’s Name
Sociology
Faculty Advisor’s Office Phone Number
940-565-4880

Faculty Advisor’s UNT Department
Faculty Advisor’s E-mail
Yoder@pacs.unt.edu

Is this study for your master’s thesis or doctoral dissertation?

☑ Yes
☐ No

Is this study for your other course work?

☒ Yes
☐ No

Under the UNT IRB Guidelines, research conducted solely for satisfying course requirements does not require IRB review for approval, unless the investigator intends to publish or publicly present the results of the study as "generalizable knowledge" for his/her field of study.

2. Co-Investigator Information
If applicable; students should include their Faculty Advisor as Co-Investigator only if he/she will be actively involved in conducting the study.

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>E-mail</th>
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<thead>
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<th>University or Other Entity</th>
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</table>

The Co-Investigator’s classification is:

☐ Faculty/Staff
☐ Graduate Student

3. Key Personnel
List the names of all other Key Personnel who are responsible for the design, conduct, or reporting of the study.

Dr. Susan Eve: Associate Dean, Honors College
4. Project Information

On your Knees or At the Bar: The Effects of Religiosity and Spirituality on the Decision to Drink

Project Title (Must be the same as any proposal for external or internal funding.)

<table>
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Project Sponsors (Identify the source(s) of any external and/or internal funding and attach a complete copy of the funding proposal.)

5. Significant Financial Conflict of Interest

If any external funding is proposed, have you and all Key Personnel submitted a Significant Financial Interest Disclosure form in compliance with the UNT Conflict of Interest Policy for Sponsored Projects? (For more information, see UNT Policy Number 16.12.3.3 at http://www.unt.edu/policies/UNT_Policy/volume3/16_12_3_3.html.)

- [ ] Yes
- [x] No

6. NIH Training

Have you and all key personnel completed the required NIH training course (“Human Participant Protections Education for Research Teams”) and submitted a copy of the completion certificate to the Office of Research Services?

- [x] Yes
- [ ] No

If “No,” this training is required for all key personnel before your study can be approved. This free on-line course may be accessed at: http://cme.cancer.gov/clinicaltrials/learning/humanparticipant-protections.asp

7. Purpose of Study

In no more than half a page, briefly state the purpose of your study in lay language appropriate for the UNT IRB’s community members and faculty members outside of your field; include the hypotheses or research question(s) you intend to answer; avoid cutting and pasting from any funding proposal, master’s thesis, or doctoral dissertation; applications submitted with overly technical language will be returned to the Principal Investigator for revision before review by the IRB.

The study is intended to examine the effect of an undergraduate’s religious or spiritual affiliation/preference on their decision to consume alcohol. The undergraduate experience is a “prime time” for students to explore not only their occupational interests but also their personal and spiritual beliefs and values. The undergraduate experience also presents students who are away from home for the first time to make important social decisions regarding who they will spend their time with and what kind of health choices — including the decision to consume and or/abuse alcohol — they will make. Thus the University of North Texas, with such a diverse and large population, allows us a unique opportunity to conduct a study where we can analyze and measure a student’s religious/spiritual commitment and compare this data to the student’s propensity to consume alcohol. The goals for this study include creating a model for measuring spirituality alongside religiosity in relation to health risk behaviors (such as alcohol consumption) as spirituality is a relatively new field of study in sociology, understanding what aspects (if any) of student’s religious or spiritual views affect their decision to drink, and analyzing data to see if any aspect of religiosity/spirituality influences students specifically not to drink. We intend to ask the students about their affiliation with and commitment level towards any particular religion and/or spiritual theory and then ask the student about their frequency of alcohol consumption along with their age and sex. Our sample of students will range from ages 18-25. We hypothesize that the religiosity/spirituality of students who are of legal drinking age will affect their likelihood of consuming/abusing alcohol less than students who are not of legal drinking age. Furthermore, we hypothesize that religiosity measures will have a greater negative affect on students’ inclination to drink than will spirituality measures.
8. Previous Research
Summarize previous research leading to the formulation of this study, including any past or current research conducted by the Principal Investigator or key personnel.

n/a

9. Informed Consent Forms
Written Informed Consent Forms signed by the subject or the subject's legally authorized representative are required for most IRB projects (exceptions include telephone surveys and internet surveys for which an Informed Consent notice is substituted). If any subjects will be children (under 18 years of age in Texas), the parent/guardian Informed Consent Form must include a section for obtaining assent by children ages 7-17. Submit a copy of all consent/assent forms to be used.

Templates for creating informed consent forms are located on the Office of Research Services website at the address shown for each type of study:

- Faculty/staff investigators:
  - adult consent (ages 18 or older): [http://www.unt.edu/ospa/docs/IRB.Consent.FSAS.doc](http://www.unt.edu/ospa/docs/IRB.Consent.FSAS.doc)
  - parent/guardian consent with minor assent (ages 7-17): [http://www.unt.edu/ospa/docs/IRB.Consent.FSMA.doc](http://www.unt.edu/ospa/docs/IRB.Consent.FSMA.doc)

- Student investigators:
  - adult consent (ages 18 or older): [http://www.unt.edu/ospa/docs/IRB.Consent.GRAS.doc](http://www.unt.edu/ospa/docs/IRB.Consent.GRAS.doc)
  - parent/guardian consent with minor assent (ages 7-17): [http://www.unt.edu/ospa/docs/IRB.Consent.GRMA.doc](http://www.unt.edu/ospa/docs/IRB.Consent.GRMA.doc)

10. Foreign Languages
Will your study involve the use of Informed Consent Forms, data collection instruments, or recruitment materials in any language other than English?

- [ ] Yes
- [x] No

If "Yes", identify all foreign languages below. Please do not submit any foreign language forms or materials until after the IRB has approved the English versions.

n/a

11. Informed Consent
Describe the steps for obtaining the subjects' informed consent/assent (by whom, where, when, etc.).

Informed consent will be obtained immediately before the study takes place. The students in each classroom that the study is conducted in will be given a consent form with both a verbal summary of the consent form and ample time (2-3 minutes) to read it for themselves. The Principle Investigator, Rebekah Chase, will distribute, verbally summarize, and collect the forms, place them in a sealed envelope, and take them immediately following the survey collection to the office of Dr. Kevin Yoder, faculty advisor.

12. Medications
Will any subjects be under the influence of any medication, drugs or stressful condition which could diminish their ability to give effective informed consent?

- [ ] Yes
- [x] No

If "Yes," please explain and describe what steps you will take to verify that potential subjects possess the mental capacity to give meaningful informed consent to participation in the study.

n/a
13. Location of Study
Identify all locations where the study will be conducted. For each data collection site other than UNT, attach a signed and dated original of a letter on the cooperating institution's letterhead giving approval for collection of data at that site. This letter should reflect a general understanding of the nature of the study and how it will be conducted.

The study will be conducted in a series of undergraduate classrooms at the University of North Texas Denton campus.

14. Recruitment Population
Describe the population from which the subjects (including controls, if applicable) will be recruited.

The recruitment population will be 200 undergraduate students from the University of North Texas Denton campus between the ages of 18 and 25.

15. Subject Recruitment
Describe how you will recruit subjects to participate in the study; attach a copy of all recruitment materials (newspaper advertisements, posters, telephone scripts, etc.).

A few courses will be chosen randomly from the schedule of classes for the 2006 fall semester until the goal of 200 participants is met. The Principle Investigator will first contact the course instructor to obtain both verbal and written permission to conduct the study in his/her classroom and then arrange an appropriate time to conduct the study. The students will be asked to participate in the study, be given consent forms, and then will choose whether or not to participate in the study.

16. Subject Population Composition
Describe the anticipated gender, racial/ethnic composition, age range and health status of the study population and the criteria for inclusion or exclusion of any subpopulation.

The study is intended to be a random sample of UNT students ages 18-25. This age range is specifically chosen because 18 is a typical age for students to be entering college and is considered the age of adulthood (thus no parental notification/consent is needed which would be overly complicated since many students are far from home). The age range ends at 25 because we would like to sample “of age” students and their drinking habits as well to compare the effect that religiosity/spirituality has on alcohol use in minors versus those of legal drinking age. We cut the age off at 25 because those 26 and older are typically beyond undergraduate studies or are considered non-traditional students and are several years older than the average entering freshman. No subpopulation will be excluded.

17. Vulnerable Populations
Please identify any vulnerable populations who will specifically be targeted for participation in this study:

- [ ] Children (under 18 years of age)  - [ ] Pregnant women
- [ ] Prisoners, including juveniles  - [ ] Mentally impaired or mentally retarded

If any boxes are checked, describe any special precautions to be taken in your study due to the inclusion of these populations:

n/a

18. Number of Participants
Total number of subjects (including controls):

200

Number of controls (if applicable):

n/a
19. Data Collection
Describe all procedures you will use to collect data (interviews, surveys, focus groups, observation, review of existing records, etc.). Attach a copy of all data collection instruments and interview scripts to be used.

The data will be collected through a survey given to each participant. The data will be analyzed through SPSS and various other computer programs.

20. Time
Estimate the total time each subject will be involved in the study (include time per session, total number of sessions, etc.).

Each student will be involved in the study for approximately 15 minutes. The student will hear a summary of the consent form, have 2-3 minutes to read it themselves, and will be given 10 minutes to complete the short 21-question survey.

21. Compensation
Describe any payment or other compensation subjects will receive for participating in the study, including the timing for payment and any conditions for receipt of such compensation:

n/a

22. Risks and Precautions
Describe any foreseeable risks to subjects presented by the procedures described above in the Data Collection section, including any physical, psychological, social, economic, legal, or confidentiality risks (see the UNT IRB Guidelines for more information about these risks). Include your assessment of the degree of each risk presented and all precautions you will take to minimize such risks or to respond to any adverse events, should they occur:

The only foreseeable risks are confidentiality issues because minors will be answering questions about their decisions to consume alcohol. To respect the privacy of the underage participants in particular so they will feel comfortable honestly answering survey questions, we will collect the consent forms first before handing out the surveys and place them in a sealed envelope that will be locked up in Dr. Kevin Yoder’s office. We will store the completed surveys in a separate envelope.

23. Benefits
Describe the benefits to the subjects or others (explain how the subjects will benefit from participating in the study, other than any compensation described in the Compensation section above; if the subjects will not directly benefit from the research, explain how the study will benefit others or contribute to your field of research):

This study is original in that it measures both religiosity and spirituality in comparison to a health risk behavior such as alcohol use. Many recent studies in university settings relating to beliefs and behavior have only focused on one of the two. A university setting is a prime field to research religiosity and spirituality in relation to alcohol use because students are continually encouraged to challenge their previously held convictions both in and outside of classrooms settings on university campuses as to create within the student body a heightened awareness of the students’ own convictions, and the unique social dynamic of collegiate institutions presents students with ample opportunities to choose between a multitude of behaviors that may be risky to their health and well-being, such as alcohol consumption. The data at the end of the study will hopefully provide a portrayal of what aspects of students religious and spiritual convictions affect their decision making when it comes to their well-being. We will also be able to compare the potentially differing effects of religiosity and spirituality on alcohol consumption. This is also an opportunity to encourage the growing trend of undergraduate research as UNT continues to be a pioneer institution in supporting undergraduates to pursue research in their fields of interest. There are several opportunities in this study to increase the field of knowledge associated with believes and behavioral decisions.
24. HIPAA

<table>
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<th>Will your study involve obtaining individually identifiable health information from health care plans, health care clearinghouses, or health care providers?</th>
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If “Yes,” describe the procedures you will use to comply with the HIPAA Privacy Rule. (For more information about HIPAA, see the HIPAA Guidance page on the UNT Research Services website at http://www.unt.edu/ospa/news/hipaa.htm.)

25. Confidentiality of Research Records

Describe the procedures you will use to maintain the confidentiality of any personally identifiable data (including any videotapes and/or audiotapes of the participants).

The only documents that will contain any personally identifiable data are the signed consent forms which will be sealed and locked up in Dr. Kevin Yoder’s office and kept separate from the completed survey forms.

Describe where your research records will be maintained, any coding or other steps you will take to separate participants’ names from research data, and how long you will retain personally identifiable data in your research records.

The consent forms will be locked in a safe in Dr. Kevin Yoder’s office, Chilton Hall room 390H, for six months following the completion of the project and the submission of the final project to The Eagle Feather.

Identify the categories of all persons other than the research team to whom personally identifiable data will be disclosed and the purpose of each such disclosure (presentations at academic conferences, dissertation committee, etc.).

The consent forms will not be disclosed to anyone outside of the research team.

26. Publication of Results

Please identify all methods in which you plan to publicly disseminate the results of your study (academic journal, academic conference, thesis or dissertation, etc.).

Upon completion of the project and written report, the Principle Investigator will submit the final product to The Eagle Feather, the Honors College undergraduate research journal.
Principal Investigator
I certify that the information in this application is complete and accurate. I agree to conduct this study in accordance with the UNT IRB Guidelines and the study procedures and forms approved by the UNT IRB. I agree that I will not make any changes to the approved procedures or forms without prior written approval from the UNT IRB. I understand that I can not initiate any contact with human subjects until I have received written UNT IRB approval.

Rebekah S. Chase 9/10/2006
Signature of Principal Investigator Date

Faculty Advisor (if applicable)
I have examined this completed application and I am satisfied with the adequacy of the proposed research design and the precautions to be taken for the protection of human subjects. My oversight of this study will include verification that it is being conducted in accordance with the UNT IRB Guidelines and the study procedures and forms approved by the UNT IRB. I agree that no changes will be made to the approved procedures or forms without prior written approval from the UNT IRB.

Kevin Yoder 9/10/2006
Signature of Faculty Advisor Date

Submission of Your Application and Supplementary Documents
1. Print the entire application and sign this page. If you are a student, ask your Faculty Advisor to also sign this page.
2. Attach all supplementary documents, including:
   A. Copies of all NIH Training completion certificates not previously submitted to the Office of Research Services;
   B. A copy of any proposal for internal or external funding for this study;
   C. The original of the approval letters from all cooperating institutions (other than UNT) where you will collect data;
   D. A copy of all recruitment materials;
   E. A copy of all informed consent forms; and
   F. A copy of all data collection instruments.
3. Send or deliver the entire application (including this Signature Page) and all supplementary documents to:
   A. Physical Address:
      Office of Research Services
      Hurley Admin. Bldg. 160
   B. Mailing address:
      UNT Office of Research Services
      P.O. Box 305250-5250
      Denton, TX 76203

Thank you for submitting your application to the UNT IRB. Please contact Shelia Bourns at (940) 565-3940 or sbourns@unt.edu for any questions about your application.
Appendix B

Survey Questionnaire

On your Knees or At the Bar: The Effects of Religiosity and Spirituality on the Decision to Drink

First you will be asked 9 questions regarding your religiosity:

RA1. I participate in organized religious services
   a. Never
   b. At least one time per month
   c. Two to three times per month
   d. At least one time per week.
   e. Several times per week

RA2. I have conversations with others about my religious preference.
   a. Never
   b. At least one time per month
   c. Two to three times per month
   d. At least one time per week.
   e. Several times per week

RA3. I participate publicly in traditions, ceremonies, and/or rituals associated with my religious beliefs (including worship, meditation, reading sacred texts, participating in sacramental activities, etc.).
   a. Never
   b. At least one time per month
   c. Two to three times per month
   d. At least one time per week.
   e. Several times per week

RB4. I consider myself to be a religious person.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

RB5. I rely on my religion to give direction and meaning to my life.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

RB6. I feel passionate about upholding the doctrine and traditions of my religious beliefs.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

RC7. I have considered myself affiliated with my current religion for
   a. No time
   b. Less than 1 year
c. 1-2 years
d. 3-5 years
e. More than 5 years

RC8. My immediate family members (the family that I was raised in) is supportive of my current religious beliefs.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

RC9. I usually surround myself in social settings with people of my same religion.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

Now you will be asked 6 questions regarding your spirituality:

SD10. I typically surround myself with what I consider to be spiritual people.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

SE11. I enjoy participating in activities that enhance my spiritual journey
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

SG12. I believe in God or a higher power.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

SG13. I feel strongly connected to spiritual forces.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

SD14. Most of friends consider themselves to be spiritual people.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree
SE15. My concern for my spiritual life affects the decisions I make.
   a. Strongly disagree
   b. Disagree
   c. No opinion
   d. Agree
   e. Strongly Agree

Now you will be asked about your alcohol use:

AH 16. I typically consume alcohol (approximately)
   a. I do not drink alcohol
   b. A few times per year
   c. At few times per month
   d. Once a week
   e. Several times per week

AK 17. When I consume alcohol, I typically drink (approximately)
   a. I do not drink alcohol
   b. One drink (equal to one shot, one glass of wine, one beer, one wine cooler, one cocktail, etc.)
   c. 2-3 drinks
   d. 4-5 drinks
   e. More than 5 drinks

AP 18. I typically consume alcohol
   a. I do not drink alcohol
   b. Alone
   c. With a few close friends
   d. With a large group of friends
   e. With a large group of people, some friends and many I do not know

AQ 19. When I consume alcohol, I typically drink (where)
   a. I do not drink alcohol
   b. At my place of residence
   c. At a close friends house
   d. At random parties or social gatherings
   e. At a bar

Now you will be asked about your sex and age:

V 20. I am a
   a. male
   b. female

V 21. My age is between
   a. 18-20
   b. 21-25

Thank you for your participation in the survey. If you would like more information on this study and its final results, feel free to contact Rebekah Chase at 972 965 9166 or bekahschase@hotmail.com.
Appendix C

The following document will be presented to each professor at UNT whose classroom is randomly selected to participate in the study upon a meeting between the Principle Investigator and the chosen professor. The professor will have the study verbally explained to him/her and then be asked to approve or deny consent and sign the document below.

The study “On your Knees or At the Bar: The Effects of Religiosity and Spirituality on the Decision to Drink” has been approved by the Institutional Review Board of the University of North Texas and is sponsored by both the Honors College and Dr. Kevin Yoder, department of Sociology.

I understand that upon signing this form I give my permission to allow Principle Investigator Rebekah Chase to conduct a survey during the first 15 minutes of my course-__________ (course number) on ____________ (day), ____________ (month/date/year). I certify that students will not be rewarded or penalized if they choose to or refuse to participate in the survey. I waive the right to view the signed consent forms and/or completed survey forms once they have been completed by the students in my course. I understand that my decision to allow the survey to be conducted in my course is completely voluntary, and I will neither be rewarded nor penalized for allowing the study to be conducted during my course. I also understand that if at any time I have questions about the study, I may contact Principle Investigator Rebekah Chase at 972 965 9166, Dr. Kevin Yoder at 940 565 4880, or Dr. Susan Eve at 940 565 4914.

___________________________
Instructor’s Printed Name

___________________________
Instructor’s Signature

___________________________
Principle Investigator’s Signature

___________________________
Dr. Kevin Yoder, Faculty Advisor

___________________________
Dr. Susan Eve, Associate Dean, Honors College
Appendix D

Greetings (Professor of Course),

My name is Rebekah Chase, and I am a senior at UNT. I am currently working on an undergraduate research thesis through the Honors College and the Department of Sociology, and I would greatly appreciate a few moments of your time.

My thesis topic is examining the effects of both religiosity and spirituality on health risk behaviors (specifically alcohol use) in university students ages 18-25. My research design is to conduct a survey that I have developed of undergraduate students in a few core classes at UNT. The survey plus explanation time takes approximately 15 minutes.

I would like to conduct this survey within the next few weeks in any of the following courses: (Course identification letters and four-digit course number). I am emailing you because I know you would be able to tell me which professors/graduate students in your department I would be able to contact to request to conduct the survey during their class period. I understand that 15 minutes can be a significant chunk of time, but any cooperation would be greatly appreciated.

My research design has been approved by the UNT IRB, and if you have any questions please feel free to contact myself, my faculty mentor Dr. Kevin Yoder in the Department of Sociology at yoder@pacs.unt.edu, or Dr. Susan Eve, Associate Dean of the Honors College at eves@unt.edu.

Please let me know who would be the appropriate professors to contact. Thank you so much for your time!

Rebekah Chase
Appendix E

University of North Texas Institutional Review Board

Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: “On your Knees or At the Bar: The Effects of Religiosity and Spirituality on the Decision to Drink”

Principal Investigator: Rebekah Chase, an undergraduate student in the University of North Texas (UNT) Department of Sociology and the Honors College research program.

Purpose of the Study:

You are being asked to participate in a research study which involves comparing student’s religious and spiritual activities to their decisions on whether or not to drink alcohol. This study will be used to examine whether or not students’ religious and spiritual lives have any impact on their decisions to drink alcohol.

Study Procedures:

You will be asked to answer a series of questions regarding your own spiritual/religious preference and how you express your beliefs and whether or not you choose to consume alcohol and in general how much you drink that will take about 10 minutes of your time.

Foreseeable Risks:
No foreseeable risks are involved in this study.

Benefits to the Subjects or Others:
This study is not expected to be of any direct benefit to you; however, few studies have been done on comparing the effects that both religiosity and spirituality have on the decision to drink alcohol, and no study like this has been conducted at UNT. This study will compliment the field of research already being conducted on the effect that religion and spirituality have on health risk behaviors in young people.

Procedures for Maintaining Confidentiality of Research Records:

All study materials including signed consent forms, completed survey forms, and analyzed data will remain in a locked safe for confidentiality purposed for six months following the completion of the study. All study materials will be analyzed and reviewed in the presence of UNT faculty. Signed consent forms are required for study participation but will not be attached to individual completed survey forms to ensure anonymity. The confidentiality of your individual information will be maintained in any publications or presentations regarding this study.
Questions about the Study

If you have any questions about the study, you may contact Rebekah Chase at 972 965 9166 or Dr. Kevin Yoder, UNT Department of Sociology, at 940 565 4880.

Review for the Protection of Participants:

This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants’ Rights:

Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

- Rebekah Chase has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You have been told you will receive a copy of this form.

____________________________

Printed Name of Participant

____________________________

Signature of Participant    Date

For the Principal Investigator or Designee:

I certify that I have reviewed the contents of this form with the participant signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

____________________________

Signature of Principal Investigator or Designee    Date
Appendix F

IRB Approval Letter
October 25, 2006

Rebekah Chase
Department of Sociology
University of North Texas

RE: Human Subjects Application No. 06-356

Dear Ms. Chase:

Your proposal titled “On Your Knees or At the Bar: The Effects of Religiosity and Spirituality on the Decision to Drink” has been approved by the Institutional Review Board as permitted under federal law and regulations governing the use of human subjects in research projects 45 CFR 46.101. Federal policy 45 CFR 46.109(e) stipulates that IRB approval is for one year only, October 25, 2006 through October 24, 2007.

Enclosed is the consent document with stamped IRB approval. Please copy and use this form only for your subjects.

It is your responsibility according to U.S. Department of Health and Human Services regulations to submit annual and terminal progress reports to the IRB for this project. Please mark your calendar accordingly. The IRB must also review this project prior to any modifications.

Please contact Shelia Bourns, Research Compliance Administrator, ext. 3940 or Boyd Herndon, Director of Research Compliance, ext. 3941, if you wish to make such changes or need additional information.

Sincerely,

Scott Simpkins, Ph.D.
Chair
Institutional Review Board

SS:sb
Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: “On your Knees or At the Bar: The Effects of Religiosity and Spirituality on the Decision to Drink”

Principal Investigator: Rebekah Chase, an undergraduate student in the University of North Texas (UNT) Department of Sociology and the Honors College research program.

Purpose of the Study:

You are being asked to participate in a research study which involves comparing students’ religious and spiritual activities to their decisions on whether or not to drink alcohol. This study will be used to examine whether or not students’ religious and spiritual lives have any impact on their decisions to drink alcohol.

Study Procedures:

You will be asked to answer a series of questions regarding your own spiritual/religious preference, how you express your beliefs, whether or not you choose to consume alcohol, and in general how much you drink. The survey will only take about 10 minutes of your time.

Foreseeable Risks:

No foreseeable risks are involved in this study.

Benefits to the Subjects or Others:

This study is not expected to be of any direct benefit to you; however, few studies have been done on comparing the effects that both religiosity and spirituality have on the decision to drink alcohol, and no study like this has been conducted at UNT. This study will complement the field of research already being conducted on the effect that religion and spirituality have on health risk behaviors in young people.

Procedures for Maintaining Confidentiality of Research Records:

All study materials including signed consent forms, completed survey forms, and analyzed data will remain in a locked safe for confidentiality purposes for six months following the completion of the study. All study materials will be analyzed and reviewed in the presence of UNT faculty. Signed consent forms are required for study participation but will not be attached to individual completed survey forms to ensure anonymity. The confidentiality of your individual information will be maintained in any publications or presentations regarding this study. Information will only be presented in aggregate forms.
The following document will be presented to each professor at UNT whose classroom is randomly selected to participate in the study upon a meeting between the Principal Investigator and the chosen professor. The professor will have the study verbally explained to him/her and then be asked to approve or deny consent and sign the document below.

The study "On your Knees or At the Bar: The Effects of Religiosity and Spirituality on the Decision to Drink" has been approved by the Institutional Review Board of the University of North Texas and is sponsored by both the Honors College and Dr. Kevin Yoder, department of Sociology.

I understand that upon signing this form I give my permission to allow Principal Investigator Rebekah Chase to conduct a survey during the first 15 minutes of my course (course number) on (day), (month/date/year). I certify that students will not be rewarded or penalized if they choose to or refuse to participate in the survey. I agree that I will not review the survey answers when the responses are collected in order to protect the confidentiality of the participants. I understand that my decision to allow the survey to be conducted in my course is completely voluntary, and I will neither be rewarded nor penalized for allowing or not allowing the study to be conducted during my course. I also understand that if at any time I have questions about the study, I may contact Principal Investigator Rebekah Chase at 972 965 9166, Dr. Kevin Yoder at 940 565 4880, or Dr. Susan Eve at 940 565 4914.

Instructor's Printed Name

Instructor's Signature

Principal Investigator's Signature

Dr. Kevin Yoder, Faculty Advisor

Dr. Susan Eve, Associate Dean, Honors College
Completion Certificate

This is to certify that

Rebekah Chase

has completed the Human Participants Protection Education for Research Teams online course, sponsored by the National Institutes of Health (NIH), on 09/04/2006.

This course included the following:

- key historical events and current issues that impact guidelines and legislation on human participant protection in research.
- ethical principles and guidelines that should assist in resolving the ethical issues inherent in the conduct of research with human participants.
- the use of key ethical principles and federal regulations to protect human participants at various stages in the research process.
- a description of guidelines for the protection of special populations in research.
- a definition of informed consent and components necessary for a valid consent.
- a description of the role of the IRB in the research process.
- the roles, responsibilities, and interactions of federal agencies, institutions, and researchers in conducting research with human participants.

National Institutes of Health
http://www.nih.gov
Appendix H

On your knees or at the bar:
The effects of religiosity and spirituality on the decision to drink
Rebekah Chase, International Studies, College of Arts and Sciences & Honors College
Faculty Mentor: Kevin Yoder Department of Sociology, College of Public Affairs and Community Service

Purpose
To investigate the effect of religiosity and spirituality on drinking behavior among college students through a short survey of undergraduate students.

Background
According to the literature, religiosity in research has been expressed in 4 ways:
- Public, physical representation of one religious belief
- Private religious behavior
- Religious self-identification and personal beliefs
- Religious socialization

Spirituality has not been extensively studied, and definitions of spirituality vary significantly. A synthesized definition of spirituality is as follows: a state of mind and belief system centered on knowledge and awareness of the divine and otherworldly, not defined by traditional religious practices.

Previous researchers have defined risky health behaviors to include behaviors such as alcohol consumption, illicit drug use, cigarette smoking, reckless driving, and having sexual intercourse without some form of protection. In my study I will focus on alcohol consumption.

Hypotheses
A higher level of both religiosity and spirituality will decrease the likelihood of alcohol consumption and alcohol abuse among college students.

High religiosity will have a greater effect on reducing alcohol consumption and abuse than high spirituality.

Students who are "underage" (18-20 in this survey) will be less likely to both consume and abuse alcohol when a high religiosity is present. Students who are "of-age" (21-25 in this survey) with a high religiosity will be less likely to abuse alcohol, but their general alcohol consumption will not be significantly affected with a higher religiosity.

Methods
Data will be collected through a short survey of 21 questions. Questions cover religiosity, spirituality, alcohol consumption, age, and gender.

Religiosity: measured as public and private religious behaviors, religious self-identification, and religious socialization

Sample Question:
- "participates publicly in traditions, ceremonies, and/or rituals associated with one religious belief (including worship, meditation, meditating, sacred texts, participating in sacramental activities, etc.)"

Answers range on a scale from "never" to "regularly"

Alcohol consumption measured as frequency of consumption, amount typically consumed, and the social environment in which alcohol is typically consumed

Sample Question:
- "Typically consume alcohol (approximately)"

Answers range on a scale from "do not drink alcohol" to "several times per week"

Age: measured as two categories, "underage" (18-20) and "of age" (21-25)

The target population for the survey is undergraduate students ages 18-25 at the University of North Texas enrolled in political science courses that are required for the university core curriculum during the fall 2006 semester.

The survey will be handed out in the first 15 minutes of class at a date and time agreed upon by the professor and the principle investigator. Both students and professors sign a consent form before the survey is administered.

Final data results will be analyzed using the SPSS statistical computer program.

Progress
Collection of survey data has begun. Approximately 70 students have been surveyed so far. The target number is 200. Most of the collection will be completed by December 2006. Spring 2007 will focus on data analysis and assessment of results.

Publications and Presentations
Successful poster presentation at UNT University Scholars Day Denton, TX, March 2006
Successful poster presentation at the Great Plains Honors Council Lubbock, TX, April, 2006
Anticipated presentation at the American Sociological Association annual conference New York, August, 2007
Anticipated publication in the Eagle Feather undergraduate research journal, August 2007

Acknowledgments
This thesis could not have been completed without the support of the following persons:
Dr. Gloria Cox, Dean of the Honors College
Dr. Susan I一大, Associate Dean of the Honors College
Dr. Kevin Yoder, Faculty Advisor, Department of Sociology, College of Public Affairs and Community Service
Dr. Aimee Msemal, Department Chair for Political Science, College of Arts and Sciences

For further information
For further information regarding the methodology, continuing progress, and/or final results of this study, please contact Rebekah Chase at rebekahchase@hotmail.com