

DISSERTATION

PROTECTIVE FACTORS AGAINST ALCOHOL ABUSE IN COLLEGE  
STUDENTS: SPIRITUALITY, WISDOM, AND SELF-TRANSCENDENCE

Submitted by

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## ABSTRACT

### PROTECTIVE FACTORS AGAINST ALCOHOL ABUSE IN COLLEGE STUDENTS: SPIRITUALITY, WISDOM, AND SELF-TRANSCENDENCE

Past research consistently suggests that spirituality is a protective factor against substance abuse in adolescents and adults. Many other personality and environmental factors have been shown to predict alcohol abuse and alcohol-related problems, yet much of the variance in alcohol abuse remains unexplained. Alcohol misuse continues to plague college campuses in the United States and recent attempts to reduce problematic drinking have fallen short. In an effort to further understand the factors contributing to students' alcohol abuse, this study examines how spirituality, wisdom, and self-transcendence impact the drinking behaviors of college students. Two groups of students were studied: 1. students who were mandated for psychoeducational and clinical intervention as a result of violating the university alcohol policy; 2. a comparison group of students from the general undergraduate population who had never been sanctioned for alcohol misuse on campus. Alcohol use behaviors were assessed through calculating students' reported typical blood alcohol level and alcohol-related problems.

Results showed that wisdom is significantly and negatively related to blood alcohol level and alcohol-related problems for the mandated group but not the comparison group. Self-transcendence was inversely related to blood alcohol level for the

control group only and spirituality was not related to alcohol use measures for either group. Participant group membership, gender, and wisdom accounted for a significant amount of variance in blood alcohol level, but only group membership explained variance in alcohol-related problems. Gender analyses were conducted by group, revealing significant differences in how spirituality, wisdom, and self-transcendence relate to alcohol use for men and women. Implications of the findings and suggestions for future research are offered.

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## Chapter I

### Introduction

Many people associate college campuses in the United States with drinking alcohol, and heavy episodic drinking continues to be a serious problem. In fact, the National Institute on Alcohol Abuse and Alcoholism characterized heavy drinking in colleges and universities as “widespread, dangerous and disruptive” (Task Force, 2002). National surveys from the Core Institute determined that 45.9% of undergraduates engaged in heavy episodic drinking in the past two weeks (2010). Heavy episodic drinking is defined as having five or more drinks in one sitting for men and four or more drinks for women. Over 37% of undergraduates reported having some form of public misconduct (DUI, vandalism, fighting, trouble with police) and 25% of students reported experiencing serious personal problems (suicidality, injury, sexual assault) as a result of drinking. A plethora of agencies and institutions have been established to address the problematic alcohol and other drug use on college campuses (National Institute on Alcohol Abuse and Alcoholism, Higher Education Center for Alcohol and Other Drug Abuse and Violence Prevention, The Network Addressing Collegiate Alcohol and Other Drug Issues, etc.), yet students continue to abuse substances nationwide.

Substance abuse researchers have increased their attention to the assessment of negative consequences associated with alcohol intoxication and how such consequences are impacting students (Johnson, Sheets, & Kristeller, 2008; Kahler, Strong, Read, Palfai

& Wood, 2004). Additionally, investigators have identified predictors of substance abuse risk and have found multiple contributing factors including family history, gender, alcohol sensitivity, social support, academic competence, perfectionism, and emotional regulation (Kramer, Chan, Dick, Kuperman, Bucholz, Edenberg, ... Bierut, 2008; Rice & Van Arsdale, 2010; Wills, Sandy & Yaeger, 2002). However, these factors account for less than half of the total variance in substance abuse (Kramer et al., 2008). In an attempt to fill this gap, researchers explored other potential predictors of substance use, including spirituality and religiousness. Authors generally concluded that spirituality and religiousness serve as protective factors against substance abuse (Brown, Salsman, Brechting, & Carlson, 2007; Johnson & Cohen, 2004; Johnson et al., 2008; Pardini, Plante, Sherman, & Stump, 2000; Stewart, 2001; Wills, Yaeger, & Sandy, 2003).

Although spirituality and religion are related, the constructs differ in several important ways. According to the Random House Dictionary of the English Language (1979), religion is comprised of “specific fundamental set of beliefs and practices generally agreed upon by a number of persons or sects” and typically involves the belief in “the existence of a single being, a group of beings, an eternal principle, or transcendental spiritual entity that has created the world, that governs it, that controls its destinies, or that intervenes occasionally in the natural course of its history.” These elements make religion a narrower construct, whereas spirituality is more broadly defined. Love and Talbot (1999) outlined the multiple elements of spirituality which include:

an internal process of seeking personal authenticity, genuineness, and wholeness as an aspect of identity development; the process of continually transcending one's current locus of centrality; developing a greater connectedness to self and others through relationships and union with community; deriving meaning,

purpose, and direction in one's life; and an increasing openness to exploring a relationship with an intangible and pervasive power or essence or center of value that exists beyond human existence and rational human knowing (p. 363-364).

Based on these descriptions, spirituality is an aspect of religiousness, but religiousness is not necessarily a component of spirituality. Differentiating the two is especially important for research with college students because most research over the past several decades has shown a decrease in religious values, attitudes, and behaviors among this population (Love, 2000). Additionally, over the same period of time, college students demonstrated a movement toward aspects of spirituality such as greater altruism, humanitarianism, and social conscience (Love, 2000). Thus, in order to reach a broader population of college students, the present study will investigate the construct of spirituality, but not religion.

Most researchers agree that spirituality is a multi-faceted construct that can be comprised of religious, faith-based beliefs, personal existential meaning and spiritual meaning (Brown, Salsman, Brechting, & Carlson, 2007; Davis, Kerr, & Kurpus, 2003; Johnson, Sheets, & Kristeller, 2008; Mascaro & Rosen, 2006; Wong, 1998). This study explores spiritual meaning, which is defined as “the extent to which someone views life itself as coherent and purposeful and also derives personal meaning from a force that he or she believes pervades, underlies, arches over, or transcends life” (Mascaro & Rosen, 2006, p. 171), or more simply “the extent to which an individual believes that life or some force of which life is a function has a purpose, will, or way in which individuals participate” (Mascaro, Rosen, & Morey, 2004, p. 845). The pathway connecting spirituality and substance use is unclear; proposed links include mental health (Pardini et al., 2000), preventative health behaviors (Kramer, 2008), social support (Koenig, Hays, George, Blazer, Larson, & Landerman, 1997), and meaning making (Park, 2007). Taking

a meaning-systems perspective, Park (2007) explored the theoretical framework for connecting spirituality and health. She noted that having a sense of meaning in life is related to spirituality (Ardelt, 2003) and that meaning has also been explored as a pathway to health behaviors (George, Ellison, & Larson, 2002).

This study intends to further investigate the connection between spirituality and substance use among college students while exploring other possible predictive variables. The additional constructs of interest, wisdom and self-transcendence, may help reduce the unexplained variability in substance use behaviors. In the following pages, the spirituality, wisdom, and self-transcendence literature is reviewed with regard to health outcomes, including substance use. This paper explores and defines the various dimensions and constructs of spirituality, wisdom and self-transcendence. Following a review of the variables of interest, the hypotheses for the study are proposed.

### *Spirituality*

Spirituality has been extensively studied in its relationship to human physical and mental health. Collectively, such studies have shown that religiousness and spirituality have significant physical, psychological, and emotional benefits (Davis, Kerr, & Kurpus, 2003; Hill & Pargament, 2003; Mascaro & Rosen, 2006; Powell, Shahbi and Thorensen, 2003; Smith, McCullough & Poll, 2003). With regard to physical health, spirituality has been consistently linked with recovery from illness and health promotion throughout the life span (Cacioppo, Hawley, Rickett, & Masi, 2005; Cotton, Zebracki, Rosenthal, Tsevat, & Drotar, 2006; Mathesis, Tulskey, & Mathesis, 2006; Yanez, Edmondson, Stanton, Park, Kwan, & Ganz, 2009; Wong, 1998). For example, Johnstone and Yoon (2009) assessed the influence of religiousness/spirituality on physical health outcomes in

a sample of individuals undergoing rehabilitation. Using a multidimensional measure of spirituality, the authors conducted a cross-sectional analysis of physical health outcomes from 118 outpatients with chronic injury. Their analysis found that three of the six dimensions assessed - positive spiritual experience, forgiveness, and negative spiritual experiences - were significantly related to physical health outcomes (physical functioning, bodily pain) in the hypothesized direction. Some aspects of religiousness and spirituality have been shown to protect against cardiovascular disease, hypertension, and myocardial infarction (Miller & Thorensen, 2003; Park, 2007). Steffen, Hinderliter, Blumenthal and Sherwood (2001) explored the relationship between religious factors, ethnic identity and blood pressure. The authors discovered that for African Americans, aspects of religious coping such as trust in a god, consolation from faith, and guidance seeking were associated with lower blood pressure. In another study, Doster et al. (2002) examined the relationship between intrinsic and extrinsic spirituality and cardiovascular risk factors among a sample of 111 healthy adults ranging in age from 28-63. Results showed that those who held a broader spiritual orientation had lower cholesterol risk ratios and lower triglyceride levels. Further, deeper spirituality systems positively correlated with higher red blood cell count. Overall, the authors concluded that spirituality can help reduce stress and may serve as a protective agent against cardiovascular risk factors.

After a methodical review of the research connecting spirituality and physical health, several researchers concluded that spirituality is associated with reduced mortality rates in healthy individuals, but not in the physically ill (Chida, Steptoe & Powell, 2008; Cotton et al., 2006; Powell, Shahbi, & Thorensen, 2003). Specifically, Powell and

colleagues (2003) found that healthy individuals who attend spiritual services have a 25% reduced risk in mortality after adjustment for confounders such as age, gender and ethnicity. These protective factors of spirituality existed independently of behavioral factors such as smoking, drinking, exercising and socio-economic factors (Chida et al., 2008). Cotton and colleagues (2006) reviewed the literature regarding spirituality and adolescent health outcomes, finding that spiritual adolescents have fewer risky health behaviors than their less religious peers. The findings also suggest that adolescents with higher spiritual connectedness and use of spiritual coping engaged in less substance use.

In terms of psychological well-being, research shows that those who are spiritual are better able to regulate emotion, have higher life satisfaction, and have more hope (Davis, Kerr, & Kurpus, 2003; Laubmeier, Zakowski, & Bair, 2004; Leak, DeNeve, & Geteman, 2007; Mascaro et al., 2004; Nelson, Rosenfeld, Breitbart, & Galietta, 2002; Pardini et al., 2000; Wink & Dillon, 2008). The relationship between spirituality and physical health may arise from spirituality's effect as a buffer against daily stress and anxiety. The psychosomatic effects of stress have been clearly linked with negative health outcomes (Davis, Kerr, & Kurpus, 2003; Mascaro & Rosen, 2006; Wills et al., 2001; Wills et al., 2003). For example, Mascaro and Rosen (2006) investigated the role of existential meaning as a buffer against stress and depression among a group of 143 ethnically diverse undergraduate students. Spiritual meaning was assessed using the Spiritual Meaning Scale (SMS; Mascaro et al., 2004) and personal meaning was measured using the Life-Regard Index-Revised (Battista & Almond, 1973).

The results revealed that spiritual meaning (having a sense of purpose or calling derived from beliefs about a spiritual force underlying life) and personal meaning (having

a sense of coherence and purpose about one's individual life) are positively related to hope and negatively related to depression among an ethnically diverse college-age sample. The researchers concluded that spiritual and personal meanings are relatively robust personality attributes. Spiritual meaning also served as a moderator between the negative effects of stress on depression symptoms, suggesting that a spiritual connection helps the individual "transcend immediate, self-focused concerns" and can lead to "increased benefit for health outcomes during aversive situations that are beyond one's own control" (Mascaro et al., 2004, p. 185). These authors posit that "a meaningful attitude provides an individual resiliency against the loss of hope" (172) and against the development of emotional, behavioral, and motivational symptoms of depression.

In a study examining the effects of meaning and religiousness on anxiety in at-risk youths, Davis, Kerr and Kurpus (2003) found that greater spiritual well-being, comprised of existential and religious well-being sub-scales, was associated with lower trait anxiety. The study assessed 25 girls and 20 boys ranging in age from 14-17 (M=15.2) participating in a research and training program for at-risk adolescents sponsored by the National Science Foundation. Researchers found that trait anxiety was negatively associated with spiritual well-being and intrinsic religious orientation among males, but not females. They propose that this difference may be attributed to the girls' higher overall trait anxiety scores. Females also had lower existential well-being scores than males, which was explained by differences in socialization and a drop in self-esteem for girls in adolescence (Davis et al., 2003). However, both sexes showed a negative relationship between existential well-being and trait anxiety.

Wink and Dillon (2008) found further evidence of the link between spirituality and psychological health when they explored the relationship between religiousness, spirituality, and psychosocial functioning among a sample of 181 older adults. This longitudinal study assessed participants at four points across their lifespan using personal interviews and questionnaires. The findings revealed that religiousness was associated with higher well-being through positive relationships with others, involvement in the community, and generativity. Spirituality was positively related to well-being derived from personal growth, involvement in creative tasks, and wisdom (measured by the California Adult Q-set, which is a measure of personality and social behavior; wise individuals were described as straightforward, clear thinking, introspective, insightful, philosophically concerned, and unconventional in thinking). In another study, the relationship between religiousness, spirituality, locus of control and physical health was assessed among 156 older adults (Wink, Dillon, & Prettyman, 2007). Results supported the authors' hypothesis that religiousness and spirituality act as a buffer against feeling a loss of control due to poor physical health in women, but not men.

Many researchers have explored the relative influence of each component of spirituality on well-being. Generally, authors concluded that the construct representing a sense of meaning in life related to positive adjustment and psychological factors, whereas the faith-based component showed no correlation to the same positive factors (Cacioppo, Hawley, Rickett, & Masi, 2005; Nelson, Rosenfeld, Breitbart, & Galietta, 2002; Yanez et al., 2009). Yanez and colleagues conducted their research with women recovering from cancer, exploring two facets of spirituality: meaning/peace and faith. The meaning/peace dimension predicted a decrease in depressive symptoms and higher vitality, whereas

reliance on faith predicted a temporary increase in depressive symptoms for the women. These findings suggest that meaning making and a sense of peace are more likely to facilitate psychological adjustment than faith-based components. Similarly, in their 2002 study, Nelson and colleagues examined the impact of spirituality on depressive symptoms in male and female patients who were terminally ill. The 162 participants had either terminal cancer or AIDS and were recruited from palliative care facilities. The investigators used the FACIT Spiritual Well-Being Scale, which conceptualizes spirituality as having two components divided into subscales: a religious/faith-based component and a meaning and peace component. The results showed that the meaning and peace subscale had a strong negative relationship with depression scores, whereas the religious subscale showed no relationship with depression scores. The authors concluded that the beneficial impacts of religion on mental health could be derived from the existential meaning component more than from religious practice.

In addition to the positive physical and psychological attributes associated with spirituality, spirituality has been found to be a protective factor against substance abuse in adolescents and adults (Brown, Salsman, Brechting, & Carlson, 2007; Cotton et al., 2006; Johnson & Cohen, 2004; Johnson, Sheets, & Kristeller, 2008; Stewart, 2001; Wills, Yaeger, & Sandy, 2003). In other words, adolescents and adults who identify as spiritual have lower levels of substance abuse than those who are not spiritually connected. Having a strong spiritual orientation may delay or inhibit the initial use of alcohol. For instance, religiousness appeared to have a buffering effect between life stress and alcohol, tobacco, and marijuana use for a group of urban adolescents (Wills et al., 2003). This study assessed data gathered on four separate occasions from 1,182 ethnically diverse

youths between 7<sup>th</sup> and 10<sup>th</sup> grade. The analysis showed that religiousness reduced the impact of life stress on initial substance use as well as on the rate of growth in substance use over time. The authors theorized that the buffering effects of religiousness could arise from fostering related values, developing existential meaning, providing coping mechanisms, emphasizing social networks, or a combination of these factors.

In another study, Miller, Davies, and Greenwald (2000) conducted a cross-sectional analysis to examine the relationship between religiousness and substance use in adolescents. They examined the impact of personal devotion (an active personal relationship with a higher being and seeking spiritual comfort) on drug use among 676 teenagers between the ages 15-19. They found that personal devotion is inversely related to marijuana and cocaine use, as well as substance abuse in general.

The relationship between spirituality and substance use in college students appears similar to that of adolescents. Stewart (2001) surveyed 337 university students in a study exploring the relationship between students' spirituality and their decision to use chemical substances, including alcohol and marijuana. The sample was fairly representative of the student population as a whole in terms of age (ranged from 17-29), year in school (ranged from first to fourth), and ethnicity (72% identified as Caucasian and 36.5% identified as African American). The results showed that spirituality had a moderate buffering effect on the decision to use alcohol and marijuana, yet the effect seemed to dissipate among the upper-class levels.

In a recent study, researchers were able to identify several mediating factors in the relationship between religion, spirituality, and substance use (Johnson et al., 2008). The relationship between religion/spirituality and alcohol consumption appeared to be

mediated by social factors and negative attitudes about alcohol among a group of college students. Problems related to alcohol use were also measured and included in the path analysis. The relationship between religion/spirituality and alcohol problems was mediated by coping motives (using alcohol as a method for coping with emotion and stress) and spiritual well-being (feeling that life has meaning, an experience of inner peace, and feeling connected to a deity and others).

Other researchers have investigated the relationship between religion, spirituality, social support and alcohol use in under-age college students (Brown et al., 2007). Brown and colleagues (2007) conceptualized spirituality and religion as multidimensional and examined each of the facets in relation to alcohol use among 263 undergraduates ranging in age from 17-20. The sample was relatively homogeneous with regard to ethnicity (90.5% Caucasian; 7.2% African American) and religion (86% Christian; 11% no religious affiliation). The findings indicated that religiousness and spirituality are differentially related to alcohol use. Specifically, intrinsic motivation for religiousness, defined as motivation derived from within one's own religion (i.e. "I enjoy reading about my religion"), was associated with reduced alcohol use and fewer alcohol problems among underage college students. However, extrinsic religiousness, which measures religious behaviors arising from utilitarian motivations (i.e. "I go to church to meet people"), was not associated with any alcohol use variables. A sense of meaning and purpose (as a component of spirituality) was inversely related to alcohol use, but only when social support was high. The authors emphasized the need to separate religiousness and spirituality in research as they represent different constructs.

Although the inverse relationship between spirituality and substance use is consistently supported, some researchers have questioned the importance of the belief in a god in relation to alcohol abuse treatment (Tonigan, Miller, & Schermer, 2002). While examining the effects of religion and spirituality on the recovery process in Alcohol Anonymous (AA), Tonigan and colleagues found that a belief in God appears to be relatively unimportant in obtaining clinical benefit from AA. Interestingly, they also discovered that atheists and agnostics tend not to utilize AA as a treatment modality as frequently as those who do believe in God, pointing to a possible self-selection effect in treatment modality.

### *Wisdom*

Wisdom is becoming a popular research construct for psychologists, especially in relation to health behaviors and psychological well-being (Ardelt, 2003; Kuntzman & Baltes, 2003; Le, 2008). Findings from wisdom research suggests that the construct correlates with higher affective involvement and lower negative feelings, fosters other-enhancing values as well as personal growth, and relates to a preference for cooperative conflict management as opposed to maladaptive interpersonal interactions (Kunzmann & Baltes, 2003). Ardel offers this hypothesis as follows: “wisdom in old age is assumed to be positively related to mental health, satisfaction with life, and the ability to cope with physical and social decline and the nearing of death” (Ardelt, 2003, p. 276).

Like spirituality, the definition of wisdom is variable, and several different models of wisdom have been proposed (Ardelt, 2003; Kunzmann & Baltes, 2003; Le, 2008; Levenson, Jennings, Aldwin, & Shiraishi, 2005). Researchers tend to agree that wisdom is a multi-faceted construct wherein each dimension supports the other; however,

debate exists regarding what dimensions contribute to the concept of wisdom. Among the conceptualizations of wisdom are: “a body of expert knowledge about the meaning and conduct of life and indicators of affective, motivational, and interpersonal functioning” (Kunzmann & Baltes, 2003; p. 1104), the awareness of ignorance (Meacham, 1990), and “an integration of cognitive, reflective, and affective dimensions” (Ardelt, 2003, p. 277). Further, Baltes and Staudinger (2000) defined wisdom as “expertise in the fundamental pragmatics of life, involving life-span contextualism, relativistic thinking, and comfort with uncertainty, as well as factual and procedural knowledge” (Le & Levenson, 2005, p. 444). Levenson and colleagues (2005) offered another characterization of wisdom as a process of self-transcendence. Self-transcendence can be thought of as “the ability to move beyond self-centered consciousness, and to see things as they are with clear awareness of human nature and human problems, and with a considerable measure of freedom from biological and social conditioning” (Le & Levenson, 2005, p.444).

In general, these conceptualizations of wisdom include elements of practical wisdom and transcendent wisdom. Practical wisdom includes an individual’s ability to consider factual knowledge, procedural knowledge, life span contextualism and relativistic thinking, as well as tolerating uncertainty when resolving life dilemmas (Ardelt, 2003; Baltes & Staudinger, 2000). Transcendent wisdom generally refers to an individual’s ability to transform consciousness, shift perspective, and observe things as they are directly (Levenson et al., 2005). It may be that these two contrasting definitions of wisdom, namely practical wisdom and self-transcendent wisdom, can be two components of a greater meta-construct. The two sub-types of wisdom may serve

different roles according to culture and necessity and may be emphasized at different developmental stages of life (Le, 2008).

Several studies have evaluated the relative influence of practical and transcendental wisdom throughout lifespan development and have found significant variation by age, culture, and gender (Le & Levenson, 2005; Le, 2008). In one study, researchers collected data cross-culturally, surveying 90 participants from traditionally contemplative traditions and 164 ethnically diverse undergraduates (35% European American, 38% Asian, 13% Hispanic, and 14% other) from traditionally individualistic U.S. backgrounds. The findings revealed that the vertical individualism assessed using U.S. undergraduates was negatively associated with self-transcendence. These results suggest a potential age difference for the role of culture in wisdom development (Le & Levenson, 2005).

Another study that addressed the role of age in wisdom development investigated the psychometric properties of the Three-Dimensional Wisdom Scale using a normative sample of 180 older adults (Ardelt, 2003). Ardel proposed that wisdom is typically thought to increase with age. The results indicated that wisdom is weakly associated with education level and gender, with higher education and male gender being associated with higher wisdom scores. The author suggests that the gender effect may reflect cohort values as men, especially older men, were encouraged to develop their cognitive capacities, whereas women may not have been supported or encouraged in the same way. The scale was found to have valid and reliable scores with the older adult population.

Wisdom development among young adults has been explored less by researchers, possibly due to the common association between old age and the attainment of wisdom.

However, elements of wisdom have been linked to substance abuse behaviors in adolescents. One study (Perry, Komro, Jones, Munson, Williams, & Jason, 2002) investigated whether an adolescent's self-evaluation of wisdom is associated with substance use and problem behavior. The authors also used the data to develop the Adolescent Wisdom Scale (AWS) to measure wisdom in adolescent populations (Perry et al., 2002). The AWS is comprised of three subscales: harmony and warmth (i.e. compassion, openness, appreciation, kindness and humor), intelligence (i.e. problem solving, focus, and positive self-esteem) and spirituality (i.e. unity, love for God, wonder, meaning, connection with nature). The study participants included 2,027 high school seniors (mean age 17.9), 53% of whom were female and 96% of whom were Caucasian.

The purpose of the study was to examine whether adolescents thought of themselves as having wisdom attributes and if the AWS subscales were associated with alcohol, tobacco, drug use, and violent behavior. As hypothesized, results showed that self-evaluated wisdom is indeed negatively related to substance use; however, there were significant differences among the subscales and between sexes. For males, the harmony and warmth subscale was not associated with alcohol and marijuana use, but the intelligence subscale and spirituality subscale were significantly inversely related to substance use. The authors theorized that the intelligence subscale seemed to have more traditionally "masculine" attributes and the difference could be attributed to gender socialization (Perry et al., 2002).

For females, all substance use scores negatively related to overall wisdom. Females had higher overall scores on the AWS as well as higher subscale scores on harmony/warmth and spirituality than males. According to the authors, the harmony and

warmth subscale encompasses more traditionally “feminine” characteristics and they suggested that “our culture may be biased in reinforcing gender-specific personal attributes that can both support and/or hinder the acquisition of wisdom” (p.59). The authors concluded that the factors assessed in the scales, harmony and warmth, intelligence, and spirituality can be considered protective factors against adolescent substance use and can guide the development of early interventions.

### *Self-transcendence*

The concept of self-transcendence has been linked to both spiritual and wisdom development and is equally difficult to define. Levenson and colleagues (2005) conceptualized self-transcendence as a developmental process that guides individuals toward wisdom. Another researcher believes that self-transcendence is a necessary component of wisdom (Curnow, 1999). Pascual-Leone’s (1990) theory proposes that transcendence of the self is required in order to move beyond the “ingrained, automatic ways of thinking, feeling, and acting, and to connect empathetically with the experiences of others” (p. 444).

Levenson and colleagues (2005) outlined their perspective on the role of self-transcendence, stating that it is “equivalent to wisdom and implies the dissolution of (self-based) obstacles to empathy, understanding, and integrity” (p.129), and that the path toward self-transcendence requires decreased reliance on external definitions of the self and increased spiritual connectedness. The authors highlight past research that has connected self-transcendence to psychological health benefits such as emotional well-being, hope, and a sense of coherence. The Adult Self-Transcendence Inventory (ASTI), developed by Levenson and colleagues (2005), is intended to measure this construct

across a variety of age groups. During the creating of the scale, the authors recruited 341 individuals including students, staff, and faculty from a mid-sized university (see ASTI in *Measures*). These authors also assessed meditative practice, which is commonly associated with spirituality, and found that meditation was positively related to self-transcendence. They concluded that individuals could undertake activities that promote self-transcendence and positive personality traits, which may be protective factors against social alienation in old age.

Le and Levenson (2005) suggest that two main factors are necessary in order to achieve self-transcendence: minimization of competitive individualism and the absence of possessiveness in love relationships (immature love). The authors used samples of adult immigrants and college students in their study on the roles of immature love and cultural in self-transcendence. Their goal was to address the role of interpersonal relationships in the development of wisdom. The results showed that culture (vertical and horizontal forms of collectivism or individualism) was related to immature love and self-transcendence. Competitiveness and possessiveness associated with immature love were inversely related to self-transcendence. The authors also found that age was a significant variable among the student sample.

#### *The Relationship between Spirituality, Wisdom and Self-Transcendence*

Spirituality is thought to be associated with wisdom in both young and older adults (Le, 2008; Levenson, 2005; Wink and Dillon, 2003). The connection between spirituality and wisdom exists partly because “the essence of spirituality seems to consist in an effort to free consciousness from the thrall of genetic instructions” (Csiksentmihayli, 1993; p. 241). Researchers suggest that the development and

maintenance of wisdom requires the liberation of social, cultural and biological constraints (Levenson & Crumpler, 1996), whereas self-transcendence refers to the ability of an individual to transcend one's own self-centeredness and personal obstacles. The concept of self-transcendence appears to cross into both spirituality and wisdom domains (Ellison, 1983; Le, 2008; Levenson, 2005). Self-transcendence has also been referred to as "the sense of well-being that we experience when we find purposes to commit ourselves to which involve ultimate meaning for life" (Ellison, 1983, p. 330).

Intentional self-enhancement, along with a supportive environment facilitative of spiritual exploration, is an important step toward the development of transcendent wisdom for both younger and older groups (Le, 2008). The finding may be explained by the idea that spirituality is more important for practical wisdom development among young adults and transcendent wisdom development in older adults. Le concluded that spirituality is related to wisdom development, but the relationship changes slightly with age and culture. Additionally, the study found that belonging to a religious or spiritual community contributed to transcendent wisdom development. For the college sample, institutional practice of spirituality was an important part of wisdom development (Le, 2008).

In summation, the various studies suggest the following possible relationships between spirituality, wisdom and self-transcendence: a) spirituality is positively associated with wisdom; b) self-transcendence is positively related to spirituality; c) self-transcendence may influence spirituality which in turn may increase practical wisdom development for young adults and transcendent wisdom development for older adults.

## Chapter II

### Present Study

The purpose of the present study is to evaluate the influence of spirituality, wisdom and self-transcendence on college students' alcohol use. This study intends to deepen the field's understanding of the aforementioned variables, how they relate to one another among college students, and specifically, how these variables relate to students' decision to consume alcohol. This study also measures alcohol-related problems, which is arguably the more salient of the two measures for colleges and universities hoping to reduce negative consequences. The participants meet criteria for membership in one of two groups. The first group of students was mandated to attend clinical or psycho-educational treatment for violating the university's alcohol and other drug policy (mandated-treatment group; MT group). The second group was selected from the general student population and has never been mandated for alcohol or other drug treatment through the university.

The current study intends to replicate previous findings regarding college students' spirituality, wisdom and self-transcendence. The study also offers new conclusions relating spirituality, wisdom, and self-transcendence to students' alcohol use. The participants of interest were those students mandated for treatment, which is traditionally an under-researched population. The study assessed how spirituality, wisdom, and self-transcendence influenced college students' decision to use alcohol. The

outcomes of this study may help researchers and clinicians better understand the mechanisms underlying alcohol abuse in students and can inform future clinical interventions and programmatic structure. Preventative efforts for adolescents could include spiritual and wisdom development as an integral component. Alcoholism recovery and treatment may intentionally include relevant findings in their programs. Finally, results may enhance researchers' understanding of the connection between spirituality, wisdom, and self-transcendence and alcohol use in order to facilitate future research.

In addition to the above goals, two sets of exploratory analyses were conducted: one set comparing men and women on the possible relationship between the three main variables (spirituality, wisdom, self-transcendence) and alcohol use, and the other set evaluating the influence of age on the relationship between the three main variables and alcohol use measures.

### *Hypotheses*

Based on a review of previous research, the following hypotheses were proposed:

Hypothesis 1: There is a significant difference between groups in total alcohol use scores;

specifically, the mandated treatment (MT) group has higher overall alcohol use scores than the control group.

Hypothesis 2: The MT group scores are significantly lower than the control group on

spirituality, wisdom, and self-transcendence.

Hypothesis 3: Scores for spirituality, wisdom, and self-transcendence are significantly

negatively correlated with blood alcohol level for both groups.

Hypothesis 4: Spirituality, wisdom, and self-transcendence are significantly negatively correlated with alcohol problems for both groups.

Hypothesis 5: Spirituality, wisdom, and self-transcendence account for a significant proportion of variance in blood alcohol level.

Hypothesis 6: Spirituality, wisdom, and self-transcendence account for a significant proportion of variance in alcohol problems.

The study includes exploratory analyses that examine how age is related to spirituality, wisdom, self-transcendence and alcohol use scores. The analysis investigates whether age is correlated with spirituality, wisdom and self-transcendence and how age influences the variance in blood alcohol level and alcohol problems.

The study also explores how gender relates to spirituality, wisdom, self-transcendence and alcohol use. Specifically, the study is seeking to determine if wisdom, spirituality and self-transcendence relate to blood alcohol level and alcohol problems differently for men and women. Further, the researcher explored the potential differences between men and women within each group, and how they compared across groups.

## Chapter III

### Method

#### *Participants*

Two groups of college students were recruited for participation. One group of students violated their university's alcohol and other drug conduct policy and was mandated for treatment with the university's counseling center in order to continue with class registration (mandated treatment group; MT group). The MT group consisted of 80 participants; 78% of participants were male and 80% were Caucasian/White (Table 1). Their mean age was 18.72 ( $SD = .78$ , Table 2) and 86.3 % were in their first year of college.

The second group of students served as a comparison group and was recruited from introductory psychology classes. Participants received class credit for their involvement. The control group consisted of 219 students, 78% of whom were women and 58% were Caucasian/White. The mean age was 18.42 ( $SD = .93$ , Table 2) and 81.3% were in their first year of college (Table 1).

Table 1

*Participant Demographics and Differences between Groups*

	Mandated Treatment <i>n</i> = 80	Control <i>n</i> = 219	Statistical Results	
			$\chi^2$ ( <i>df</i> )	<i>p</i>
Gender			76.53(1)	.000
Men	61	48		
Women	18	170		
Ethnicity			15.07 (6)	.020
Caucasian/White	80%	58%		
Asian American	6.5%	5%		
Latino/Hispanic	5%	4%		
Native American	0	1%		
African American	0	1%		
Multi-Racial	6.3%	9.6%		
Other	6.3%	21%		
Year in School			3.87 (3)	.276
First	86.3%	81.3%		
Second	6.3%	13.7%		
Third+	7.6%	5.1%		

## *Measures*

### Demographic Questionnaire

A brief demographic questionnaire designed for this study covered basic information such as age, year in school, ethnicity and gender of the participant (see appendix A). The questionnaire also assessed the age at which the student began drinking alcohol and the age at which they first felt “drunk.” To ensure the groups are mutually exclusive, participants in the control group were asked if they have ever been cited or sanctioned for violating the university’s drug and alcohol policy. If so, their data were excluded from the analysis.

### Spiritual Meaning Scale (SMS)

The SMS (Mascaro et al., 2004) defines spiritual meaning as “the extent to which an individual believes that life or some force of which life is a function has a purpose, will, or way in which individuals participate” (p. 845). The SMS is comprised of 15 items arranged on a 5-point Likert-type scale ranging from “I totally agree” to “I totally disagree” (see Appendix B). The reliability for the SMS is .89 among a sample of 465 undergraduates. The normative sample was relatively young ( $M= 19.12$ ), and homogeneous (84% were Caucasian); 46% of the sample were female.

The authors used Wong’s (1998) and Frankl’s (1984/1988) writings on existential and spiritual meaning to construct the 84 original items administered to the undergraduate sample. Items were eliminated from the original pool based on a measure of social desirability or that were negatively related with a measure of “need for cognition (tendency toward objective thinking)” (p.849). Any items that loaded below .30 on the main factor after a factor analysis were also eliminated. After a principle components

analysis, results showed that the SMS is comprised of only one factor, which accounted for 41% of the variance in item responses.

To assess for convergent validity, the authors correlated the SMS with measures of implicit (Personal Meaning Profile; Wong, 1998) and personal meaning (Life Regard Index-Framework subscale, Battista & Almond, 1973). The SMS had a moderate to large correlation with these well-established measures of meaning. A panel of experts consisting of two analytic philosophy professors, two researchers in spiritual psychology and seven graduate students in clinical psychology rated degrees of fit for each remaining item based on the definition of spiritual meaning. A hierarchical regression analysis was conducted to assess for the SMS' ability to predict mental health outcomes such as hope, depression, anxiety, and anti-social features. Results indicated that the SMS had a high positive correlation with hope, a high negative correlation with depression, and small negative correlations with anxiety and anti-social features.

#### Three-Dimensional Wisdom Scale (3D-WS)

The 3D-WS is based on Clayton & Birren's (1980) conceptualization of wisdom and assesses wisdom as defined as a latent variable with cognitive, affective, and reflective effect indicators (Ardelt, 2003; see Appendix C). The scale was normed using 180 older adults who were 52 years of age or older ( $M=71$ ). Of the respondents, 73% were women, 72% were White, 29% had a high school diploma as their highest educational degree, 13% had a Bachelor's degree, and 31% had a graduate degree.

The 3D-WS includes 39 total items in a 5-point Likert-type format. Of the 39 items, 14 items load on the cognitive dimension, 12 items load on the reflective components, and 13 relate to the affective dimension. The items were selected from a

larger pool of 158 items during scale development. Five judges sorted the items into relevant dimensions and the research team then discussed which of the items to discard. After a pretest and further item elimination, the remaining 132 items were administered to the study sample. A factor analysis identified the strongest items in each dimension for final retention.

Reliability scores for the 3D-WS were assessed using a Cronbach's alpha and were found to be acceptably reliable measures of the three dimensions of wisdom for this older adult sample (cognitive  $\alpha = .85$ ; reflective  $\alpha = .71$ ; affective  $\alpha = .72$ ; Ardel, 2003). Each subscale score equals the mean of the items within the respective dimension. The cognitive, reflective, and affective subscales were significantly correlated with each other and scores ranged from .30 to .50. The overall fit indices indicated that the three-factor model was a good fit for this sample. The 3D-WS significantly correlated with the qualitative interviews rated by independent observers that were obtained in conjunction with the self-report data. The scale was shown to have strong predictive validity; it significantly correlated with mastery, general well-being, purpose, health, fear of death, depressive symptoms and death avoidance in the appropriate directions. The 3D-WS was not related to marital status, gender, race, or income, but was weakly related to education level. Further, participants who were rated by others as being wise scored significantly higher on the wisdom scales.

The cognitive dimension of the scale refers to a person's ability to understand life and comprehend the significance and deeper meaning particularly with inter and intra-personal matters (see Appendix C1). It includes the knowledge of the positive and negative aspect of human nature, limits to knowledge, and life's ambiguity and

unpredictability. Items assess participants' willingness to understand a situation thoroughly.

The reflective dimension serves as a prerequisite for the cognitive dimension, and is described as "the ability to perceive reality as it is without any major distortions" (p. 278; see Appendix C2). Reflective wisdom requires an individual to engage in reflective thinking by looking at the situation and events from many perspectives to develop insight and self-awareness. Also includes a component of avoiding blaming others for current situation.

The affective dimension reflects an individual's demeanor toward others and level of compassionate and sympathetic love (see Appendix C3). It assesses the presence of positive emotions and behavior toward other human being and the absence of indifference or negative emotions or behaviors.

It is important to note that the three dimensions are not independent of each other. The reflective component is crucial as the foundation for the development of the other two dimensions. In this way, wisdom is considered a personality characteristic rather than a performance variable.

#### Adult Self-Transcendence Inventory (ASTI)

The Adult Self-Transcendence Inventory (Levenson et al., 2005) consists of 18 self-report items reflecting the degree of self-transcendence, which is thought to be the culminating point of wisdom development. The ASTI asks participants to rate themselves on a variety of characteristics assessing self-transcendence "compared to five years ago." The items are 4-point Likert-type scaled ranging from *disagree strongly* to *agree*

*strongly*. A factor analysis identified two factors: alienation and self-transcendence, which are negatively correlated (see Appendix D).

The scale was developed using 341 adult participants from a university wide sample including faculty, staff and students. The authors identified a slight social desirability effect for both subscales based on the distribution of scores. The scores on the ASTI were unrelated to age ( $M=34$ ,  $SD=12$ ), sex (72.5% female), or educational status (54.9% had a post-graduate degree) among the normative sample. Using a Cronbach's alpha analysis, the ASTI subscales showed acceptable internal consistency among this sample (self-transcendence .75; alienation .64). An assessment of convergent validity correlated the ASTI and the NEO-FFI Personality Inventory (McCrae & Costa, 1989). Results showed that the ASTI significantly and negatively related to neuroticism and positively correlated with openness, agreeableness, conscientiousness, extraversion, and meditation practice.

#### Daily Drinking Questionnaire (DDQ)

Drinking behavior will be assessed using the DDQ (Dimeff, et al., 1999; Marlatt et al., 1998; Collins, Parks, & Marlatt, 1985?) which is a shortened version of the Drinking Practices Questionnaire (DPQ, Calahan, Cisin, & Crossley, 1969). The DDQ was designed for use with college students and measures volume, quantity and frequency of alcohol consumption (see Appendix E). The DDQ asks respondents to indicate their typical drinking patterns in a given week on a seven-day chart. The chart includes response boxes for the quantity and time spent drinking on each day. The DDQ also assesses the participant's weight, height, and gender. The DDQ is reported to have acceptable convergent validity with the DPQ ( $r=.50$ ) among a sample of fraternity

members aged 21 or older who reported moderate to heavy drinking practices (Collins, Parks, & Marlatt, 1985). Reliability scores for the original DPQ or the DDQ were not reported.

#### Frequency-Quantity Questionnaire (FQQ)

The Frequency-Quantity Questionnaire (FQQ) assess the typical number of drinks consumed on a given weekend evening, the maximum quantity of alcoholic drinks consumed during one occasion over the past month, and frequency of drinking over the past month (Calahan & Cisin, 1968; Dimeff et al., 1999). Response options range from 0-19 units for a single occasion (see Appendix F). The original authors surveyed a stratified random sample of eligible U.S. citizens aged 21 and older living in households, resulting in a sample size of 2,746 participants. The distribution of participant characteristics was intended to represent the population characteristics at the time of data collection (1964-1965); 55% of the participants were female and 92% of the participants were Caucasian. Participants' ages ranged from 21 to >60. Reliability and validity information for the sample was not published.

#### Rutgers Alcohol Problem Inventory (RAPI)

Negative consequences for alcohol use will be assessed using the RAPI (White & Labouvie, 1989), which asks participants to rate the frequency of occurrence of 23 events reflecting alcohol's impact on social and health functioning over the past three months. Participants respond to the items on a 5-point scale ranging from "0" (not experienced that consequence in the past 3 months) to "10+" (the consequence occurred 10 or more times in 3 months). Responses are added together across items to provide an overall "negative consequences" score between 0-69 (see Appendix G). The RAPI was validated

using a sample of 1,380 adolescents aged 12 to 18 years at the initial test and aged 15 to 21 years at the retest. The normative sample was predominantly Caucasian (90%). The 23-item scale has an alpha reliability score of .92 among this adolescent and young-adult sample. Psychometric data for the RAPI indicates that 58% of the total variance in scores is accounted for by 5 factors: 1) concern about drinking, 2) irresponsibility and neglect, 3) symptoms of alcohol dependence, 4) interpersonal conflict, 5) family conflict. The RAPI allows for a standardized comparison of alcohol-related problems across groups and can discriminate between clinical and non-clinical samples.

### *Procedure*

All participants were asked to complete the study questionnaires including the demographic questionnaire, SMS, 3D-WS, ASTI, DDQ, FQQ, and RAPI. Participation in each group was voluntary and students received incentives for their involvement. When participants finished the surveys, they were provided the experimenter's email address to ask any questions regarding the study.

The MT group consisted of students who were assigned by the Colorado State University (CSU) student conduct system to complete mandated treatment individually or in groups through the CSU Health Network. This group of mandated students was given the opportunity to voluntarily participate in the present study by either following an online invitation link or completing a hard copy survey during their group session. Students completing the group sessions were asked to voluntarily complete the measures during the beginning 10 minutes of the group. The group facilitator explained the voluntary nature of the survey and the incentives for participation. The facilitator also explained that the survey data was to be anonymous and their participation was confidential.

Participants in the MT group were offered the chance to win one of three \$100 gift certificates to Amazon.com as an incentive for participation.

The comparison group was asked to complete all measures through the internet-based program, *SurveyMonkey*. In the study sign-up announcement, students who identified that they had received a sanction or citation through the university for their drug and alcohol use were declared ineligible for the study. The various questionnaires were administered and returned through an on-line assessment. After participants completed the questionnaires, they were routed to a separate website to enter their ID number in order to receive class credit for participation. This separate website contained only the list of ID numbers and was not linked to the response set in any way. Thus, the data collected from the control group was anonymous. All participants were debriefed and provided resources for individual counseling and drug and alcohol counseling services.

The responses to the DDQ and the FQQ were used to calculate each student's typical Blood Alcohol Level (blood alcohol level) by using the standard Widmark Formula (Widmark, 1981). Typical blood alcohol level represents the blood alcohol concentration of a participant on a typical weekend evening based on their reported number of standard drinks, time spent drinking, weight, and sex.

## Chapter IV

### Results

Researchers have shown that men metabolize alcohol at a faster rate than women, even after body weight is controlled (Frezza, Di Padova, Pozzato, Terpin, Baraona, & Lieber, 1990; Widmark, 1981). This means that a man and a woman of the same weight will be differently affected by the exact same amount of alcohol. This study utilized a formula to calculate blood alcohol level in order to account for metabolic and weight differences between genders. Typical blood alcohol level was calculated using the standard Widmark Formula (Widmark, 1981):  $\text{blood alcohol level} = \{[(\text{Standard Drinks} * 0.6 * 100\% * 1.055) / (\text{Weight} * \text{Gender Constant})] - (0.015 * \text{Hours})\}$ . The gender constant is 0.68 for men and 0.55 for women. By using the Widmark Formula, the alcohol consumption measures are standardized across gender, weight, and time spent drinking, allowing for accurate cross-gender comparisons.

The mandated treatment group (MT group) and the control group were significantly different from each other on several demographic characteristics, such as age, gender, and ethnicity (Table 1). The age difference between the groups does not prevent the results from being interpreted, however. An analysis was conducted to determine the possible influence of age on the alcohol outcome measures. The results confirmed that age does not have a significant influence on blood alcohol level and alcohol problems. The significant gender difference between group compositions is

potentially problematic for analyses that include the entire sample. Gender was included as a predictive variable in the regression model to account for this confound.

Additionally, separate analyses were conducted for gender differences in the MT group and the control group in addition to any full sample analyses. Therefore, the gender differences in group composition do not preclude drawing meaningful conclusions. As will be later discussed, findings which compare the MT group against the control group might be associated with the fact that the two groups differed in ethnic composition. This was an unanticipated finding and therefore not part of the hypotheses or later evaluations. It might be noted, however, that the percentages of the identified ethnic minority groups (Asian-American, Latino/Hispanic, Native-American, and African-American) were nearly equal between the MT group and the control group (Table 1).

Hypothesis 1 predicted that the MT group would have higher alcohol use (blood alcohol level and alcohol problems) than the control group. Results for blood alcohol level (blood alcohol level) showed the MT group to have higher mean alcohol consumption than the control group ( $M = .18$ ,  $SD = .12$ ;  $M = .06$ ,  $SD = .09$ , respectively) (see Table 2). The  $t$ -test of the difference was statistically significant,  $t(292) = -8.92$ ,  $p < .001$ . Results for alcohol problems (alcohol problems) found the same pattern; the MT group reported higher alcohol problems than the control group ( $M = 1.37$ ,  $SD = .51$ ;  $M = 1.06$ ,  $SD = .10$ , respectively). The  $t$ -test found that the difference between the groups was statistically different,  $t(295) = -8.92$ ,  $p < .001$ . Also, as would be expected, alcohol problems showed a strong positive relationship with blood alcohol level for each group (control  $r = .39$ ,  $p < .000$ ; MT  $r = .38$ ,  $p = .001$ ). It can be concluded that the study

confirmed Hypothesis 1; the MT showed higher blood alcohol level and alcohol problems than the control sample.

Table 2

*Group and Gender Differences*

Variable	Mandated Treatment		Control		Results	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t (df)</i>	<i>p</i>
Age	18.72	.78	18.42	.93	-2.57 (297)	.011
Men	18.75	.79	18.67	1.16	-.47 (107)	.640
Women	18.61	.78	18.36	.85	-1.22 (187)	.226
<i>t (df)</i>	.68 (77)		2.05 (217)			
<i>p</i>	.50		.04			
Spirituality	4.03	.76	4.11	.67	.86 (296)	.389
Men	3.93	.75	3.82	.88	-.67 (106)	.505
Women	4.31	.73	4.19	.57	-.88 (187)	.382
<i>t (df)</i>	-1.94 (76)		-3.43 (217)			
<i>p</i>	.06		.001			
Wisdom	3.46	.44	3.52	.45	1.13 (296)	.262
Men	3.43	.43	3.38	.44	-.66 (106)	.510
Women	3.52	.48	3.56	.45	.35 (187)	.724
<i>t (df)</i>	-.77 (76)		-2.56 (217)			
<i>p</i>	.45		.01			
Self-Transcendence	2.84	.35	2.90	.32	1.45 (294)	.148

Men	2.82	.35	2.84	.32	-.27 (104)	.789
Women	2.86	.33	2.92	.32	.78 (185)	.435
<i>t (df)</i>	-.37 (74)		-1.51 (217)			
<i>p</i>	.72		.13			
Blood Alcohol	.18	.12	.06	.09	-7.91 (113.5)	.000
Men	.18	.12	.08	.10	-4.73 (105)	.000
Women	.16	.11	.05	.09	-4.65 (185)	.000
<i>t (df)</i>	.67 (77)		1.48 (213)			
<i>p</i>	.51		.14			
Alcohol Problems	1.37	.51	1.06	.10	-5.23 (80.3)	.000
Men	1.38	.53	1.06	.11	-4.53 (65.10)	.000
Women	1.33	.47	1.06	.10	-2.46 (17.17)	.025
<i>t (df)</i>	.35 (76)		.40 (216)			
<i>p</i>	.73		.69			

A subsequent analysis was conducted to determine if the group differences in alcohol use were heavily influenced by the non-drinkers in the control sample. Approximately 33 participants were removed from the control group for the *t*-test comparison because they reported never trying alcohol and are currently abstaining. Results for blood alcohol level indicated that the MT group still consumed significantly more alcohol ( $M = .18, SD = .12$ ) than the control group ( $M = .07, SD = .10$ ) when abstainers were excluded from analysis,  $t(260) = -7.92, p < .001$ . The MT group also

reported significantly more alcohol problems ( $M = 1.37$ ;  $SD = .52$ ) than the control group ( $M = 1.07$ ,  $SD = .11$ ) after the non-drinkers were excluded,  $t(263) = -7.71$ ,  $p < .001$ .

Therefore, it can be concluded that Hypothesis 1 is fully supported by the data. The MT group consumes significantly more alcohol and experiences significantly more alcohol-related problems than the control group, even when non-drinkers have been excluded from analysis.

Hypothesis 2 stated that the MT group would have lower scores on the Spiritual Meaning Scale, the 3D-Wisdom Scale and the Adult Self-Transcendence Inventory. A comparison of the means revealed that there were no significant differences between the groups scores on SMS, 3D-WS, or the ASTI (see Table 2). Hence, the study failed to provide support for Hypothesis 2. In effect, no significant differences were discovered between the MT and control groups on these three scales.

Hypotheses 3 predicted that spirituality, wisdom, and self-transcendence would each negatively relate to typical blood alcohol level in both groups. Pearson's  $r$  correlations revealed that for the MT group, wisdom was significantly negatively correlated with blood alcohol level ( $r = -.35$ ,  $p = .002$ ), yet scores for spirituality and self-transcendence did not reach significance (see Table 3). For the control group, self-transcendence was negatively correlated with blood alcohol level ( $r = -.17$ ,  $p = .014$ ). Spirituality and wisdom were not significantly related to blood alcohol level in the control group. Hence, Hypothesis 3 was partially supported by the data; wisdom is significantly negatively correlated with blood alcohol level for the MT group and self-transcendence is significantly correlated with blood alcohol level within the control group.

Hypotheses 4 stated that spirituality, wisdom, and self-transcendence would negatively correlate to alcohol problems in each group. Pearson's  $r$  correlations revealed that for the MT group, alcohol problems were significantly negatively correlated with wisdom ( $r = -.22, p = .05$ ), but not spirituality or self-transcendence (Table 3). In the control group, alcohol problems did not correlate with spirituality, wisdom, or self-transcendence. Hypothesis 4 was partially confirmed by the data; wisdom is inversely related to alcohol problems for the MT group.

Table 3

*Correlations between Variables by Group*

Group	Variable	Blood Alcohol	Alcohol Problems
Mandated Treatment (n=80)	Spirituality	-.15	-.05
	Wisdom	-.35**	-.22*
	Self-transcendence	-.03	-.13
Control (n=219)	Spirituality	-.01	-.09
	Wisdom	-.11	-.09
	Self-transcendence	-.17*	-.12
Total Sample (N=299)	Spirituality	-.08	-.07
	Wisdom	-.20**	-.15*
	Self-transcendence	-.15*	-.13*

\* $p < .05$ , \*\* $p < .01$ .

Hypothesis 5 predicted that spirituality, wisdom and transcendence accounted for a significant proportion of variance in blood alcohol level. A multiple regression model included spirituality, wisdom, and self-transcendence as well as group membership,

gender and age as predictors of blood alcohol level. Simultaneous regression revealed that the model accounted for a significant proportion of the variance in blood alcohol level,  $R^2 = .28$ ,  $F(7, 282) = 15.46$ ,  $p < .001$  (Table 4). Specifically, group membership ( $\beta = .42$ ,  $p < .001$ ) and wisdom ( $\beta = -.74$ ,  $p < .001$ ) were significant predictors of blood alcohol level. No other individual variables were significant in this model. Thus, Hypothesis 5 was partially supported by the data; wisdom was found to be a significant predictor of the variance in blood alcohol level.

Hypothesis 6 predicted that spirituality, wisdom and transcendence accounted for a significant proportion of variance in alcohol problems. A multiple regression model included spirituality, wisdom, and self-transcendence as well as group membership, gender and age as predictors of alcohol problems in college students. Simultaneous regression revealed that the model accounted for a significant proportion of the variance in alcohol problems,  $R^2 = .22$ ,  $F(7, 282) = 11.69$ ,  $p < .001$  (Table 4). Group membership was the only individual predictor accounting for significant variance ( $\beta = .44$ ,  $p < .001$ ). Hypothesis 6, that the SMS, 3D-WS, and ASTI are significant predictors of variance in alcohol problems, was not supported by the data, although the full regression model was significant.

Table 4

*Predictors Accounting for Variation in Alcohol Use*

	Blood Alcohol			Alcohol Problems		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Group	.11	.02	.42***	.30	.04	.44***
Age	.01	.01	.05	-.01	.02	-.03

Gender	-.01	.02	-.04	.00	.04	.00
Spirituality	.00	.01	.01	.00	.03	-.01
Wisdom	-.19	.05	-.74***	-.17	.13	-.26
Self- Transcendence	-.03	.02	-.08	-.03	.06	-.03
Gender x Wisdom	.09	.03	.63***	.06	.08	.15
<i>F</i>		15.46***			11.69***	
<i>R</i> <sup>2</sup>		.28			.22	

*Note:* Simultaneous Linear Regression; \*\*\* $p \leq .001$

The first exploratory analysis examined how age is related to spirituality, wisdom, self-transcendence and alcohol use scores. The analysis explored the influence of age on the variance in blood alcohol level and alcohol problems. Although a significant difference in average age was found between the groups,  $t(297) = -2.57, p < .01$  (see Table 2), the linear regression analysis indicated that age was not a significant predictor of blood alcohol level or alcohol problems. Despite the difference between groups in age, there was no difference between groups in year in school. Additionally, age was not significantly related to spirituality, wisdom, self-transcendence, blood alcohol level or alcohol problems, with one exception. Age was significantly correlated with wisdom for women in the MT group ( $r = .50, p = .035$ ). There were no differences between women in the MT group and any other group with regard to age. Aside from the significant correlation between wisdom and age for women in the MT group, age did not have a significant influence on the outcomes of this study. In conclusion, age did not account for a significant amount of variance in blood alcohol level or alcohol problems nor was it

related to how the participants responded overall to items regarding spirituality, wisdom and self-transcendence.

The study also examined how gender relates to spirituality, wisdom, self-transcendence and alcohol use. Specifically, the analysis sought to determine if wisdom, spirituality and self-transcendence relate to blood alcohol level and alcohol problems differently for men and women. Also, the analysis explored the differences between men and women within each group and how genders compared across groups.

A *t*-test showed that the two groups (MT and control) were significantly different in gender composition,  $t(296) = 10.11, p < .001$  (Table 1). Specifically, the MT group had significantly more males than females (78%) while the control group had more females than males (78%). Gender comparisons also found that women were significantly more spiritual than men in the control group ( $M = 4.19, SD = .57; M = 3.82, SD = .88$ , respectively),  $t(217) = -3.43, p = .001$  (see Table 2). Women and men in the MT group showed a marginal difference in spirituality,  $t(76) = -1.94, p = .06$ , with women scoring higher than men ( $M = 4.31, SD = .73; M = 3.93, SD = .75$ , respectively). A similar gender difference was found for wisdom scores in the control group,  $t(217) = -2.56, p = .01$ ; women scored significantly higher than men on wisdom ( $M = 3.56, SD = .45; M = 3.38, SD = .44$ , respectively). There was no gender effect for wisdom in the MT group. Further, there were no differences between women and men's scores on self-transcendence for either group.

#### *MT Group Gender Analysis*

Pearson's *r* correlations showed that within the MT group, women's spirituality scores were significantly and negatively related with both blood alcohol level ( $r = .63, p$

= .005) and alcohol problems ( $r = .51, p = .03$ ) (Table 5). A z-score analysis found that women's  $r$  scores were significantly higher than men's  $r$  scores for the effect of spirituality on alcohol use measures (blood alcohol level  $z = 2.52, p < .05$ ; alcohol problems  $z = 2.25, p < .05$ ). The correlation between wisdom and blood alcohol level was significant for men ( $r = -.35, p = .006$ ) but not for women, and no significant difference was found between gender. As Figure 1 illustrates, men and women appear similar in how wisdom impacts their blood alcohol level.

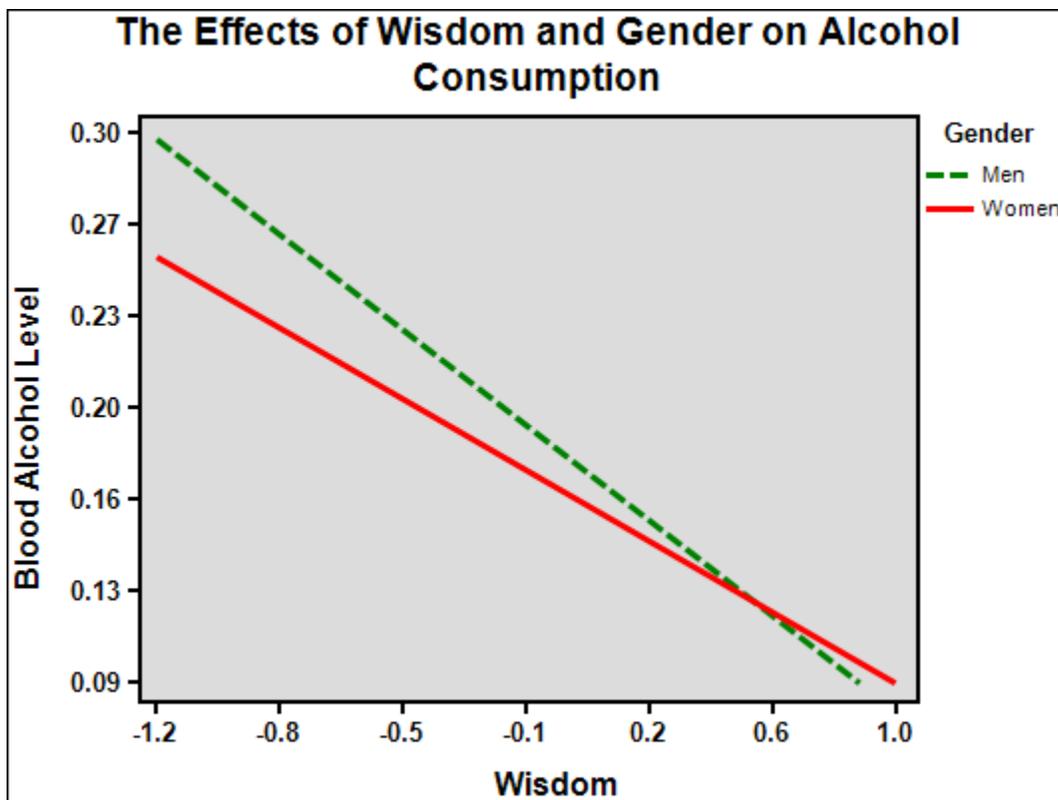


Figure 1. MT Group

*Control Group Gender Analysis*

Within the control group, analysis revealed that the effect of spirituality on alcohol use was not present for women as it was in the MT group (Table 5). In fact, women's scores on spirituality, wisdom, and self-transcendence did not correlate with blood alcohol level

or alcohol problems. For men, however, wisdom was highly negatively correlated with blood alcohol level ( $r = -.35, p = .006$ ) and this correlation was significantly stronger than women's  $r$  score for wisdom ( $z = 2.25, p < .05$ ). Figure 2 represents the relationship between wisdom and blood alcohol level for each gender. As the figure illustrates, men and women are very different in how wisdom relates to blood alcohol level. Men have a significant negative correlation between wisdom and blood alcohol level whereas women show no correlation.

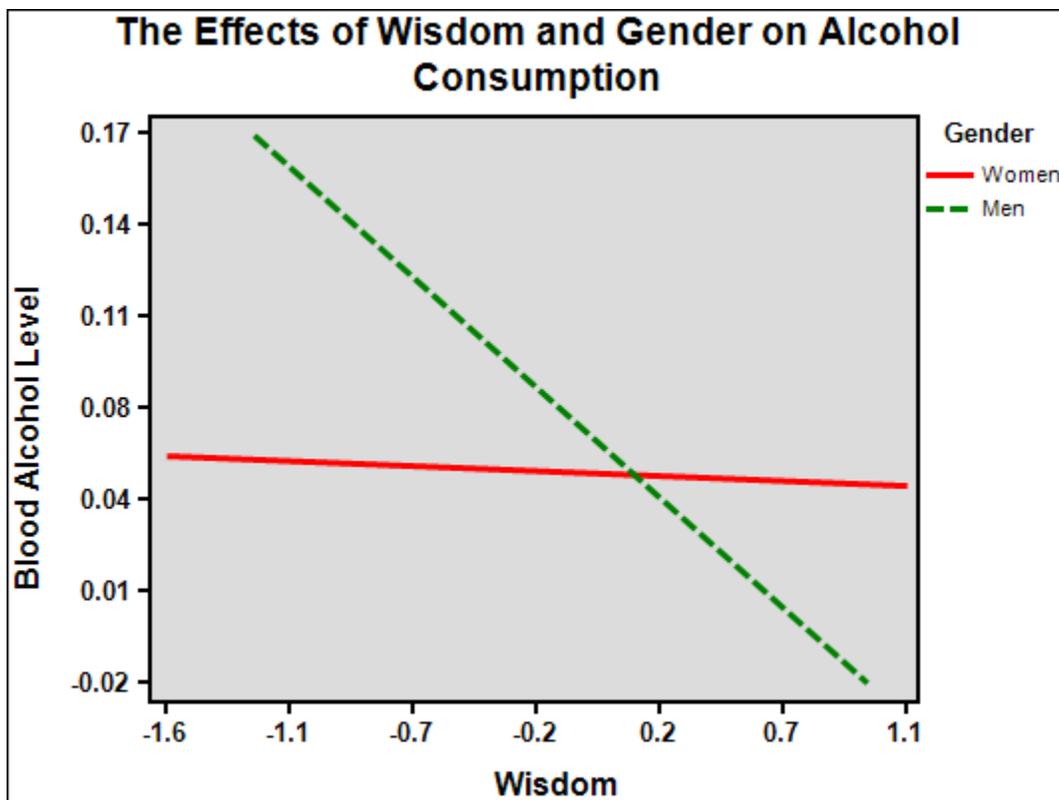


Figure 2. Control Group

#### *Combined Group Gender Analysis*

When the MT and control groups were combined for analysis, a similar pattern was found for gender differences in scores. Men showed a significantly stronger relationship between wisdom and blood alcohol level ( $r = -.29, p = .002$ ) than did women ( $r = -.06, p$

= .42) ( $z = 1.96, p < .05$ ). The reverse was true for alcohol problems; women showed a significantly stronger relationship between wisdom and alcohol problems ( $r = -.18, p = .016$ ) than did men ( $r = -.08, p = .44$ ) ( $z = 2.15, p < .05$ ) in the total sample. Finally, women's scores showed a significant relationship between self-transcendence and both alcohol use measures (blood alcohol level  $r = -.15, p = .04$ ; alcohol problems  $r = -.17, p = .02$ ). However, women's scores were not found to be significantly higher than men's scores on self-transcendence. Interestingly, the effect between self-transcendence and alcohol outcome measures was not found to be significant in either of the groups individually.

Table 5

*Correlations between Variables by Gender and Z-test for Significant Differences*

Group	Variable	<u>Blood Alcohol</u>			<u>Alcohol Problems</u>		
		Men <i>r</i>	Women <i>r</i>	Gender Difference Z-Score	Men <i>r</i>	Women <i>r</i>	Gender Difference Z-Score
Mandated- Treatment	Spirituality	-.01	-.63**	2.52 *	.09	-.51*	2.25*
	Wisdom	-.35**	-.32	-.12	-.15	-.44	1.11
	Self-transcendence	.04	-.26	1.05	-.04	-.39	1.28
	Alcohol Problems	.29*	.77***	-2.47*	-	-	-
Control	Spirituality	-.04	.04	-.48	-.22	-.02	-1.21
	Wisdom	-.37*	-.02	-2.19*	.05	-.13	1.08
	Self-transcendence	-.27	-.13	-.87	-.13	-.12	-.06
	Alcohol Problems	.42**	.39***	0.2	-	-	-
Combined	Spirituality	.01	-.03	.33	.05	-.12	1.4
	Wisdom	-.29**	-.06	-1.96*	-.08	-.18*	2.15*
	Self-transcendence	-.08	-.15*	.58	-.06	-.17*	.92
	Alcohol Problems	.39***	.52***	-1.34	-	-	-

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

### Gender Interaction

Due to the multiple gender differences identified using correlations, *t*-tests, and *z*-scores, the effect of gender was further explored. Because wisdom was found to have a consistent gender difference across groups, a regression analysis was conducted to assess for an interaction effect between gender and wisdom on blood alcohol level and alcohol problems. The wisdom variable was centered on its mean and an interaction term was created with gender. The interaction analysis revealed that *wisdom x gender* was a significant predictor of the variance in blood alcohol level [ $R^2 = .13$ ;  $F(3, 291) = 14.62$ ,  $p < .001$ ; see Table 6]. As Figure 3 illustrates, there is a gender interaction effect for the full sample whereby wisdom levels are negatively correlated with blood alcohol level for males, but this relationship is not significant for the female sample.

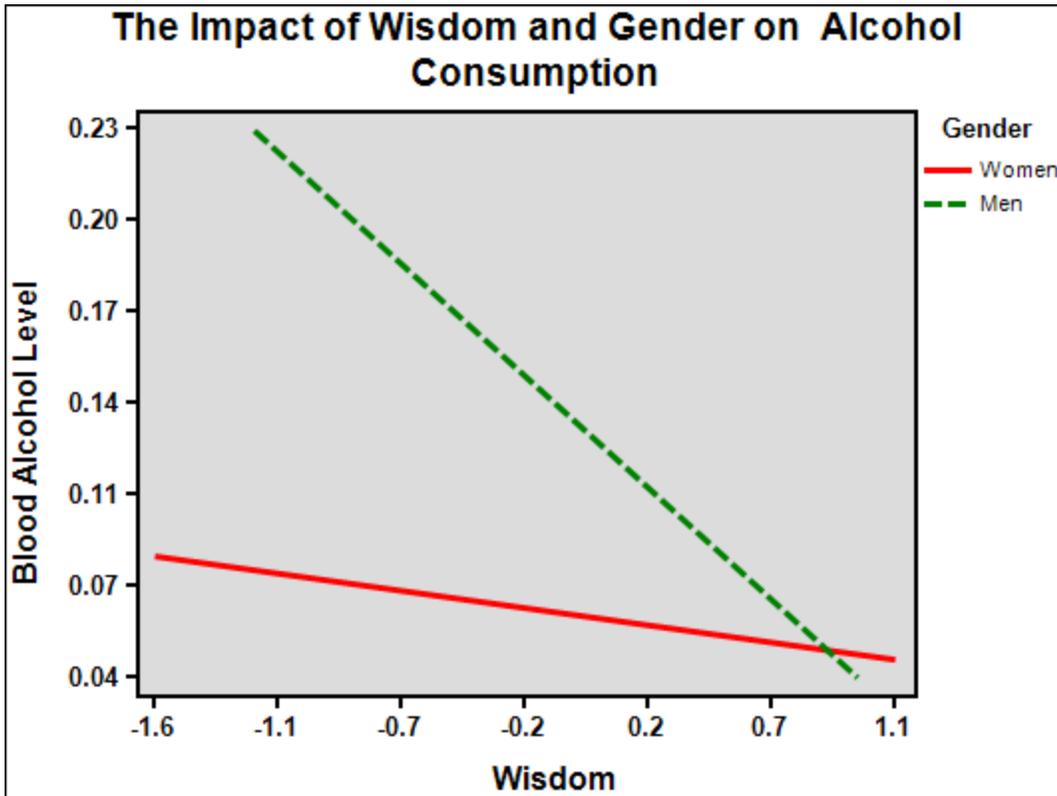


Figure 3. Total Sample

In other words, for males, the higher the level of wisdom, the lower is the tendency to abuse alcohol; however, wisdom levels do not show any such association for the females in the total sample. Thus, the interaction term (*wisdom x gender*) was included in the final regression analysis as a predictor of blood alcohol level. This interaction term accounted for a significant proportion of the variance in blood alcohol level when included in the full model,  $F(7, 282) = 3.34, p = .001$  (see Table 4).

Table 6

*Effects of Wisdom and Gender on Alcohol Use*

	Blood Alcohol Level			Alcohol Problems		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Wisdom	-.16	.05	-3.07**	-.08	.14	-.11
Gender	-.06	.01	-4.76***	-.15	.04	-.23***
Wisdom x Gender	.07	.03	2.42*	.00	.08	.00
$f^2$ (effect size)		.15			.08	
<i>F</i>		14.62***			7.57***	
$R^2$		.13			.07	

*Notes:* Interaction Analysis; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

A similar interaction analysis was conducted for alcohol problems to determine the influence of a *wisdom x gender* cross product on alcohol problems. The analysis failed to show a gender interaction with wisdom in predicting alcohol problems among the total sample. As Figure 4 illustrates, men and women are impacted similarly by wisdom in terms of having problems with alcohol. In fact, the regression lines for men

and women are parallel; therefore, it can be concluded that there is no interaction between wisdom and gender in predicting alcohol problems.

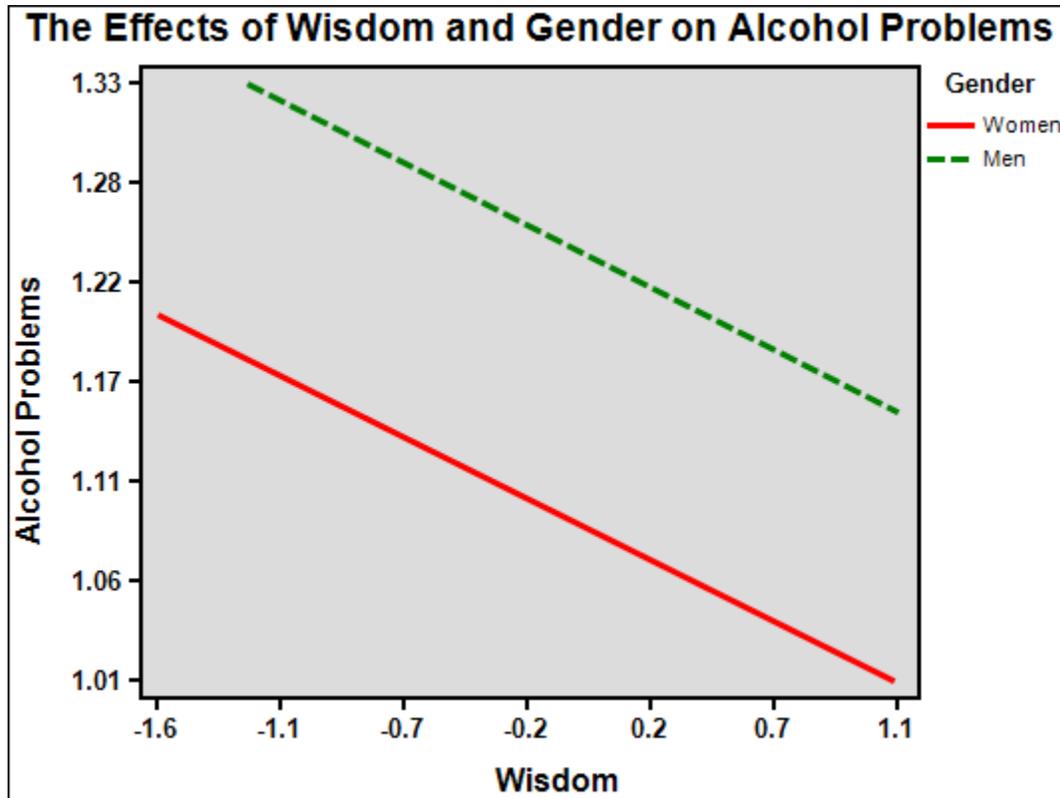


Figure 4. Total Sample

The study sought to explore the effects of gender on spirituality, wisdom, self-transcendence, blood alcohol level and alcohol problems. In sum, results supported the conclusion that gender has a significant influence on spirituality, wisdom and self-transcendence and how these constructs relate to blood alcohol level and alcohol problems. Therefore, men and women are different in their levels of spirituality, wisdom and self-transcendence and how these variables interact with alcohol use.

## Chapter V

### Discussion

The study was conducted to enhance researchers' and clinicians' understanding of the mechanisms involved in alcohol abuse on college campuses. The influence of spirituality, wisdom, and self-transcendence on alcohol use was explored using a college student population. Spirituality has been widely studied in both psychological and medical settings and is believed to be a strong protective factor in human health and in the decision to abuse substances. However, there is little known about the influence of the other two variables, wisdom and self-transcendence, on the psychology of young adults. The study results point to several significant findings which may contribute to the knowledge of these topics, guide future research, and inform clinical practice.

The study focused on a population of students mandated for psycho-educational treatment due to their violations of the university drug and alcohol policy. For comparison, a control sample was included who had never been mandated for substance abuse treatment through the university. The control group consisted of students who chose to drink alcohol, as well as some who abstained, and thus accurately represented the general undergraduate population in regard to variance in drinking behaviors. As expected, the MT group reported a significantly higher blood alcohol levels and alcohol-related problems (alcohol problems) than the control sample, which confirmed Hypothesis 1. The difference in alcohol use between the groups remained highly

significant even after the non-drinkers were removed from the control group, suggesting that the MT group consists of abnormally heavy consumers of alcohol. This finding was foundational to this study and although not surprising, is necessary in order to ground subsequent conclusions. The strong difference between the groups in alcohol consumption behaviors also suggests that the members of the MT group likely became part of the group as a result of a pattern of problematic drinking and not a one-time mistake or coincidence. Two major findings deserve discussion: a) the results showing wisdom to be a protective factor against alcohol abuse, and b) the results showing how gender interacts with whether spirituality or wisdom acts as a protective factor. These two will be discussed next.

The first finding of interest is the significant negative correlation between the wisdom scale and both blood alcohol level and alcohol problems which was found within the MT group. The correlations were  $-.35$  for wisdom and alcohol level, and  $-.22$  for wisdom and alcohol problems, thus suggesting wisdom is a valuable personal characteristic. The 3D-Wisdom Scale is multi-faceted and measures knowledge related to life's ambiguity and assesses the participant's willingness to understand a situation thoroughly. The scale also measures the ability to accurately perceive reality, which includes examining a situation from multiple perspectives. Wisdom requires self-reflection and assumption of responsibility for one's own behavior and situation. Finally, the 3D-Wisdom scale measures compassion for others and interpersonal attitudes. The study concluded wisdom is significantly and negatively related to blood alcohol level in the MT group; students with more wisdom tend to have lower blood alcohol levels,

supporting Hypothesis 3. Not surprisingly, the students with higher wisdom scores in the MT group also have fewer alcohol-related problems, supporting Hypothesis 4.

The results of the current regarding the influence of wisdom on substance use are similar to those found by Perry et al. (2002). Perry and colleagues explored wisdom in adolescents and related wisdom to substance use and other problematic behaviors. Results showed that wisdom is negatively related to substance use. The consistent findings between the studies support the conclusions drawn in this study; wisdom is a strong protective factor against substance abuse throughout youth. There are several important differences between the studies that deserve attention. First, the current study utilized an adult, college population instead of adolescents. Secondly, the current study used a wisdom scale developed for adults, and conceptualized wisdom differently. Notably, the 3D-Wisdom scale used in this study did not measure intelligence or spirituality. Rather, the 3D-WS measured the willingness and desire to explore multiple perspectives of a situation. Also, the 3D-WS measured comfort with ambiguity and uncertainty, which does not appear on the adolescent measure used by Perry et al. Perhaps the measurement of wisdom is necessarily different for adolescents and young adults. Regardless, this study further supports the need to include wisdom development in preventative and recovery programs for substance abuse. Additionally, this study extends the findings of Perry et al. into adulthood, and provides a basis for future research on the influence of wisdom on substance use across the life span.

One explanation of the findings is that the heaviest drinkers in the MT group do not observe themselves and their surrounding as objectively as those who drink less. They may not be able to make the connection between their behaviors and the direct

impact on the environment, especially while intoxicated. The heaviest drinkers have a tendency to blame others for the negative consequences related to their drinking or could view themselves as victims. Perhaps the heavy episodic drinking prevents deeper self-reflection and self-awareness during social settings when others who are drinking moderately or abstaining could “perceive reality as it is without any major distortions” (Ardelt, 2003, p. 278). Thus, over time, heavy episodic drinkers may not develop the same self-awareness and objective perspective on their environment as those who are not as intoxicated during social settings.

If heavy drinkers are having difficulty assuming responsibility for their behaviors, then it would make sense that they experience more problems from their drinking without making changes. They may view themselves as products of their environment, seeing themselves as “unlucky” rather than having the personal agency to prevent alcohol-related problems. From this perspective, heavy drinkers do not recognize the control they have to adjust their behaviors based on the feedback they receive from their environment. A characteristic of alcohol addiction or dependence is the repetitive drinking despite strong negative consequences. It could be that those with alcohol addiction continue to drink, but do not expect similar negative consequences. In this way, wisdom may be able to discriminate between alcohol abusers and people who are drinkers but do not become abusers. Those with higher levels of wisdom change their drinking behaviors and thus do not encounter as many subsequent alcohol problems. Finally, those who engage in heavy episodic drinking may have difficulty understanding how their behaviors affect other people or may not be able to easily assume the perspective of others. These speculations about how wisdom is related to alcohol consumption and alcohol problems

provide an impetus for future research. In addition, if wisdom is indeed a protective factor, then psychoeducational programs might include identifying ways of increasing wisdom.

A second topic deserving discussion relates to the finding of significant gender differences in how wisdom related to blood alcohol level, thus warranting the exploration of an interaction effect. An interaction term, *wisdom x gender*, was included among the multiple variables in the regression model. The results suggest that for college males, wisdom is a significant factor in how much they decide to drink on a typical weekend evening; men with more wisdom typically drink less alcohol in the same period of time than men with low wisdom in both groups. However, the interaction effect is stronger in the control group than in the MT group (Figures 3 & 4). The results for women in the MT group resembled the results for men in how wisdom related to blood alcohol level than women in the control group. Wisdom is highly related to typical blood alcohol level for men and is clearly a protective factor against heavy alcohol consumption. For women, only those who abuse alcohol and get sanctioned (MT group) show a negative relationship between wisdom and blood alcohol level. For women who abstain or drink moderately (control group), wisdom has no impact on how much alcohol they consume. Therefore, depending on gender and group membership, wisdom is a significant predictor of blood alcohol level.

An earlier finding was that the MT group had a preponderance of males while the control group of non-abusers was predominantly female. Thus, at this university's treatment program, fewer women are sanctioned for treatment than men overall, as evidenced by the large gender discrepancy. Several explanations could account for this

phenomenon. As the current results show, women have the same blood alcohol levels as men, so the discrepancy cannot be due simply to differences in alcohol consumption. One theory is that women do not get caught in the residence halls and around campus for heavy episodic drinking as often as men. Women may act out less when intoxicated than men, meaning they engage in fewer activities that would draw attention to them and their intoxication. The difference in behavior while intoxicated is at least partially influenced by gender socialization; men learn to aggress their emotions and compete with each other, whereas women learn to be friendly, submissive, quiet and conflict avoidant. Also, women have traditionally received more negative responses for drinking than men, although this trend has decreased in recent years (Lips, 2005; Waldron, 1997). Women are judged more harshly for drunkenness than men, which may lead women to drink more discreetly. Perry and colleagues found a similar gender discrepancy among adolescents. The authors also attributed the gender differences to gender socialization (Perry et al., 2002).

Research shows that gender roles impact men's drinking behaviors as well. Past studies have found that men drink more than women and have more alcohol problems. The traditional "masculine man" prides himself on the ability to drink large quantities of alcohol without losing control (Helgeson, 2005). In order to drink large quantities of alcohol without losing control, a person must first develop a tolerance for alcohol. Therefore, men must drink large quantities on a frequent basis to develop their tolerance. Inevitably, they experience incidents in which they are not in control of their behavior, possibly leading to judicial punishment and other negative consequences. The masculine

gender role appears to influence adolescent males' drinking behaviors as well (Pleck, Sonenstein, & Ku, 1993).

The current study would support another explanation. Results found women to have somewhat higher wisdom scores than men. Perhaps as a result of their higher wisdom, women avoid behaviors that lead to punishable violations. This finding is similar to the first theory that women "act out" less than men when intoxicated, and may indeed be related. The current conclusions add another layer to the understanding of why women avoid attention seeking behaviors when intoxicated. In addition to possible gender socialization, women appear to have more wisdom than men and may discriminate between behaviors leading to sanctions and those that do not. Interestingly, only women in the control group were significantly wiser than men in the control group.

Women mandated for treatment showed another distinguishing feature in terms of their reported alcohol problems. Spirituality, wisdom and self-transcendence appear to be protective factors against alcohol problems for women in the MT group only, but not for men in either group or women in the control group. Spirituality was the strongest predictor of alcohol problems for women in the MT group, indicating that women who have a strong sense of spiritual meaning do not have as many alcohol-related problems as women with low spiritual meaning. Although the relationship between wisdom and alcohol problems did not reach significance at the .05 level for women in the MT group, the correlation was approaching significance. Self-transcendence was also marginally and negatively related to alcohol problems for women in the MT group. For the control group however, women had the same amount of alcohol problems regardless of their spirituality, wisdom or self-transcendence.

One of the goals of this study was to replicate previous research that concludes spirituality is a protective factor against substance abuse. The current study failed to fully confirm this relationship. Spirituality was found to be a significant protective factor against high blood alcohol level and alcohol problems for women in the MT group only. Men in both groups, women in the control group, and the total sample did not show a significant relationship with spirituality. Hence, this study only partially supports the common finding in the general literature. Despite the lack of significant correlations among most of the sample, the correlations for the women in the MT group are highest among your total results ( $r = -.63$  for spirituality and blood alcohol level and  $-.51$  for spirituality and alcohol problems).

It may be that the women in the MT group who drink the most report the lowest levels of spiritual meaning and may be avoiding existential reflection by drinking alcohol. It could also mean that women who drink heavily reject traditional gender roles and certain societal expectations of female behaviors. These women may also be rejecting other social constructs such as faith and spirituality. Additionally, women in this group could feel more isolated and disconnected from peers as well as a higher power. The researcher can only speculate about the discrepancy in results between this study and others and it remains unclear why the men in both groups and the women in the control sample did not show any relationship between alcohol use and spirituality.

Overall, it seems that women mandated for treatment are different from all the other study participants in several ways. It is likely that the small sample size has a major influence on the findings because several extreme scores may have influenced the results.

### *Limitations*

There are several limitations to the conclusions presented in this study. Most importantly, the differences in group composition and sample size likely influenced the results and decreased the generalizability of the conclusions. The problematic differences within the groups include the sample size, gender composition, and ethnic composition. Because of the small sample size of women in the MT group and men in the control group, correlations between variables must be very high in order to reach significance. Variance in small sample sizes also poses complications with drawing inferences about the data. Finally, any extreme scores on blood alcohol level or alcohol problems will greatly influence the results. The demographic differences between the groups limit our ability to make viable conclusions about other between group differences. Hence, most of the results of this study examine within group differences or within gender comparisons in order to reduce the between group bias.

The study did not examine pathways between spirituality and alcohol use, which is another limitation. For example, it would be helpful to understand why spirituality is related to women's alcohol consumption but not men's. Additionally, this study did not include a mechanism to identify the pathway between wisdom and alcohol either. Although this study has identified several important findings in regard to spirituality and wisdom, any theories about how they are related to blood alcohol level or alcohol problems are speculations based on previous literature.

Religious affiliation was not included as a variable in this study. It would have been informative to examine the influence of religious affiliation on the other study variables, including spirituality, wisdom, self-transcendence, blood alcohol level and

alcohol problems. Many studies have examined the impact of church attendance and organized religious practices and beliefs on substance use. The current study focused more broadly on spiritual meaning, which can be a component of religiousness, but can also exist without a religious affiliation. Although religiousness was not the focus, having a measurement of religiousness could have helped with interpretation of the data, particularly when making connections between spirituality, wisdom, and self-transcendence and the alcohol use outcomes.

The study did not include a measure of social desirability, which could have allowed for more confident interpretations of the data. Students who are under the age of 21 or who feel alcohol consumption is viewed as socially undesirable may have under-reported their use. Students who were mandated for treatment may be particularly susceptible to under-reporting if they thought that their data could be used against them in some way. Such students have motivation to under-report their use. They could believe that the lower their reported use, the lower the degree of punishment. Additionally, minimizing alcohol use and alcohol problems is a common behavior among individuals struggling with addiction or dependence. It is possible that some participants meet criteria for addiction or dependence, but this study did not include appropriate measures to discriminate between alcohol users, abusers, and those who are dependent. Another possibility is that some students over-reported their use if they believed that drinking alcohol is socially advantageous (i.e. rite of passage, source of status). Regardless, a measure of social desirability would have aided understanding of alcohol use in college students and helped with identifying possible confounds.

The measures used in the study contained potential limitations to the findings. First, the scales measuring blood alcohol levels asked the students to reflect on the past month of drinking behavior, but the alcohol problems scales asked students to reflect on the previous 3 months. This discrepancy in frame of reference may have influenced the results. For example, if a student had stopped drinking within the past 3 months due to significantly negative consequences, their blood alcohol level may be 0, but alcohol problems could be high. Also, it is difficult to accurately recall negative consequences over a three month period. The findings may have been more accurate had the time period been one month. Secondly, the Adult Self-Transcendence Inventory asks participants to compare themselves currently to how they remember themselves five years earlier on elements of self-transcendence. Most of the participants in this study were 18 or 19 years old, and thus were reflecting on themselves as 13 or 14-year olds. In hindsight, this comparison could produce confusing results, given that many of the items ask about ego mastery. In terms of normal human development, early adolescents at 13 or 14 years old are beginning to explore their identity and are inherently self-absorbed. In many ways, 18 and 19-year olds are still engaging in the same process of identity development. Further, the developmental shifts that occur during the five years in question are likely to distort college students' perspectives on themselves as a junior high student. It is clear that this scale was intended to measure the self-transcendence of adults, not of adolescents.

Although the use of the Widmark formula to calculate blood alcohol level is very useful for cross-gender comparisons, it could mask heavy drinkers who spend significant amounts of time drinking. For example, if a male student reports drinking 12 drinks over

10 hours, his calculated blood alcohol level will not accurately represent his typical alcohol use. This student may have had 9 shots (1.5 ounces of 80- proof liquor) in 2 hours and then slowly sipped 3 beers for the remainder of the day. His blood alcohol level would be very high after the initial two hours, but slowly decreases throughout the day. Several students' typical blood alcohol level is equal to .000 due to the long amount of time they reported drinking, not because they are light drinkers. This may be practically applicable for students who are not intoxicated at the end of the night and who thus may not encounter as many alcohol problems. However, students can easily encounter alcohol problems throughout the time spent drinking, especially at the peak of their blood alcohol level.

### *Implications*

There are several important implications of this study. First, these findings may enhance the relationship between psychological and spiritual treatment for chemical dependency. Using spirituality as a factor in treatment of substance abuse is nothing new. Among the basic tenants of Alcoholics Anonymous (AA) is the acceptance of spirituality through a higher power (Wilson & Smith, 2001) and the reliance on faith during the recovery process. Other clinicians take it one step further and integrate mindfulness with AA's 12 step approach (Jacobs-Stewart, 2010). The current study provides support for another component in chemical dependency treatment: wisdom. The construct of wisdom includes an aspect of mindfulness in its emphasis on awareness of the self and the self in the environment. Wisdom adds an aspect of interpersonal understanding, acknowledgement of ambiguity, acceptance of responsibility, and

compassion for others to the characteristics that may support individuals in their recovery process.

The connection between low wisdom and substance abuse can also inform preventative strategies in high schools and colleges. The current study suggests that lower levels of wisdom are associated with more self-destructive drinking patterns, particularly in males. By including programs that promote wisdom development in adolescents, such as self-reflection and awareness of the impact of one's behavior on others, educators and parents may help reduce risky drinking during college. Many adolescents are resistant to the idea of a higher power, and in particular organized religion. They may be able to connect with the concepts associated with wisdom more readily, as it assumes an internal locus of control. A popular developmental theory proposes that adolescents face a dilemma of identity vs. identity diffusion and are learning how to integrate different personality characteristics (Erikson, 1968). Adolescents move through this process by reflecting on the reactions of others during interpersonal interactions. Thus, adolescents are in the perfect developmental stage to explore their locus of control and develop a sense of identity in how they relate to their environment.

#### *Future Directions*

The results of this study suggest several directions for future research. First, it would be informative to examine the findings in more detail by conducting sub-scale and item analysis. By exploring the relative contributions of each component of the Three Dimensional Wisdom Scale (3D-WS) to the variation in alcohol use, the analysis could determine whether the reflective, cognitive, or affective sub-scale is predicting the most variance in blood alcohol level. The analysis can be taken one step further by comparing

the individual items in the 3D-WS to blood alcohol level and alcohol problems. Comprehensive conclusions could be drawn about the results with a detailed understanding of which elements of wisdom are related to heavy episodic drinking. The current study did collect the data to perform such item analyses. However, because this study set a limited focus for its objective, these calculations will form the basis for a future report.

A similar item analysis on the Rutgers Alcohol Problems Inventory (RAPI) would enhance psychology's understanding of how particular alcohol problems relate to wisdom. It is likely that some of the problems listed on the RAPI are more related to wisdom or spirituality than others. Conducting an analysis of which items are more endorsed by each gender would also be helpful in making conclusions about gender differences in alcohol problems. Further, an item analysis of alcohol-related problems could illuminate how certain students become mandated for treatment when others are not.

Additional analysis could also compare the age of participants when they took their first drink of alcohol to their current levels of wisdom, spirituality, self-transcendence, and alcohol use. Such an analysis may enhance understanding about the developmental factors impacted by alcohol use. Further, it may be useful to explore the influence of the age when a participant first felt drunk on their current alcohol use and levels of wisdom and spirituality. The study also has the data to conduct these analyses, but the current variables of interest and relevant analyses were determined prior to data collection. Hence, although the data analysis could be accomplished, it is being deferred for follow-up studies.

It would be important to include gender as a variable in future research because the present study suggests that wisdom influences men and women's alcohol consumption in very different ways. Also, it is essential to recruit more women who are mandated for treatment as participants in future studies. The women mandated for treatment looked very different than other participants in how spirituality, wisdom and transcendence related to alcohol use and alcohol problems. It is also important to recruit men who have not been sanctioned for treatment as a comparison group. Unfortunately, the sample size of these two populations was small and may not generalize to the greater population.

It might also be important to include ethnicity as a variable in future research. Differences in the percentages of different ethnic groups were found when comparing the composition of the MT group against the control group. Upon closer inspection, this discrepancy seems to be due mainly to differences in the number of participants in the control group identifying themselves as "multi-racial" or "other" (Table 1). Moreover, there were actually very few ethnic minority participants; the largest were Asian-Americans, numbering only 10. Hence, future studies might be directed toward obtaining larger sample sizes of the major ethnic groups as well as better defining the "other" category. Researchers could examine the role of other participant characteristics in how spirituality, wisdom, and self-transcendence related to blood alcohol level and alcohol problems. Specifically, socioeconomic status and sexual orientation should be explored further.

Another future study could use peak blood alcohol level as an outcome variable (most alcohol consumed during one occasion) in addition to typical blood alcohol level.

Peak blood alcohol level may provide more information about high-risk drinking practices during which the most alcohol-related problems likely occur.

A longitudinal study could explore wisdom development and how it may be influenced by heavy episodic drinking in social settings. A longitudinal research design of at least five years would include participants from multiple high school cohorts. It would be interesting to compare data from at least six universities in different geographic and cultural regions of the country. Furthermore, including public and private, secular and non-secular schools would enhance the understanding of how spirituality and wisdom interact with alcohol use for different campus cultures.

Finally, it is important to continue exploring the impact of wisdom on substance abuse across the lifespan. Current research suggests that wisdom is an important protective factor for adolescents and young adults, but future research could assess whether this trend continues throughout adulthood.

## Chapter VI

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## Appendix A

### Demographic Information

For each of the following questions, please circle or write in the answer that is the most appropriate for you.

- 1) What is your sex?    Male                  Female                  Other
  
- 2) What is your year in school?
  - a. First
  - b. Second
  - c. Third
  - d. Fourth
  - e. Fifth+
  
- 3) How would you describe your racial or ethnic background?
  - a. European American
  - b. African American
  - c. Asian/ Asian American
  - d. Latino/Hispanic
  - e. Native American/Alaska Native
  - f. Pacific Islands
  - g. Multi-racial (please describe): \_\_\_\_\_
  - d. Other: \_\_\_\_\_

- 4) How old are you? \_\_\_\_\_
- 5) How old were you when you had your first intentional drink of alcohol? If you have never tried alcohol, please write "never." \_\_\_\_\_
- 6) How old were you when you first felt drunk? If you have never been drunk, please write "never." \_\_\_\_\_
- 7) Have you ever received a citation, ticket or sanction for violating CSU's Drug and Alcohol Policy?                      Yes                      No

## Appendix B

### Spiritual Meaning Scale

I totally disagree	1	I partially disagree	2	I'm in between	3	I partially agree	4	I totally agree	5
1. There is no particular reason why I exist.*	1		2		3		4		5
2. We are each meant to make our own special contribution to the world.					1		2		3
3. I was meant to actualize my potentials.					1		2		3
4. Life is inherently meaningful.					1		2		3
5. I will never have a spiritual bond with anyone.*					1		2		3
6. When I look deep within my heart, I see a life I am compelled to pursue.					1		2		3
7. My life is meaningful.					1		2		3
8. In performing certain tasks, I can feel something higher or transcendent working through me.					1		2		3
9. Our flawed and often horrific behavior indicates that there is little or no meaning inherent in our existence.*					1		2		3
10. I find meaning even in my mistakes and sins.					1		2		3

*\*Indicates reverse scored items*

11. I see a special purpose for myself in this world.	1	2	3	4	5
12. There are certain activities, jobs, or services to which I feel called.	1	2	3	4	5
13. There is no reason of meaning underlying human existence.*	1	2	3	4	5
14. Something purposeful is at the heart of this world.	1	2	3	4	5
15. We are all participating in something larger and greater than any of us.	1	2	3	4	5

*\*Indicates reverse scored items*

## Appendix C1

### Three-Dimensional Wisdom Scale (Cognitive Dimension)

The following section asks you about your opinion and feelings. How strongly do you agree or disagree with the following statements?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	1	2	3	4	5
1. Ignorance is bliss.	1	2	3	4	5
2. It is better not to know too much about things that cannot be changed.	1	2	3	4	5
3. In this complicated world of ours, the only way we can know what's going on is to rely on leaders or experts who can be trusted.	1	2	3	4	5
4. There is only one right way to do anything.	1	2	3	4	5
5. A person either knows the answer to a question or he/she doesn't.	1	2	3	4	5
6. You can classify almost all people as either honest or crooked.	1	2	3	4	5
7. People are either good or bad.	1	2	3	4	5
8. Life is basically the same most of the time.	1	2	3	4	5

How much are the following statements true of yourself?

	Definitely true of myself	Mostly true of myself	About half-way true	Rarely true of myself	Not true of myself
	1	2	3	4	5
9. A problem has little attraction for me if  I don't think it has a solution.				1 2 3	4 5
10. I try to anticipate and avoid situations where  there is a likely chance that I will have to  think in depth about something.				1 2 3	4 5
11. I prefer just to let things happen rather than try  to understand why they turned out that way.				1 2 3	4 5
12. Simply knowing the answer rather than  understanding the reasons for the answer to  a problem is fine with me.				1 2 3	4 5
13. I am hesitant about making important  decisions after thinking about them.				1 2 3	4 5
14. I often do not understand people's behavior.				1 2 3	4 5

## Appendix C2

### Three- Dimensional Wisdom Scale (Reflective Dimension)

The following section asks you about your opinion and feelings. How strongly do you agree or disagree with the following statements?

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree		
1	2	3	4	5		
1. Things often go wrong for me by no						
fault of my own.						
		1	2	3	4	5
2. I would feel much better if my present						
circumstances changed.						
		1	2	3	4	5

How much are the following statements true of yourself ?

Definitely true of myself	Mostly true of myself	About half-way true	Rarely true of myself	Not true of myself			
1	2	3	4	5			
3. I try to look at everybody's side of a disagreement							
before I make a decision.*							
			1	2	3	4	5
4. When I'm upset at someone, I usually try to put myself							
"in his or her shoes" for a while. *							
			1	2	3	4	5
5. I always try to look at all sides of a problem.*							
			1	2	3	4	5
6. Before criticizing somebody, I try to imagine							
how I would feel if I were in their place.*							
			1	2	3	4	5

*\*Indicates reverse scored items*

7. I sometimes find it difficult to see things from another person's point of view.	1	2	3	4	5
8. When I am confused by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information. *	1	2	3	4	5
9. Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problems.	1	2	3	4	5
10. When I look back on what has happened to me, I can't help feeling resentful.	1	2	3	4	5
11. When I look back on what's happened to me, I feel cheated.	1	2	3	4	5
12. I either get very angry or depressed if things go wrong.	1	2	3	4	5

*\*Indicates reverse scored items*

### Appendix C3

#### Three-Dimensional Wisdom Scale (Affective Dimension)

The following section asks you about your opinion and feelings. How strongly do you agree or disagree with the following statements?

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree			
1	2	3	4	5			
1. I am annoyed by unhappy people who just feel sorry for themselves.							
			1	2	3	4	5
2. People make too much of the feelings and sensitivity of animals.							
			1	2	3	4	5
3. There are some people I know I would never like.							
			1	2	3	4	5
4. I can be comfortable with all kinds of people. *							
			1	2	3	4	5
5. Its not really my problem if others are in trouble and need help.							
			1	2	3	4	5

How much are the following statements true of yourself ?

Definitely true of myself	Mostly true of myself	About half-way true	Rarely true of myself	Not true of myself			
1	2	3	4	5			
6. Sometimes I don't feel very sorry for other people when they are having problems.							
			1	2	3	4	5
7. Sometimes I feel a real compassion for everyone.*							
			1	2	3	4	5

8. I often have not comforted another when he or she  
needed it. 1 2 3 4 5
9. I don't like to get involved in listening to another person's  
troubles. 1 2 3 4 5
10. There are certain people whom I dislike so much that I am  
inwardly pleased when they are caught and punished for  
something they have done. 1 2 3 4 5
11. Sometimes when people are talking to me, I find myself  
wishing that they would leave. 1 2 3 4 5
12. I'm easily irritated by people who argue with me. 1 2 3 4 5
13. If I see people in need, I try to help them in one way or  
another. \* 1 2 3 4 5

*\*Indicates reverse scored items*

## Appendix D

### Adult Self-transcendence Inventory

We would like to know whether your view of life is different today than it was five years ago. We would appreciate your reading the statements listed below and indicating the extent to which you agree.

Disagree Strongly	Disagree Somewhat	Agree Somewhat	Agree Strongly
1	2	3	4

- \_\_\_ 1) I am more likely to engage in quiet contemplation.
- \_\_\_ 2) I feel that my individual life is part of a greater whole.
- \_\_\_ 3) I have become less concerned about other's people opinions of me.
- \_\_\_ 4) I feel that my life has less meaning.\*
- \_\_\_ 5) I am more focused on the present.
- \_\_\_ 6) I feel a greater state of belonging with both earlier and future generations.
- \_\_\_ 7) My peace of mind is not so easily upset as it used to be.
- \_\_\_ 8) I feel more isolated and lonely.\*
- \_\_\_ 9) I am less interested in seeking out social contacts.\*
- \_\_\_ 10) My self-importance has decreased as I get older.
- \_\_\_ 11) My sense of self is less dependent on other people and things.
- \_\_\_ 12) I do not become angry as easily.
- \_\_\_ 13) I take myself less seriously.
- \_\_\_ 14) I have less patience with other people.\*

*\*Indicates reverse scored items*

\_\_\_15) I find more joy in life.

\_\_\_16) Material things mean less to me.

\_\_\_17) I am less optimistic about the future of humanity.

\_\_\_18) I feel much more compassionate, even toward my enemies.

*\*Indicates reverse scored items*

Appendix E

Daily Drinking Questionnaire

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

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of drinks							
Number of hours							

Weight\_\_\_\_\_

Gender\_\_\_\_\_

Height\_\_\_\_\_

## Appendix F

### Frequency-Quantity Questionnaire

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

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

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

1. No drinks
2. 1-2 drinks
3. 3-4 drinks
4. 5-6 drinks
5. 7-8 drinks
6. 9-10 drinks
7. 11-12 drinks
8. 13-14 drinks

9. 15-16 drinks
10. 17-18 drinks
11. 19 or more

How often in the past month did you drink alcohol?

1. I do not drink at all.
2. About once a month.
3. Two to three times a month.
4. Three to four times a month.
5. Nearly every day.
6. Once a day or more.

## Appendix G

### Rutgers Alcohol Problems Inventory

Please indicate the number of times you have experienced each of the following in the past three months as a result of drinking alcohol.

1. Not able to do your homework or study for a test.	0	1-2	3-5	6-9	10+
2. Got into fights, acted bad, or did mean things.	0	1-2	3-5	6-9	10+
3. Missed out on other things because you spent too much on alcohol.	0	1-2	3-5	6-9	10+
4. Went to work or school high or drunk.	0	1-2	3-5	6-9	10+
5. Caused shame or embarrassment to someone.	0	1-2	3-5	6-9	10+
6. Neglected your responsibilities.	0	1-2	3-5	6-9	10+
7. Relatives avoided you.	0	1-2	3-5	6-9	10+
8. Felt that you needed <i>more</i> alcohol than you used to use in order to get the same effect.	0	1-2	3-5	6-9	10+
9. Trying to control your drinking by trying to drink only at certain times of the day or certain places.	0	1-2	3-5	6-9	10+
10. Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking.	0	1-2	3-5	6-9	10+
11. Noticed a change in your personality.	0	1-2	3-5	6-9	10+
12. Felt that you had a problem with alcohol.	0	1-2	3-5	6-9	10+
13. Missed a day (or part of a day) of school or work.	0	1-2	3-5	6-9	10+

14. Tried to cut down or quit drinking.	0	1-2	3-5	6-9	10+
15. Suddenly found yourself in a place that you could not remember getting to.	0	1-2	3-5	6-9	10+
16. Passed out or fainted suddenly.	0	1-2	3-5	6-9	10+
17. Had a fight, argument or bad feelings with a friend.	0	1-2	3-5	6-9	10+
18. Had a fight, argument or bad feelings with a family member.	0	1-2	3-5	6-9	10+
19. Kept drinking when you promised yourself not to.	0	1-2	3-5	6-9	10+
20. Felt you were going crazy.	0	1-2	3-5	6-9	10+
21. Had a bad time.	0	1-2	3-5	6-9	10+
22. Felt physically or psychologically dependent on alcohol.	0	1-2	3-5	6-9	10+
23. Was told by a friend or neighbor to stop or cut down drinking.	0	1-2	3-5	6-9	10+