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RELATIONSHIPS BETWEEN HEALTH VALUES, SPIRITUAL WELL-BEING, AND RESILIENCE AMONG COLLEGE STUDENTS REPORTING PERSONAL SUBSTANCE USE AND FAMILIAL SUBSTANCE ABUSE: AN EXPLORATORY STUDY

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ABSTRACT

RELATIONSHIPS BETWEEN HEALTH VALUES, SPIRITUAL WELL-BEING, AND RESILIENCE AMONG COLLEGE STUDENTS REPORTING PERSONAL SUBSTANCE USE AND FAMILIAL SUBSTANCE ABUSE: AN EXPLORATORY STUDY

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This exploratory study represents an initial attempt in understanding relationships between the constructs of *health values*, *spiritual well-being*, and *resilience* and their possible influences as protective factors against personal consumption of alcohol, tobacco and other drugs (ATOD) and in promoting psychosocial adaptation to familial substance abuse as a chronic illness and disability (CID). The constructs were tested in pairs and as a composite variable. The research design included a 64-item web-based survey administered to a purposive sample of 266 undergraduates attending a large Midwestern university during Spring semester 2007. Correlational and mean differences pertaining to students' scores for the constructs under investigation were explored within ranges of calculated risk for *personal substance use* and *familial substance abuse*. Risk ranges were determined as categories of low, medium, high, and very high.

Method: The sample was drawn from eleven sections of an introductory, undergraduate, substance abuse course. Students ranged within a variety of academic ranks and from academic programs across the university. The overall response rate to the survey was 87.69% which constituted a student sample of $n = 233$. Five scales were utilized in the design of the survey including: modified Health-as-a-Value (mod-HAV) scale, Resilience Scale-15 (RS-15), Spiritual Index of Well-Being (SIWB), Drug Abuse Screening Test-10 (DAST-10), and Alcohol Use Disorders Identification Test (AUDIT).

Information regarding students' demographic characteristics, reported patterns of personal substance use, and backgrounds of familial substance abuse was also gathered by the survey. The concept of family was expanded to include genetic and non-genetic family members such as: adoptive, step, cohabitating and very close friends.

Results: A variety of comparisons were made and the most prominent results revealed: (1) a large inverse relationship exists between spiritual well-being and resilience; a small inverse relationship exists between spiritual well-being and health values; a small positive relationship exists between health values and resilience, (2) individuals with low risks for personal substance use displayed a small increase in resilience compared with high-very high risk individuals, (3) individuals *with no* reported familial substance abuse displayed a large negative relationship between spiritual well-being and resilience, (4) individuals *with* reported familial substance abuse also displayed a large negative relationship between spiritual well-being and resilience, along with, a medium positive relationship between health values and resilience, and a small negative relationship between health values and spiritual well-being, (5) *genetic* factors rather than *non-genetic* factors accounted for most, if not all, of the significant results for individuals *with* familial substance abuse risks, and (6) a supplemental analysis comparing individuals *at risk* for both personal substance use and familial substance abuse showed that low-medium risk groups display increased resilience and decreased spiritual well-being compared with high-very high risk groups.

Conclusion: Despite study limitations, results appear consistent with a number of previous research studies. Practice implications and directions for future research are discussed for the fields of substance abuse, allied health, and rehabilitation counseling.

BOOK BLESSING

Now, as we make our way onto the path that lies before us,

may the light of Truth shine within us today, tomorrow, and always.

May we be Divinely guided to

discovering that which has been, that which is, and that which has yet to be.

Through our love,

we hold the power to change ourselves, each other, and the world.

~Debra J. Farrell

Science is nothing but developed perception, interpreted intent,

common sense rounded out and minutely articulated.

~George Santayana (1863-1952)

DEDICATION

I lovingly dedicate this book to the memory of my dear parents, *William* and *Darlene*, and my dear brother, *Dwaine*. Thank you for the everlasting love we shared as a family and for the lifelong gifts you have instilled in me as a person. Thank you for your bequeathal of this most cherished and sacred space that has become the portal to enlightenment along the blessed path of my dissertation journey. If only you could be here now to witness the Great Mystery which enshrouds this powerful passage of metamorphosis, emergence, and transcendence. If only you could be here now to be touched by the profound meaning of this extraordinary work which will resonate forward to a legacy of advanced wisdom, truth, and understanding for all. I know in my heart you would be proud.

I dedicate my efforts in writing this book to *ALL MY RELATIONS*. Each of you holds a special place within my heart. Each of you has lovingly contributed in countless and meaningful ways to the unfolding journey throughout my life and especially the doctoral program.

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF TABLES (continued)

LIST OF TABLES (continued)

LIST OF FIGURES

FIGURE Number Page

LIST OF ABBREVIATIONS

ANGEL	A New Global Environment for Learning
ANOVA	Analysis of Variance
ATOD	Alcohol, Tobacco, and Other Drugs
AUDIT	Alcohol Use Disorders Identification Test
BAC	Blood Alcohol Content
CASI	Computer Assisted Self-Interview
CDC	Centers for Disease Control
CID	Chronic Illness and Disability
CoA	Children of Alcoholics
DAST-10	Drug Abuse Screening Test-10
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition, Text Revision)
DV	Dependent Variable
GPA	Grade Point Average
IV	Independent Variable
MANOVA	Multivariate Analysis of Variance
mod-HAV	modified Health-as-a-Value
NIAAA	National Institute of Alcohol Abuse and Alcoholism
NIDA	National Institute on Drug Abuse
RS-15	Resilience Scale-15
SIWB	Spiritual Index of Well-Being
SPSS	Statistical Package for the Social Sciences
Tukey's HSD	Tukey's Honestly Significant Difference

CHAPTER I

Adversity is the first path to truth.

~Lord Byron (1788-1824)

Introduction

College drinking in the United States has received sensational attention within the news media and considerable attention within the professional body of literature. Misuse of alcohol by college students on college campuses has been cited as an important topic of concern for over 50 years and dates back to an article submitted in 1953 by Straus and Bacon (Presley, Meilman, & Leichliter, 2002). Although riddled by controversy regarding the impact college drinking has to our nation's student population and campus way of life, excessive college drinking has been declared a major public health concern of epidemiological proportion (Gfroerer, Greenblatt, & Wright, 1997; Senchak, Leonard, & Greene, 1998). Due to growing concern, college alcohol consumption patterns in the general population are monitored annually through national studies such as the National Epidemiological Survey of Alcohol and Related Conditions, otherwise known as NESARC (Chen, Dufour, & Yi, 2004-2005). Rates of alcohol consumption by college students have been monitored through several other large-scale studies as well (O'Malley & Johnston, 2002; Wechsler & Dowdall, 1998; Wechsler et al., 2002).

Within the framework of this study, and in light of these highly-charged controversies, no conjectures or attempts were made to sort out the issues regarding the phenomena of college drinking. A full exploration of the literature was necessary to identify and establish the contextual environment and situational risk factors (Jackson, Sher, & Park, 2005) of campus substance abuse that serve as a backdrop for the study.

The major focus of the study was the exploration of key factors which may contribute to the process of psychosocial adaptation to familial substance abuse as a chronic illness and disability (CID) and to the risks of personal substance use. The study utilized a purposive sample of college undergraduate students within a major college campus setting.

The widespread use of alcohol, tobacco and other drugs (ATOD) among college students in the United States has prompted researchers to probe more deeply into the nature of campus substance use trends. Clearly, there is a desire to develop effective strategies that incorporate sound methods for reducing the magnitude of such trends. In 2002, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) launched a large scale, federal campaign to study the scope and magnitude of college student alcohol use patterns and to recommend strategies to address patterns of excessive drinking. Considerable debate has taken place regarding the effects and consequences of what some officials contend is more accurately termed "high risk" drinking (NIAAA). The labeling of students as "binge" drinkers by some researchers, has been overturned and a new paradigm of thinking has emerged which focuses on the effects and consequences of high risk drinking behaviors (NIAAA; Schuckit, 1998).

The phenomenon of drinking within campus settings has been described as a unique pattern of behavioral norms and expectations within individual and collective campus cultures across the United States (NIAAA, 2002). Some sources indicate that among college undergraduates attending two and four-year institutions, excessive rates of use are rated highest among all levels of alcohol consumption in elevating the risks to result in alcohol-related deaths, injuries, and other health problems (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002; O'Malley & Johnston, 2002; Sheffield, Darkes,

Del Boca, & Goldman, 2005; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Kelley, Weitzman, San Giovanni, & Seibring, 2000a). Alcohol-related problems can lead to damage to self, others, and property (Perkins, 2002). Consequential effects regarding self include acute health conditions and adverse behavioral patterns that can lead to legal repercussions (Dowdall & Wechsler, 2002).

In a review of data gathered from the National Highway Traffic Safety Administration (NHTSA) and Centers for Disease Control (CDC), college students constitute 31% of the 18 to 24 year olds in the United States and 31% of the nation's unintentional and traffic-related deaths (Hingson et al., 2002). The tendency for college students to engage in *risky* use of alcohol through occasional, heavy drinking has raised concerns by administrators at academic institutions (O'Malley & Johnston, 2002; Walters & Baer, 2006). In addition to alcohol, use of other drugs such as cigarettes, marijuana, cocaine, and other illegal substances has been cited with growing concern (Jones, Oeltmann, Wilson, Brener, & Hill, 2001).

Some researchers estimate that approximately 40% of the nation's population of college students engages in episodes of heavy drinking (Jones et al., 2001; Walters & Baer, 2006; Wechsler & Dowdall, 1998). Other researches assert that a pattern of heavy drinking poses a threat to the health of college students as a community (Polonec, Major, & Atwood, 2006). As a label, "binge drinking" has been discussed at some length with respect to its meaning, relevance, and implications (Lederman, Stewart, Goodhart, & Laitman, 2003; Schuckit; 1998; Weschler, Lee, Kuo, & Lee, 2000b; Wechsler & Kuo; 2000; Wechsler & Nelson, 2001). Within the college landscape, this term has been widely interpreted to mean heavy consumption of alcohol within relatively short periods

of time. More specifically, binge drinking has been defined as the rapid and successive consumption of alcoholic beverages at the rate of "five or more drinks" for males and "four or more drinks" for females on at least one occasion within a two week period (Walters & Baer, 2006; Wechsler & Dowdall, 1998; Wechsler & Kuo, 2000; Wechsler & Nelson, 2001). In addition to binge drinkers, problematic "frequent binge" or "consistent heavy" users of alcohol have been identified in 19% of the college population (Walters & Baer).

Regardless of its label, engagement in binge, heavy, or excessive drinking practices is believed to lead to increased problematic risks for alcohol-related consequences (Jackson et al., 2005; Perkins, 2002; Walters & Baer, 2006; Wechsler & Dowdall, 1998; Wechsler & Nelson, 2001; Wechsler et al., 2000b; Wechsler et al., 2002). Moreover, it is critical that researchers continue their efforts to provide categories of distinction which describe various types of high-risk, or perhaps more accurately-termed *at-risk*, drinking patterns. Efforts in monitoring alcohol abstention are important as well and recent projections indicate the number of students who do not imbibe is estimated at one-fifth of the U.S. college student population (American College Health Association, 2006).

In 2006, the American College Health Association (ACHA) released a report compiling statistics from the 2004 National College Health Assessment (ACHA-NCHA) Health Surveys. Information from these surveys was gathered from over 4,000 participating colleges and universities across the United States. The results were based on a college population consisting of undergraduates (86%), graduates (12%), and first-professional programs (2%). The ACHA-NCHA report indicated that the number of

drinks students consumed by students on the last occasion they "partied" included: alcohol abstainers (22.0%), one to four drinks (38.3%), five to eight drinks (25.9%), and nine or more drinks (13.8%). The ACHA-NCHA report further indicated that alcohol use by students within the last 30 days was as follows: none used (17.9%), no use in the last month (13.6%), 1-2 days use (18.1%), 3-5 days (18.0%), 6-9 days use (15.9%), 10-19 days use (12.7%), 20-29 days use (3.2%), and all 30 days use (.6%). Additionally, the ACHA-NCHA report listed frequencies by which other substance such as cigarettes, smokeless tobacco, cigars, marijuana, amphetamines, cocaine, and designer drugs (Rohypnol, GHB, Liquid X, and Ecstasy) were used by college students. The frequency of use varied widely depending upon the types of drugs reported.

In addition to alcohol consumption, polysubstance use has received researchers' attention as well (McCabe, Boyd, Cranford, Morales, & Slayden, 2006; Mohler-Kuo, Lee, & Wechsler, 2003). Polysubstance use is the combination or mixing of two or more substances, including or excluding alcohol as a substance. The combined effects of using more than one substance simultaneously remains largely understudied due to the unlimited number of drug combinations and dose variations. However, experts have voiced concern that polysubstance use magnifies the potential risks for users (Miller, Zweben, DiClemente, & Rychtarik, 1995). Jones et al. (2001) discovered that the more frequently students engaged in binge drinking, the more likely they were to use other substances.

A common example of polysubstance use is the concurrent use of alcohol and marijuana. Mohler-Kuo et al. (2003) collected data from four College Alcohol Study (CAS) surveys administered between the years of 1993 to 2001 and found that greater

than 98% of college marijuana and other illicit drug users either smoked tobacco or were binge drinkers or used another substance. Results for the study did not indicate whether the drugs were self-administered simultaneously or taken during non-overlapping intervals (Mohler-Kuo et al.). Age of initiation was further considered within the Mohler-Kuo et al. study and researchers concluded that drug prevention programs should commence in high school or sooner.

Shillington and Clapp (2006) compared a sample of alcohol-only users (71.2%) to alcohol and marijuana users (28.8%). The authors concluded that college students who used the dual substances of alcohol and marijuana were twice as likely as the alcohol only users to perform poorly on an exam or school assignment, get in a verbal altercation, become physically ill, experience hangovers, miss class, operate a motor vehicle while intoxicated, or ride with an intoxicated driver.

Over the decades, young adults in general have been studied rather extensively for related risks and exposures with substance abuse and substance use disorders. Aside from college students, research efforts have been directed toward non-college attending adults within the same age group. In a study performed by O'Malley and Johnston (2002), researchers concluded that non-college-attending individuals consumed less alcohol than their college-attending peers and greater amounts of marijuana, cocaine, and cigarettes. O'Malley and Johnston indicated that during high school years, college-directed students consume alcohol in lesser amounts than peers who do not plan to attend college and both groups increase their intake post-high school graduation. Slutske (2005) found that although college students demonstrated significantly greater consequences

with binge or heavy drinking episodes, they did not appear at greater risk for alcohol dependence problems compared with non-college attending individuals.

Considerable research has been devoted to the genetic factors regarding of the incidence of chemical dependencies and the intergenerational transmission of substance use disorders within families (Hardie, 2002; Hartman, Lessem, Hopfer, Crowley, & Stallings, 2006; Merikangas et al., 1998; Schuckit, 1999). The bulk of this literature has had a widespread and far-reaching impact within the field of substance abuse spanning several major disciplines including: psychiatry, medicine, nursing, occupational therapy, psychology, social work, and rehabilitation counseling. Much of the literature written on the topic of substance use and abuse by young people is divided into two distinct developmental periods of adolescence and early or young adulthood (Schulenberg & Maggs, 2002).

Within the present study, college undergraduate students are regarded as young or *emerging* adults (Arnett, 2000) with major emphasis given to the distinct roles and characteristics they manifest as they transition into full adulthood (Schulenberg & Maggs, 2002; Walters & Baer, 2006). It should be noted that the term "emerging" implies a dynamic state of change that is not clearly marked by beginning or end (Arnett). In addition, it should be emphasized that emerging adults, between the ages of 18 and 21, are considered "minors" relative to this state's drinking laws. In all other aspects however, individuals who have attained the age of 18 years share the full legal privileges, rights, and responsibilities as all other adults.

Students who are transitioning directly from high school into college are a particularly interesting group to study regarding the short and long-term effects of

substance abuse (White et al., 2006). This transitional period has been linked to increases in drinking for high school students regardless of their college or non-college attending goal status (Senchak et al., 1998; White et al., 2006). For those who are college bound, the act of attending college has been referred to as a "situational" risk factor (Jackson et al., 2005). This situation is marked by rapidly changing roles as students transition out of adolescence and high school into emerging adulthood, moving from living at home with parents, to residing in college dormitories or independent apartments (Arnett, 2000, Schulenberg & Maggs, 2002).

Given the removal of parental controls and exposures to new social contexts (Senchak et al., 1998), it is not surprising that first-year college students, despite their minority status for legal-aged drinking, have heightened risks especially if they have a positive family history of alcohol problems and positive expectancies toward alcohol consumption (Del Boca, Darkes, Greenbaum, & Goldman, 2004; VanVoorst & Quirk, 2003). Scant literature was located on the topic of college students raised in families where substance abuse or dependency is a past or present condition. This may support the claim made that many individuals raised in homes where substance abuse is present do not achieve the opportunities to enroll in college or complete a college degree program (Baer, 2002).

Statement of the Problem

This study represents an exploratory step in combining the three constructs of health values, spiritual well-being, and resilience in an effort to identify primary factors that have assisted certain college students in overcoming the risk factors of personal substance use and familial substance abuse. The study investigated the relationships

between these constructs. The presence of *person-environment* interactions (Livneh, 1987; Schoon, 2006) were explored, relative to reported levels of personal substance use within the campus environment and reported presence of familial substance abuse.

To begin, it was espoused that in combination, health values, spiritual well-being, and resilience serve as key factors that enhance the psychosocial adaptation of individuals with a current or past environment of familial substance abuse. The combination of health values, spiritual well-being, and resilience were theorized to enable certain individuals to successfully emerge from adverse environmental conditions and to excel academically in a demanding and competitive college environment. In combination, these factors were believed to serve in protecting individuals from the bio-psycho-social risks posed by familial substance abuse environments and additional personal risks posed by exposure to a substance-saturated college lifestyle.

To achieve success, the world of higher education demands a rigorous routine and a productive lifestyle. The world of higher education also poses environmental risks that can compromise one's quest toward success and can lead to a situation of academic failure. The current study offers a refreshingly, optimistic perspective on what could otherwise be deemed a dismal situation. The current study investigated questions about relationships between the positive factors of health values, spiritual well-being, and resilience that may serve, not only as protective factors that buffer the effects of familial substance abuse, but as sources of strength, empowerment, and self-efficacy for some individuals. It was theorized that this act of empowerment may serve to enable certain individuals to thrive academically within a goal-directed environment and to refrain from or avoid the pressures of engaging in personal substance use behaviors. This is consistent

with the person-environment rehabilitation perspective in assessment of individuals with chronic illnesses or disabilities as they function within settings of treatment, home, work, and community (Livneh, 1987)

Past literature has indicated that the degree of health values and spiritual well-being combined with the process of resilience may serve as protective factors or have buffering effects of strong social stressors imposed on college students by peers and other external stressors resulting from enduring a college lifestyle (Ritt-Olson et al., 2004). Individuals who do not succumb to these pressures have an optimal chance for not only surviving, but thriving, against the odds. Achievement in academic excellence may be a sign of ultimate adaptation within a competitive environment.

Although this study identified age, primary living situation, and cumulative grade point average as important factors, the analysis and findings do not focus on the specific relationships of these related factors with the constructs under investigation. Preliminary data regarding these factors were collected from the sample and their possible influences are discussed in the literature review section within Chapter II of this document. The factors are important to identify and test in future research applications that extend beyond the scope of this exploratory study. It is also important to emphasize that although socioeconomic status has been determined to be a predictor regarding the monetary affordability of substances by college students, it was not pursued as a factor within this study.

The study was intended, as a beginning point, to reveal information about a combination of invisible human qualities and protective processes that serve as buffers against *at-risk* factors of personal substance use and familial substance abuse.

Furthermore, the study was intended to describe and enhance our understanding of the intrinsic processes, qualities, or characteristics that promote some individuals to achieve a state of homeostatic balance or well-being among mind, body, and spirit. It was conceived that these critical factors may combine to increase the possibilities individuals possess toward fulfilling their life goals thereby increasing their overall quality of life and life satisfaction (Tate & Forchheimer, 2002).

The inquiries of this research study were based upon a series of eight statements or premises that are supported empirically within the literature. These premises provide an overview of the empirical evidence pertinent to this study. The premises are as follows:

Premises

1. Substance abuse is a diagnosable condition described by a set of criteria listed in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision (DSM-IV-TR) (American Psychiatric Association, 2000).
2. As a condition, substance abuse can be diagnosed as a primary or co-existing disorder (American Psychiatric Association, 2000).
3. Addiction to substances, particularly alcohol, tends to run in families (Barnes & Welte, 1990; Hardie, 2002; Hartman et al., 2006; Merikangas et al., 1998; Schuckit, 1999).
4. Substance abuse is a predictor for disability or a mediator of a disabling condition (Livneh & Wilson, 2003).
5. Although maladaptive, substance abuse serves as a form of coping with stress and trauma (Graf, 2004; Livneh & Wilson, 2003).

6. Familial substance abuse is a psychiatric illness which poses a myriad of challenges and can evoke processes of familial resilience for coping and adaptation (Walsh, 2002).
7. The population of U.S. college students faces elevated risks for consequences caused from high risk drinking (NIAAA, 2002).
8. The excessive use of alcohol and drugs compromise one's health, safety, and well-being by increasing one's risks for adverse effects or negative consequences (Chen et al., 2004-2005; Hanson, Venturelli, & Fleckenstein, 2006; Jackson et al., 2005; Perkins, 2002; Walters & Baer, 2006; Wechsler & Dowdall, 1998; Wechsler & Nelson, 2001; Wechsler et al., 2000b; Wechsler et al., 2002).

In addition to the premises noted above, this study was based upon the following three assumptions which are suggestions of influence regarding psychosocial adaptation to CID. Although there may be empirical evidence to support these assumptions, they remain largely under investigation within the literature. The assumptions are as follows:

Assumptions

1. The degree of value an individual displays regarding his or her health (physical and mental well-being) influences his or her psychosocial adaptation to familial substance abuse as a CID.
2. The degree of spiritual well-being an individual displays influences his or her psychosocial adaptation to familial substance abuse as a CID.
3. The degree of resilience an individual displays in overcoming stress, adversity, and changing conditions influences his or her psychosocial adaptation to familial substance abuse as a CID.

Purpose of the Study

The purpose of the study was to investigate possible constructs related to the intrinsic nature and processes of psychosocial adaptation to familial substance abuse as a CID for college undergraduate students within a campus setting. The study considered relationships between the internal factors of health values, spiritual well-being, and the process of resilience. The study also considered personal substance use and familial substance abuse as key risk factors. This study probed the mysteries behind why certain individuals who emanate from families of substance abuse are successful in enrolling in college and accessing the opportunities offered by an academic setting. As constructs, health values, spiritual well-being, and resilience have been researched separately or in pairs (Ritt-Olson et al., 2004; Sundararajan-Reddy, 2005). No instances were found where the three constructs had been researched together using a combined design. By exploring these three constructs along with key risk factors, it was hoped the results of this research would shed new light into the world of elevated risks for substance use and abuse for this uniquely challenged population.

The goals for this study were four-fold: (1) to contribute research that would add to the growing body of literature in our understanding of the factors that promote psychosocial adaptation to CID and the relationships that may exist between the constructs of health values, spiritual well-being, and resilience; (2) to advance our understanding of how these constructs, in combination, may improve the psychosocial adaptation processes for individuals that stem from families of substance abuse; (3) to demonstrate how the relationships between these constructs may interact with risks for personal substance use and familial substance abuse; (4) to assist other researchers in

launching future investigations into combinations or clusters of constructs (Livneh, Lott, & Antonak, 2004) which may promote psychosocial adaptation for individuals who are affected by familial substance abuse as a CID.

The search for answers to reduce the exposures and potential risks for college students may uncover an opportunity to begin to understand why certain individuals perpetuate a life of substance abuse and others do not. As emphasized within the literature, the negative dysfunction and breakdown within families and family systems contributes to the initiation and perpetuation of substance abuse across generations. In a more positive light, it is important to acknowledge the family for its strengths including the aspects of resilience that are present in certain emerging adults which enable them to overcome the influences of familial abuse of ATOD. Additionally, it is important to acknowledge individual and familial resilience in overcoming adverse effects created by substance abuse and dependency disorders. Although the focus of this study was not specifically directed to families' influence on resilience (Johnson et al., 1998) and psychosocial adaptation of its individual members, it is indirectly implied.

The following research questions specifically address psychosocial adaptation for college students as individuals.

Research Questions

Data were collected from a purposive sample of college students enrolled in an introductory, undergraduate substance abuse course at a major Midwestern university during Spring semester 2007. The following research questions were posited:

1. What relationships exist between the reported health values, spiritual well-being, and resilience for all participants?

2. Are there differences in reported health values, spiritual well-being, and resilience among participants who score *low, medium, high,* or *very high* risk for personal substance *use*?

The sample was subdivided into two groups: Group 1 consisted of participants *with no* reported past or present familial substance *abuse* problems; Group 2 consisted of participants *with* reported past or present familial (genetic and non-genetic relatives). The latter group was subdivided into Group 2A, participants reporting *genetic* relatives and Group 2B, participants reporting *non-genetic* relatives. Participants who reported both *genetic* and *non-genetic* relatives were placed in Group 2A.

3a. Are there differences in reported health values, spiritual well-being, and resilience between participants *with no* reported past or present familial substance *abuse* problems (Group 1) and participants *with* reported past or present familial (*genetic* or *non-genetic*) substance *abuse* problems (Group 2)?

3b. Are there differences in reported health values, spiritual well-being and resilience between participants reporting *genetic* relatives (Group 2A) and participants reporting *non-genetic* relatives (Group 2B)?

3c. Are there differences in reported health values, spiritual well-being, and resilience between participants who score *low, medium, high,* or *very high* risk for personal substance *use* and report *no* familial substance *abuse* and participants who score *low, medium, high,* or *very high* risk for personal substance *use* and who score *low, medium, high, or very high* for (genetic or non-genetic) familial substance *abuse*. Comparison groups 3 and 4 were created to answer this question (see Hypothesis 3c listed below).

As stated, no previous research was uncovered that measured the three constructs of health values, spiritual well-being, and resilience in combination. The hypotheses for the study were based upon observations of characteristics that were typical of students enrolled in the substance abuse classrooms over a three year span.

The reader should bear in mind that Hypotheses 1 and 2 (listed below) addressed general characteristics pertinent to the entire sample of students. Hypotheses number 3a, 3b, and 3c (listed below) divided the sample into groups based on students' reporting of indicators for familial substance abuse. Students noting positive familial indicators reported either genetic or non-genetic familial substance abuse or both. Hypotheses number 3b and 3c were intended to measure the positive and overcoming nature of the process of resilience. Thus, the reader may be surprised by the positive formulation of these hypotheses.

The reader should be aware that the essence of this study was intended to improve our understanding of psychosocial adaptation to CID. In much of the literature, the portrayal of substance abuse as a CID is negatively-toned and typically focuses on the pathological aspects of substance use, abuse, and dependence. This study was constructed to advance our understanding of the positive human factors that may combine to influence psychosocial adaptation to substance abuse as a CID for college students and their families.

When considering psychosocial adaptation within families, *family resilience* is defined as a key family process that mediates recovery and serves to strengthen vulnerable family members (Walsh, 2002). Family resilience is necessary to endure and re bound from crises and challenges that families face (Walsh). The approach to family

resilience utilizes concepts and language that serve to humanize the experience of CID (Walsh). A few of the key factors within the process of family resilience are related with the three constructs investigated by this study and include: (1) making meaning of adversity, (2) sense of coherence, (3) positive outlook, (4) transcendence and spirituality, (5) larger goals and purpose, and (6) future goals and dreams (Walsh).

Based on the research questions identified above, the hypotheses for this study are as follows:

Hypotheses

1. Participants who demonstrate increased resilience will also demonstrate increased health values and spiritual well-being.
2. Participants who score *low* to *medium* risk for personal substance *use* will demonstrate increased health values, spiritual well-being, and resilience compared with participants who score *high* to *very high* risk for personal substance *use*.

3a. Participants *with* reported past or present familial substance *abuse* (Group 2) will demonstrate increased health values, spiritual well-being, and resilience compared with participants *with no* reported past or present familial substance *abuse* (Group 1).

3b. Participants reporting past or present substance *abuse* problems with *genetic* relatives (Group 2A) will demonstrate increased reported health values, spiritual well-being, and resilience compared with participants reporting past or present substance *abuse* with *non-genetic* relatives (Group 2B).

3c. Participants considered *low* to *medium* risk for personal substance *use* and *high* to *very high* risk for familial substance *abuse* (comparison group 3) will demonstrate increased health values, spiritual well-being, and resilience compared with participants considered *high* to *very high* risk for personal substance *use* and *low* to *medium* risk for familial substance *abuse* (comparison group 4).

Definition of Terms

As a term, the definition of family resilience has already been discussed. Additional terms which appear throughout this document are substance abuse, substance use, and family. These terms and their definitions of use within this study appear below.

There is an important need for viable research efforts regarding college alcohol use patterns to utilize definitions that are aligned with the American Psychiatric Association's DSM-IV-TR criteria (Clements, 1999). Anchoring research in clinical context will assist in paving the way to identify the marked symptoms, and prevalence of, alcohol-related disorders within the college student population (Clements). Although one of the goals of this study was to identify personal substance use risk factors for college students within the sample, this study sought to identify risk factors based upon reported patterns for past or present substance abuse within families. Therefore, adoption of a working definition of *substance abuse* was important to provide to students as they responded to survey questions regarding familial substance abuse. For the purposes of this study, the definition of substance abuse has been adopted from the DSM-IV-TR (American Psychiatric Association, 2000). The definition appears as follows:

> A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by *one (or more)* of the following, occurring within a 12-month period:

(1) Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (*e.g. repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school, neglect of children or household)*

(2) Recurrent substance use in situations in which it is physically hazardous *(e.g. driving an automobile or operating a machine when impaired by substance use)*

(3) Recurrent substance-related legal problems *(e.g. arrests for substance-related disorderly conduct)*

(4) Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance *(e.g. arguments with spouse about consequences of intoxication, physical fights).* (p. 199)

Another term deserving clarification is *substance use*. Personal substance use is defined as the experimental, recreational, or prescribed consumption of licit or illicit substances which is not regarded as maladaptive or pathological (Hanson et al., 2006; Hardie, 2002). Let it remain clear that personal substance use may become risky or excessive with respect to the quantity, frequency, and types of substances consumed and this enhances the likelihood of harm to an individual's health, safety, and well-being (Chen et al., 2004-2005; Hanson et al.).

For purposes of clarity, it is important to establish boundaries of distinction that this study was not designed to be diagnostic or prescriptive regarding the personal use of substances by students within the sample. However, applying definitions that have a functional basis or outcome was important to individuals' personal inventories of themselves and their families as they reported information regarding their personal substance use and familial substance abuse patterns. No assessments regarding the presence or absence of pathology within prospective participants or their families were pursued in relation to personal substance use risk factors. This study gathered a personal

reporting of information by participants regarding personal substance use and relied solely on self-report measures for quantity, frequency, and types of substances used. All data regarding substance use were analyzed in relation to calculated categories of risk.

Individuals who participated in the study stemmed from families *with no* reported past or present substance abuse problems and families *with* reported past or present substance abuse problems. This warranted a need to further define *family* within the context of this study. The definition of family was not limited to genetic or blood relatives only. The individual's perception, or sense of family, included non-genetic family members such as: (1) adoptive, (2) step, or (3) cohabitating family members as well as (4) very close friends (Dorsey, Scherer, & Real, 1999; Mead & Heyman, 1965; Weitzman, Nelson, & Wechsler, 2003).

In summary, this study portrays a unique view of the factors that may be related with the process of psychosocial adaptation to the risks posed by personal substance use and familial substance abuse as experienced by a sample of college undergraduates. Much of the previous research pertaining to this topic has provided a negative slant toward college users and the possible risks and consequences they face (Keeling, 2000; Ritt-Olson et al., 2004). This study was intended to illuminate the positive, person-environment (Livneh, 1987) interactions that are possible between adverse conditions and the outcome of psychological health and spiritual well-being which can further lead to favorable psychosocial adaptation (Kosciulek, 2004a) and increased adaptive functioning (Schoon, 2006). The study explored the characteristics and processes that certain young adults may cultivate which enable them to emerge from a background of substance abuse

and take on the added stress of fulfilling new roles in responding successfully to the challenges and risks posed by academia.

CHAPTER II

The following chapter provides an indepth review of several key topics that are integral to the present study. The broad topics included in the literature review are: (1) campus substance abuse, (2) psychosocial adaptation to CID, (3) risk factors, (4) protective factors, and (5) other factors. This exhaustive review of the literature embodies the most premier and seminal research efforts for these topics and further represents the collective work of many theorists across many disciplines.

Review of Literature

The potential impact of campus substance abuse as a major public health concern and so-termed "epidemic" was suggested at the beginning of this document. Substance abuse as an overall social epidemic is implicated as well and is best described by the term *equal opportunity affliction* (Hanson et al., 2006). In other words, substance abuse is known to every gender, racial, ethnic, religious, socioeconomic, or cultural subgroup, because it has permeated virtually every segment of the American population. Put simply, the potential for use or abuse of licit or illicit substances knows no human boundaries and therefore no person is immune to its risks as a potential chronic illness or disease (Hanson et al.).

The etiology of substance abuse remains largely unanswered by science although some new evidence has come to light regarding genetic markers (Hardie, 2002; Prescott & Kendler, 1999; Schuckit, 1999). From the evidence, it appears that approximately 50% of the risk for alcoholism is explained by a combination of genetic factors related to a mixture of receptor, enzymatic, and other biophysiological reactions (Prescott, & Kendler; Schuckit). In a population-based study of male twins in the United States, it

was determined that genetic factors play a significant role in the susceptibility of males to acquire alcoholism, alcohol abuse, or alcohol dependence disorders (Prescott & Kendler). In a paper published by Schuckit, individuals identified as having a low sensitivity to alcohol were found to be more susceptible to alcohol dependence in the presence of certain personality characteristics such as enhanced boredom or tendency toward impulsive behaviors.

The primary presentations for the destructive and pathological use of substances appear as substance use disorders, substance abuse disorders, or substance dependence (Hardie, 2002). The criteria for diagnosing substance abuse and dependence are clearly established within the DSM-IV-TR (American Psychiatric Association, 2000; Hardie). Substance abuse manifests as an acute or chronic condition or it may appear as a coexisting disorder in combination with other primary or secondary disorders (Hardie). Substance dependence may appear with any combination of physical, psychological, and behavioral symptoms which vary from one individual to another (Hanson et al., 2006; Hardie)

Substance abuse is viewed as a predictor for disability or as a mediator to a disabling condition (Livneh & Wilson, 2003). The risk factors for use or abuse of substances are triggered or exacerbated by calamitous events and may be further complicated by symptoms of post-traumatic stress disorders, traumatic brain injuries, and other mental and physical traumas (Beck & Franke, 1996; Graf, 2004). These types of crisis-related, traumatic events precipitate major life changes which result in a period of *psychological disequilibrium* for those involved (Beck & Franke).

As a coexisting disorder, substance abuse mimics a constellation of signs and symptoms similar to a number of other disorders, making a clinical diagnosis difficult at best. A classic example of this is observed in patients diagnosed with a dual condition of mental disorder and a co-occurring substance abuse disorder. For trained clinicians, it is difficult to discern whether the etiologies of clients' symptoms are attributable to one disorder or the other because many of the symptoms are characteristic to both sets of diagnostic criteria.

The literature is full of a variety of studies that attempt to answer the etiology of substance abuse and dependency from disease, psychosocial, or moral perspectives (Hanson et al., 2006). Miller and Hester (2003) used an innovative approach in constructing an eclectic model that encompasses thirteen conceptual and treatment perspectives. This model is referred to as the "public health" model. Miller and Hester's public health model includes: (1) the moral, (2) temperance, (3) spiritual, (4) dispositional, (5) disease, (6) biological, (7) characterological, (8) conditioning, (9) social learning, and (10) cognitive approaches. Three additional conceptual approaches important to the eclectic framework of the public health model are: (11) the general systems model which addresses family roles and dysfunction, (12) the sociocultural model which addresses environment and cultural norms, and (13) the educational model which addresses lack of knowledge and motivation. Miller and Hester envisioned the public health model to consist of three important environmental contexts of: (1) agent, (2) host, and (3) environment. The authors suggested that the public health model provides us an opportunity to strive toward *informed eclecticism* within the field of alcohol treatment. The authors further asserted that the public health model, and its

concept of "informed eclecticism", encompasses a much larger and broader perspective of alcohol disorders and serves to guide theory and practice by matching individuals with treatment approaches that are best-suited to their needs.

Given the nature of the present study, and in viewing the family from a systems perspective, it was necessary to adopt a more eclectic and holistic framework that included viewing college students' risk variables from a combination of genetic, personality, familial, environmental, and transcendental factors. This type of perspective is consistent with the bio-psycho-socio-spiritual perspective or viewing the "whole" person. As mentioned previously, the present study represents a pursuit to understand the person-environment factors (Livneh, 1987) of young adults who have successfully transitioned from high school into college. The study connected key factors to the process of psychosocial adaptation to CID using a bio-psycho-spiritual frame of reference.

Substance abuse as a medical and clinical diagnosis was established within the field of psychiatry. In the world of science and medicine, substance abuse can lead to a state of CID that can, in turn, impact one's ability to function within their home and vocational environments. As a social epidemic, substance abuse is viewed as a detriment to society for its negative affects to individuals, families, and communities. Specific to individuals, substance abuse affects the totality of individual human experiences including not only those of mind and body, but of the emotional, social, and spiritual dimensions as well. In some cases, substance abuse may lead to a chronic relapsing condition of substance dependence.

Numerous studies have validated a number of key factors that serve as predictors, or indicators, of substance abuse, particularly for a college or young adult population. The literature has verified that a significant degree of variation exists among individual college substance users. Given this variability, it would be unrealistic to search for simple answers to a complex situation through a single study. Moreover, it must be stated that no one factor can be singled out and studied in isolation from all other factors.

The current study considered protective factors and is unique in its positive view of these factors in combination with the adaptive process of resilience. It was theorized that these protective factors may serve to synergize and potentiate the process of resilience and may buffer the risks for the college students under investigation. Miller (1998) indicated that Alcoholics Anonymous points us toward character traits, or "'*active ingredients*', that may play a key role in recovery" (p. 986). It was conceived that the process of resilience may serve as the main active ingredient and protective factors of health values and spiritual well-being may serve to enhance this protective process by strengthening the mixture. Regardless of the outcome, this combination provided a unique lens which was well worth exploring.

It must be emphasized that this exploratory investigation considered a mere portion of the extensive risk factors and other factors that may be evident in the college population at large. The major goal of the study was to determine whether an interactive relationship exists between the three, identified constructs for individuals within a selected sample. And, this study considered the existence of such a relationship combined with environmental risk factors posed by personal substance use within a college setting and those posed by a positive history of familial substance abuse.

In 1994, Wechsler et al. published a landmark study wherein 140 colleges were surveyed for the purpose of examining the extent of college student drinking and the resulting health and behavioral consequences. The findings demonstrated that approximately 44% of college students were "binge" drinkers and 19% of those binge drinkers were considered "frequent" binge drinkers (Wechsler et al.). Weschler et al. maintained that binge drinkers were much more likely to experience serious health problems and other consequences. The report findings further indicated that 47% of the frequent binge drinkers did not regard their drinking as problematic (Wechsler et al.).

Another landmark study performed by Hingson et al. (2002) analyzed statistics gathered by three major national survey databanks. The survey databanks included the Substance Abuse and Mental Health Services Administration's (SAMHSA) National Household Survey on Drug Abuse (NHSDA), the CDC's National College Health Risk Behavior Survey (NCHRBS), and the Harvard School of Public Health's College Alcohol Survey (CAS). Findings for the study estimated that over 1,400 college students between the ages of 18 and 24, attending two and four-year institutions, died in 1998 from alcohol-related accidental injuries including motor vehicle crashes (Hingson et al.). In 1998, there were an estimated 500,000 alcohol-related unintentional injuries and 600,000 alcohol-related physical assaults for full-time college students attending four-year institutions (Hingson et al.). Of the eight million college students in the United States in 1998, two million were estimated to drive under the influence of alcohol and three million rode with someone who had been drinking (Hingson et al.).

Within the venue of campus life, alcohol has been identified as the major psychoactive drug of choice and it is well recognized for its potentially harmful effects to this population (O'Malley & Johnston, 2002). In addition to alcohol, college students engage in the less frequent use of other dangerous licit and illicit psychoactive substances. Drugs other than alcohol pose a threat to the overall health and safety of the student population as well. Other drugs identified by the NHSDA, NCHRBS, CAS, University of Michigan's Monitoring the Future (MTF), and Southern Illinois University's CORE Institute (CORE) studies were: nicotine, marijuana, and stimulants (O'Malley & Johnston).

In response to the nation's growing concern, the NIAAA launched a major initiative to alter drinking cultures at U.S. colleges in 2002. The NIAAA Task Force cited statistical findings from these landmark studies. The task force urged all universities and colleges to join forces in cooperation with an overarching national framework established to reduce high risk drinking among students (NIAAA). Strategies involving student motivation and cognitive-behavioral techniques, population-based social norming campaigns, and the adoption of changes to law enforcement, public regulation, alcohol retail, and campus policies were highlighted by the report (NIAAA).

In response to this federal initiative, university administrators, health educators, and prevention specialists around the country began to unify their efforts by instituting and further developing the recommendations of the NIAAA Task Force. Today, many universities and colleges have already launched large-scale programs targeted to prevent and/or modify alcohol behaviors amidst their student populations (Wechsler et al., 2000a). These recent efforts by college officials focus on improving the overall safety

and health needs of students via the introduction of social norming campaigns into the campus environment.

Social norming campaigns incorporate the use of strategies designed to influence students to choose behavioral patterns of healthy substance use by first uncovering exaggerated misperceptions students have of the drinking habits and behaviors of their peers, ultimately redefining campus drinking normative behaviors (Walters & Baer, 2006; Wechsler & Kuo, 2000). Social norming strategies also include awareness-raising campaigns designed to correct misperceptions about alcohol and to promote the responsible use of this substance.

The major goal of these campaigns is to promote harm reduction. Many campaigns encourage students to exercise moderation in drinking rather than abstinence. One example of this is seen in the "party smart" campaign which educates students about the hazards of binge drinking but does not encourage them to necessarily stop drinking (Polonec et al., 2006). The social norming campaigns are designed to precipitate a mass change in students' attitudes and perceptions about drinking (Polonec et al.; Wechsler & Kuo, 2000). The desired outcome of these campaigns is to strategically decrease the number of preventable, substance-related accidents, injuries, illnesses, and deaths incurred by college students each academic year.

Campus-based social norming campaigns are just one form of the many strategies recommended for implementation by the task force. A more recent approach demonstrating success in modifying student alcohol behavior is aided by the use of computer technology. Many electronically-based alcohol education and intervention programs have become commercially available which address the issues of high risk

drinking (Walters, Miller, & Chiauzzi, 2005). These programs provide personalized feedback to students regarding their substance use behaviors via the Internet (Walters et al.). The programs have been found to be very promising in demonstrating overall success to curbing alcohol risk behaviors (Walters et al.).

Another promising approach to changing the culture of high risk drinking includes reinforcing the use of consumptive protective strategies that college students employ when planning to drink alcohol. Strategies reported by students in the ACHA-NCHA data included: (1) eating before consuming alcohol, (2) alternating alcohol with non-alcoholic beverages, (3) pacing consumption of alcoholic beverages to one or fewer per hour, (4) avoiding drinking games, (5) setting limits in advance to plan the numbers of drinks consumed, (6) keeping track of the number of drinks consumed, (7) establishing a designated driver, (8) or choosing not to consume alcohol at all (ACHA, 2006).

Psychosocial Adaptation to Chronic Illness and Disability

Substance abuse is known to have detrimental effects for families. Substance abuse can prompt long lasting changes throughout family systems, affecting not one, but all members of a single family unit (Kosciulek, 2004a). Systemic changes elicit a shared adaptive response for families as a unit. As a part of the family circle, individual members respond by making a series of individual adjustments within the family context. Within the field of rehabilitation counseling, this process is described as the process of psychosocial adaptation to CID (Livneh, 2001).

The process of psychosocial adaptation to CID is much like the cycle of addiction which ebbs and flows in patterns of abstinence and relapse. The process of psychosocial adaptation is made over time through a series of ongoing responses and adjustments.

These responses and adjustments continue to influence college students even as they reside apart from family. The current study viewed psychosocial factors related with college and family life that lend themselves to this vital process of adaptation.

Substance abuse can function as the precipitating event to CID or as the response to other traumatic or life-altering circumstances (Graf, 2004) which have significant impact on the family. Developing children, adolescents, and young adults are particularly susceptible to the harmful effects of ATOD within the family unit. These effects may precipitate any number of responses including use, disuse, misuse, and abuse of substances.

Given that substance abuse is a familial condition, it is potentially passed from one generation to the next through any number of genetic, psychosocial, or environmental factors. For college students who have emerged from a familial background of substance abuse, the blend of these factors may facilitate the process of successful psychosocial adaptation in overcoming their family situations. This leads one to question what factors may play a role in this successful adaptation.

Resilience can play a significant role in a young person's psychosocial adaptation to stressful familial conditions caused by alcohol and drug abuse. Resilience may be the key factor in the process of psychosocial adaptation that families develop to safeguard their members from harmful and damaging situations. Resilience has been found to assist in preserving the integrity of family as a systemic unit by instilling positive changes or adjustments within the family where needed to continue to operate effectively (Walsh, 2002).

Resilience is not merely a personality characteristic or a trait (Schoon, 2006). Resilience is a process in itself, an adaptive response to situations in the face of adversity (Schoon; Walsh, 2002). The process of positive adaptation operates through three mechanisms identified as: (1) protective, (2) compensatory, or (3) the challenge model (Schoon). In particular, the challenge model states that the effects of protective processes are dependent upon the degree of the exposure to risk factors (Schoon). To better understand resilience, we must first consider some models of psychosocial adaptation.

The foundational model of psychosocial adaptation to CID within the field of rehabilitation counseling was theorized and developed by Hanoch Livneh (2001). Two essays served as major literary pieces that influenced his work in constructing this model (H. Livneh, personal communication, December 18, 2006). The essays were found to have particular importance in laying the groundwork for the current study.

The first essay was written by Schlossberg (1981). Schlossberg examined and borrowed ideas from other theorists in constructing an eclectic approach regarding the process of human adaptation to transition. This continuum of human adaptation and transition was presented in the context of non-linear and individualistic life growth processes. Schlossberg theorized that adaptation is a dynamic process of transition and reorganization that is dependent upon the act of balancing between one's resources and deficits. In the model, Schlossberg named three major sets of factors as determinants to one's movements through the phases of adaptation and transition: (1) the characteristics of the particular transition, (2) the characteristics of the transitioning individual, and (3) the pre and post-transitioning environments.

The conceptual components to Schlossberg's (1981) model provided significant support to the theoretical underpinnings of the present study. Three of the model's components reflected in the framework of this study are: (1) internal support systems of intimate relationships, (2) family unit, and (3) network of friends to pre and post-transitioning environments. Other typical characteristics mentioned by Schlossberg that lend themselves to the continuum of adaptation and transition and are emphasized within this study include: (1) psychosocial competence, and (2) health and value orientation. Schlossberg named additional transitional factors that were also relevant to the study and these are identified as: (1) role change, (2) degree of stress, and (3) timing of events. Ultimately, Schlossberg illustrated possible outcomes to the process of adaptation as: (1) a state of adaptation or (2) failure to adapt.

The second influential essay, written by Moos and Schaefer in 1984, envisioned maladaptation as a response to a set of crises resulting from the onset of physical illness. The authors posed three possible outcomes by individuals: (1) some learn to cope, (2) some experience psychological consequences, and (3) some gain a deeper and more meaningful appreciation of life (Moos & Schaefer). In their model, Moos and Schaefer consider personal factors, illness-related factors, and physical and social environmental factors as pre-determinants of the process in dealing with a physical crisis. The authors asserted that the process for determining the psychosocial outcome of the crisis was further determined by: (1) an individual's cognitive appraisal of the illness, (2) the necessary adaptive tasks they must perform, and (3) the coping skills they incorporate into the situation. Moos and Schaefer envisioned the major adaptive tasks as divided into into: (1) illness-related tasks and (2) general emotional, psychological, and relational

tasks. The authors further divided these tasks into major types of coping skills which are: (1) appraisal-focused, (2) problem-focused, and (3) emotion-focused.

Coping skills are particularly relevant to the current study. In understanding substance abuse as a maladaptive response to coping with CID, one must understand the types of coping skills one may possess or choose in response to a physical health crisis. The use of substances in one's life appears to typify a state of perpetual suffering (Lam, 2002) through the mechanisms of avoidance and denial rather than working toward the stages of acceptance, healing, and adaptation. This phenomenon is exemplified by the early work of Elisabeth Kübler-Ross (1969) in her depiction of loss as a transitional process represented by the five-stage process of grieving. Kübler-Ross identified the five stages as: (1) denial, (2) anger, (3) bargaining, (4) depression, and (5) acceptance. Progression through these stages is dependent upon each individual and their personal appraisal of and experiences with grief. Grief may cause some individuals to become absorbed into an ongoing state or chronicity of suffering over an indefinite period of time.

Kübler-Ross' (1969) groundbreaking theories regarding the transitional issues of death and dying, inspired the foundational work within the field of rehabilitation counseling in understanding the psychosocial reactions to CID. In 1990, Livneh and Antonak performed empirical testing on the reactions to disability. In 1991, Antonak and Livneh investigated hierarchical patterns of emotional reactions to disability. In 1998, Kendall and Buys expanded the rehabilitation concept of psychosocial adjustment to disability by incorporating the principles from recurrent models of psychosocial adjustment to stage models of psychosocial adjustment. This integrated approach

suggested that adjustment to disability is a continuous life transition rather than a gradual, linear process (Kendall & Buys).

In 2001, Livneh conceptualized the model of psychosocial adaptation to CID, incorporating ideas from the models of aforementioned theorists; Schlossberg (1981) and Moos and Schaefer (1984). Livneh envisioned three major phases in the process of psychosocial adaptation to CID which are: (1) antecedents, (2) process, and (3) outcomes. Livneh's Model described a complex and interactive process between three areas: (1) triggering events and contextual variables or antecedents, (2) experienced reactions and responses to the onset of CID and contextual influences or process, and (3) intrapersonal, interpersonal, and extrapersonal domains or outcomes which influence quality of life. In applying Livneh's Model to the current study, the antecedents are represented by familial substance abuse and the degree of familial risk factors, the process is represented by primary living situation and peer influences, and the outcome is represented by the degree of personal substance use in combination with college and cumulative grade point average.

More recent work on the topic of psychosocial adaptation to CID was contributed by Bishop in 2005. Bishop compared existing measures of quality of life and adaptation. Bishop found quality of life was positively correlated with adaptation to CID. Through this investigation, Bishop further postulated that satisfaction and perceived control serve as mediating factors to quality of life and adaptation. Bishop concluded that satisfaction within the context of family means different things depending on one's definition of domain.

Coping

Indeed, human beings are complex organisms and it is difficult, perhaps impossible, to ascertain whether substance abuse is the result of: (1) a disease process based on biological or genetic explanations, (2) a symptom of a characterological defect resulting from psychological conditions, or (3) a moral sin based on deteriorating sociological factors (Hanson et al., 2006; Peterson, Skinstead, & Trobliger, 2004). In other words, modern theorists argue that substance abuse can be a matter of genetics, moral conditions, or a volitional, maladaptive behavior that is otherwise deemed a "bad" choice (Hanson et al.; Peterson et al.).

Medical advances regarding the human genome are demonstrating more and more evidence that chemical addictions are genetically-based (Hardie, 2002; Schuckit, 1999). For individuals with genetic markers, substance dependency has been shown to have higher medical probability than for those without genetic markers (Hardie; Schuckit). Within the present study, it is important to differentiate substance abuse from chemical dependency. Substance abuse is characterized by excessive and maladaptive use of substances (Hanson et al., 2006). In contrast, substance dependence is marked by physical cravings and an uncontrollable desire or compulsion to abuse substances (Hanson et al.). Substance abuse, therefore, can be regarded as a performance-based behavior, maladaptive response, or poor coping strategy in reaction to chronic illness, disability, or other stress-inducing events (Beck & Franke, 1996; Livneh, 2001; Livneh & Wilson, 2003).

To expound on this point, coping strategies are not synonymous with the concept of psychosocial adaptation. Coping serves as a mediator to psychosocial adaptation

(Livneh, 2001). Coping strategies produce either favorable or less than favorable outcomes. However, this is highly individualized, unpredictable, and remains largely understood. In most cases, substance abuse is considered a poor or faulty adaptation response that does not lead to a series of adjustments or to psychosocial *bonadaptation* (Kosciulek, 2004a) as a favorable adaptation outcome. As a maladaptive coping strategy, substance abuse serves both as a predictor or a mediator of disability and psychosocial adaptation (Livneh & Wilson, 2003).

In the lives of many college students, "drinking to cope" with stress and problems is an accepted, daily occurrence (Park, Armell, & Tennen, 2004; Park & Levenson, 2002). And, engagement in the excessive use of substances is not only accepted, it depicts normative college behavior. And in many instances, the practice of imbibing in ATOD is done so not only in response to stress but as a celebration to a rite of passage or other event (Del Boca et al., 2004; Walters & Baer, 2006). For college students, milestones of achievement such as passing a major exam or winning a sports event deserve social celebration which may include the use of alcohol or other substances as *social lubricants* (Hanson et al., 2006), or perhaps more accurately termed, *social glue* (Lederman et al., 2003).

Britton (2004) analyzed key strategies college students employ to cope. These strategies fall into three categories: (1) emotion-focused, (2) problem-focused, or (3) avoidance coping. Interestingly, the author concluded that avoidance coping was not related to alcohol consumption within college samples but it was related to alcohol-related consequences (Britton). Britton suggested that college students' reliance upon

substances may increase deficits in adaptive coping and hence, adaptive coping may increase reliance upon substances. This pattern is reminiscent of a vicious cycle.

A recent study by Park and Levenson (2002) suggested that *drink to cope* by college students is employed as an avoidance-focused measure more often than emotion-focused or problem-focused measures. The authors noted that interpersonal variables make some students more vulnerable to drink, and yet other students who possess protective resources, to refrain from this practice. The study by Park and Levenson further revealed that college students who did not *drink to cope* demonstrated higher coping abilities and a negative correlation with alcohol-use variables. The researchers noted that coping ability in predicting monthly quantity, frequency, and heavy episodic drinking, was linked to higher alcohol consumption. And, Park and Levenson found that situational drinking to cope was a strong predictor for a variety of alcohol use indicators. With these surprising and contradictory results, the authors concluded that coping ability has multiple interactions with alcohol consumption (increased use or not) and this is explained by individuals who derive a sense of improved coping or increased self control.

Britton (2004) carried out a study which suggested that the tendency of college students to use substances to cope with stress may be a determinant regarding an individual's alcohol consumption and related consequences. Britton's results showed that a much, more complex relationship exists between coping and the frequency, quantity, and behavioral outcomes of drinking. Britton's study further validated the results of previous studies which established religious coping as a protective factor for coping through the use of substances.

Occupational Behavior and Temporal Adaptation

Two important concepts, occupational behavior and temporal adaptation, are akin to the processes of resilience and psychosocial adaptation. Occupational behavior is a biopsychosocial frame of reference within the field of occupational therapy introduced by Reilly (1962) who theorized active human engagement to affect three important areas of life which are: (1) work, (2) play, and (3) self-care (Reilly, 1962). Mention of these concepts is critical in linking the mind to the body regarding human adaptation. Reilly's theories also link the relationship of health to human adaptation (Miller & Walker, 1993). Three subsystems defined within this theoretical framework are: (1) volition, (2) habituation, and (3) performance as well as environmental influences (Miller & Walker). A contributing theme to the present study exists within the components of the volitional subsystem which are identified as a person's: (1) values, (2) interests, and (3) personal causation or beliefs about one's personal capacity or efficacy (Miller & Walker). Reilly articulated that human beings have a need to produce, create, master, and improve their environments through competence in achieving their daily occupations (Miller & Walker).

In 1977, Kielhofner advanced the Model of Human Occupation by promoting the concept of temporal adaptation. Kielhofner theorized that human beings learn to temporally adapt both psychosocially and biologically through three avenues which are: (1) awareness of one's own agenthood, (2) placement in time, and (3) conscious planning of action and these avenues are linked to a sense of purpose that is guided both by hindsight and foresight. Echoing Reilly, Kielhofner described health as experienced by

achieving a state of balance within the vital areas of human occupation and homeostasis as seen in the biological and psychosocial health of the human organism.

Resilience

Glicken (2006) consulted numerous sources and compiled a list of definitions for the term *resilience*. The four definitions that directly pertain to the current study are listed as follows:

> Gordon (1996) "Resilience is 'the ability to thrive, mature, and increase competence in the face of adverse circumstances'" (p. 4).
>
> Glick (1994) "'Resilience' is the ability to 'bounce back' from adversity, to overcome the negative influences that often block achievement" (p. 4-5).
>
> Henry (1999) "Resilience is 'the capacity for successful adaptation, positive functioning, or competence despite high risk, chronic stress, or prolonged or severe trauma'" (p. 5).
>
> Walsh (2003) "the concept of family resilience extends our understanding of healthy family functioning to situations of adversity. Although some families are shattered by crisis or chronic stresses, what is remarkable is that many others emerge strengthened and more resourceful" (p. 5).

It is important to recognize that resilience in overcoming the effects of alcohol and drug abuse is not synonymous with recovery (Bonanno, 2004). Resilience is a reflection of one's ability to maintain a level of homeostasis or equilibrium (Bonanno). This principle is applicable to both individuals and families. Other theorists have maintained that resilient individuals are characterized by *positive emotion granularity* during the coping process and positive emotions have distinct benefits in improving one's health (Tugade, Fredrickson, & Barrett, 2004). Further investigation into understanding resilience is important to health psychology in understanding the mind-body connection because a sense of resilience triggers strong physiological responses in protecting individuals against stressful stimuli (Tugade et al.).

The Resiliency Model, written by Richardson in 2002, is built upon the premise that individuals seek their comfort zone through a continual process of maintaining *biopsychospiritual homeostasis* or balance within mind-body-spirit. This state of balance represents the point at which individuals adapt physically, mentally, and spiritually to a set of circumstances whether good or bad (Richardson). Furthermore, resilience is viewed in the context of an ecosystem broken down into four subcomponents of: (1) individual factors, (2) family factors, (3) community factors, and (4) cultural or ethnic identity (Waller, 2001).

Within the ecological context of family, Walsh (2002) proposed that families faced with crisis, traumatic, or life-altering conditions undergo a process of rebalancing, adaptation, recovery, and growth through collaboration. This is a key concept to the field of rehabilitation counseling and theories which speak to families' capacities to endure the changes precipitated by any combination of conditions within the span of physical, mental, intellectual, emotional, and sensorial disorders. Families as social systems possess their own forms of resilience through the resources and coping methods they possess to overcome stress (Patterson, 2002). Family adaptation is dependent upon several factors including: (1) risk status, (2) risk exposure, (3) strengths status, (4) protective processes, (5) cohesiveness, (6) flexibility, (7) communication, and (8) making of meaning (Patterson).

One example of disability-specific family adaptation is seen in Kosciulek, McCubbin, and McCubbin's Resiliency Model of Family Stress, Adjustment, and Adaptation (Kosciulek, 2004a). The model depicts the dynamic process involving use of family resources in adjusting to the onset in a situation of family crisis that is precipitated

by a head-injury event sustained by one of its family members (Kosciulek). The model is important to mention in that it acknowledges that the quality of the family adaptation outcome is represented along a dynamic continuum of maladaption to "bonadaptation" (Kosciulek). The model implies that family resilience is a factor that aids adaptation to disability. Although the model was written specific to families who are impacted by closed-head injury disability, it provides a disability perspective and a foundation to be studied and expanded upon to serve other forms of disabilities such as substance abuse.

Risk Factors

Risk factors are represented by situations or characteristics that potentially lead to substance use or abuse and may compromise one's health, safety, and well-being. The study addressed two primary areas of risk factors: (1) familial risk factors and (2) personal risk factors.

Familial

Family systems theory (FST) is consistent to the general systems perspective whereby individual family members interact within a larger social system of family (Miller & Hester, 2003; Walsh, 2002). Families represent complex networks of relationships and interactions that encompass all of the intrapersonal and interpersonal possibilities among individuals and combinations of individuals within each family unit (Walsh). Our perception, or sense, of today's modern family was inspired by the early work of Margaret Mead and has evolved today to include a number of relationships that extend beyond genetic or blood-related ties (Mead & Heyman, 1965). A recent paper written by Barker and Hunt (2004) called for the need to expand our current conceptualizations of family within the alcohol and drug literature to focus upon more

accurate representations of family diversity. In keeping with the trends of contemporary life and a college student context, the definition of family used for the present study was expanded to include adoptive, step, or cohabitating family members and very close friends.

Family variations cover a wide range of structures, systems of communication, family management, and child management practices (Hanson et al., 2006). Family structures have been impacted by today's high rate of divorce and the blending and reconfiguration of families through remarriage, adoption, and shared living (Mead & Heyman, 1965). Kirby (2006) considered whether the initiation of alcohol during adolescence was impacted by families as they moved from single-parent to stepfamily status. Kirby found that children from divorced single-parent households moving to stepfamily status were more likely to show increased rates of alcohol use than children from unwed, single-parent households.

Parenting styles and perceived parental approval of drinking impact students' behaviors as well (Boyle & Boekeloo, 2006). In one study, Boyle and Boekeloo reported that 69% of college students said their parents would approve of them drinking upon occasion (Boyle & Boekeloo). The authors concluded that overt disapproval and perceived disapproval by parents may likely decrease drinking habits for some college students (Boyle & Boekeloo). In addition, families vary widely with respect to substance abuse patterns and patterns of coping (Karwacki & Bradley, 1996).

It was established early in this document that alcohol dependency runs in families (Barnes & Welte, 1990; Schuckit, 1999). However, having genetic relatives with alcohol problems does not predict alcohol use among college students (Alterman, Searles, &

Hall, 1989; Baer, 2002). It has been shown that college-aged sons of alcoholics are more likely than college-aged sons of non-alcoholics to develop alcoholism (Alterman et al.). However, patterns of drinking among college students were found to be uncorrelated to familial background of alcohol abuse (Engs, 1990).

A recent twins study found children of alcoholics (CoAs) exposed to paternal alcoholism during the first 12 years of their lives held significantly increased risks of developing alcohol abuse or dependency compared with children of nonalcoholic fathers (Duncan et al., 2006). The Duncan et al. study determined that CoAs who were not exposed to paternal alcoholism during the same time period, were no more likely to develop alcohol use disorders compared with controls. The Duncan et al. study postulated that shared family and rearing environments in alcoholic homes do not predict alcohol-use disorders because many other non-alcoholic homes share factors of child abuse, lower socioeconomic status, low performing schools, and poor neighborhoods.

Another study performed by Jung (1995) discovered that matched-drinking levels between child and parents demonstrated a correlation between males and the drinking patterns of either parent but did not find a relationship between females and either parent. Barnes and Welte (1990) suggested that parental drinking coupled with family structure are important factors for male and female drinking patterns.

A percentage of students display alcohol morbidity which extends beyond the excessive use of alcohol. College students with alcohol morbidity have been found to have comorbidity with depression or anxiety disorders (Hinz, 1990; Kushner & Sher, 1993). College students who display a positive history of familial alcoholism belong to a special category referred to as collegiate CoAs (Havey & Dodd, 1993; Perkins &

Berkowitz, 1991, Wright & Heppner, 1991). Our knowledge about this group is hampered by the fact that very little research has been done on collegiate CoAs as a group of students that have become academically successful despite the adverse effects of familial alcohol abuse (Perkins & Berkowitz). To elaborate, much of the writing on collegiate CoAs focuses on isolating risks or identifying particular problem behaviors and overlooks the strengths of resiliency as a specialized group (Keeling, 2000).

A population study reported by Dawson and Grant (1998) reported that saturation levels in the United States for adults age 18 and over are significant to those having reported one or more of their relatives as ever having been alcoholic. Of the 42,862 persons surveyed by the study, greater than 50% of the sample reported a positive family history of one or more of their relatives having ever been alcoholic (Dawson & Grant). Of that portion, 25% reported alcoholism in less than 10% of relatives, 20% in 10.0 to 24.9% of relatives, and 10% in 25% or more of their relatives. The Dawson and Grant findings indicated that around 50% reported a history in male relatives and 20% in female relatives. The same study demonstrated that familial transmission of alcoholism, with the chance of exhibiting alcohol dependence alone or with comorbid depression, increased proportionately with the reporting of first and second degree relatives with alcoholism. Finally, Dawson and Grant observed that the most common pattern of drinking among relatives was the exhibition of greater alcoholism by maternal female and paternal male relatives that was associated with greater dependence and depression compared with maternal male and paternal female relatives.

Perkins and Berkowitz (1991) noted that a further problem for collegiate CoAs is that few research efforts have been devoted to the transmission of alcohol problems

across multigenerations. Perkins and Berkowitz determined that in many ways college students with alcoholic parents or alcoholic grandparents were more likely to be problem drinkers than other students. The researchers concluded that students with combined parent and grandparent alcoholism were particularly affected.

A non-college specific study by Bierut et al. (1998) considered familial transmission of substance dependency. Bierut et al. established that dependence for alcohol, marijuana, and cocaine and habitual smoking is transmitted through families and each type of dependence is attributable to independent causative factors. Two other studies on non-college specific young adults performed by Chassin, Flora, and King (2004) and Zhou, King, and Chassin (2006) looked at relationships between family harmony and personality to familial transmission of alcoholism. One study concluded that families transmitting higher risks for alcohol and drug use was partially due to increased impulsivity, lowered emotionality, and lowered agreeableness (Chassin et al.). The other study concluded that harmonious family environments may serve as a protective factor against substance dependence (Zhou et al.).

College students who emanate from a dysfunctional family background have been shown to have increased substance use (Hall, 1997). A study performed by Fischer et al. (2000) compared collegiate CoAs with adult children from dysfunctional families in search of stress factors. The researchers discovered that dysfunction in the family of origin was a much stronger predictor of stress among college students than parental alcoholism (Fischer et al.). A study by Havey and Dodd (1993) considered the severity of problem drinking among collegiate CoAs and concluded that there was no relationship between CoA status and the probability for, or severity of, problematic drinking among

CoAs. Social nonconformity, or a tendency toward antisocial behavior, appeared to be the variable that was most consistently related with problem drinking (Havey & Dodd).

Personal

With regard to personal risk factors, the National Institute on Drug Abuse (NIDA) and the Office of Juvenile Justice and Delinquency Prevention funded a study to review the literature pertaining to risk and protective factors for ATOD from the period of adolescence to early adulthood (Hawkins, Catalano, & Miller, 1992). Although its focus was primarily on aspects of prevention, the authors provided an impressive compilation of literature on these topics and analyzed the studies for their significance and literary contributions. Hawkins et al. concluded that most research efforts focused on subsets of risks and were inconclusive in determining any of the following three things: (1) which risk factors are related to the etiologies of substance abuse, (2) which ones are considered the most critical, and (3) which ones can be modified to produce a more favorable outcome. Hawkins et al. identified 17 risk factors from the literature. These risk factors are divided into social factors and individual factors. The factors are listed as follows:

Social and Cultural Contextual Risk Factors

(1) Laws and norms favorable toward behavior

(2) Availability

(3) Extreme economic deprivation

(4) Neighborhood disorganization

Individual and Interpersonal Risk Factors

(5) Physiological factors

(6) Family alcohol and drug behavior and attitudes

(7) Poor and inconsistent family management practices

(8) Family conflict

(9) Low bonding to family

(10) Early and persistent problem behaviors

(11) Academic failure

(12) Low degree of commitment to school

(13) Peer rejection in elementary grades

(14) Association with drug-using peers

(15) Alienation and rebelliousness

(16) Attitudes favorable to drug use

(17) Early onset of drug use

The compilation of literature by Hawkins et al. (1992), clearly established that interpersonal risk factors and reasons for variations among adult substance users have received considerable attention in the literature. The need to focus increased research efforts on environmental and social contexts including family design, family cohesion, style of parenting, gender-matching, bi-directional use patterns, child and adolescent development, self-esteem, and impulsivity as moderating and mediating factors of substance abuse has been strongly recommended by numerous authors (Bijttebier, Goethals, & Ansoms, 2006; Chassin & Handley, 2006; Fromme, 2006; Patock-Peckham & Morgan-Lopez, 2006; van der Vorst, Engels, Meeus, Dekovic', & Vermulst 2006a; van der Vorst, Engels, Meeus, Dekovic', & Vermulst 2006b).

According to Hanson et al. (2006) engagement in the use of substances varies according to one's mindset and setting in which the activity takes place. A good example

of this was shared by Harford, Wechsler, and Seibring (2002) in a study that considered select settings and the proportion of heavy drinking within each setting. Harford et al. reported the proportion of heavy drinking by setting to include: fraternity parties (49%), off-campus parties (46%), dormitory parties (40%), and off-campus bars (37%). The findings suggested that increased interventions to reshape social drinking per environments should be implemented (Harford et al.).

One such intervention is teaching students how to calculate their personal rate for metabolizing and eliminating alcohol safely from their bodies. This is accomplished by teaching students how to estimate their blood alcohol content (BAC) levels for the number of drinks they consume over a specified period of time. To calculate BAC, students must be taught how to account for relative differences such as: (1) gender, (2) body weight, (3) drinking rate, and (4) tolerance (Walters & Baer, 2006). This type of intervention can help reshape the drinking culture by informing students how to consume alcohol within safe levels appropriate to their characteristics as individuals.

Gender is the best predictor for alcohol consumption among the college population and females have been shown to drink in lower quantities and with less frequency than their male counterparts (Chen et al., 2004-2005; Jackson et al., 2005; Nolen-Hoeksema, 2004; O'Malley & Johnston, 2002; Weschler, Dowdall, Davenport, & Rimm, 1995). This difference between females and males is based upon several factors including women: (1) display a greater sensitivity to alcohol, (2) suffer from more alcohol-related illnesses, (3) show greater cognitive and motor difficulties with ingestion, and (4) are potentially impacted by reproductive health consequences, sexual or physical

assault, and risky sexual behavior (Nolen-Hoeksema). Males are more likely to engage in the use of alcohol due to their display of: (1) personality traits of aggressiveness, (2) low impulse control, (3) sensation-seeking behavior, and (4) positive expectancies of alcohol use, all accompanied by (5) the social sanctions awarded for drinking (Nolen-Hoeksema).

Individuals, in and of themselves, are regarded as complex agents. In considering an individual's engagement in the use of substances, multiple risk factors need to be considered which are important to acknowledging the unique and distinct characteristics of people. These factors include cultural orientation and psychological characteristics identified as: (1) stress and coping resources, (2) locus of control, (3) levels of extroversion, (4) impulsivity, (5) depression, (6) anxiety, and (7) perceptions regarding the normative use and trends of alcohol and drug use among college students (Baer, 2002).

Recent attention in preventing and moderating the alcohol use habits of college students has focused on dose-response as a more individualized and accurate method of assessing the risks and consequences for individuals within this population (Gruenewald, Johnson, Light, Lipton, & Saltz, 2003). The dose-response method entails looking at the amounts of alcohol ingested by individuals on each drinking occasion combined with the individualized risk and exposure factors for these individuals (Gruenewald et al.). Gruenewald et al. asserted that using the dose-response method in calculating risks for specific problem behaviors would avoid the inaccuracies posed by skewed data resulting from a standardized scale of binge drinking for all students. Gruenewald et al. contended

that alcohol-related problems that result from moderate drinking are overlooked within the current methodology.

Protective Factors

Protective factors are characteristics or processes that guard against the use or abuse of substances and function to preserve one's health, safety, and well-being. Protective factors stem from within the family as a unit, amidst an atmosphere of increased parental monitoring (Hardie, 2002; White et al., 2006). Protective factors also arise from within individuals. Individuals who show increased intrinsic spirituality display increased health status and increased protective factors which guard against substance use (Larson & Larson, 2003; Williams, Reed, Nelson, & Brose, 2002; White et al.). Furthermore, it has been demonstrated that the absence of sensation-seeking qualities within individuals serves as a protective factor against substance use (White et al.).

Jessor, Costa, Krueger, and Turbin (2006) suggested the use of a psychosocial and behavioral risk-protection model as a means to explain individual variations in heavy, episodic drinking amongst college students. Jessor et al. suggested that the higher the risk and the less the protective factors, the higher the incidence of heavy episodic drinking. The same authors suggested that protective factors moderate the potential for heavy, episodic use of alcohol among college students.

It is important to differentiate between protective strategies and protective factors. Protective strategies employed by college students to reduce drinking have been shown to be more effective amongst females than males (Benton et al., 2004). Benton et al. advocated that the most obvious and effective protective strategy that students can use is

to drink less. The authors claimed that the best predictor for males to experience alcohol-related consequences is by the number of drinks they consume. However, it is important to add the merit of consumptive protective strategies (ACHA, 2006), mentioned earlier in this chapter, to the growing list of protective strategies.

In contrast, protective factors serve to buffer the risks and effects of substance abuse. In 1992, the Hawkins et al. grant-funded research project addressed protective factors. In the report, Hawkins et al. referred to an article written by Rutter in 1995 that described protective factors as having "interactive processes" or the capacity to stimulate multiple interactions or synergistic effects that reduce risk and enhance mediating effects of substance abuse. Hawkins et al. cited a study by Brook, Brook, Gordon, Whiteman, and Cohen in 1990 which described two protective mechanisms that reduce the risk factors for adolescent substance users: (1) risk/protective and (2) protective/protective. The "risk/protective" mechanism was defined as the presence of protective factors which moderate exposure to risk factors for substance abuse. The "protective/protective" mechanism was defined as one protective factor serves to strengthen or potentiate the effect of another protective factor.

Health Values

As mentioned above, occupational therapists have linked health to human adaptation (Miller & Walker, 1993). And, the provision of holistic services is an important philosophy currently highlighted within both the rehabilitation counseling and occupational therapy professions. The aim to provide services which address the needs of the "whole" person is a key goal to serving individuals with disabilities. For this reason, it is important to integrate holistic health approach into research that is conducted.

To compliment this holistic perspective, the current study was constructed to measure the comprehensive subjective well-being of individuals. Two existing instruments were carefully selected and combined to represent a holistic view of the total human experience. The goal of the first-selected instrument was intended to measure health values by quantifying the degree of physical and mental health or well-being displayed by individuals within the sample. The goal of the second-selected instrument was intended to measure and quantify the degree of spiritual health or well-being displayed by individuals within the sample.

The present study echoes the work of Schoon (2006) in gauging the interconnectedness of individuals by their multiple domains or spheres of influence. To apply the concept, this study considered three major spheres: (1) the college student, (2) the college student's family, and (3) the college community. The present study was intended to portray health as a state of wellness within and among an individual's own spherical experience with self and the essence of his or her mind-body-spirit connection. Holistic health is the reflection of balance or well-being within an individual's physical, mental, and spiritual dimensions (Adams, Bezner, Drabbs, Zambarano, & Steinhardt, 2000; Williams et al., 2002).

In 1977 Engel expanded the concept of dualism within medicine by introducing the Biopsychosocial Model which shifted our views of the human dimensions of mind and body to include interactions in a dynamic, and changing environment (Borrell-Carrio', Suchman, & Epstein, 2004). Today, this model has evolved our thoughts of causality into an even more holistic view of the human experience that extends beyond linear processes involving multiple factors to a more useful and appropriate model of

complexity science (Borrell-Carrio' et al.). Further innovations in integrative medicine (Weil, 2000) and quantum healing (Chopra, 1989) have allowed us to expand our thinking to include interactions with invisible forces of healing and transforming energies (Trieschmann, 2001). We are challenged to view the process of healing from a more comprehensive and holistic view of human beings as collective sources of mind-body-spirit energy (Chopra; Weil) that interact within the natural world and our encompassing social spheres. This paradigmatic shift is observed by our recent inclusion of spiritual (Riley et al.,1998) and cultural factors (Hasnain, Sotnki, & Ghiloni, 2003; Swartz-Kulstad & Martin Jr., 1999) into the medical treatment and rehabilitative plans of patients and clients who are in a state of healing and recovery from CID and for those who are receiving palliative care (Lam, 2002). This mind-body-spirit approach to healing and medicine has evolved into what is known as the *biopsychospiritual* approach.

As an added dimension, "spirituality is a significant part of a holistic approach to health (Sherman & Fischer, 2002, p. 27). According to Wright (2005), "...spirituality is a part of health, not peripheral but core and central to it...Spirituality and health are bonded to each other, inseparable companions"...(p. 15). Our health is a desire to be whole and we wish this not only for ourselves but for others around us (Wright). And, since "spirit" has been identified as the core component to holism and health, it is appropriate that we should refer to this connection by placing spirit first in the phrase which interconnects all human dimensions by referring to it as the *spirit-mind-body* connection.

As a construct within a college population, well-being is considered a protective factor against drug use during times of stress (Hall, 1997; Lanier, Nicholson, & Duncan,

2001). Lanier et al. revealed that health behaviors of engaging in the use of drugs and alcohol recreationally were associated to general well-being. Lanier et al. found that students who drank three or four drinks per week scored lower on general well being scales than students who drank only two drinks per week. Conversely, Lanier et al. discovered that students who drank between eight and fifteen drinks per week increased in general well being. The authors were unable to explain these differences.

Although the quest to study health protective behaviors has been around for some time, theories about health behaviors are in a period of infancy (Harris & Guten, 1979; Noar & Zimmerman, 2005). It remains questionable as to how much is truly understood about the theory of health (Harris & Guten; Noar & Zimmerman). Little hard-based evidence has been produced to confirm or deny current theories regarding the inner processes which lead to a state of health and wellness. It has long been recognized that responses to health vary among individuals in relation to their personally held values and beliefs (Harris & Guten).

In studying health protective behaviors, Weiss, Larsen, and Baker (1996) showed that among college students, gender, health value, and effort to change health behaviors were the most direct and powerful predictors of health protection behaviors. Parental and peer influences maintained a more indirect influence on students' health values and effort to change (Weiss et al.). However, a model referred to as the *windows of vulnerability* appears to possess significant value in explaining the influences that modify health beliefs and health behaviors instilled in college students by their parents (Lau, Quadrel, & Hartman, 1990). This model suggested that grown children exiting the family home to attend college represents one of three vulnerable periods during the lifespan when

parental influences are challenged and overridden by exposure to differing social values and behavioral models regarding health (Lau et al.).

Spiritual Well-Being

Spirituality is a latent construct which bears a longstanding and intertwining relationship with religion (MacKinnon, 2004; Piedmont, 2004; Wright, 2005). Recently, theorists have been working to operationally define spirituality apart from religion, to provide it its own distinction, and to develop its own assessments (Miller & Thoresen, 2003; Thoresen & Harris, 2002; Thoresen, 1999). Alongside, there have been efforts to demonstrate that spirituality and spiritual well-being lead to improved health and increased resilience (MacKinnon; Thoresen & Harris). The present study stands apart from many previous ones in that it focused upon spiritual well-being rather than an interpretation of the differences between religion and spirituality.

Spiritual well-being is contextualized within the philosophical notion of health and holistic health (Riley et al., 1998). Spirituality improves one's lifestyle, promotes social integration, increases one's self-esteem and self-efficacy, promotes coping resources, instills positive emotions, and reinforces health beliefs (Ellison & Levin, 1998). George, Larson, Koenig, and McCullough (2000) listed three mechanisms in which religion (spirituality) appears to be related to health: (1) health behaviors are effected through prohibition of alcohol, drugs, and engagement in other risk behaviors, (2) there is increased social support through promotion of close social bonds outside the family, and (3) meaning is found through suffering.

The latter mechanism is referred to as the *coherence hypothesis* which states that religion (spirituality) "benefits health by providing a sense of coherence and meaning so

that people understand their role in the universe, the purpose of life, and develop the courage to endure suffering...One of the central components of this hypothesis is that people suffer mightily, yet minimize the risk of that suffering for health and well-being if they find meaning in that suffering" (George et al., p. 111). The effects explained by the coherence hypothesis, sense of meaning and purpose in one's life, contribute to enhanced resilience (Glicken, 2006).

Through coping, spirituality (religion) serves to buffer against alcohol and drug use (Britton, 2004; Larson & Larson, 2003). Spirituality holds the potential to: (1) enhance pain management, (2) improve outcomes of medical procedures, (3) protect against depression and suicide, and (4) reduce the risk of substance abuse (Larson & Larson). Spiritual practices such as meditation have been shown to stimulate physiological responses that protect against disease and facilitate healing (Powell, Shahabi, & Thoresen, 2003; Seeman, Dubin, & Seeman, 2003). Gall et al. (2005) offered a framework for spiritual coping. Gall et al.'s model integrated spirituality and coping with health. The outcome of spiritual coping is in the making of meaning which ultimately results in a balance of emotional, social, physical, and spiritual well-being (Gall et al.).

Spirituality has a long-standing place of recognition within the field of substance abuse, particularly with regard to recovery (Britton, 2004; MacKinnon, 2004; Miller, 1998, Piedmont, 2004; Sherman & Fischer, 2002). In the 1970s, the founders of Alcoholics Anonymous adopted the view of alcoholism as a "disease of the spirit" acknowledging that overcoming the grips of this powerful addiction requires the assistance and intervention of one's Higher Power (Alcoholics Anonymous World

Services Inc., 2001; Britton; Glicken, 2006; Peterson et al., 2004). And, the definition of Higher Power is left to the individual to ascribe his or her personal meaning to (Alcoholics Anonymous World Services Inc.).

Although spirituality is readily accepted as a significant factor in the treatment and recovery aspects of substance abuse and dependency, there have been few studies to provide evidence as to how spirituality serves as a transforming agent. One study, performed by Sherman and Fischer (2002) found that the longer the period of abstinence from chemicals, the greater individuals increased in spirituality. Sherman and Fischer reached the conclusion that addiction leads to isolation and maintained sobriety leads one back to a social community thereby, enhancing one's ability to cope and adapt to a lifestyle of recovery.

Spirituality has been linked to decreased substance abuse and dependency (Miller, 1998). Sparse research has been devoted to the association between spirituality and addiction and we have much to learn about this relationship (MacKinnon, 2004; Miller). Likewise, little evidence has been gathered to demonstrate spirituality as a causative factor to recovery (Miller). However, it has been observed that the presence of spirituality is linked to a lowered risk for ATOD (Galen & Rogers, 2004; MacKinnon; Miller).

For the college population specifically, Stewart (2001) concluded that spirituality had a moderate buffering effect on the use of certain substances but did not appear to buffer the use of cocaine, LSD, or Ecstasy. Stewart noted that the influence of spirituality appears to taper off as students move through their college careers and gain independence. Galen and Rogers (2004) concluded that presence of religiosity-

spirituality may not only reduce consumption of alcohol for college students but may have an indirect and negative influence on their expectations and motivations to drink.

Spiritual well-being has also been tested as a construct within research that focuses on quality of life and life satisfaction (Riley et al., 1998). In particular, well-being is noted to be related to psychosocial adjustment of persons recovering from CID and study efforts have been devoted to creating models and measures for multidimensional well-being (Bishop, 2005; Landis, 1995; Ng, Yau, Chan, Chan, & Ho, 2005; Riley et al.; Ross, 1995).

In looking at the spiritual and psychological dimensions within a college population, life purpose, optimism, and sense of coherence were found to contribute to a state of wellness (Adams et al., 2000). One study performed by Hall (1997) demonstrated that college students who did not come from a family of substance abuse displayed higher self-perceived well-being than college students who did. In a similar study performed on high school students, Sundararajan-Reddy (2005) found that meaning or purpose of life contributed to resilience in overcoming stressful situations. The same author found that sense of coherence predicted resilience better than spiritual well-being but suggested that certain spiritual beliefs may contribute more strongly to resilience for some individuals.

Other Factors

Campus environments are complex networks which are in a constant state of flux due to a continual incoming and outpouring of college students each academic year. This complexity leads to an increased difficulty in understanding the vast array of contextual interactions between individuals and their environments (Presley et al., 2002). Campus

cultures vary from one institution to another depending upon the size, geographic location, reputation, academic programming, and other key factors. However, most studies that have gathered statistics have taken a cross section of the population of students from various institutions and have not focused upon inter-campus differences (Jackson et al., 2005).

Senchak et al. (1998), considered the social context of drinking among college students in large and small groups of mixed sex or same sex individuals, romantic relationship, and solitary drinking. The results of this study showed that males are more likely to drink in small, same-sex groups and females are more likely to drink in small, mixed-sex groups. Both males and females were equally likely to drink in large, mixed groups (Senchak, et al.).

Primary Living Situation

Primary living situation has been shown to be a predictor for alcohol and drug consumption amongst college students (Gfroerer et al., 1997; Harford & Muthen, 2001; Page & O'Hearty, 2006; Presley et al., 2002). It has been suggested that more research be focused on examining the relationships between college students and institutions (Presley et al.). With regard to living situation, students residing in fraternity or sorority housing present higher indexes of drinking compared to dormitory living (Harford & Muthen; Presley et al.). However, students with a prior history of problem behaviors rated more highly on drinking measures aside from high-risk exposures posed by residence (Harford & Muthen). College students living in independent housing, whether dormitory or apartments, demonstrated higher consumption levels of alcohol compared to those residing at home (Harford & Muthen).

Another study utilizing the NHSDA databank, compared college students with same age non-college students (including high school dropouts) for usage levels of marijuana, cocaine, cigarettes, and alcohol (Gfroerer et al., 1997). The Gfroerer et al. study considered the influences of living at home with parents or away from home for both groups. A large amount of variation was noted, however marijuana and cocaine use overall was three times greater for this group (17 to 22 years of age) than for other age groups and cigarette and alcohol use was highest among college students living away from home. Gfroerer et al. suggested that higher marijuana use by college students is explained by increased availability of this substance.

A study by Page and O'Hegarty (2006) specifically compared type of student residences as a factor in alcohol consumption. The residence categories for Page and O'Hegarty's study were fraternities, sororities, residence halls, or apartment complexes. The authors drew clear indications that risks for heavy drinking and related problems were highest among students living in fraternity or sorority housing. The authors reported that members in fraternities said they spent an average of 10.90 hours per week, consuming an average of 12.03 drinks while engaged in the act of "partying".

A significant risk factor for college students is the student's peer cohort or social network (Dorsey et al., 1999). For young adults, peer and social influences are very real and close friendships are critically important (Schlossberg, 1981). The single best predictor of alcohol use for college students is found with individuals who engage in cohesive social networks through memberships in fraternities or sororities and for those who reside in Greek housing units (Dorsey et al.; Presley et al., 2002). Powerfully

influential social networks are characterized by adherence to the values, norms, and expectations that have been held by an organization over time (Dorsey et al.).

Peer influence has also been shown to have mediating effects of alcohol use and sensation-seeking behaviors by college students (Yanovitzky, 2006). Sensation-seeking individuals not only derive stimulation from personal use and abuse of alcohol, individuals with this personality trait tend to motivate high sensation-seeking users to associate more frequently with peers who use alcohol and to promote more exaggerated misperceptions of drinking (Yanovitzky).

To add to this effect, risky and wildly spontaneous behaviors resulting from unrestrained consumption of ATOD are oftentimes reinforced and perpetuated from one generation of students to the next (Dorsey, et al., 1999). As mentioned previously, this reinforces the need to alter the misperceptions college students have regarding the exaggeration of drinking behaviors on campuses as an avenue to modifying the overall behaviors of student populations (Presley et al., 2002; Yanovitzky, 2006). In addition, advancements in understanding the influences of drinking motivations and outcome expectancies are needed (Baer, 2006; Presley et al.).

For now, these risks and dangers are deemed potentially serious and more research is needed to investigate how the interaction of alcohol and sensation-seeking influences may inflate the occurrences of sexual assault, unprotected sex, property damage, or other spontaneous acts of violence (Dorsey, et al., 1999; Perkins, 2002; Yankovitzky, 2006). Research is further warranted to determine the level of tolerance surrounding communities have for increased drinking coupled with alcohol-related consequences (Presley et al, 2002).

Cumulative Grade Point Average

Alcohol-related behaviors such as missing a class, performing poorly on a test, and turning in late work are possible scenarios caused by high risk drinking. However, studies conflict with regard to the effect of these behaviors on cumulative grade point averages of college students (Hinz, 1990). In a study by Paschall and Freisthler (2003), the authors concluded that heavy alcohol use and related problems did not have a significant impact on college academic performance (Paschall & Freisthler). In another study (Hinz), collegiate CoAs did not differ from their non-CoA collegiate counterparts in academic skills.

These mixed findings may be indicative of psychological resilience within the collegiate CoA sample or it may be more accurately interpreted as psychological distance created by overachieving measures that CoAs use to avoid failure (Hinz, 1990). Nevertheless, individuals facing high risks must choose their pathways to resilience among choices which seem to be limited or constrained (Schoon, 2006).

Individuals with a family history of alcoholism are noted to have more academic problems at every educational level (Jackson et al., 2005). Academic problems and interfering alcohol issues compromise these individuals' goals for pursuing higher education making them less likely to go on to college (Jackson et al.). College students from families of substance abuse are aimed at becoming high academic achievers by the theory that excelling in studies is a method of increasing one's self-esteem within a challenging environment (Hinz, 1990).

From a developmental perspective, young adults are focused upon fulfilling the roles and responsibilities of educational and occupational attainment (Wood, Sher, &

McGowan, 2000). A study by Wood et al. demonstrated a small significance between the presence of alcohol abuse and educational attainment. Wood et al. reported that past research has determined that academic aptitude and intelligence factors are not predictors for educational attainment.

The level of meaning and competence college students assigned to pursuance of daily life goals has been shown to be related to risky drinking behavior (Palfai & Weafer, 2006; Karwacki & Bradley, 1996). Palfai and Weafer showed that students with decreased meaning in life goals engaged in binge and frequent heavy drinking more often and reported higher alcohol-related consequences. Furthermore, Palfai and Weafer found that students who identified more achievement-related goals consistent to academic achievement were less likely to engage in problematic substance use behavior. Finally, Palfai and Weafer asserted that goal constructs may prove useful in understanding individuals' behaviors of self-regulation in order to motivate developmental changes delivered through ATOD intervention strategies.

Summary

In summary, the literature clearly addresses numerous topics relevant to this study. However, no research studies were located that address inquiries regarding the influences that protective factors of health values and spiritual well-being may have on the process of resilience and the ultimate psychosocial adaptation of college students and their families who are affected by substance abuse as a CID. The results of this study suggest important conclusions that are critical to our understanding of familial substance abuse as a CID.

The information derived from this review of the literature spans the collective research efforts put forth by several disciplines. This expansive search of the literature was necessary in gathering the comprehensive evidence needed to support the quest for answers regarding key factors that promote successful psychosocial adaptation and holistic well-being of college students as they overcome the odds and gain access to academic and vocational opportunities afforded them by a college education.

CHAPTER III

Method

The present study involved collection of data via a web-based survey using a sample of college undergraduate students. The study examined relationships between the protective factors of health values, spiritual well-being, and resilience within the sample. In addition to these protective factors, the study considered risk factors for personal substance use and familial substance abuse. Relationships were examined between the degrees of risk posed by personal substance use within a college environment and the presence of protective factors of health values and spiritual well-being to the process of resilience. Relationships were examined between the degrees of risk posed to individuals by adverse circumstances involving past or present familial substance abuse and the presence of protective factors of health values and spiritual well-being to the process of resilience.

Differences in degrees of health values, spiritual well-being, and resilience were also examined among participants reporting negative indicators for a familial background of substance abuse and participants reporting positive indicators for a familial background of substance abuse. Among those reporting positive indicators for familial substance abuse, differences were examined among participants reporting a familial background of primarily genetic (blood) relatives and participants reporting primarily non-genetic (non-blood) relatives.

Participants

A purposive sample of undergraduate students was selected for this study. The sample was drawn from a group of students enrolled in an introductory, substance abuse

course at a major Midwestern university during Spring semester 2007. All students enrolled within the eleven section offerings for the course were invited to participate in the study. A total sample size of 266 was possible based upon student enrollment for the course following the Registrar's period for drops and adds. The general capacity for the course was 25 students per section or a total course enrollment of 275 students.

Based upon power calculations, complexity of the constructs being investigated, and quality of the instruments utilized, it was estimated that approximately 275 participants were needed to demonstrate differences in comparing groups. Tabachnick and Fidell (2001) stipulated that "A higher cases-to-IV ratio is needed when the DV is skewed, a small effect size is anticipated, or substantial measurement error is expected from less than reliable variables" (p. 117).

The majority of students within the course ranged from 18 to 24 years of age and held undergraduate status within the university at the time of invitation. Students were advised that they must meet minimum eligibility requirements of 18 years of age to participate in the study. Later in the study, as data were gathered, it was determined that all participants within the sample met the minimum age requirements.

Regarding the sample, it was conceivable that some students may be non-traditional and some may be married with grown children. It was preconceived that most students would range from first-year to fifth-year undergraduate status and some may hold graduate status within the university. It was projected that the prospective student sample would likely represent a variety of cultures and may include a few international students.

The students were expected to stem from a variety of academic programs within the university, covering a broad range of fields of study. This was typical for past student enrollment in the introductory, substance abuse course. Data, in relation to academic programming, were not gathered. It was also preconceived that a majority of students would be taking the course as an academic elective or as a part of a cognate rather than as a program requirement. Only a few programs in the past have required students to enroll in CEP 261. These programs have included nursing, family and child ecology, and health studies programs.

Students enrolled in CEP 261 each semester are exposed to substance abuse content which meets typical standards for a 200-level introductory course. Eleven sections were offered each fall and spring semester. Students enrolled in all sections utilized the same textbook and were exposed to uniform course objectives and major course topics.

At the time of this study, nine doctoral-level teaching assistants were assigned to teach the eleven sections of the course. Teaching assistants were responsible to independently create course syllabi and course schedules for their respective section/s. Each teaching assistant was assigned to teach either one or two sections of the course per semester. The teaching assistants performed their teaching roles under the supervision of a faculty professor who was deemed the primary investigator to this research project.

Over the past three years, the researcher for this study performed the functions and duties of a teaching assistant duties for eleven, independent, sections offerings for this course. This first-hand experience provided a unique opportunity to observe that students who enrolled in the course presented with positive indicators for past or present

exposures to familial substance abuse. In particular, two frequently recurring themes were noted: (1) students expressed a desire to gain greater understanding into the effects of substance abuse and, (2) students expressed a desire to learn acceptable methods to assist their family members and friends who were affected by the negative effects of substance abuse.

Given these observations, significant curiosity was sparked to launch an investigative pursuit into the relationship that past or present issues of familial substance abuse may have to the degree of health values, spiritual well-being, and process of resilience which have been empirically shown to serve as protective and adaptive factors against personal substance use. It was espoused that the degree and impact of psychological resilience, in conjunction with increased degrees of health values and spiritual well-being, would serve as key factors to improved psychosocial adaptation of these young adults in overcoming their social and environmental risk factors.

Protection of Human Participants

The design of the web-based survey gathered students' reporting of sensitive data regarding their personal substance use habits and indicators pertaining to the absence or presence of familial substance abuse patterns. Such information was regarded as highly sensitive. To reduce the potential risks for students in reporting sensitive data, the study was designed to maintain anonymity of all participants. Students interested in completing the survey were directed to connect to an Internet website to enter their individual responses. Internet settings for the survey did not track the Internet Provider (IP) addresses of participants. This procedure supported the anonymity of the study by ensuring the inability of identifying participants and no attempts were made to do so.

Once student responses were gathered, all data were encoded within the statistical software to further assure the anonymity of all participants.

All communications with prospective participants were initiated for one of two purposes: (1) recruitment of participants and (2) reply to student inquiries. Recruitment was carried out during face-to-face classroom visits and through electronic messages sent via the University's course management 2006 version 6.3 software, "A New Global Environment for Learning" (ANGEL) system. Invitational and reminder messages were routed to collective groups of students, rather than individuals, utilizing the course professor's ANGEL mail account.

Electronic storage of data included the use of a free-standing personal computer (PC), a personal laptop computer, and a flash drive. The main workstation for data analysis was maintained at the researcher's home. During data analysis, data files were transported via laptop or flash drive to campus locations. Although risks were minimal, precautions were taken to reduce computer theft by maintaining computers and files in locked vehicles or within locked cabinets on locked premises.

The computers used for the study were password protected and were not connected to a shared network of computers. Neither computer included multi-user functions. Internet access for these computers was maintained through a Data Systems Line (DSL), high-speed Internet connection. Computers used for the study, were protected by recent firewall and spyware programs to reduce the risk of Internet intrusion. The web-based survey was established using Zoomerang zPro, professional web-based survey software, marketed and sold by Market Tools, Inc. (2000).

Use of the Internet for data collection posed minimal risks to participants. Although remote, these risks included the possibility of "lurking" along the Internet by unauthorized persons who might detect survey responses at the exact moment of transmission along the World Wide Web. The probability for this occurrence was determined to be minimal and the magnitude of harm to participants was also determined to be minimal. The most serious threats posed by Internet lurking pertained to the potential harm students might incur as they reported illicit or illegal use of substances. This would include the reporting of underage drinking for students not having attained this state's legal drinking age of 21 and for those who may have engaged in the improper or non-prescribed use of legal or illegal substances. As mentioned above, there were no attempts to collect the IP addresses for participants and no effort was made to identify students based on the responses received.

Research Design

The study was designed using quantitative research methods and involved self-administration of a web-based survey using a sample of college students. It is should be clearly stated that the design did not incorporate a random sampling of college students. Therefore, the results from this study should not be broadly generalized to the larger population of college students. Sample selection was based upon classroom experiences in teaching the introductory substance abuse course and the hunch that students within the selected sample would display the unique characteristics the survey was designed to measure. It was strongly perceived that the sample of students selected for study would exhibit positive indicators for backgrounds of familial substance abuse. The overall

study was exploratory in design and was intended to provide descriptive data regarding this sample of interest.

Instruments

A series of self-reporting measures were selected to design and build the content for the web-based survey. Careful consideration was given to the sequencing of survey items to provide clear directions in soliciting the most accurate information from participants as they took the survey. The survey included three well-established attitude scales, two screening measures for alcohol and drug use, and three constructed areas of self-reported information including: demographic, personal drug use, and familial substance abuse. The combined questionnaire consisted of a total of 64 items. The survey items were grouped according to the following sections and within the order of items as they appear below:

- Brief Demographic Questionnaire – 6 items
- modified HAV – Health-As-A-Value – 4 items
- SIWB – Spirituality Index of Well-Being – 12 items
- RS-15 – Resilience Scale – 15 items
- Personal Drug Use Information – 2 items
- DAST-10 – Drug Abuse Screening Test – 10 items
- AUDIT – Alcohol Use Disorders Identification Test – 10 items
- Family Substance Abuse Information – 5 items

The *Brief Demographic Questionnaire* consists of six demographic questions that served to describe the characteristics of individuals within the sample (see Appendix H). Specific items included participants': (1) sex, (2) age, (3) academic rank, (4) race,

(5) cumulative grade point average, and (6) primary living situation. Categories for academic rank and race were derived from the ACHA-NCHA surveys (ACHA, 2006). Categories for the cumulative grade point average were derived from Engs' (1975) Student Alcohol Questionnaire (SAQ). Categories for primary living situation were derived from Weitzman et al. (2003).

The *modified HAV – Health-As-A-Value* consists of four items or statements that measure the degree to which individuals value their health (see Appendix H). Using a 4-point Likert-scale ranging from 1 = disagree through 4 = strongly agree, the statements provided students a rating of the degree to which they placed value on his or her physical and mental well-being (Ritt-Olson et al., 2004).

The original Health-As-a-Value (HAV) scale was developed in 1986 by Lau, Hartman, and Ware Jr. (Lau, et al.; Ritt-Olson et al., 2004). The modified scale is similar to the original scale in that each scale is comprised of four statements which are rated on a 4-item Likert scale (Lau et al.; Ritt-Olson et al.). The original scale was designed to measure health as a value within diverse populations (Lau et al.). The original scale was developed using a sample of 326 undergraduate students that were fulfilling a university course requirement, 31% of whom were non-White and 60% female (Lau et al.). The group showed a coefficient alpha reliability of .67 and a test-retest reliability of .78 (Lau et al.). The original scale also showed a test-retest reliability of .86 and a test correlation of .62 in consistency of measure between tests (Lau et al.).

In 2004, Ritt-Olson et al. modified the original HAV statements using the same 4-point Likert scale. The authors reworded the statements to be more consistent to a high school population (Ritt-Olson et al.). The modified version of their scale was used to

investigate health-as-a-value and spirituality as protective factors in guarding adolescents, varying in levels of risk, from engaging in the use of alcohol and marijuana (Ritt-Olson et al.). The new wording of the scale resulted in a Cronbach's alpha of .70 for both the high risk and low risk samples of adolescents within their study (Ritt-Olson et al.).

The *SIWB – Spirituality Index of Well-Being* consists of twelve statements designed to measure the effect of spirituality on subjective well-being (see Appendix H). The scale is divided into two subscales: (1) six items measure self-efficacy, and (2) six items measure life scheme. The statements are rated on a 5-point Likert-scale using the following ratings: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, and (5) strongly agree. The SIWB was recently developed within the Department of Family Medicine at University of North Carolina Chapel Hill by Daaleman and Frey (2004). It was designed to contribute health-related quality-of-life research to the body of literature by measuring the effect of spirituality on individuals' subjective well-being (Daaleman & Frey).

The SIWB has very sound psychometric properties. It has a comparative fit index of .98 and a Tucker-Lewis index of .97 (Daaleman & Frey, 2004). Reliability for the self-efficacy subscale is α =.86, life scheme α = .89, and the total scale is α = .91 (Daaleman & Frey). The test-retest reliability for the subscales within a two-week period was r =.77 for self-efficacy, r = .86 for life scheme, and r = .79 for total test-retest reliability (Daalemann & Frey). The SIWB is significantly correlated to other well-being and spiritual instruments with a convergent validity measure of -.42 to the Zung Depression, .62 to the General Well-Being Scale, and .64 to the Spiritual Well-Being Scale (Daalemann & Frey).

The *RS-15 – Resilience Scale* is a shortened version of the original Resilience Scale (RS) and consists of fifteen items measured on a 7-point Likert Scale (see Appendix H). Ratings for the scale range from (1) strongly disagree through (7) strongly agree.

The original RS was developed and pre-tested by Wagnild and Young in 1988 (Wagnild & Young, 1993). The scale is a 25-item instrument designed to measure resilience as a personal quality that enhances individual adaptation (Wagnild & Young). The scale is based on five resilience themes which are: (1) equanimity, (2) perseverance, (3) self-reliance, (4) meaningfulness, and (5) existential aloneness (Neill & Dias, 2001; Wagnild & Young). In a study performed by Ahern, Kiehl, Sole, and Byers (2006), six instruments measuring resilience were reviewed. The authors concluded that of the instruments reviewed, the RS was the most credible and appropriate resilience scale for testing adolescent populations (Ahern et al.).

The RS has a reliability coefficient alpha of .91 and item-to-item correlations ranging form .37 to .75 with the majority between .50 and .70 (Ahern et al., 2006; Wagnild & Young, 1993). Using principal components analysis the RS factor scores were correlated at .99 (Wagnild & Young). The RS has concurrent validity with other well-established and valid measures of constructs linked to resilience and resilience outcomes and are cited here as: depression ($r = .37$), life satisfaction ($r = .30$), morale ($r = .28$), and health ($r = .26$) (Ahern et al.; Wagnild & Young). The RS has been used in numerous studies of various ethnicities and cultures and with many diagnostic groups and special populations bearing equally-high reliability coefficients (Ahern et al.).

Neill and Dias (2001) developed the RS-15, a shortened version of the original RS instrument. In its development, the authors were aided by the use of the principal axis factoring method. The purpose of the RS-15 was to provide researchers with a brief, yet reliable instrument that was relatively easy to administer making it more attractive in serving youth populations (Neill & Dias). The shortened scale has been shown to be highly reliable at $\alpha = .91$ (Neill & Dias).

The *Personal Drug Use Information* section consists of two questions intended to identify types of drugs used by participants in the study (see Appendix H). Participants were asked to identify drugs they have used over their lifespan and drugs they have used during the past twelve months. These questions include alcohol as one type of drug.

The questions identify drugs according to types of drugs that have similar properties. The lay-person names of the drugs appear as examples for each category (see Appendix H). Because the present study was not considered diagnostic, the primary purpose of these questions was to monitor types of substances or drugs that participants used other than alcohol. Categories to measure drug use were expanded upon using information compiled from the NCHA survey (ACHA, 2006) and studies performed by Rimsza and Moses (2005) and O'Malley and Johnston (2002).

Findings for the study were based upon correlations of reported personal substance use and reported past or present familial substance abuse. Therefore, no assumptions were made that participants were abusing ATOD. The primary interest was eliciting participants' reported past or present use of ATOD including quantity, frequency, and type.

The *DAST-10 – Drug Abuse Screening Test* consists of a ten-item, modified version of the DAST (see Appendix H). The DAST was developed in 1982 by Harvey A. Skinner for the Addiction Research Foundation (ARF) of Canada (Skinner, 1982). The initial internal consistency-reliability factor for the original version of the DAST was shown to be .92 (Skinner).

A recent study by McCabe et al. (2006) cited previous studies demonstrating that the original, 20-item version of the DAST and the modified, 10-item version of the DAST have similar psychometric properties. The DAST-20 showed a Cronbach's alpha of greater than .85 and test-retest reliability of greater than .70, and the DAST-10 showed a Cronbach's alpha of .86 and test-retest intraclass correlation coefficient of .71 (McCabe et al.).

The McCabe et al., (2006) study incorporated the DAST-10 into a web-based survey using a large sample of 4,580 undergraduate students with a mean age of 19.9 years. Their findings demonstrated the DAST-10 is a valid and reliable measure among college students, finding that one in every ten students reported three or more DAST items in the previous 12 months (McCabe et al.). These findings suggested that academic institutions may need to employ screening methods to detect use of substances other than alcohol among students. The McCabe et al. results indicated that males are significantly more likely than females to report four of the five most frequently reported DAST items. McCabe et al. stated these findings were significant because previous studies had failed to show gender correlation using the DAST.

According to NIDA (1982), the degree of problems measured by the DAST-10 are to be scored according to the following scale: none reported (0 points), low level (1-2

points), moderate level (3-5 points), substantial level (6-8 points), and severe level (9-10 points). Results for the McCabe et al. (2006) study showed a .68 alpha coefficient and authors determined the most sensitive and specific cut-off score for screening substance abuse problems was set at three (see original scale listed below). This information is not particularly meaningful to the current study because determining substance abuse problems within students' personal levels of drug use was not a goal of the study. Rather, the study herein focused on placing college students in risk categories for personal substance use. The assignments of categories were based in part on their DAST-10 scores.

For the purposes of the current study, the original scoring levels for the DAST-10 were converted into the following risk categories (S. T. Walters, personal communication, February 14, 2007).

DAST-10 Original Score	Risk Level Categories
0-2 = low level	= Low
3-5 = moderate level	= Medium
6-8 = substantial level	= High
9-10 = severe level	= Very High

The *AUDIT – Alcohol Use Disorders Identification Test* used in this study includes a full scale, three factor model of the instrument consisting of ten items (see Appendix H). This full scale instrument was developed in 1982 by an international group of investigators commissioned to a task force by the World Health Organization (WHO) with the established goal of developing a psychometrically-sound measure that could

identify alcohol use disorders across cultures (Reinert & Allen, 2002; World Health Organization, 2001).

The AUDIT is divided into three conceptual domains or factors including: alcohol intake, alcohol dependence, and adverse consequences (Reinert & Allen, 2002; Kokotailo et al., 2004). A number of abbreviated versions exist for this test and were created using one or two of the three factors measured (Reinert & Allen). Although the full version of the AUDIT is structured upon a three-factor model, some tests have shown that a two-factor model is more efficient and has a better fit (Reinert & Allen). Reinert and Allen identified two other studies that suggested the AUDIT is saturated by a single factor.

Over its years of use, the AUDIT has been relied upon extensively within multicultural populations as a research and clinical tool for screening individuals for hazardous or harmful drinking patterns (Reinert & Allen, 2002; World Health Organization, 2001). It should be noted that the AUDIT is a screening tool for alcohol use disorders and it is not intended for use with individuals who have become alcohol dependent (Reinert & Allen; World Health Organization).

Across diverse populations and settings, the AUDIT has demonstrated an internal consistency with a Cronbach's alpha of greater than .80 (Reinert & Allen, 2002). Diverse studies have indicated a test-retest reliability of the full scale AUDIT at .92 over a two week interval, .81 over six weeks, and a Pearson correlation of .64 for a study performed on a patient population selected for an alcohol treatment intervention over an identical two week period (Reinert & Allen).

A recent study performed by Kokotailo et al. (2004) tested the psychometric properties of the AUDIT as a screening test for high-risk drinking within the college student population. The authors designed their study to include a 28-day cycle to detect high risk, current problem, or lifetime problem drinkers. Kokotailo et al. modified test item number three to include the commonly accepted definition (Chen et al., 2004-2005; Kokotailo et al.; Weschler & Austin, 1998; Wechsler & Nelson, 2001; Wechsler et al., 1995) of binge or high risk drinking as "*five or more drinks*" for males and "*four or more drinks*" for females.

For the purposes of this study, slight alterations were made to enhance the reporting of days of alcohol use and to incorporate the currently accepted definition of high risk drinking by gender (see Appendix H). The definition of "*a drink*" was expanded to a 12-ounce can or bottle of beer, a 4-ounce glass of wine, a 12-ounce bottle or can of wine cooler, a shot of liquor (1 ½ ounce of 80-proof spirits), either straight or in a single-shot, mixed drink (Weitzman et al., 2003; Walters & Baer, 2006).

The minimum score for the AUDIT is zero and the maximum score is 40. A score of eight or more indicates a strong likelihood of hazardous or harmful drinking. A score of 13 or more for females and 15 or more for males indicates a likelihood of alcohol dependence. Items 7 through 14 are scored 0, 1, 2, 3, or 4 respectively and items 15 and 16 are scored 0, 2, or 4 respectively.

In 2002, Reinert and Allen conducted a review of the research involving use of the AUDIT. Citing three studies performed on college students, Reinert and Allen indicated that the AUDIT failed to provide validity index ratings for the 8-point cut-off value in identifying individuals with a potential alcohol problems. However, the same

authors claimed that with a lowered cut-off value of six points, the AUDIT increased to a sensitivity of .80 and specificity of .78.

Within the current study, the goal of the AUDIT to identify individuals with alcohol use disorders was not applicable to the sample. Instead, the scale was used to place individuals in categories of risk for personal substance use. To elucidate, the AUDIT was not used to evaluate harmful or hazaradous drinking within the selected sample. Therefore, the cut-off value stated here is not pertinent to the current study for two reasons: (1) the study was anonymous and high scorers were not identified, and (2) raw scores for the AUDIT were assigned and combined with DAST-10 scores to create estimated categories of risk for personal substance use.

As a precautionary measure, students who participated in the study were advised in a letter of informed consent to contact the University's counseling center and to speak with a trained counselor in the event they should have any personal concerns about the research study and their personal drinking habits. The precautionary statement was included in the letter of informed consent for two reasons: (1) to uphold policies for protection of human subjects, and (2) to route students to appropriate services to address any concerns or discomfort they experienced in answering the questions posed by this instrument or other instruments within the survey.

The following screening categories for calculation of personal risk for alcohol are borrowed from Walters and Baer (2006).

Index for Personal Drinking Severity

Low (0-7)*

Medium (8-15)

High (16-25)

Very High (26 +)

*A score of 6 or more indicates elevated drinking.

The *Family Substance Abuse Information* section consists of five questions regarding participants' background of familial substance abuse (see Appendix H). Within the survey, participants were provided a working definition of *substance abuse* as borrowed from the DSM-IV-TR (see Appendix H). Based on their understanding of this definition, participants were asked to report positive indicators for family members with past or present substance abuse problems. The study was not designed to inquire about length of substances abused, current versus past abuse trends, or severity of substances abused. Participants were asked to provide numbers of family members involved based upon specific relationship categories and the four criteria provided by the DSM-IV-TR definition. Once participants were asked to identify whether their family members had a past or present problem with substance abuse, those who responded "YES" continued to answer the five remaining questions of the survey. Those who responded "NO" concluded the survey through a skip logic sequence which led to completion and an automatic exit out of the study. Features were built into the electronic survey to facilitate this transition of questioning without the awareness of participants. The features of the survey prevented students from going back and forth between pages. Questions for the survey were carefully formatted on web pages to include instructions and related groups of questions so they could be answered prior to advancing each screen.

The remaining five questions were applied to participants answering "YES" to familial substance abuse. The questions were targeted to identify the numbers of genetic

relatives and non-genetic relatives with a past or present substance abuse problem and to the types of drugs abused by each category of relatives. Non-genetic relatives included: adoptive, step, or cohabitating family members, and "very" close friends.

The following screening categories for calculating familial risk for alcohol abuse were borrowed from Walters and Baer (2006) and Miller et al. (1995).

Index for Familial Risk*

Low (0-1)

Medium (2-3)

High (4-6)

Very High (7 +)

*Scores are based upon participants' identification of affected family members.

The Familial Substance Abuse questions were devised by borrowing from the designs of the Family Tree Questionnaire (Mann, Sobell, Sobell, & Pavan, 1985) and Project MATCH (Miller et al., 1995). Familial risk identifiers were borrowed from Walters and Baer (2006) and the "Electronic Check-Up to Go" (2006) or e-CHUG. e-CHUG is an online intervention and feedback tool developed by a group of experts at San Diego University to monitor alcohol use by college students for over 300 universities and college campuses in the United States, Canada, and Australia (Electronic Check-Up to Go). At its conception, familial risk categories for the e-CHUG were agreed upon by the panel of experts and represent assigned values along a continuum of risk. The greater the number of genetic relatives with substance use disorders, the greater the risk for the individual (W. R. Miller, personal communication, November 5, 2006). The genetic risk scale developed by Miller et al. (1995) appears as follows:

Relationship	Points Value Added for Each Positive Indicator
Father	2 points
Mother	2 points
Each Brother	2 points
Each Sister	2 points
Each Grandparent	1 point
Each Uncle or Aunt	1 point
Each First Cousin	1 point

Generally, this scale has been used in the past to measure "genetic" relatives only. However, this scale was expanded upon to include groups of "non-genetic" (non-blood) family members. Because genetic indicators were shown to be low predictors using a college population, the definition of family was expanded to include "adoptive, step, or cohabitating" family and "very close friends". The non-genetic risk scale is as follows:

Relationship	Points Value Added for Each Positive Indicator
Spouse or Partner	2 points
Very Close Friends	2 points
Mother (Adoptive, Step, or Cohabitating)	2 point
Father (Adoptive, Step, or Cohabitating)	2 point
Brothers (Adoptive, Step, or Cohabitating)	1 point
Sisters (Adoptive, Step, or Cohabitating)	1 point
Grandparents (Adoptive, Step, or Cohabitating)	1 point
Aunts or Uncles (Adoptive, Step, or Cohabitating)	1 point

Procedure

The 64-item survey was first drafted as a paper-pencil survey and required an estimated 15 minutes to complete. Next, the 64-item survey was carefully uploaded into an electronic format using zPro Zoomerang (Market Tools, 2000) software establishing an electronic test version of the survey appropriate for additional field-testing. Once approval for the study was granted through the University's institutional review board, a panel of students from the doctoral cohort was arranged to field-test the instrument. For the majority of field-testers, the web-based version required approximately 20 minutes to complete. In addition to members of the doctoral cohort, the instrument was reviewed by a small panel of faculty and staff members from the university. All feedback was incorporated to improve the format and sequencing of questions, and to clarify instructions within the final product.

Appropriate steps were taken to announce the study to CEP 261 teaching assistants and to implement the study by initiating student recruitment activities. An electronic message was sent to the nine teaching assistants designated to teach the eleven section offerings of the introductory substance abuse course to notify them that the study was approved. The message included information requesting permission to visit each classroom to discuss the purpose of the research project with students and to invite them to participate in the study. Classroom appointments were handled individually with teaching assistants and dates were established for prospective visits. All teaching assistants agreed to grant permission for access to their classrooms and to students.

Once the dates for the classroom visits were established, the survey was opened for web-based data collection. Each of the eleven classrooms was visited in an effort to

provide a brief discussion of the research and to answer any questions the students may have. Initial classroom visits occurred during the seventh week of the semester. During each visit, a printed invitation bearing the website address for the study was distributed (see Appendix A) and provided a verbal outline to students regarding participation instructions. Students were encouraged to access the survey website at a time that was convenient within their busy schedules and outside of their normal class times. It was explained that access to the website survey could be accomplished from any computer equipped with Internet access. A computer with Internet access could include the student's personal computer or any university computer permitting student use. Students were advised to seek privacy while taking the survey and forewarned that the survey contained questions that were "sensitive" in nature. Students were also advised that their participation in the study was completely voluntary and they could choose not to participate in the study or they could elect to exit the survey at any time once it was initiated.

Immediately following each classroom visit, an electronic invitation message via the course management mail system (see Appendix B) to collective groups of students enrolled within course sections. The letter of informed consent (see Appendix C) was attached to the transmittal of all initial, electronic messages.

The letter of informed consent assured prospective participants that participation in the survey was strictly voluntary (see Appendix C). The letter of consent assured prospective participants in writing that, should they decide to participate in the web-based survey, they would be allowed to exit the survey at any time with no impact to their final course grade. Furthermore, the written invitation contained language that clearly

instructed students to read the letter of informed consent prior to taking the web-based survey. The written invitation explained to students that participation in the survey would confirm their individual consent and voluntary agreement to participate.

The survey remained open for a total period of six weeks. Spring break week occurred two weeks following the survey launch. Responses came in rapidly during the first week of data collection which was the week prior to mid-semester exam week. Responses continued to flow during mid-semester exam week and slowed during the middle portion of Spring break week.

During Spring break week, a follow-up message (see Appendix D) was transmitted via the course management mail system notifying students that a brief visit would be made following the week after Spring break to award coupons to early respondents. The message indicated to students that those having already participated in the study would receive enhanced coupon awards (see Appendix D). This announcement generated a spike of survey responses. Over a two-week period, all eleven classrooms were visited to distribute the initial round of coupons. The visits occurred during the tenth and eleventh weeks of the semester and the fourth and fifth weeks of data collection. To receive their awards, students were required to print out the last page of the survey (see Appendix H), and were instructed to bring the print out to class in exchange for their free gifts. Early visitation of classrooms proved to be a valuable endeavor and again generated another spike of activity in gathering survey responses.

At the end of semester week eleven, students were notified for a second and final time via the course mail system (see Appendix E) to announce that the survey would be closing in ten days. The survey was closed on the date promised which marked a full six-

week period from survey launch. Arrangements were made with teaching assistants appointed to the substance abuse course to visit their respective classrooms one final time for the purpose of distributing the second and final round of coupons. The final round of coupons was distributed during the thirteenth week of the semester to all students who had taken the survey and who had not previously received their coupon awards. Awards were distributed as students handed in the printed copy of the final page of the survey. Once the deadline had been reached to close the survey, a message was posted on the website alerting everyone that the survey had reached a closed status.

Following the official close of the survey, teaching assistants were advised that coupons would be forwarded to them for any students who had not previously collected their participation awards. Approximately 90% of teaching assistants offered a small token award of extra credit points to their students who had taken the survey. This may have generated some interest from students and may have contributed to the success of the overall survey response. However, it should be emphasized that this was not a requirement of teaching assistants and awarding of extra credit points was not monitored by the study due to the need to maintain anonymity of participants. Therefore, data pertaining to differences were not kept and group response rates could not be compared.

Students agreeing to participate in the study responded by taking a web-based survey. Participants were asked to log onto the website by clicking onto an address that had been created through a university-allocated AFS space (see Appendix F). During the log-on process, survey participants were automatically connected to the Internet address where the survey had been posted at the web-based survey company (see Appendix G). Once students arrived at the website, the name of the survey appeared on the welcome

page (see Appendix G) along with reminder instructions to read the letter of informed consent.

The combined survey consisted of a total of 64 items (see Appendix H). The items include three instruments measuring attitudes, two screening tools measuring alcohol and drug use, and three areas of constructed questions pertaining to demographic, personal drug use, and familial substance abuse information.

Survey Website

The survey was administered using computer-assisted self-interviews or CASIs via the Internet (Link & Mokdad, 2005). Although there have been mixed findings in the past regarding computer-assisted surveys, recent studies regarding mode effects suggest that use of the World Wide Web is a very practical tool for epidemiological studies. The CASI mode affords researchers the ease of surveying a large population with universal access to the World Wide Web, gathering a more representative sample more quickly and with less cost than other modes (McCabe, Boyd, Couper, Crawford, & D'Arcy, 2002). Another recent study showed that CASIs elicit a higher reporting of heavy drinking among college students compared with other modes of data collection such as telephone interviews or U.S. Mail surveys (Link & Mokdad). Therefore, the CASI mode is considered ideal when collecting responses regarding sensitive data such as the use of ATOD or other less acceptable or stigmatized behaviors (Link & Mokdad; McCabe et al.).

Zoomerang zPro, a software subscription for professional web-based surveys (Market Tools, 2000), was selected for the study. Web-based surveys using electronic data collection had been used successfully within the CEP 261 course on two occasions

during the previous academic year. The web-based survey reduced the likelihood of errors that might occur during manual transcription of the vital data onto a statistical analysis software program. In addition, participants could complete the survey at their convenience and within a setting that was private and relaxing. The flexibility of the web survey format offered participants an opportunity to reduce any pressures or anxieties they may have felt in responding to a highly personal and sensitive line of questioning. Other advantages created by the use of computer technology were the reduced need for written materials which eliminated material costs, reduced storage and handling of data, and increased anonymity of responses. Consistent with any survey, a major disadvantage was participants may have distorted their answers by exaggerating or minimizing their use of substances. Also, there was no way to ensure that individuals invited to participate in the study were indeed ones who truly responded to the survey questions. And, there was no way to gauge what physical, mental, or emotional states participants were experiencing as they completed the survey.

Data Analysis

The population of interest for this research was college undergraduate students enrolled in an introductory substance abuse course at a major Midwestern university. The study was designed to collect data from a college student sample using a series of self-reported measures within a web-based survey design. The survey included questions related to demographic characteristics of the participants and questions regarding personal substance use and familial substance abuse.

The sample for this research included students enrolled in eleven section offerings of CEP 261 Substance Abuse. CEP 261 is an undergraduate level course series that was

offered during Spring semester 2007. The anticipated enrollment for this course was 275 undergraduate students or 25 students per section. Following the Registrar's period for drops and adds, the population of students was checked and determined to be equivalent to $N = 266$ valid student enrollments. All students enrolled in the course during Spring semester 2007 were invited to participate in the study.

The survey was administered via a single data collection interval spanning a period of six weeks. Data collection occurred via a web-based survey. Mid-semester exam week and Spring break week occurred within the period for data collection. The generous allowance of a six week data collection period enhanced student's comfort level in answering the survey and generated a maximum number of responses for the sample. The added convenience of round-the-clock access offered flexibility and convenience to prospective participants in managing their schedules and in responding. Moreover, the convenience in response time assisted students in gaining access to the survey during times of decreased academic stress and load factors. And finally, these factors facilitated increased responses overall with the added use of incentives.

In a study performed by Noel and Cohen (1997), the authors noted that despite negative effects of increased anxiety, anger, and depression the week prior to exams, students reported less alcohol consumption compared with typical weeks during the semester. Noel and Cohen concluded that students chose to reduce their discomfort and anxiety by choosing to study rather than imbibe in substances. Although the same authors reached these conclusions about alcohol, the authors did not consider the possible use and influences of other substances, such as stimulants (Adderall, Ritalin, caffeine,

etc.) that students may have elected to take to enhance their academic performance during the mid-semester.

Recruitment of subjects was performed by visiting each of the eleven course sections to announce the invitation and invite students to participate in the survey. All students who volunteered to take the survey were compensated with a free gift in appreciation of their participation. Gifts had no cash value and were donated by local merchants. Participants were granted a selection between one of three gift choices. The choices were as follows:

- A free chair or hand massage (or make-up session) from Douglas J Salon
- A free 7-day VIP membership to Powerhouse Gym
- Coupons for free and discounted items from Bruegger's Bagels

To provide evidence of their participation, students were directed both verbally and in writing to print out the last page of the survey. They were instructed to bring the page to class to receive their awards. For the purpose of distributing gift coupons, students were visited in their respective classrooms at two intervals during the period of data collection. The first visit occurred during the mid-point of the data collection period and the second visit occurred immediately following the official closure of the web-based survey.

Upon closure of the survey, the data were downloaded from Zoomerang zPro (Market Tools, 2000) software onto the 2006 version of SPSS (Statistical Package for the Social Sciences) software for data analysis. The study utilized both categorical variables and continuous variables. The three dependent variables of health values, spiritual well-being, and resilience were represented by continuous data. The two variables of personal

substance use risks and familial substance abuse risks were represented by categorical data and were arranged into risk categories of low, medium, high, and very high.

At the time of proposal for the study, plans for data analysis were tentative. It was anticipated that methods for data analysis would be adjusted based upon the sample size and number of responses collected from the sample. It was assumed that the sample would be large enough to place participants within targeted cells for level of risk for each of the two categorical, independent variables of personal substance use and familial substance abuse. It was also understood that cell count frequencies were impossible to predict in advance of data collection.

The proposed plan for data analysis included an examination of frequencies for each of the two risk variables and a display of crosstabs which would illustrate a table of 16 cells. It was planned that if some cells had low counts, risk categories would be combined to address the research hypotheses. Also, it was planned that if there was insufficient representation within the cells, those cells would be combined with adjacent cells. The proposed data analysis for each of the hypotheses is described below.

Hypothesis 1 Proposed Analysis: The independent variable is resilience. The dependent variables are health values and spiritual well-being. All three variables are represented as continuous data. A Pearson product moment correlation coefficient test was planned to calculate the relationships between resilience and health values. A Pearson correlation test was planned to calculate the relationships between resilience and spiritual well-being. Values for resilience were to be measured in relation to increased values on health values and values for resilience would be measured in relation to

increased values on spiritual well-being. If significant correlations were found, the effect sizes would be calculated to determine the strength or magnitude of the relationships.

Hypothesis 2 Proposed Analysis: The dependent variables are health values, spiritual well-being, and resilience and are represented as continuous data. The independent variable is personal substance use which was first represented by continuous data and then converted to categorical data. The methods for data analysis were planned to include a calculation of means for each value for the three constructs of health values, spiritual well-being, and resilience. The proposed methods were also planned to include a calculation of means for the three dependent variables followed by a t-test to compare the means of the two groups (low-medium personal substance use risk group and high-very high personal substance use risk group).

Hypothesis 3a Proposed Analysis: The dependent variables are health values, spiritual well-being, and resilience and are represented as continuous data. The independent variables are positive (YES) indicators for the presence of familial substance abuse or negative (NO) indicators for the presence of familial substance abuse. The independent variables are represented as categorical data. The proposed methods for analysis were planned to include a calculation of means for the three dependent variables followed by t-tests to compare the means of the groups (positive for familial substance abuse group or negative for familial substance abuse group).

Hypothesis 3b Proposed Analysis: The dependent variables are health values, spiritual well-being, and resilience and are represented as continuous data. The independent variables are risk factors for genetic familial substance abuse and risk factors for non-genetic familial substance abuse. Genetic family and non-genetic family risk

variables are represented as categorical data. The proposed method for data analysis was planned to include a t-test to compare the two groups for the three constructs of health values, spiritual well-being, and resilience.

Hypothesis 3c Proposed Analysis: A t-test was planned to compare the two groups regarding the constructs of health values, spiritual well-being, and resilience.

In summary, the upcoming chapter contains the actual analyses that were carried out for each of the hypothesis. It also contains the results derived from data gathered from survey respondents.

CHAPTER IV

Results

This chapter contains detailed information regarding the proposed and actual analyses in relation to each of the hypotheses as stated in Chapter I of this document. The upcoming and final chapter (Chapter V) includes an interpretation of results and conclusions reached for each hypothesis.

Characteristics of the Sample

The sample included 233 participants out of a total possible $N = 266$. The level of participation was received at a survey response rate of 87.69%. As data were collected, the influx of student responses was monitored using the Zoomerang website (Market Tools, 2000). It was observed that responses were submitted by students at a fairly steady rate throughout these weeks, although some spikes of activity and some dormant periods were noted. It was felt the web-based format provided students the opportunity to take the survey at a time that was convenient within their busy schedules. It was possible that the offering of incentives drew students to participate despite the pressures of school and likely time constraints. It is also plausible that the provision of incentives provided them the impetus to participate where they may not have done so otherwise.

In describing the overall sample of 233 participants, frequencies for the demographic variables of sex, age, academic rank, race, grade point average, and living situation were examined. The total sample included approximately one-third male participants (32.2%) and approximately two-thirds female participants (67.8%). Students were predominantly White at 76.0% of the sample. Other races included Black (13.7%), Hispanic (6.0%), Asian (3.0%), Eastern Indian (.4%), and Mixed race (.9%).

The average age of participants was 20.42 years. Most participants' ages (95.7%) fell within an expected range of 18 to 22 years old. Ages within the sample were distributed fairly evenly among this range including: 18 years (14.3%), 19 years (19.0%), 20 years (18.2%), 21 years (26.0%), 22 years, (18.2%). Additional ages reported by participants were: 23 years (1.7%), 24 years (1.3%), 29 years (.9%), and 40 years (.4%). Two respondents had missing values (one value was not reported and one value was unrecognizable) and therefore could not be included in the analysis.

Students ranked predominantly in their fourth year of undergraduate studies, comprising 27.7% of the sample. Other ranks included first-year undergraduates (24.2%), second-year undergraduates (24.2%), third-year undergraduates (18.6%), and fifth-year undergraduates (5.2%) of the valid sample. Once again, two respondents had missing values (one value was not reported and one value was unrecognizable) and therefore could not be included in the analysis.

Original categories of cumulative grade point average (GPA) fell along a continuous scale of measurement and were measured to one-tenth of a point on a typical grading scale of "4.0" maximum to "1.5 or below" minimum (see Appendix H). During the analytic procedures, new categories of GPA were created from the original survey categories. The new categories included GPA ranges which were determined based on five-tenths or one-half of a point, using the same 4-point scale. The most frequently reported categorical range for cumulative GPA was 3.5-3.1 at 38% of participants within the sample. Other GPA categories included: 4.0-3.6 (13.7%), 3.0-2.5 (29.2%), 2.5-2.1 (11.2%), 2.0-1.6 (6.0%), and 1.5 or below (1.3%). The mean, cumulative GPA for the overall sample was 2.65.

Student responses gathered by the survey regarding primary living situation were condensed during the data analysis. The nine original categories within the survey included: (1) single-sex residence hall, (2) co-ed residence hall, (3) Greek housing (fraternity or sorority), (4) non-Greek shared living, (5) off-campus with roommate/s, (6) off-campus with parent/s, (7) off-campus alone, (8) substance-free residence hall, and (9) other (see Appendix H). The nine original categories were condensed into three new categories: (1) residence hall, (2) shared housing, and (3) off-campus living. Using the new categories, the findings show that most participants within the sample lived off-campus at 57.5%, a moderate percentage of students lived in residence halls (36.9%), and a small percentage of students reported living in shared housing units such as fraternities or sororities (5.6%).

The proposed data analysis mentioned in Chapter III, was unable to be carried out exactly as planned and required some modifications. This was mainly due to insufficient numbers of students within groups of interest. Although the overall sample size was sufficient to answer broad questions, some data were insufficient to answer specific questions which addressed differences among groups of students within the sample. In particular, this impacted the students' reporting of genetic and non-genetic familial substance abuse. As a result, the analysis for Question 3b was altered to fit the data. Question 3c was investigated as planned and included a supplemental analysis.

Summary of Hypotheses

This section includes a restatement of the hypotheses from Chapter I, followed by a summary of the analyses, interpretation of the findings, and conclusion for each. As a word of caution, the overall analyses and conclusions to these findings were not designed

to imply causation among variables. Rather, the results described within this study were intended to provide associative meanings which were indicative of correlations and comparisons among the variables.

Hypothesis 1: Participants who demonstrate increased resilience will also demonstrate increased health values and spiritual well-being.

Analysis: A Pearson correlation test was planned for Hypothesis 1. The number of responses gathered by the survey was more than adequate to conduct the planned analysis for this hypothesis. To begin, the three dependent variables of health values, spiritual well-being, and resilience were respectively represented as the modified Health-as-a-Value (mod-HAV), Spiritual Index of Well-Being (SIWB), and Resilience Scale-15 (RS-15) instruments. Each of the three scales was represented as continuous data.

Among the responses received by participants regarding these instruments, missing data were noted for the SIWB and RS-15 scales. The missing data were noted for only two participants. It is uncertain if these participants elected to skip these questions or missed the items altogether. Prior to scoring, all missing data were treated as zero for these two scales. The missing responses added no positive or negative value and had no impact on the total scores for these scales. Total scores were based only upon data received. There were no missing data for the mod-HAV scale. Prior to scoring the mod-HAV, the single, negatively-worded item (Health isn't one of my big concerns) was reverse-coded.

Next, the total scores were calculated for each of the three scales and three new variables were created to represent these scores. A Pearson correlation was calculated

using the total score variables for each of the three scales (see Table 1). The total scores were represented as continuous data.

TABLE 1

Pearson Correlation for mod-HAV, SIWB, and RS-15

		Total Score of SIWB	Total Score of RS-15	Total Score of mod-HAV
Total Score of SIWB	Pearson Correlation	1	-.727(**)	-.159(*)
	Sig. (2-tailed)		.000	.015
	N	233	233	233
Total Score of RS-15	Pearson Correlation	-.727(**)	1	.259(**)
	Sig. (2-tailed)	.000		.000
	N	233	233	233
Total Score of mod-HAV	Pearson Correlation	-.159(*)	.259(**)	1
	Sig. (2-tailed)	.015	.000	
	N	233	233	233

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Interpretation: The findings in Table 1 demonstrate correlation values. A positive Pearson correlation value (.259) is observed for the mod-HAV and the RS-15 at the $p < 0.01$ significance level (2-tailed test). A negative Pearson correlation value (-.727) is observed between the SIWB and the RS-15 at the $p < 0.01$ significance level (2-tailed test). A negative Pearson correlation value (-.159) is observed between the mod-HAV and the SIWB at the $p < 0.05$ significance level (2-tailed test).

Effect size is a measurement of the strength of the relationship between two variables. A Pearson correlation test is one method for measuring the size of the effect. Within the field of social and behavioral sciences, Cohen (1988) suggested the following general definitions to determine effect size: r = .10 to .29 or -10. to -.29 = small, r = .30 to .49 or -.30 to -.49 = medium, r = .50 to 1.0 or -.50 to -1.0 = large. Using Cohen's

definitions, a small positive effect was observed between mod-HAV and RS-15, a large negative effect was observed between SIWB and RS-15, and a small negative effect was observed between mod-HAV and SIWB (see Table 1).

Conclusion: Hypothesis 1 cannot be supported. For the overall sample of 233 participants, health values demonstrated a small, positive relationship with resilience. Therefore, as health values increased, resilience mildly increased among participants. Spiritual well-being demonstrated a large, negative relationship with resilience within the sample. As spiritual well-being increased, resilience largely decreased among participants. Spiritual well-being demonstrated a small, negative relationship with health values within the sample. As spiritual well-being increased, health values mildly decreased among participants.

The results for Hypothesis 1 indicated that relationships among the three variables were significant. However, the findings did not indicate which variable impacted the other variable. Within the general sample and among the cluster of dependent variables, participants displayed both positive and negative associations depending upon paired combinations of variables and this influenced the direction of the relationships among the pairs as either increased or decreased.

Hypothesis 2: Participants who score *low* to *medium* risk for personal substance *use* will demonstrate increased health values, spiritual well-being, and resilience compared with participants who score *high* to *very high* risk for personal substance *use*.

Analysis: A calculation of means for each of the dependent variables (health values, spiritual well-being, and resilience), was planned for Hypothesis 2. Following the

calculation of means, a t-test was planned to compare the two groups of low-medium and high-very-high risk for personal substance use.

The actual analysis for Hypothesis 2 was altered slightly from the proposed plan. The alteration included a one-way, between-groups analysis of variance (ANOVA) for each of the dependent variables (health values, spiritual well-being, and resilience), followed by an illustration of differences using means plots. Then, due to insufficient cell sizes among groups, personal substance use risk became represented as three, categorical comparative groups of low, medium, and high-very high personal substance use risk. Post hoc analyses included Tukey's Honestly Significant Difference (HSD) tests. The total sample of 233 participants was used for the Hypothesis 2 analysis. Details analyses appear below.

Drug and Alcohol Risk: First, the scores for the Drug Abuse Screening Test-10 (DAST-10) and the Alcohol Use Disorders Identification Test (AUDIT) were calculated in compliance with standard scoring methods for each instrument. The calculations included a summation of the weighted scores for each of the item responses. Test score totals were stored as continuous variables. By their score totals, participants were assigned into categories of low, medium, high, or very high risk based upon the interpretive score categories included in the scoring procedures for the DAST-10 (S. T. Walters, personal communication, February 14, 2007). The categories for the AUDIT were based upon those of Walters and Baer (2006). The risk categories for drug use became named as the categorical variable of DRUG Risk. The risk categories for alcohol use became the categorical variable named ALCOHOL Risk. Tables 2 and 3 display frequency charts for these two categorical variables.

TABLE 2

Categorical DRUG Risk Based on Participants' DAST-10 Scores

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	114	48.9	48.9	48.9
	Medium	83	35.6	35.6	84.5
	High	32	13.7	13.7	98.3
	Very High	4	1.7	1.7	100.0
	Total	233	100.0	100.0	

TABLE 3

Categorical ALCOHOL Risk Based on Participants' AUDIT Scores

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	79	33.9	33.9	33.9
	Medium	92	39.5	39.5	73.4
	High	53	22.7	22.7	96.1
	Very High	9	3.9	3.9	100.0
	Total	233	100.0	100.0	

Personal Substance Use Risk: The individual scores of the DAST-10 and AUDIT were transformed into z scores and the two z scores were added together to determine the combined, continuous scores for personal substance use risk. Then, the continuous scores were categorized into four groups of low, medium, high, and very high risk. This was accomplished by inspecting the distribution of scores for the continuous variable and determining the cut-off points that would be used to divide the sample into four groups. In creating the four personal substance use risk categories, the decision rule included adding the frequency percentages for both DRUG Risk and ALCOHOL Risk and computing an average of the two. There were some notable flaws to this method which

were of some concern. For example, if an individual scored high risk for alcohol and low risk for drugs, it was possible they could be placed in a medium risk category for personal substance use. To double check the reliability in the applying this method, correlations were performed for the DAST-10 and the AUDIT scores to determine whether the parametric and non-parametric correlations demonstrated a positive relationship (see Tables 4 and 5).

Table 4 displays the correlation between the total score of the DAST-10 and the total score of the AUDIT. The results display a correlation between two continuous variables. Table 5 displays the Spearman's rho non-parametric correlation between DRUG Risk and ALCOHOL Risk. The results display a correlation between two categorical variables. The parametric and non-parametric correlations were performed to ensure that the two variables demonstrated a positive relationship which would indicate consistency in converting the continuous scores to categorical scores. The results determined that the Pearson correlation value (.517 parametric) and the Spearman's rho correlation value (.487 non-parametric) were each significant at a level of $p < 0.01$ (2-tailed test).

TABLE 4

Pearson Correlation Parametric Test for DAST-10 and AUDIT

		Total Score of DAST	Total Score of AUDIT
Total Score of DAST	Pearson Correlation	1	.517(**)
	Sig. (2-tailed)		.000
	N	233	233
Total Score of AUDIT	Pearson Correlation	.517(**)	1
	Sig. (2-tailed)	.000	
	N	233	233

** Correlation is significant at the 0.01 level (2-tailed).

TABLE 5

Spearman's rho Non-Parametric Test for DAST-10 and AUDIT

			DRUG RISK (Categorical)	ALCOHOL RISK (Categorical)
Spearman's rho	DRUG RISK (Categorical)	Correlation Coefficient	1.000	.487(**)
		Sig. (2-tailed)		.000
		N	233	233
	ALCOHOL RISK (Categorical)	Correlation Coefficient	.487(**)	1.000
		Sig. (2-tailed)	.000	
		N	233	233

** Correlation is significant at the 0.01 level (2-tailed).

Next, group sizes within categories were inspected. Due to the low number of cases observed within the very high risk group (see Table 6), this category was combined with the adjacent cell representing the high risk group. This resulted in a total of three personal substance use risk categories of low, medium, and high to very high for the personal substance use risk variable. The high to very high group became represented as a new total of 49 cases (see Table 7).

TABLE 6

Frequencies for Categories of Personal SUBSTANCE USE Risk

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	96	41.2	41.2	41.2
	Medium	88	37.8	37.8	79.0
	High	42	18.0	18.0	97.0
	Very High	7	3.0	3.0	100.0
	Total	233	100.0	100.0	

TABLE 7

Frequencies for Three Newly Combined Categories of Personal SUBSTANCE USE Risk

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	96	41.2	41.2	41.2
	Medium	88	37.8	37.8	79.0
	High and Very High	49	21.0	21.0	100.0
	Total	233	100.0	100.0	

The three newly-created categories of personal substance use risk were named by a new variable, PERSRISK3. Next, a series of tests was performed for each of the univariate variables of mod-HAV, SIWB, and RS-15 in combination with PERSRISK3. Results for these tests appear below.

Health Values: A series of tests was performed between each of the dependent variables in relation to personal substance use risk. The first dependent variable to be tested in combination with PERSRISK3 was health values (mod-HAV). The first test for mod-HAV was Levene's test of homogeneity of variances. The second test for mod-HAV was ANOVA (see Table 8). The means for the mod-HAV group are displayed in the means plot (see Figure 1).

The null hypothesis for ANOVA states that the means of mod-HAV are equal among groups. The purpose of the ANOVA was to reveal differences among the three groups. The upcoming test results show the effect of personal substance use risk on the dependent variable mod-HAV.

Levene's test was performed and the data were found to meet the assumption of homogeneity for ANOVA. Thus, the null hypothesis was not rejected which indicates there were no differences in the population variance among groups.

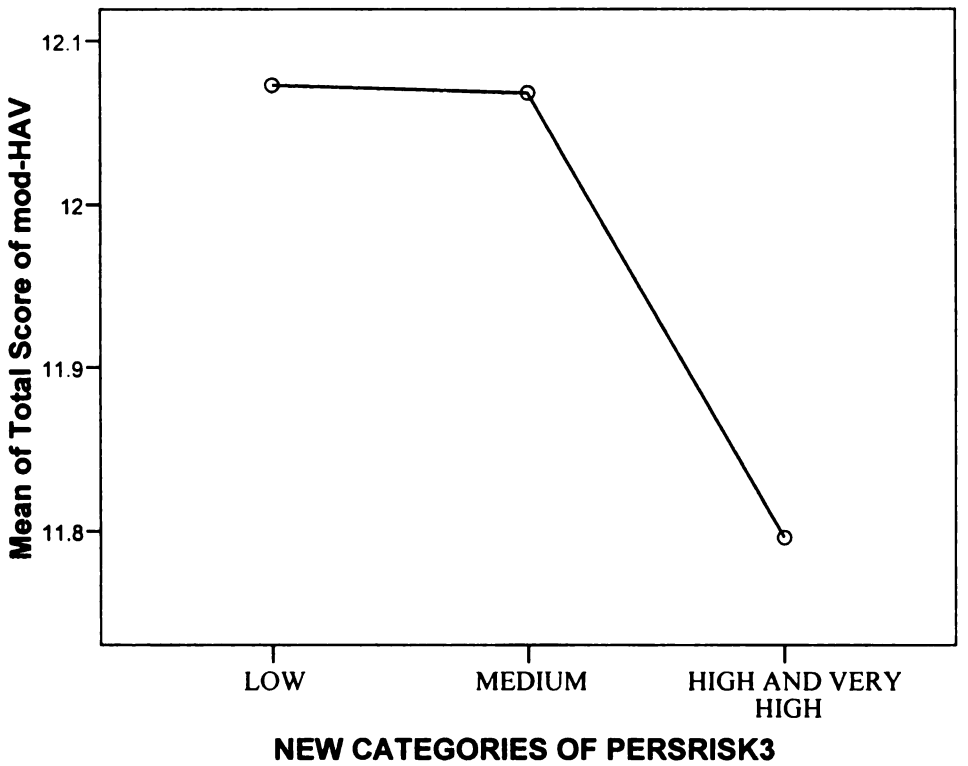
TABLE 8

Oneway ANOVA for Total Score of mod-HAV and Personal SUBSTANCE USE Risk

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.922	2	1.461	.634	.531
Within Groups	530.040	230	2.305		
Total	532.961	232			

FIGURE 1

mod-HAV Means Plot for Three Categories of Personal SUBSTANCE USE Risk



Interpretation: Based upon the sample of $n = 233$, the ANOVA shows that the total score of mod-HAV was not statistically different among the means for three personal substance use risk groups. The null hypothesis states that the means of all groups are equal. As a result, the null hypothesis was not rejected and the results show the means of the mod-HAV are equal among groups.

Spiritual Well-Being: For the dependent variable spiritual well-being, a series of four tests was performed. The first test to be calculated for SIWB was Levene's test of homogeneity of variances. The second test for SIWB was ANOVA (see Table 9). The third test for SIWB was Tukey's HSD (see Table 10). The means for the SIWB group are displayed in the means plot (see Figure 2). The fourth test for SIWB was a calculation of omega squared.

The null hypothesis for ANOVA states that the means of SIWB are equal among groups. The purpose of the ANOVA was to reveal differences among the three groups. The Tukey post hoc test compares means for each combination of pairs of means. The omega squared calculates the effect size for the differences among means. The upcoming tests show the effect of personal substance use risk on the dependent variable SIWB.

Levene's test was performed and the data were found to meet the assumption of homogeneity for ANOVA. Thus, the null hypothesis was not rejected which indicated there were no differences in variance among groups.

TABLE 9

Oneway ANOVA for Total Score of SIWB and Personal SUBSTANCE USE Risk

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	814.687	2	407.344	7.201	.001
Within Groups	13010.918	230	56.569		
Total	13825.605	232			

TABLE 10

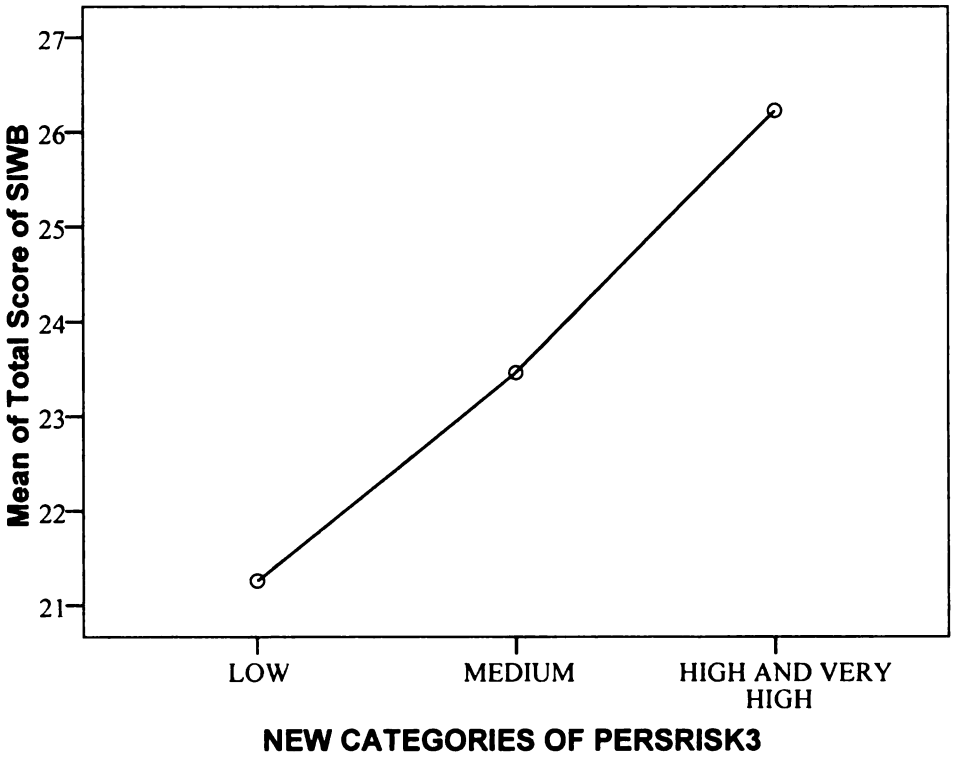
Tukey HSD Post Hoc Test for SIWB and Personal SUBSTANCE USE Risk Multiple Comparisons

(I) NEW CATEGORIES OF PERSRISK3	(J) NEW CATEGORIES OF PERSRISK3	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Low	Medium	-2.205	1.110	.118	-4.82	.41
	High and Very High	-4.964(*)	1.321	.001	-8.08	-1.85
Medium	Low	2.205	1.110	.118	-.41	4.82
	High and Very High	-2.759	1.341	.101	-5.92	.40
High and Very High	Low	4.964(*)	1.321	.001	1.85	8.08
	Medium	2.759	1.341	.101	-.40	5.92

* The mean difference is significant at the .05 level.

FIGURE 2

SIWB Means Plot for Three Categories of Personal SUBSTANCE USE Risk



Interpretation: Based on the sample of $n = 233$, the ANOVA shows the effect of personal substance use risk was significant to spiritual well-being ($p = .001$) (see Table 9). The Tukey's HSD post hoc test of multiple comparisons revealed more specific mean differences for spiritual well-being between the low risk group and the high-very high risk group (±4.964) at a significance level of $p < 0.05$ (see Table 10). It appeared that the true differences exist between these two groups and differences for the medium group are not significant. The means plot demonstrates that the high-very high group has higher spiritual well-being than the low group (see Figure 2).

An omega squared calculation was performed for SIWB and indicated a result of .05053. According to Cohen's (1988) scale this demonstrates a large effect. The test

does not indicate the direction of difference but is used to indicate that a difference exists between two groups. Therefore, the high-very high personal substance use risk group displayed a larger effect on spiritual well-being than the low personal substance use risk group.

Resilience: The final dependent variable to be tested was resilience and a series of four tests was performed for RS-15 in combination with PERSRISK3. The first test for RS-15 was Levene's test of homogeneity of variances. The second test for RS-15 was ANOVA (see Table 11). The third test for RS-15 was Tukey's HSD (see Table 12). The means for the RS-15 group are displayed in the means plot (see Figure 3). The fourth test for RS-15 was a calculation of omega squared. Because data failed to meet the assumption of homogeneity, three additional tests were performed (see Tables 13 & 14).

The null hypothesis for ANOVA states that the means of RS-15 are equal among groups. The purpose of the ANOVA was to reveal differences for one of the combination pairs of group means. The Tukey's HSD post hoc test compares means for each combination of pairs of means. The omega squared calculates the effect size for differences among means. The upcoming tests show the effect of personal substance use risk on the dependent variable RS-15.

TABLE 11

Oneway ANOVA for Total Score of RS-15 and Personal SUBSTANCE USE Risk

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1316.307	2	658.153	5.410	.005
Within Groups	27978.457	230	121.645		
Total	29294.764	232			

TABLE 12

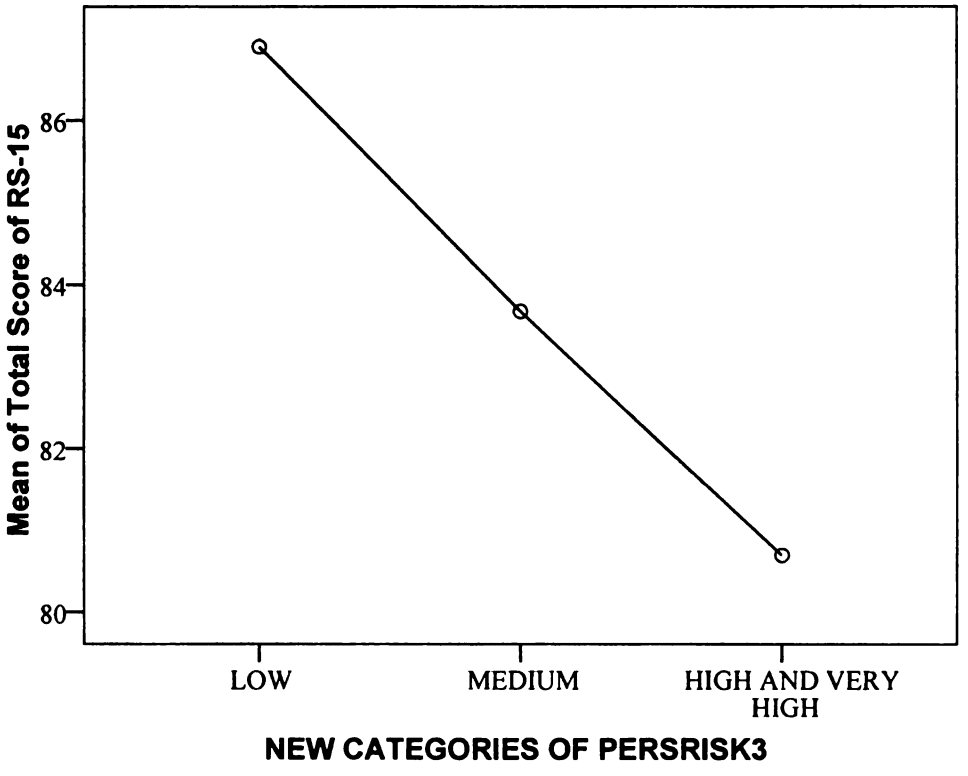
Tukey HSD Post Hoc Test for RS-15 and Personal SUBSTANCE USE Risk Multiple Comparisons

(I) NEW CATEGORIES OF PERSRISK3	(J) NEW CATEGORIES OF PERSRISK3	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Low	Medium	3.214	1.628	.121	-.63	7.05
	High and Very High	6.202(*)	1.936	.004	1.63	10.77
Medium	Low	-3.214	1.628	.121	-7.05	.63
	High and Very High	2.988	1.966	.283	-1.65	7.63
High and Very High	Low	-6.202(*)	1.936	.004	-10.77	-1.63
	Medium	-2.988	1.966	.283	-7.63	1.65

* The mean difference is significant at the .05 level.

FIGURE 3

RS-15 Means Plot for Three Categories of Personal SUBSTANCE USE Risk



Levene's test was performed and the data failed to meet the assumption of homogeneity for ANOVA. Therefore, the null hypothesis was rejected which indicated there were differences in variance among the groups. Due to violation of the homogeneity of variance assumption, three additional nonparametric tests were conducted. The three tests consisted of the Welch robust test of equality of means, the Brown-Forsythe robust test of equality of means, and the Games-Howell post hoc test.

The first nonparametric measure was a Welch robust test of equality of means and was found to be significant at $p = .008$ (see Table 13). Because there was a significant effect of the personal substance use risk on the resilience, this indicated a need to inspect both the Brown-Forsythe and Welch versions of the F-ratio. The second nonparmetric measure was a Brown-Forsythe robust test of equality of means and it too was found to be significant at $p = .008$ (see Table 13).

The third nonparametric test was a Games-Howell post-hoc test. The Games-Howell showed that the mean difference (±6.202) between low group and high and very high group is statistically significant at the $p < 0.05$ level (see Table 14).

TABLE 13

Robust Tests of Equality of Means for Total Score of RS-15

	Statistic(a)	df1	df2	Sig.
Welch	5.068	2	118.744	.008
Brown-Forsythe	4.987	2	154.859	.008

a Asymptotically F distributed.

TABLE 14

Games-Howell Multiple Comparisons for RS-15

(I) NEW CATEGORIES OF PERSRISK3	(J) NEW CATEGORIES OF PERSRISK3	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
LOW	MEDIUM	3.214	1.560	.101	-.47	6.90
	HIGH AND VERY HIGH	6.202(*)	2.090	.011	1.21	11.20
MEDIUM	LOW	-3.214	1.560	.101	-6.90	.47
	HIGH AND VERY HIGH	2.988	2.175	.359	-2.20	8.17
HIGH AND VERY HIGH	LOW	-6.202(*)	2.090	.011	-11.20	-1.21
	MEDIUM	-2.988	2.175	.359	-8.17	2.20

* The mean difference is significant at the .05 level.

Interpretation: Based on the sample of $n = 233$, the ANOVA shows the effect of personal substance use risk was significant to resilience (p value = .005) (see Table 11). However, the Tukey HSD post hoc test of multiple comparisons revealed more specific differences exist for resilience between the low risk group and the high-very high risk group (p value .004) at a significance level of $p < 0.05$ (see Table 12). It appears that significant differences exist solely between these two groups and differences for the medium group were not significant. The means plot demonstrates that the high-very high personal substance use risk group has lower resilience than the low personal substance use risk group (see Figure 3).

An omega squared calculation was performed for RS-15 and indicated a result of .03647. According to Cohen's (1988) scale this demonstrates a small effect. The test does not indicate the direction of difference but is used to indicate that a difference exists

between two groups. Post hoc analyses of Welch robust test, Brown-Forsythe robust test, and Games-Howell confirmed there was a difference between the groups. Therefore, the high-very high personal substance use risk group demonstrated a smaller degree of resilience than the low personal substance use risk group.

Composite Analysis of Health Values, Spiritual Well-Being, and Resilience: As a final step to Hypothesis 2, a multivariate analysis of variance (MANOVA) between the three levels of personal substance use risk and the total scores for the mod-HAV, SIWB, and RS-15 was performed (see Table 15). This was done because findings revealed a correlation among the three dependent variables. The MANOVA was used to investigate the effect of personal substance use risk on the three variables of mod-HAV, SIWB, and RS-15 as a composite variable and to view their combined correlation with the independent variable.

MANOVA was used to test the means of the constructs (mod-HAV, SIWB, and RS-15) among varying levels of risk (low, medium, high-very high) for the categorical independent variable (personal substance use risk). ANOVA tested only differences in means between the three constructs and the three risk levels of the independent variable of personal substance use. MANOVA tested the differences between a central vector of the three constructs combined with the levels of risk for personal substance use.

TABLE 15

MANOVA Tests for Personal SUBSTANCE USE Risk and mod-HAV, SIWB, and RS-15

Effect		Value	F	Hypothesis df	Error Df	Sig.
Intercept	Pillai's Trace	.995	16801.361(a)	3.000	228.000	.000
	Wilks' Lambda	.005	16801.361(a)	3.000	228.000	.000
	Hotelling's Trace	221.071	16801.361(a)	3.000	228.000	.000
	Roy's Largest Root	221.071	16801.361(a)	3.000	228.000	.000
PERSRISK3_CAT	Pillai's Trace	.065	2.545	6.000	458.000	.020
	Wilks' Lambda	.936	2.571(a)	6.000	456.000	.019
	Hotelling's Trace	.069	2.595	6.000	454.000	.018
	Roy's Largest Root	.066	5.019(b)	3.000	229.000	.002

a Exact statistic
b The statistic is an upper bound on F that yields a lower bound on the significance level.
c Design: Intercept+PERSRISK3_CAT

Interpretation: Based on Table 15, the MANOVA demonstrates the effect of personal substance use risk on the three variables simultaneously. The MANOVA test demonstrated significance for all of the tests including: Pillai's Trace ($p = .020$), Wilks' Lambda ($p = .019$), Hotelling's Trace ($p = .018$), and Roy's Largest Root ($p = .002$). All results demonstrate a significance of $p < 0.05$. The results show that the effect for personal substance use risk is significant for its effect on each of the independent variables (mod-HAV, SIWB, RS-15) and for the interactions between them.

MANOVA assumes that for each group (each cell in the factor design matrix) the covariance matrix is similar. Box's M tests this assumption. In order to conclude there is insufficient evidence that the covariance matrices differ, M should be non-significant. Table 16 shows that M is significant and this indicates the assumption has been violated. This further indicates that the group levels of personal substance use risk differ with respect to their covariance matrices.

TABLE 16

Box's M Test of Equality of Covariance Matrices

Box's M	13.020
F	1.062
df1	12
df2	123524.775
Sig.	.388

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.
a Design: Intercept+PERSRISK3_CAT

Wilk's Lambda was used as an approximation because it is a widely-reported robust approximation (see Table 17). The size of the effect is gauged by considering the Eta Squared column (see Table 17). It provides an estimate of the proportion of variation in the dependent variable accounted for by the effect (IV or interaction between IVs). So, personal substance use risk accounts for approximately 33% of the change in RS-15, mod-HAV, and SIWB.

Power is a measure of the probability of not making a type II error or a false acceptance of the null hypothesis. Cohen (1988) suggested that power should be at least .80 (indicating that there is a 20% chance of making a type II error). The observed power is above .80 (see Table 17).

TABLE 17

MANOVA Tests for Wilks' Lambda and Eta Squared

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power (a)
Intercept	Pillai's Trace	.995	16801.361(b)	3.000	228.000	.000	.995	50404.083	1.000
	Wilks' Lambda	.005	16801.361(b)	3.000	228.000	.000	.995	50404.083	1.000
	Hotelling's Trace	221.071	16801.361(b)	3.000	228.000	.000	.995	50404.083	1.000
	Roy's Largest Root	221.071	16801.361(b)	3.000	228.000	.000	.995	50404.083	1.000
PERSRISK3_CAT	Pillai's Trace	.065	2.545	6.000	458.000	.020	.032	15.272	.845
	Wilks' Lambda	.936	2.571(b)	6.000	456.000	.019	.033	15.423	.849
	Hotelling's Trace	.069	2.595	6.000	454.000	.018	.033	15.573	.853
	Roy's Largest Root	.066	5.019(c)	3.000	229.000	.002	.062	15.057	.913

a Computed using alpha = .05
b Exact statistic
c The statistic is an upper bound on F that yields a lower bound on the significance level.
d Design: Intercept+PERSRISK_3_CAT

Conclusion: Hypothesis 2 cannot be supported.

The univariate tests demonstrated differences among means for the low, medium, and high-very high personal substance use risk with regard to spiritual well-being, and resilience. The low risk group demonstrated decreased spiritual well-being and increased resilience as compared with the high-very high risk group. Likewise, the high-very high risk group demonstrated increased spiritual well-being and decreased resilience than the low risk group. The medium risk group displayed no significant differences.

The multivariate tests demonstrated significant correlations between personal substance use risk and the three dependent variables of health values, spiritual well-being, and resilience as a composite. In summary, it appears that although the composite variable of health values, spiritual well-being, and resilience were significantly correlated to personal substance use risk, differences exist between the individual variables of spiritual well-being and resilience between the low and the high-very high personal substance use risk groups. Conclusions from the multivariate test alone did not capture the differences between these groups and univariate tests provided the more conclusive evidence for this hypothesis.

A brief review of the proposed plan of analysis for Hypotheses 3a, 3b, and 3c is presented below:

The proposed plan for analysis included subdividing the sample into two groups prior to answering addressing Hypotheses 3a, 3b, and 3c. Group 1 was planned to consist of participants displaying negative indicators for reported past or present familial substance *abuse* problems and Group 2 was planned to consist of participants displaying positive indicators for reported past or present familial (*genetic* and *non-genetic*

relatives). Then, the latter group (Group 2) was planned to be subdivided into Group 2A, participants reporting *genetic* relatives and Group 2B, participants reporting *non-genetic* relatives. Participants who reported both genetic and non-genetic relatives were planned to be placed in Group 2A, participants reporting *genetic* relatives.

During the analysis of data, it was discovered that Group 2A contained 128 cases and Group 2B contained only three cases. This impacted the proposed plan for analysis for Hypothesis 3b, making it impossible to carry out the analysis as planned. Therefore, the analysis for Hypothesis 3b was altered to reflect further exploration of Group 2A. And, the analysis for Hypothesis 3c was carried out, but because cell sizes were unequal, variance was calculated to determine whether the analysis would be valid.

Hypothesis 3a: Participants *with* reported past or present familial (*genetic* or *non-genetic*) substance *abuse* (Group 2) will demonstrate increased health values, spiritual well-being, and resilience compared with participants *with no* reported past or present familial substance *abuse* (Group 1).

Analysis: Four cases were omitted from this portion of the data analysis because four participants did not answer the survey question regarding familial substance abuse. Thus, the analysis for this question was based on a reduced valid sample size of 229 cases. The proposed methods for analysis included a calculation of means for the three dependent variables followed by independent samples t-tests to compare the means of the groups (positive for familial substance abuse group and negative for familial substance abuse group).

The actual analysis for this question compared the two groups in four ways: (1) a t-test compared means of mod-HAV, (2) a t-test compared means of SIWB, (3) a t-test

compared means of RS-15, and (4) a correlation was performed among mod-HAV, SIWB, and RS-15. A Levene's test was also performed to ensure that the assumption for equal variance was met for all three dependent variables of mod-HAV, SIWB, and RS-15.

The descriptive statistics regarding indicators for familial substance abuse and mod-HAV appear in Table 18. The Levene's value for mod-HAV (.666) was not significant because it is greater than .05 and implies that the variance was the same (see Table 19). The t-test value (-.550) was not significant and subsequently, the null hypothesis could not be rejected. Ultimately, this indicates the means for the groups were the same in the population (see Table 19).

TABLE 18

Familial SUBSTANCE ABUSE Group Statistics for Scores of mod-HAV

	Family SA?	N	Mean	Std. Deviation	Std. Error Mean
Total Score of mod-HAV	Yes	131	11.97	1.569	.137
	No	98	12.08	1.469	.148

TABLE 19

Independent Samples T-test for mod-HAV and YES or NO Familial SUBSTANCE ABUSE

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.2-tailed	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower Bound	Upper Bound
Total Score of mod-HAV	Equal variances assumed	.666	.415	-.550	227	.583	-.112	.204	-.514	.290
	Equal variances not assumed			-.555	215.860	.579	-.112	.202	-.510	.286

The descriptive statistics regarding indicators for familial substance abuse and SIWB appear in Table 20. The Levene's value for SIWB (.243) was not significant (see Table 21). However, the t-test value (1.989) was significant and the null hypothesis was subsequently rejected. Essentially, this indicates the means of the two groups were different in the population (see Table 21).

TABLE 20

Familial SUBSTANCE ABUSE Group Statistics for Scores of SIWB

	Family SA?	N	Mean	Std. Deviation	Std. Error Mean
Total Score of SIWB	Yes	131	24.11	7.920	.692
	No	98	22.08	7.212	.729

TABLE 21

Independent Samples T-test for SIWB and YES or NO Familial SUBSTANCE ABUSE

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.2-tailed	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower Bound	Upper Bound
Total Score of SIWB	Equal variances assumed	.243	.623	1.989	227	.048	2.025	1.018	.018	4.032
	Equal variances not assumed			2.016	218.360	.045	2.025	1.005	.045	4.006

The descriptive statistics regarding indicators for familial substance abuse and RS-15 appear in Table 22. The Levene's value for RS-15 (1.125) was not significant because it is greater than .05 and implies that the variance was the same (see Table 23). The t-test value (-1.250) was not significant and subsequently, the null hypothesis could not be rejected. Once again, this indicates the means for the two groups were the same in the population (see Table 23).

TABLE 22

Familial SUBSTANCE ABUSE Group Statistics for Scores of RS-15

	Family SA?	N	Mean	Std. Deviation	Std. Error Mean
Total Score of RS-15	Yes	131	83.41	11.707	1.023
	No	98	85.29	10.533	1.064

TABLE 23

Independent Samples T-test for RS-15 and YES or NO Familial SUBSTANCE ABUSE

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig.2-tailed	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower Bound	Upper Bound
Total Score of RS-15	Equal variances assumed	1.125	.290	-1.250	227	.213	-1.874	1.499	-4.826	1.079
	Equal variances not assumed			-1.269	219.343	.206	-1.874	1.476	-4.782	1.035

As noted by the results for the three t-tests (see Tables 19, 21, & 23) comparing the two groups of NO (Group 1) and YES (Group 2) for familial substance abuse, a difference was noted in spiritual well-being. A subsequent test was performed to investigate this difference.

Group 1 was represented as negative indicators (response of NO) for presence of familial substance abuse. This was reported by 98 cases (42.8%) of the valid case total (n = 229). A Pearson correlation was performed for Group 1 for the dependent variables of mod-HAV, SIWB, and RS-15 (see Table 24).

TABLE 24

Correlations for NO Familial SUBSTANCE ABUSE and mod-HAV, SIWB, and RS-15

		Total Score of RS-15	Total Score of SIWB	Total Score of mod-HAV
Total Score of RS-15	Pearson Correlation	1	-.754(**)	.188
	Sig. (2-tailed)		.000	.064
	N	98	98	98
Total Score of SIWB	Pearson Correlation	-.754(**)	1	-.089
	Sig. (2-tailed)	.000		.383
	N	98	98	98
Total Score of mod-HAV	Pearson Correlation	.188	-.089	1
	Sig. (2-tailed)	.064	.383	
	N	98	98	98

** Correlation is significant at the 0.01 level (2-tailed).
Family SA? = NO

Interpretation: Group 1 demonstrated a negative correlation value (-.754) between SIWB and RS-15 at $p < 0.01$ significance level (2-tailed test) (see Table 24). As stated previously effect size is a measure of the strength of the relationship between two variables. Using the aforementioned scale for measuring size of effect size, the effect size between these two variables was large.

Conclusion: Hypothesis 3a cannot be supported. As spiritual well-being increased, resilience largely decreased for participants reporting NO familial substance abuse. The opposite is true as well. As spiritual well-being decreased, resilience largely increased for participants reporting NO familial substance abuse. No correlations were observed between negative indicators for familial substance abuse and health values for Group 1. No correlations were observed between negative indicators for familial substance abuse and resilience for Group 1.

Group 2 was represented as positive indicators (response of YES) for presence of familial substance abuse (*genetic*, *non-genetic*, or both). This was reported by 131 cases (57.2%) of the valid case total (n = 229). This represented a majority of the sample. A Pearson correlation was performed for Group 2 for the dependent variables of mod-HAV, SIWB, and RS-15 (see Table 25).

TABLE 25

Correlations for YES Familial SUBSTANCE ABUSE and mod-HAV, SIWB, and RS-15

		Total Score of RS-15	Total Score of SIWB	Total Score of mod-HAV
Total Score of RS-15	Pearson Correlation	1	-.701(**)	.304(**)
	Sig. (2-tailed)		.000	.000
	N	131	131	131
Total Score of SIWB	Pearson Correlation	-.701(**)	1	-.199(*)
	Sig. (2-tailed)	.000		.023
	N	131	131	131
Total Score of mod-HAV	Pearson Correlation	.304(**)	-.199(*)	1
	Sig. (2-tailed)	.000	.023	
	N	131	131	131

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
Family SA? = YES

Interpretation: Group 2 shows a positive correlation value (.304) between mod-HAV and RS-15 at significance level of $p < 0.01$ (2-tailed test) (see Table 25). Group 2 shows a negative correlation value (-.701) between SIWB and RS-15 at significance level of $p < 0.01$ (2-tailed test) and a negative correlation value (-.199) between mod-HAV and SIWB at significance level $p < 0.05$ (2-tailed test) (see Table 25).

Using Cohen's (1988) scale, the effect size between mod-HAV and RS-15 is medium at .304. The effect size between SIWB and RS-15 is large at -.701. The effect size between mod-HAV and SIWB is small at -.199.

To be certain if there actually was a difference between Group 1 and Group 2, further analyses were performed which included a two-step process. The two steps included a Fisher's transformation (see Table 26) followed by a z test comparison (see Table 27). First, the Fisher's transformation tested the correlations between Group 1 and Group 2. This was a formal hypothesis test between variables and the null hypothesis indicates equal correlations between Group 1 (NO-family) and Group 2 (YES-family). This was accomplished with a z test comparing Group 1 (NO-family) to Group 2 (YES-family) regarding their correlations to the mod-HAV, SIWB, and RS-15 to determine if the differences in correlation were statistically significant.

Because a Fisher's transformation was performed, it was not necessary to calculate the confidence intervals for each of the correlations. The Fisher's transformation test is not often used so it could not be readily calculated using SPSS software. It was necessary to create the syntax to perform this test using SPSS.

TABLE 26

Fisher's Transformation Correlations for YES or NO Familial SUBSTANCE ABUSE

Family SA?			Total Score of mod-HAV	Total Score of SIWB	Total Score of RS-15
YES	Total Score of mod-HAV	Fisher's Transformation	1	-.55	.31392
		N	131	131	131
	Total Score of SIWB	Fisher's Transformation	-.55	1	-.869
		N	131	131	131
	Total Score of RS-15	Fisher's Transformation	.31392	-.869	1
		N	131	131	131
NO	Total Score of mod-HAV	Fisher's Transformation	1	-.09	.190
		N	98	98	98
	Total Score of SIWB	Fisher's Transformation	-.09	1	-.982
		N	98	98	98
	Total Score of RS-15	Fisher's Transformation	.190	-.982	1
		N	98	98	98

Table 27 shows the comparison of correlation between negative (Group 1) familial substance abuse and positive family substance abuse (Group 2) to address the question if they were differences between the two groups.

TABLE 27

Z-Test for YES Familial and NO Familial SUBSTANCE ABUSE Groups

	Z-TEST		
	Z	Sig. (2-tailed)	Difference
Correlation of RS-15 and mod-HAV	.913	.360	.122
Correlation of SIWB and mod-HAV	-3.422	.000	-.463
Correlation of RS-15 and SIWB	.834	.404	-.113

Interpretation: The differences for the correlations of SIWB and mod-HAV were significant at a correlation value of $z > .000$ (see Table 27). It indicates that the NO group and the YES group are different with respect to their correlations between SIWB and mod-HAV. The differences of RS-15 and mod-HAV correlation and the RS-15 and SIWB correlation were not significant between the two groups.

Conclusion: Hypothesis 3a still cannot be supported. Participants reporting positive indicators for familial substance abuse demonstrated a significant difference in their correlations between the two variables of spiritual well-being and health values as compared to participants reporting no indicators for familial substance abuse.

Hypothesis 3b: Participants reporting past or present substance *abuse* problems with *genetic* relatives (Group 2A) will demonstrate increased health values, spiritual well-being, and resilience compared with participants reporting past or present substance *abuse* with *non-genetic* relatives (Group 2B).

Analysis: Group 2A indicated genetic risk (including participants who reported both *genetic* family only risk and combined *genetic* and *non-genetic* family risk) and 128 cases were reported. Group 2B indicated non-genetic risk (including participants who reported *non-genetic* family only risk) and only three cases were reported (see Table 28).

Due to a small representation (3 cases) for Group 2B (*non-genetic* risk sample), the proposed analyses could not be performed as planned. It was not possible to compare Group 2A (*genetic* risk) and Group 2B (*non-genetic* risk). Instead of looking at comparisons between genetic and non-genetic risk differences, the data were used to look exclusively at the dependent variables within the genetic risk group in relation to their familial substance abuse risk categories and personal substance use risk factors.

To accomplish this, continuous scores were calculated for participants reporting presence of genetic familial substance abuse (see Table 28). This was done in accordance with the scale published by Miller et al. (1995). Non-genetic indicators, reported by the 128 participants, were calculated according to the scale developed for the non-genetic family members (see Table 29). Both scales appear in Chapter III of this document. Continuous scores for the genetic and non-genetic indicators, reported by the 128 participants, were calculated separately and then combined to determine a familial substance abuse risk continuous score. The family substance abuse risk scores were then placed into categories of low, medium, high, and very high.

TABLE 28

Total Continuous Scores GENETIC Risk for GROUP 2A

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	8.6	8.6	8.6
	2	18	14.1	14.1	22.7
	3	16	12.5	12.5	35.2
	4	20	15.6	15.6	50.8
	5	12	9.4	9.4	60.2
	6	15	11.7	11.7	71.9
	7	9	7.0	7.0	78.9
	8	5	3.9	3.9	82.8
	9	6	4.7	4.7	87.5
	10	3	2.3	2.3	89.8
	11	2	1.6	1.6	91.4
	12	2	1.6	1.6	93.0
	13	2	1.6	1.6	94.5
	14	2	1.6	1.6	96.1
	16	1	.8	.8	96.9
	17	2	1.6	1.6	98.4
	20	1	.8	.8	99.2
	21	1	.8	.8	100.0
	Total	128	100.0	100.0	

a GENETIC VS NON-GENETIC = GENETIC Risk

TABLE 29

Total Continuous Scores Non-Genetic Risk for GROUP 2A

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	48	37.5	37.5	37.5
	1	2	1.6	1.6	39.1
	2	18	14.1	14.1	53.1
	3	5	3.9	3.9	57.0
	4	13	10.2	10.2	67.2
	5	3	2.3	2.3	69.5
	6	8	6.3	6.3	75.8
	7	2	1.6	1.6	77.3
	8	10	7.8	7.8	85.2
	9	1	.8	.8	85.9
	10	4	3.1	3.1	89.1
	11	2	1.6	1.6	90.6
	12	3	2.3	2.3	93.0
	13	2	1.6	1.6	94.5
	15	1	.8	.8	95.3
	19	1	.8	.8	96.1
	20	1	.8	.8	96.9
	22	1	.8	.8	97.7
	24	1	.8	.8	98.4
	42	1	.8	.8	99.2
	81	1	.8	.8	100.0
	Total	128	100.0	100.0	

a GENETIC VS NON-GENETIC = NON-GENETIC Risk

Next, a Pearson correlation was performed to determine the relationships between genetic risk factors on the three dependent variables of mod-HAV, SIWB, and RS-15 (see Table 30).

TABLE 30

Pearson Correlation for GROUP 2A GENETIC Risk and mod-HAV, SIWB, and RS-15

		Total Score of RS-15	Total Score of SIWB	Total Score of mod-HAV
Total Score of RS-15	Pearson Correlation	1	-.704(**)	.311(**)
	Sig. (2-tailed)		.000	.000
	N	128	128	128
Total Score of SIWB	Pearson Correlation	-.704(**)	1	-.188(*)
	Sig. (2-tailed)	.000		.033
	N	128	128	128
Total Score of mod-HAV	Pearson Correlation	.311(**)	-.188(*)	1
	Sig. (2-tailed)	.000	.033	
	N	128	128	128

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
a GENETIC VS NONGENETIC = GENETIC

Interpretation: For Group 2A, a large, significant negative correlation value (-.704) was observed between SIWB and RS-15 at $p < 0.01$ (see Table 30). A small, significant negative correlation value (-.188) was noted between SIWB and mod-HAV at $p < 0.05$ (see Table 30). A medium, significant positive correlation value (.311) was noted between RS-15 and mod-HAV at $p < 0.01$ (see Table 30).

Conclusion: Due to insufficient data, Hypothesis 3b was unable to be tested. The analysis for this hypothesis was modified to provide findings for Group 2A only. The findings showed that participants reporting genetic indicators for familial substance abuse

demonstrated a large, inverse relationship between spiritual well-being and resilience, a small, inverse relationship between spiritual well-being and health values, and a moderate, positive relationship between resilience and health values.

Next, a Pearson correlation was performed to determine the relationships between non-genetic risk factors on the three dependent variables of mod-HAV, SIWB, and RS-15 (see Table 31).

TABLE 31

Pearson Correlation for GROUP 2A NON-GENETIC Risk and mod-HAV, SIWB, and RS-15

		Total Score of RS-15	Total Score of SIWB	Total Score of mod-HAV
Total Score of RS-15	Pearson Correlation	1	-.400	.181
	Sig. (2-tailed)		.738	.884
	N	3	3	3
Total Score of SIWB	Pearson Correlation	-.400	1	-.974
	Sig. (2-tailed)	.738		.146
	N	3	3	3
Total Score of mod-HAV	Pearson Correlation	.181	-.974	1
	Sig. (2-tailed)	.884	.146	
	N	3	3	3

b GENETIC VS NONGENETIC = NONGENETIC

Interpretation: No significant correlations were observed for the non-genetic familial substance abuse risk scores.

In preparation for the investigation of Hypothesis 3c, ANOVA tests were performed for each of the following three sets of scores for GROUP 2A: (1) genetic scores only (see Table 32), non-genetic scores only (see Table 33), and combined familial substance abuse risk scores (see Table 34).

TABLE 32

Oneway ANOVA for GROUP 2A GENETIC Risk Scores

		Sum of Squares	df	Mean Square	F	Sig.
Total Score of SIWB	Between Groups	382.894	3	127.631	2.086	.105
	Within Groups	7771.610	127	61.194		
	Total	8154.504	130			
Total Score of RS-15	Between Groups	1433.201	3	477.734	3.703	.014
	Within Groups	16382.539	127	128.996		
	Total	17815.740	130			
Total Score of mod-HAV	Between Groups	9.978	3	3.326	1.363	.257
	Within Groups	309.900	127	2.440		
	Total	319.878	130			

TABLE 33

Oneway ANOVA for GROUP 2A NON-GENETIC Risk Scores

		Sum of Squares	df	Mean Square	F	Sig.
Total Score of SIWB	Between Groups	607.115	3	202.372	3.405	.020
	Within Groups	7547.389	127	59.428		
	Total	8154.504	130			
Total Score of RS-15	Between Groups	1568.609	3	522.870	4.087	.008
	Within Groups	16247.131	127	127.930		
	Total	17815.740	130			
Total Score of mod-HAV	Between Groups	14.850	3	4.950	2.061	.109
	Within Groups	305.028	127	2.402		
	Total	319.878	130			

TABLE 34

Oneway ANOVA for GROUP 2A Familial SUBSTANCE ABUSE Risk Scores

		Sum of Squares	df	Mean Square	F	Sig.
Total Score of SIWB	Between Groups	645.573	3	215.191	3.640	.015
	Within Groups	7508.931	127	59.125		
	Total	8154.504	130			
Total Score of RS-15	Between Groups	1584.033	3	528.011	4.131	.008
	Within Groups	16231.708	127	127.809		
	Total	17815.740	130			
Total Score of mod-HAV	Between Groups	2.345	3	.782	.313	.816
	Within Groups	317.533	127	2.500		
	Total	319.878	130			

Next, a frequency test was performed to determine the sizes of the cells in relation to the two independent variables of personal substance use risk and familial substance abuse risk (see Table 35). Personal substance use risk was represented as the three categories of low, medium, and high to very high. Familial substance abuse risk was represented as four categories of low, medium, high, and very high. The categories were then crosstabulated for a 12 cell display. Some cell sizes were too small to compare groups individually among the 12 cells. Some cells were combined in preparation to answer Hypothesis 3c.

TABLE 35

Crosstabulation for Personal SUBSTANCE USE Risk Categories and Familial SUBSTANCE ABUSE Risk Categories

		Family Risk (categorical)				Total
		Low	Medium	High	Very High	
PERSRISK_ CAT_3	LOW	61	12	15	4	92
	MEDIUM	47	9	17	15	88
	HIGH AND VERY HIGH	23	3	10	13	49
Total		131	24	42	32	229

Hypothesis 3c: Participants considered *low* to *medium* risk for personal substance *use* and *high* to *very high* risk for familial substance *abuse* (*genetic* or *non-genetic*) will demonstrate increased reported health values, spiritual well-being, and resilience compared with participants considered *high* to *very high* risk for personal substance *use* and *low* to *medium* risk for familial substance *abuse* (*genetic* or *non-genetic*).

Analysis: Students who displayed low to medium risk for personal substance use and high to very high risk for familial substance abuse were placed in comparison group 3. Students who displayed high to very high risk for personal substance use and low to medium risk for familial substance abuse were placed in comparison group 4. Comparison group 3 contained 51 cases and comparison group 4 contained 26 cases (see Table 36). An independent samples t-test was performed to compare the two groups (see Table 37).

TABLE 36

Descriptive Statistics for Low-Medium Personal SUBSTANCE USE and High-Very High Familial SUBSTANCE ABUSE Risk Group (3) compared with the High-Very High Personal SUBSTANCE USE and Low-Medium Familial SUBSTANCE ABUSE Risk Group (4)

	Q3c_CAT1	N	Mean	Std. Deviation	Std. Error Mean
Total Score of SIWB	3	51	24.84	7.953	1.114
	4	26	24.04	7.006	1.374
Total Score of RS-15	3	51	81.67	10.457	1.464
	4	26	83.35	11.503	2.256
Total Score of mod-HAV	3	51	12.04	1.549	.217
	4	26	12.08	1.623	.318

TABLE 37

Independent Samples T-test for Low-Medium Personal SUBSTANCE USE and High-Very High Familial SUBSTANCE ABUSE Risk Group (3) compared with the High-Very High Personal SUBSTANCE USE and Low-Medium Familial SUBSTANCE ABUSE Risk Group (4)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. 2-tailed	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower Bound	Upper Bound
Total Score of SIWB	Equal variances assumed	.955	.332	-.436	75	.664	-.805	1.844	-4.477	2.868
	Equal variances not assumed			-.455	56.459	.651	-.805	1.769	-4.347	2.738
Total Score of RS-15	Equal variances assumed	.466	.497	.644	75	.521	1.679	2.607	-3.513	6.872
	Equal variances not assumed			.624	46.386	.535	1.679	2.689	-3.733	7.092
Total Score of mod-HAV	Equal variances assumed	.188	.666	.099	75	.921	.038	.379	-.718	.793
	Equal variances not assumed			.098	48.386	.922	.038	.385	-.737	.812

Interpretation: No significant differences were noted between the two groups.

Conclusion: Hypothesis 3c cannot be supported.

Supplemental Analysis for Question 3c

Two additional comparison groups (5 & 6) were created and compared as a supplemental inquiry to Question 3c. Students who displayed low to medium risk for personal substance use and low to medium risk for familial substance abuse were placed in comparison group 5. Students who displayed high to very high risk for personal substance use and high to very high risk for familial substance abuse were placed in comparison group 6. Comparison group 5 contained 129 cases and comparison group 6 contained 23 cases (see Table 38). An independent samples t-test was performed to compare the two groups (see Table 39).

TABLE 38

Descriptive Statistics for Low-Medium Personal SUBSTANCE USE and Low-Medium Familial SUBSTANCE ABUSE Risk Group (5) compared with the High-Very High Personal SUBSTANCE USE and High-Very High Familial SUBSTANCE ABUSE Risk Group (6)

	Q3c_CAT2	N	Mean	Std. Deviation	Std. Error Mean
Total Score of mod-HAV	5	129	12.09	1.471	.129
	6	23	11.48	1.648	.344
Total Score of SIWB	5	129	21.47	7.031	.619
	6	23	28.70	8.193	1.708
Total Score of RS-15	5	129	86.56	10.391	.915
	6	23	77.70	13.723	2.861

TABLE 39

Independent Samples T-test for Low-Medium Personal SUBSTANCE USE and Low-Medium Familial SUBSTANCE ABUSE Risk Group (5) compared with the High-Very High Personal SUBSTANCE USE and High-Very High Familial SUBSTANCE ABUSE Risk Group (6)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower Bound	Upper Bound
Total Score of mod-HAV	Equal variances assumed	.001	.977	1.813	150	.072	.615	.339	-.055	1.285
	Equal variances not assumed			1.674	28.594	.105	.615	.367	-.137	1.366
Total Score of SIWB	Equal variances assumed	.330	.567	-4.424	150	.000	-7.223	1.633	-10.449	-3.997
	Equal variances not assumed			-3.975	28.074	.000	-7.223	1.817	-10.945	-3.501
Total Score of RS-15	Equal variances assumed	5.161	.025	3.578	150	.000	8.862	2.477	3.968	13.757
	Equal variances not assumed			2.950	26.680	.007	8.862	3.004	2.695	15.030

Interpretation: The t-test value (2.950) was significant for RS-15 at p = .007 (2-tailed test) (see Table 39). The t-test value (-3.975) was significant for SIWB at p > .000 (2-tailed test) (see Table 39). The null hypothesis can be rejected which says they are all the same and is essentially interpreted to mean the groups were different for these two variables.

Conclusion: Participants with low to medium risk for personal substance use and familial substance abuse demonstrate increased resilience (86.56) compared with participants considered high to very high risk for personal substance use and familial substance abuse (77.70) (see Table 38). Participants with low to medium risk for personal substance use and familial substance abuse demonstrated decreased spiritual well-being (21.47) compared with participants considered high to very high risk for personal substance use and familial substance abuse (28.70) (see Table 38).

In summary, the data analysis for the study demonstrated a number and variety of significant findings. Although none of the research hypotheses were supported by the findings, research findings provided sufficient data to analyze in providing answers to each of the research questions. The implications of these results are discussed in Chapter V of this document, along with limitations for the study, directions for future research, and final concluding remarks.

CHAPTER V

Discussion

Chapter V is the final chapter of this document and includes a summary of findings from Chapter IV. Due to the variety of questions posed and the extent of analyses performed, there were a number of findings, many of which were significant. The summary appears in the paragraphs below and relates back to initial research questions as they appear in Chapter I of this document. The meanings and implications of these findings are derived from this summary and appear in the *Implications of Results* section later in this chapter. Additionally, this chapter contains sections regarding study limitations, directions for future research, and a general conclusion to the overall results.

Summary of Findings

Question 1: Within the general sample of college undergraduate students, the individual constructs of health values, spiritual well-being, and resilience exhibit significant influences both positively and negatively. In particular, spiritual well-being has a large, negative relationship with resilience and a small, negative relationship with health values. Health values have a small, positive relationship with resilience.

Question 2: Regarding the effect of personal substance use and its levels of risk on the major constructs, initial tests show that the high-very high risk group displays a large increase in spiritual well-being and a small decrease in resilience in contrast with the low risk group. The medium risk group was not found to be significantly different. Subsequent testing for this question, involving more sophisticated analyses, demonstrated that a significant relationship exists between the levels of personal substance use risk and the major constructs of health values, spiritual well-being, and resilience as a composite

variable. However, this finding was dismissed and initial tests were found to provide the more conclusive evidence.

Question 3a: Findings reveal that differences exist between the constructs of spiritual well-being and health values for students answering NO (Group 1) and students answering YES to past or present familial substance abuse (Group 2). Additional tests revealed that for students reporting NO familial substance abuse, as resilience increases, spiritual well-being largely decreases. For students responding YES to familial substance abuse (genetic, non-genetic, or both), the same large effect was observed showing that as resilience increases, spiritual well-being decreases. Also, for students responding YES to past or present familial substance abuse, a medium effect was observed showing that as resilience increases, health values increase. Finally, for this same group of YES students, a small effect was observed showing that as health values increase, spiritual well-being decreases.

Question 3b: Although data were insufficient to answer the original research question, they were used to obtain results for the group of 128 students who reported *genetic* risks for familial substance abuse (Group 2A). Many students in this group reported *non-genetic* familial substance abuse risk factors in addition to *genetic* familial substance abuse risk factors. Data from *genetic* and *non-genetic risk* factors were studied separately to determine how these factors interact with the major constructs. For this group, the *genetic* risk factor of familial substance abuse displays a large, negative correlation between spiritual well-being and resilience. Also, *genetic* risk displays a small, negative correlation between spiritual well-being and health values and a medium, positive correlation between health values and resilience. For this same group of

students, *non-genetic* risk factors bear no significant relationships with the major constructs.

Question 3c: When comparing individuals exhibiting low-medium personal substance use risk and high-very high familial substance abuse risk (comparison group 3) with individuals exhibiting high-very high personal substance use risk and low-medium familial substance abuse risk (comparison group 4), the results reveal no significant findings relative to the major constructs of this study.

Supplemental Analysis for Question 3c: In a supplemental analysis comparing individuals exhibiting low-medium risks for both personal substance use and familial substance abuse (comparison group 5) with individuals exhibiting high-very high risks for both personal substance use and familial substance abuse (comparison group 6), the former group demonstrates a significant increase in resilience and a significant decrease in spiritual well-being compared with the latter group.

Limitations

There were a number of limitations for the study which are recorded in the paragraphs below. As a word of caution, this should by no means be considered an exhaustive list of limitations. Other important limitations may well exist that have not been mentioned here.

Sampling Bias: Due to selection of a purposive sample, sampling bias is an inherent characteristic to all results obtained from this study. Although the overall response to the survey was considered highly successful for the design and size of sample chosen ($n = 233$), no inferences can be made regarding college students who attend large Midwestern universities within the United States. It should be emphasized that the

sample of students invited to participate in the study were enrolled in a block of sections offered within an introductory, substance abuse course. Although the students within the study represented academic programs throughout the university, this fact did not replace random sampling methods necessary to making population inferences. The sample did, however, display the desired characteristic of familial substance abuse as was reflected by 57.2% of the sample. The reported density of familial substance abuse for this study appears consistent with national saturation levels of familial alcoholism reported by Dawson and Grant in 1998 (slightly greater than 50%). Because alcohol and drug reporting within families was not separated by the study, the slightly elevated density of substance abuse likely reflects the added reporting of drug abuse conditions other than alcoholism. The elevated density may have been further reflected by the fact that students participating in the survey were exposed to educational concepts which assisted them to more readily define and identify substance abuse problems.

Sample Limitations: Although the sample included a distribution of students from within a variety of academic ranks and across a variety of academic disciplines, representation within the sample is named as a possible limitation to the study. The findings show that the sample represents mostly female and mostly White students. Despite the implications of gender in alcohol dependence studies, the differences between males and females were not emphasized in the design of this initial investigation.

The study did not consider the influence of CEP 261 course content on students' responses given their exposure to substance abuse concepts delivered within their respective classrooms during the first six weeks of the semester. It was assumed that a large majority of students were taking the course on the topic of substance abuse for the

first time. However, it remains unknown as to how the content may have influenced their responses. Additionally, many students may have had previous exposures to Drug Abuse Resistance Education (DARE) through their years of secondary education, but this was unknown at the time of the study and its relative impact was not considered within the findings.

Another limitation imposed upon the sample pertained to the age of participants and the measurement of the constructs of spiritual well-being and resilience. It is possible that young adults within the sample had difficulty responding to the existential themes and meaning of life questions presented by the Spiritual Index of Well-Being (Daaleman & Frey, 2004) and the Resilience Scale-15 (Neil & Dias, 2001).

Researcher Bias: Another area of limitation was possible researcher bias. For three years prior to conception of the study, teaching observations made within the context of the introductory substance abuse course and elevated considerable curiosity. The purposeful classroom environment made it an inviting selection and unique opportunity in which to collect data from undergraduate students. At the time of data collection, the researcher for this study was serving as the appointed coordinator for the same block of CEP 261 substance abuse course sections. Although the researcher had no direct involvement with CEP 261 students, no authority over the CEP 261 teaching assistants, and no jurisdiction over the sections, it still should not be ruled out as a potential bias.

Biases may have been present in the relationships that developed during the orientation and training activities that were provided to the teaching assistants during the academic year in which the study occurred. It is uncertain as to how teaching assistants

for the course may have directly or indirectly influenced their students in participating in the survey. And, it is worth mentioning again that most of the teaching assistants elected to award their students with extra credit points for taking the survey. Although, the award of extra credit participation points was not mandated through the study, it is unclear as to how this may have affected students' responses.

Psychological and Personality Limitations: Psychological and personality characteristics were not accounted for within the research design. Individuals' perceived locus of control, influences of loss or losses, and other mood considerations, such as positive emotion granularity (Tugade et al., 2004) were not queried by the study. No considerations were given to individuals' emotional stage responses or adjustments to familial substance abuse as a CID (Antonak & Livneh, 1991; Kendall & Buys, 1998; Livneh & Antonak, 1990). And, the research design did not consider optimism, life purpose, or sense of coherence among participants (Adams et al., 2000). The study did not isolate possible factors related to substance abuse or chemical dependency for participants. When computing personal substance use risk categories, the study did not distinguish between types of substances used by college students, including students' possible engagement in the use of polysubstances.

Community and Environmental Limitations: There were limitations with regard to environmental factors posed by living situation and the surrounding residential community. These factors were not investigated by the study. Additional stress load factors such as school pressures posed within the university setting and timing of the study were not factored into the design. The design of the study did not consider size, geographical location, or characteristics of the university or the student body. And, the

study did not investigate history of drinking for the selected campus setting or the availability of alcohol within local businesses holding licenses for liquor retail or illicit and/or illegal drug availability within the college and surrounding residential district.

Family Limitations: A further limitation to the study pertains to variations of family structures, attitudes or roles within families, or the types and severity of familial substance abuse within the sample. In gathering reported information about families from participants, the study did not distinguish substance abuse from possible substance dependence for family members. With respect to psychosocial adaptation for individuals, the study did not consider patterns of family resilience. The presence of polysubstance abuse, compounding disabilities, or mood disorders was not borne out by the study. In addition, the study did not investigate family members affected by substance abuse in connection to levels of resilience within participants.

Cultural Limitations: Racial or ethnic considerations were not considered in the study and no inquiries were made as to differences in cultural perspectives regarding health values, spiritual well-being, or substance abuse as a CID. In considering cultural differences, it may have been important to examine differences in the perspectives of male versus female students.

Methodological Limitations: Limitations regarding the use of surveys as a tool for data collection should be emphasized as an inherent methodological limitation for this study. Some students may have provided exaggerated, misleading, or untruthful responses in the survey. Responses may have also been tainted by misperceptions surrounding the use and abuse of substances and these types of responses would most certainly have affected the overall results. The nature of web-based surveys sets up the

potential atmosphere for participants to be less than honest when entering their responses. Nevertheless, dishonesty in responses is difficult, if not impossible, to detect.

Existing limitations overshadow our current methodologies for gauging the risks for college students' substance use and familial substance abuse. Within the present study, a personal substance use risk variable was created by combining risks for use of both drugs and alcohol. Because there appear to be no universally-accepted standards in calculating the risks of substance use or abuse for *at-risk* populations, it was necessary to begin to forge new territory in assessing personal substance use risk as a variable. Although flaws are apparent in the methods that were used to combine these risk factors, it should be considered as an initial attempt to be improved upon through future investigations. And, because there are no universally-accepted standards for assessing ATOD risks based upon future projections for and a past history of negative consequences per individual, this study provides one example of weighing such risks. The methods used herein represent an attempt at using both objective and subjective methods in creating combined personal substance use risk categories.

Too, we cannot discount the interplay of psychosocial risk variables in assessing how risk may be counteracted by internal protective factors. The dose-response method for calculating risk and exposures to alcohol (Gruenewald et al., 2003) may be an initial step toward establishing a clearer, scientific method by which to assess physiological and metabolic risk variables for individuals. However, the dose-response method lacks applicability to substances other than alcohol. Therefore, precision regarding the risks of ATOD use and abuse remains outside the bounds of our current technology. The present study did not attempt to factor in individuals' BAC as a component in the calculation of

personal substance use risk factors. The study did not consider previous experiences participants may have had with ATOD as contributing risk factors. Related to personal substance use risk, the study did not look at alcohol or other drug-related consequences previously incurred by participants.

Another significant limitation that deserves mention is in creating a scale that measures risk factors for non-genetic familial members. Although the study did not fully test this hypothesis due to insufficient group sizes, it became apparent during the process of data analysis that the rating scales for genetic and non-genetic may not be comparable based upon the sizes of the score ranges. For example if a student indicated they had ten friends who were affected by substance abuse and received a score of 20, how would that compare to a student who indicated their genetic father was affected and received a score of two? Would this place the first student at a higher risk for familial substance abuse than the second student?

Instrument Limitations: The modified Health-as-a-Value scale was the only health values scale located by an exhaustive search of the literature. Fortunately, it was deemed suitable to the college sample under investigation. Psychometrically speaking, it was perhaps the weakest instrument used for this study because the scale consisted of a mere four items which were rated on a 4-point Likert scale. The psychometric properties demonstrated minimal reliability standards showing a Chronbach's alpha of .70. It should be acknowledged that health values scales are difficult to construct and there is no universally-accepted definition for the concept of health. As a construct, one can derive various meanings to health which are dependent upon the populations and contextual environments under consideration. In pursuing advanced research, it is important to

consider that health values vary greatly among particular groups of people and scales must be carefully constructed to ensure validity and reliability to the populations under study.

Other Limitations: Cumulative GPA and primary living situation were named as key factors in relation to the theories posed by this study for overcoming familial substance abuse as a CID through protective factors and the processes of resilience and psychosocial adaptation. Descriptive data were collected on these factors and included in the demographic characteristics for the sample. Due to the exploratory nature and confines of this study, no analyses were performed for these variables. It is recommended that future studies be designed to investigate the relationships of these variables with the major constructs.

Implications of Results

Although inferences from this exploratory study cannot be made to the population of college students at large, and in light of the significant number of limitations posed by the study, results do appear consistent with a number of previous findings from aforementioned studies (see Chapter II). The implications listed below are arranged by the following topics: (1) relationships between constructs, (2) personal substance use risk, (3) familial substance abuse risk, (4) genetic versus non-genetic risk, and (5) implications to practice.

Relationships Between Constructs: In the final analysis, the three constructs of health values, spiritual well-being, and resilience demonstrate significant relationships both positively and negatively within the sample. In the overall sample, a large inverse relationship exists between spiritual well-being and resilience. This suggests that

psychological dimensions of perceived intrinsic and extrinsic control within individuals influence the key factors of psychosocial adaptation. To elaborate, the findings suggest that increased spiritual well-being is related to perceived extrinsic control and trust in one's environment that all is well. Contrastingly, increased resilience is related to perceived intrinsic control and trust in oneself to adapt. This supposition is supported by findings from Bishop (2005) who declared that perceived control serves as a mediating factor to quality of life and adaptation.

These conclusions concur with past studies which suggest that spirituality or spiritual/religious coping serve as a protective factor against the risks of personal substance use (Britton, 2004, Galen & Rogers, 2004; Larson & Larson, 2003; MacKinnon, 2004; Miller 1998). It further validates that the decreased risk of alcohol and drugs through the practice of controlled usage or abstinence, leads to increases in spirituality and spiritual well-being (Sherman & Fischer, 2002). This may imply the reverse conclusion that increases in spirituality and spiritual well-being, may lead to decreased personal substance use or increased abstinence among individuals.

Personal Substance Use Risk: Regarding the risk factor of personal substance use and its various levels, the findings are consistent to the Lanier et al. (2000) study which discovered that students who drank three or four drinks per week scored lower on general well-being than students who drank only two drinks per week and students who drank between eight and fifteen drinks per week increased in general well-being. This variation points to Park and Levenson's (2002) observation that perceived increase of self-control through consumption of alcohol may increase "situational coping" which leads to an improved sense of well-being. Situational risk coping may suggest a temporary state of

relief or a possible false sense of security and enhanced well-being all induced by the effects of the substance/s under use. It foreshadows the possibility that some individuals in the high-very high risk group use ATOD as an "avoidance coping" strategy (Britton, 2004) which would lead one to further consider implications of emotional numbing or denial. Although personal substance use as a risk factor demonstrated a significant correlation to the overall composite variable of health values, spiritual well-being, and resilience, there remains insufficient evidence to definitively interpret these findings (Lanier et al., 2000). With the additional results contributed by this study, the evidence is mounting and interpretation may be confirmed through future investigations.

Familial Substance Abuse Risk: With regard to familial substance abuse as a risk factor, the findings suggest that students who display NO evidence of familial substance abuse possess a greater sense of spiritual well-being (external control) by placing their faith and trust in a Higher Power. And, in the presence of changing conditions, these individuals are influenced by their environments. Along with this notion, it was suggested previously that sense of coherence influences spiritual coping and a state of well-being (Adams et al., 2000; George et al. 2000).

In contrast, students from families of substance abuse employ a greater sense of resilience (internal control) by empowering themselves to adapt in the face of adverse and changing conditions. The latter indicates that resilient individuals empower themselves to make responsible choices, relying upon intrinsic abilities and survival instincts to attain a sense of competence and mastery over their personal life's paths. These results are supported by the Adams et al. (2000) study which identified the need, through continued research efforts, to increase our understanding of life purpose,

optimism, and sense of coherence in relationship to resilience. These findings seem to point to the conclusion that individuals' underlying beliefs and perceptions about their personal causation (Miller & Walker, 1993) and competencies, including sense of purpose and coherence in life, are important to adaptation and survival. This provides evidence to suggest there are differences in how resilient individuals engage their personal sense of intrinsic power, including their internal abilities to influence their environments. The inverse relationship that spiritual well-being has to resilience and health values may speak to the acceptance by more spiritually-attuned individuals to allow extrinsic and external forces to guide and direct the events that occur along their life paths and for more resilient individuals to make their own choices in providing direction for self. It foreshadows the possibility that individuals who display both spiritual well-being and resilience are even more likely to be successful in adapting to adverse conditions.

Another important finding suggests that in the presence of familial substance abuse as a risk factor, health values serve as a "protective/protective" factor (Hawkins et al., 1992). In other words, health values serve to potentiate or strengthen resilience (Ritt-Olson et al., 2004). Results indicate the relationship between health values and resilience increased from "mild" within the general sample of students to "moderate" within the group of students reporting familial substance abuse. This says that an increased relationship of health values exists for individuals demonstrating resilience in overcoming the risks of familial substance abuse.

In analyzing the value contributed by the supplemental findings, there is evidence to show that the higher the risk factors for individuals displaying both personal substance

use and familial substance abuse, the higher their level of resilience and the lower their level of spiritual well-being. Jessor et al.'s (2006) claim that the higher the risk factors and the less the protector factors the higher the incidence of drinking, may further imply that resilience is indeed a protective process against both risk factors of personal substance use and familial substance abuse.

Genetic versus Non-genetic Risk: The findings suggest that *non-genetic* risk factors for familial substance abuse displayed no significant relationships with the major constructs under investigation. Students' *genetic* risk factors of familial substance abuse displayed a large inverse relationship between spiritual well-being and resilience, a small inverse relationship between spiritual well-being and health values, and a medium positive correlation between health values and resilience. Within the present study, these results are the same as those revealed for the presence of familial substance abuse. Hence, *genetic* familial substance abuse risk factors accounted for most, if not all, of the findings between the constructs under investigation and the process of psychosocial adaptation compared with *non-genetic* familial substance abuse risk factors. These findings are in agreement with previous authors who argued that intergenerational risks for substance use disorders are genetically-based (Hardie, 2002; Hartman et al., 2006; Merikangas et al., 1998; Schuckit, 1999).

To summarize, the salient conclusions for this research support the espousal that health values, spiritual well-being, and resilience serve to reduce the risks for personal substance use and familial substance abuse within the sample. However, the combination of relationships between these identified protective factors and risk factors appear to have some complexities which warrant further study. Advanced investigations into these

relationships may prove to reveal valuable information relevant to the future clinical practices of allied health and counseling.

Implications to Practice: First, this study has the potential to launch a program of research specific to the field of rehabilitation counseling that seeks to continue this investigation into the key human factors and processes that play a role in the successful psychosocial adaptation to CID. Psychosocial adaptation is an important and central concept within the field of rehabilitation counseling. As our knowledge and understanding increases in this area, we may be able to shape our conceptual models and hone our rehabilitative efforts that empower consumers impacted by CID to learn new ways of overcoming adverse circumstances created by psychosocial barriers. Empowering consumers, facilitating psychosocial adaptation to CID, and improving vocational opportunities and outcomes are basic elements within the rehabilitation counseling process and the working alliance between counselor and client (Lustig, Strauser, Rice, & Rucker, 2002).

Second, additional opportunities created by this study may lead to increased awareness and understanding of the factors and processes that are essential to psychosocial adaptation of individuals and their families who are affected by stressful and traumatic conditions of CID such as substance abuse. In particular, this may improve rehabilitation services for transitioning high school youth who are impacted by personal or familial substance abuse. Many times, youth who stem from families of substance are overlooked in gaining access to rehabilitation services. Understandably, transitioning youth who are enabled by resilience, health values, and favorable *bonadaptation* (Kosciulek, 2004a) are overlooked as well. Further study is needed to increase our

understanding of the processes of resilience, success, and empowerment (Kosciulek 2003; Kosciulek, 2005).

Third, this study may aid our understanding of *informed consumer choice* (Kosciulek, 2004b; Kosciulek, 2007) and the role that psychosocial processes play in promoting the internal drive to effectively seek, acquire, and utilize precious resources. Because there appears to be a parallel between the concepts of Miller and Hester's (2003) *informed eclecticism* within the world of alcohol and drug treatment and Kociulek's model of informed consumer choice within rehabilitation, opportunities for advanced model-building are possible. Quite likely, these concepts are also linked to Bishop's (2005) suggestion that perceived control in making choices that influence one's life leads to enhanced quality of life and adaptation. Therefore, we may wish to examine how individuals with disabilities achieve successful adaptation by measuring their intangible qualities of locus of control, sense of coherence, and process of resilience combined with the availability of and access to precious tangible resources.

Fourth, we may wish to understand if the manner or ease in accessing tangible resources bears any significant relationships with the internal drive to seek and adapt. It would be of interest to know if acquisition of resources is impacted by the quality of instruction clients receive to successfully apply and integrate use of adaptive devices into their settings of work and home. With future studies in this area, it is important to consider technical complexities of the devices, aided by individuals' capacities to apply and use the device, giving full consideration to the accessibility or barriers posed within the physical surroundings and contextual environments. This is critically important to both the fields of rehabilitation counseling and occupational therapy because many

devices dispensed to individuals with disabilities and clients or patients deemed medically *at-risk* may be inappropriately used or underutilized. Inappropriate use of adaptive equipment leads to elevated risks for injury and underutilization of adaptive equipment leads to wasted resources. It is essential that proper training and support be implemented to teach clients to use all prescribed equipment correctly and safely ensuring short and long-term benefits of use. Results of such studies may educate us to be more stringent in our prescriptions, recognizing that empowerment of consumers' intrinsic abilities may contribute to efficient use of resources, thereby reducing costs. This may ease financial barriers that are imposed by the ever-shrinking insurance reimbursement dollars and limited access to grant-funded opportunities.

Fifth, further implications to rehabilitation counseling include infusion of health values into disability paradigms by focusing the field on the positive aspects of "health" and its resulting benefits. In turn, this focus can be used to educate personnel in the medical community in counteracting the perpetuation of negative labeling and stigmas resulting from misconceptions surrounding the concepts and conditions of "disability" and "disease". There is clearly a strong need to minimize the negative influences of Reductionism within allopathic medicine and conventional medical paradigms.

Sixth, the focus of health in disability has the potential to spill over to campus substance use programs. The views of health and holistic health can serve as a focus to the development and refinement of campus-based prevention, intervention, and education programs. Knowledge derived from further research will help to increase the efficacy of existing strategies we currently employ to promote campus-wide cultural changes toward health, safety, and well-being within our college populations and settings. Student

populations may be empowered in "choosing" to curb their use of substances and in selecting healthier habits. In doing so, students can be directed in the steps of self-management in overcoming the stresses of the academic community and in relieving the anxieties of social tension. Empowerment in teaching students healthy ways to reward self through non-chemical means (e.g. meditation) is strongly encouraged. Campus-wide prevention campaigns designed around the implementation of complementary strategies of *auricular acupuncture* (Moner, 1996; Otto, 2003; Reuben et al., 2005), *shamanic drumming* (Winkelman, 2003), and *mindfulness* (Leigh, Bowen, & Marlatt, 2005) will open doors by teaching students natural and safe methods to disengage normal stress responses and to achieve a state of *biopsychospiritual homeostasis* (Richardson, 2002). These strategies would be strengthened when accompanied by training in basic health concepts. Each of these modalities can also easily be blended into health educational seminars designed to modify the behaviors of college students, particularly those who have attained a status of academic probation due to legal repercussions with ATOD.

On the topic of campus substance abuse, more work is needed to understand the population of collegiate CoAs (Perkins & Berkowitz, 1991) and their aspects of resilience (Keeling, 2000) in overcoming their backgrounds of familial substance abuse and in navigating their way through obstacles and adversity in achieving academic success. Indeed, the *at-risk* needs of this special population can be isolated from the general student population and studied intensively. It is possible these individuals possess the overcoming nature that is so-believed to be characteristic of the process of resilience.

Seventh, this study will serve to inspire us with new insights into the ongoing nature of transition that occurs throughout the lives of human beings. Through future

studies on family adaptation, it may be possible to probe more deeply into our understanding of how individuals with disabilities, as a part of family systems, promote positive changes. As we gain new insights about family resilience as a process, we will strive to disentangle the intricacies of the human factors that combine to promote familial adaptation and contribute to overall changes within the family units of those who are affected by substance abuse as a CID.

Eighth, this study can assist rehabilitation counselors in articulating and advocating for the advanced understanding of the needs of disability consumers within the public, private for-profit, and private non-profit sectors. There is a vast need to articulate and expand the concept of disability within the world of research so that other disciplines will gain an improved understanding of the needs of individuals with disabilities. Advancement of the psychosocial theories to adaptation will support professional distinction for the field of rehabilitation counseling and will seek to further the professional identity of rehabilitation counseling professionals.

Finally, results from this study can be used to provide a forum in contemplating advancement of the framework of psychosocial adaptation to CID (Livneh, 2001) by linking it to the systemic ecological model of rehabilitation counseling (Hershenson, 1998). By doing so, we will link human processes of adaptation to contextual environments. The potential outcome is in improving the overall service delivery within the field of rehabilitation.

Directions for Future Research

This study represents a first attempt in exploring the constructs of health values, spiritual well-being, and resilience and their possible links to each other and to personal

substance use risks within a college population and familial substance abuse risks as a CID. Future research is urged to advance our understanding of relationships that exist for these major constructs.

First, this study can inspire the work of researchers to pursue answers related to intrinsic factors that combine to promote resilience and assist us as human beings to overcome the challenges and adversities imposed on us by the influences of CID within families. Initially, it is recommended that future studies focus on gathering large, randomly-selected samples of college students to conduct repeated investigations into combinations of psychosocial factors that promote psychosocial adaptation. Future studies should also focus on college student differences of gender and primary living situation as integral risk factors to personal substance use. The design of these studies is recommended to investigate academic achievement as a possible outcome of resilience for college students from families of substance abuse. As our studies increase in these areas, it may be possible to build upon the conceptual framework to include the influence of these factors.

Second, this study needs to be expanded upon to include research designs using combinations or clusters of constructs including ones in addition to the three constructs investigated here. It is advisable to include sense of coherence and locus of control as possible composite variables that promote psychosocial adaptation. With enhanced understanding into the positive factors that enable us as human beings to survive and thrive against the odds, rehabilitation counselors can develop and refine counseling techniques and strategies used to assist disability consumers to acquire, engage in, or

strengthen the psychosocial skills that are necessary to overcome seemingly insurmountable odds.

Third, research investigations are needed to focus on the development of more definitive scales which measure spirituality and spiritual well-being. And, as inquiries into the essence of our spiritual nature as human beings continue, instruments used to measure this phenomenon can be created or honed. In time, we may become successful in our struggles to define and understand spirituality separately and distinctly from religion. As we do so, we may wish to use spirituality as a construct to test future samples.

Fourth, we must continue our crusade to understand and define the meaning of health to include the concepts, principles, and practices of holistic health and wellness. As we explore this realm, it may shed new insights into defining and testing viable health constructs including the concept of health among disability and special populations. On this same note, it is necessary to continue our development of health values scales. The availability of added scales may lead us to discover a set of universal health values that stretch across populations and cultures. When this happens, we will need to develop and test health values scales that are unique to populations as we investigate them. On a related note, advanced research is needed to more fully comprehend health protective behaviors in relation to decreasing the risks of personal substance use and familial substance abuse and in promoting the processes of psychosocial adaptation to CID.

Fifth, research is needed to aid our understanding of the construct of resilience as a process rather than a characteristic (Schoon, 2006; Walsh, 2002). We are urged to understand how the process of resilience functions within the larger parameter of

psychosocial adaptation to CID. The process of psychosocial adaptation may include the subprocess of resilience in relation to adapting to specific and contextualized environments. It is conceivable that adaptation truly is not a linear process to a single event (Antonak & Livneh, 1991). Rather, the process of adaptation influences a series of adaptations and readaptations which extend to other peoples, other contexts, and other environments, all within of our spheres of influence. Within the field of rehabilitation counseling, these spheres of influence are labeled as four major subsystems: (1) consumer, (2) functional, (3) provider, and (4) contextual environments (Hershenson, 1998).

Sixth, as we begin to consider differences within these various spheres of influence and contextual environments, it will become important to build studies that investigate rehabilitation outcomes of individuals with disabilities by looking at psychosocial factors that contribute to successful psychosocial adaptation and to the supports and goal-directed structures provided within various contexts. The efforts of rehabilitation counselors to produce studies on efficacy and evidence-based outcomes must begin by assessing the methods used to match individuals with disabilities to types of agencies and services provided within those agencies.

Disability management specialists are urged to accurately assess and consider the situational risk factors individuals with disabilities present and how those risk factors affect development of effective vocational rehabilitation plans in facilitating achievable goals and successful outcomes for disability consumers. The analysis of consumer-based needs, including situational risk, adaptive, and protective factors should be made a

routine part of the vocational rehabilitation continuum within all service delivery systems.

Seventh, substance abuse pervades the lives of individuals with disabilities on every conceivable level. Substance abuse can compound pre-existing and co-existing disabilities or manifest as a new disability. Therefore, it is crucial that advancements occur in understanding psychosocial adaptation to substance abuse as a CID. The expansion and development of field concepts and models outside of substance abuse disability will need to take place over time. This can happen by understanding the influences of key factors of psychosocial adaptation within other types of disability groups, age groups, contexts, and settings. As we repeat our inquiries regarding psychosocial adaptation with regard to disability variations, it is possible that patterns of behavior will emerge that will lead us to greater and greater conclusions about this vital process. Repeated research inquiries will assist in refining research methodologies. Disability, like substance abuse, is an equal opportunity affliction. As we expand upon our research of specific disability groups, perhaps we will begin to promote a more universal, transcultural, and transdisciplinary concept of CID.

Eighth, with regard to personal substance use and familial substance abuse, it is critical that we gauge more accurate methods for assessing and calculating levels of substance use risk, based upon not only genetic factors, but on non-genetic familial and psychosocial factors as well. The discussion of alcohol oftentimes dominates our discussions of the risks of substance abuse. The risks for drugs other than alcohol need to be investigated as well. In our effort to understand the risks of substance abuse, we may

wish to consider how the variables of drug and alcohol risk impact each other separately and in combination.

Livneh and Wilson (2003) identified substance abuse as both a predictor and a mediator for disabling conditions. Thus, it is important that we begin to understand the potential of substances to exacerbate or mask a condition. There is a strong need to develop improved scales for measuring the risks for non-genetic familial and environmental influences that are based upon reliable and replicable scientific methods. Along with the established risks that genetics have, the psychosocial risks of non-genetic and environmental influences must be explored.

Ninth, aside from concentrating solely on legal recreational substances (e.g. alcohol, tobacco, and caffeine) and illegal recreational substances (e.g. marijuana, cocaine, heroin), we must begin to investigate the impact of legal instrumental (e.g. prescription and over-the-counter) medications and their compounding factors (Hanson et al., 2006) especially with regard to our disability populations. For example, the legal instrumental drugs include pain medications that can be used to alter perceptions of chronic pain conditions making life more tolerable. However, chronic pain in itself is a disabling condition. To complicate matters, prescription medications also produce unpleasant side effects that can cause some individuals to use substances to self-medicate and self-regulate undesirable symptoms. This potential for polysubstance use further aggravates the impact of medically-disabling conditions including exacerbation of individuals' symptomologies. Exacerbation of symptoms directly impacts cognitive, emotional, and physical abilities individuals rely upon to successfully engage in functional aspects of daily living including vocational pursuits.

Tenth, persistent research efforts will assist in advancing a systems-wide approach that bodes well to prevention efforts within campus settings (Wechsler et al., 2000a). Life purpose, optimism, and a sense of coherence within a college population (Adams et al., 2000) deserve further exploration in regard to their relationship with well-being and to the process of resilience in overcoming the risks of familial substance abuse. Further studies may advance our understanding of how a state of "mindfulness" interacts with psychosocial adaptation to CID within our student populations.

Within a college population, it is critically important to understand how cohesive relationships and network of friends influence students' risks for personal substance use. Much of our current research focuses on risk factors related to genetic family only. Although genetic factors are undeniably strong, there are significant non-genetic familial influences that are currently unexplored. And, in advancing our understanding of genetic influences, it is advisable to isolate collegiate CoAs (Perkins & Berkowitz, 1991) to study patterns of personal substance use and familial substance abuse and how these factors are related to resilience (Keeling, 2000), psychosocial adaptation, and academic achievement.

Finally, it is recommended that all professionals embrace and engage the collective works of neighboring professions as we add to the movements of spirituality and holistic health in counseling, allied health, and medicine. For example, occupational therapists have a long-standing and shared history in shaping and improving the lives of individuals with CID. Occupational therapists approach the human adaptive process by applying therapeutically-driven, adaptive activities focused toward clients' active processes of "doing" and "becoming". Perhaps, the joint efforts of rehabilitation

counselors and occupational therapists can serve to compliment one another in understanding more fully how the power of the human will and spirit, or personal causation, (Miller & Walker, 1993) promotes psychosocial adaptation (Livneh, 2001) which in turn, activates and engages the functional performance of individuals in attaining occupational adaptation following a period of illness, injury, disability, or disease (Kielhofner, 1980a; Kielhofner, 1980b; Kielhofner & Burke, 1980; Kielhofner, Burke, & Igi, 1980; Schkade & Schultz, 1992; Schultz & Schkade, 1992). Through combined viewpoints, researchers are presented with a prime opportunity to align their efforts in comprehending the "total" processes of psychosocial and occupational adaptation to an even more comprehensive model of *holistic adaptation* (Schkade & Schultz, 1992; Schultz & Schkade, 1992) and *total rehabilitation* (Wright, 1980). This broader view of *spirit-mind-body* adaptation seeks to define the shared adaptive processes for individuals and families with disabilities in achieving a life that is filled with optimal satisfaction, balance, health, and well-being. Reilly's (1962) notable quote which stands as a cornerstone of the occupational therapy profession and has significant relevancy to the field of rehabilitation counseling says that "Man, through the use of his hands as they are energized by mind and will, can influence the state of his own health" (p. 2.).

Conclusion

Through the cyclical nature of life, ever-changing conditions, and uncertainty, we grow to adapt to our environments by continually accessing and expending the resources we need to overcome adversity. Many times, our successes are driven by the tangible and intangible resources we use to accomplish our goals. We strive to reach our goals, through not only the informed choices we make but, through the internal forces that

motivate us to acquire precious and vital resources that are otherwise unavailable to us without these engaging efforts. When we increase our comprehension of the intrinsic nature of our human will and volitional system combined with the use of human adaptation strategies we can equip our clients with disabilities toward maximizing their psychosocial, occupational, and vocational performance capabilities within their vital spheres of influence. When this happens, we will be one step closer to integrating rehabilitation across disciplines.

In conclusion, this study was rich with intent, meaning, and purpose. Overall, it accomplished much more than was anticipated and served to tie major concepts together in a new way. The overriding results show that adversity provides opportunities to develop resilience which is integral to human adaptation. The insights gained by this study can enrich our perspectives toward disability, ability, and rehabilitation. This study also demonstrated a cutting-edge approach which is in tune with state-of-the-art research on the topics of campus substance abuse and familial substance abuse.

It is essential that we incorporate a more holistic approach to serving individuals and families with disabilities through inclusion of an interdisciplinary perspective within our research efforts. We must continue to build bridges across major domains of thought, incorporating transdisciplinary methods in our efforts to shape our paradigms toward disability. As much as we need to marry theory with practice and art with science, so we need to direct our future research endeavors to the unification of the mind with the body and ultimately to *Spirit*. It is imperative that we begin to bridge our knowledge of the objective and subjective worlds to the holistic world in our attempts to manifest the larger mysteries of life as evidenced through human behavior.

Appendices

Appendix A

Printed Invitation – Distributed in Class

Appendix A: Printed Invitation – Distributed in Class

Research Study Opportunity!

You are invited to participate in an online research study entitled "Relationships Between Health Values, Spiritual Well-Being, and Resilience Among College Students Reporting Personal Substance Use and Familial Substance Abuse: An Exploratory Study". I am a doctoral candidate in the department of Counseling, Educational Psychology, and Special Education (CEPSE) at MSU. For the past 3 ½ years, I have taught 12 sections of CEP 261 Substance Abuse. As a result of my teaching experiences, I became very interested in knowing more about the adaptive qualities and processes of college students in relation to substance abuse.

The research project will assist me in completing my Ph.D. in Rehabilitation Counselor Education (RCE). Graduates from the RCE program educate rehabilitation counselors to assist individuals with disabilities, including substance abuse. The results of the study will also provide valuable information for substance abuse professionals in understanding and assisting college students and families affected by substance abuse. It is a unique opportunity and your contribution to the study can impact future research in these areas.

In appreciation of your participation, you will have the opportunity to select one of the following free gifts:

- A free chair or hand massage (or make-up session) from Douglas J Salon
- A free 7-day VIP membership to Powerhouse Gym
- Coupons for free and discounted items from Bruegger's Bagels

All you need to do is take the survey and print out the last page and bring it to class. I will visit your class again in a few weeks to collect the printed page and distribute the coupon for your free gift selection.

Following today's visit, you will receive an electronic message through the ANGEL system. The message will include a letter of informed consent that you are asked to read prior to taking the survey. You must be 18 years of age or older to participate. The survey will take approximately 15-20 minutes of your time. Please be aware that although the survey is anonymous, it requires a reporting of information that is sensitive in nature. Therefore, you may wish to seek privacy when you take it. For more information, please click on the following link:

www.msu.edu/~dfarrell
(or paste into your Internet browser)

Sincerely,

Debra J. Farrell, ABD, OTR, ADS, CAC-I
Doctoral Candidate, CEPSE, Michigan State University
dfarrell@msu.edu

Appendix B

Electronic Invitation – Sent via ANGEL

Appendix B: Electronic Invitation – Sent via ANGEL

Dear Students of CEP 261,

Thank you for allowing me to visit your classroom today to invite you to participate in an online research study entitled "Relationships Between Health Values, Spiritual Well-Being, and Resilience Among College Students Reporting Personal Substance Use and Familial Substance Abuse: An Exploratory Study".

Please open and read the attachment that includes a letter of informed consent outlining important information regarding your voluntary participation in the study.

The survey will take approximately 15-20 minutes to complete. You must be 18 years of age or older to participate. Please note that although the survey is anonymous, it requires a reporting of information that is sensitive in nature. Therefore, you may wish to seek privacy when you take it. For more information, please click on the following link:

www.msu.edu/~dfarrell
(or paste into your Internet browser)

Sincerely,

Debra J. Farrell, ABD, OTR, ADS, CAC-I
Doctoral Candidate, CEPSE, Michigan State University

Appendix C

Letter of Informed Consent – Attached to ANGEL Message

Appendix C: Letter of Informed Consent – Attached to ANGEL Message

"Relationships Between Health Values, Spiritual Well-Being, and Resilience Among College Students Reporting Personal Substance Use and Familial Substance Abuse: An Exploratory Study"

Michigan State University
Department of Counseling, Educational Psychology, and Special Education (CEPSE)
Office of Rehabilitation and Disability Studies
4th floor, Erickson Hall
East Lansing, MI 48824

Dear Prospective Survey Participant:

You are invited, along with approximately 275 other students, to participate in an online research study entitled "Relationships Between Health Values, Spiritual Well-Being, and Resilience Among College Students Reporting Personal Substance Use and Familial Substance Abuse: An Exploratory Study". The results of this study are important to helping substance abuse and rehabilitation professionals identify key psychosocial factors that are integral to the process of adaptation for college students and families of substance abuse.

Participants must be at least 18 years of age or older. Your participation is completely voluntary. All of your information is anonymous, no IP addresses will be collected, and no identifiers will ever be a part of the data. Your privacy will be protected to the maximum extent allowable by law. The results of this study may be published in a short article in a professional journal.

By taking the survey, you will be agreeing to any risks or benefits of the study. Risks for this study are minimal and include possible psychological or emotional discomfort posed by responding to questions about sensitive topics of substance use and abuse. In this event, please contact the MSU Counseling Center at voice (517) 335-8270 and TTY (517) 353-7278 to request a consultation.

Potential benefits of the study include a free gift of your choosing. The choices are as follows:

- A free chair or hand massage (or make-up session) from Douglas J Salon
- A free 7-day VIP membership to Powerhouse Gym
- Coupons for free and discounted items from Bruegger's Bagels

All you need to do is take the survey, print out the last page, and bring it to class. The project investigator will visit your class again in a few weeks to collect the printed page and distribute a coupon for your free gift selection.

Please remember, your participation is completely voluntary. You may choose not to participate at all, or you may refuse to participate in certain procedures or answer certain questions or discontinue your participation at any time without consequences. You may also decline to answer specific questions should you find them intrusive.

If you have any questions about the study please contact this researcher at dfarrell@msu.edu, office phone (517) 355-1838 or Dr. Michael Leahy, at leahym@msu.edu, office phone (517) 432-0605. If you have questions or concerns regarding your rights as a survey participant, you may contact anonymously if you wish – Dr. Peter Vasilenko, Director of the Human Subject Protection Programs at Michigan State University, by phone: (517) 355-2180; fax: (517) 432-4503; email: irb@msu.edu; or regular mail at: HRPP, 202 Olds Hall, East Lansing, Michigan, 48824-1047.

Thank you for your time and valuable contribution to college students and families of substance. If you have questions regarding the research, please feel free to contact us at the numbers listed below. Survey results are anticipated to be available after September 1, 2007. You may discuss the results by initiating contact with us after that date.

The survey will take approximately 15-20 minutes to complete. The survey includes responding to questions related to alcohol and drug use. Therefore, you may wish to seek privacy when you take it. For more information on this study, please click on the following link:

www.msu.edu/~dfarrell
(or paste into your Internet browser)

By completing the online survey, you indicate your voluntary agreement to participate in this research and have your answers included in the data set.

Sincerely,

Project Investigator:
Debra J. Farrell, ABD, OTR, ADS, CAC-I
Doctoral Candidate
dfarrell@msu.edu
(517) 355-1838

Responsible Project Investigator:
Michael Leahy, Ph.D.
Professor and Research Adviser
leahym@msu.edu
(517) 432-0605

Appendix D

First Follow-Up Message – Sent via ANGEL

Appendix D: First Follow-Up Message – Sent via ANGEL

Title: Free Gift Coupons Delivered Next Week

Hello Section ___,

This is Debra Farrell. I will deliver the first round of coupons to your classroom next week. I will award free gift coupons to all of you who have participated in the survey thus far. In fact, I have extra coupons and enhanced coupons to award you. Everyone who completes the survey will receive the Bruegger's Bagel coupon, along with your choice of a 14-day (increased from 7-day) VIP membership to Powerhouse Gym or an Express Chair or Express Hand Massage from Douglas J Salon.

You can access the survey by clicking on the following address:

www.msu.edu/~dfarrell
(or paste into your Internet browser)

Thanks everyone for your participation!! Data collection for the survey is going great thanks to all of you!! See you soon!!

Sincerely,

Debra J. Farrell, ABD, OTR, ADS, CAC-I
Doctoral Candidate, CEPSE, Michigan State University

Appendix E

Second Follow-Up Message – Sent via ANGEL

Appendix E: Second Follow-Up Message – Sent via ANGEL

Title: Survey Will Close Soon

Dear Students of CEP 261,

The online research study entitled, "Relationships Between Health Values, Spiritual Well-Being, and Resilience Among College Students Reporting Personal Substance Use and Familial Substance Abuse: An Exploratory Study" will close on Monday, April 2, 2007 at 8:00 a.m. Students who have not already taken the survey have approximately 10 days left. To access the survey, please click on the following link:

www.msu.edu/~dfarrell
(or paste into your Internet browser)

In appreciation of your participation, you will have the opportunity to select one of the following free gifts:

- A free chair or hand massage (or make-up session) from Douglas J Salon
- A free 14-day VIP membership to Powerhouse Gym

Everyone who participates in the survey will also receive:

- Coupons for free and discounted items from Bruegger's Bagels
- Additional coupons for discounted ice cream and discounted MSU T-shirts

All you need to do is take the survey and print out the last page and bring it to class. I will arrange delivery of a final round of coupons. Thank you so much everyone! You participation has made this study a great success!

Sincerely,

Debra J. Farrell, ABD, OTR, ADS, CAC-I
Doctoral Candidate, CEPSE, Michigan State University
dfarrell@msu.edu

Appendix F

Initial Page of Survey – Posted on AFS Space

Appendix F: Initial Page of Survey – Posted on AFS Space

Thank you for your interest in participating in

Relationships Between Health Values, Spiritual Well-Being, and Resilience Among College Students Reporting Personal Substance Abuse and Familial Substance Abuse: An Exploratory Study

Take Me To The Study
Click Here

Appendix G

Welcome Page of Survey – Posted on Website

Appendix G: Welcome Page of Survey – Posted on Website

College Student Survey

This research study involves taking a 15-20 minute survey. The study focuses on helping substance abuse and rehabilitation professionals identify key psychosocial factors that are integral to the process of adaptation for college students and families of substance abuse.

This research is completely voluntary. You must be 18 years of age or older to participate. Your privacy will be protected to the maximum extent allowable by law. You can skip any question that you do not wish to answer. You can also end your participation at any time. If you experience psychological or emotional discomfort, please contact the MSU Counseling Center at voice (517) 335-8270 and TTY (517) 353-7278 to request a consultation.

Please be sure you have read the letter of informed consent prior to taking this survey. The letter was sent to you through your ANGEL account for the CEP 261 Substance Abuse course. If you have any questions about the study please contact this researcher, Debra Farrell, at (517) 355-1838, dfarrell@msu.edu, or Dr. Michael Leahy, at (517) 432-0605, leahym@msu.edu.

If you have questions or concerns regarding your rights as a survey participant, you may contact anonymously if you wish – Dr. Peter Vasilenko, Director of the Human Subject Protection Programs at Michigan State University, by phone: (517) 355-2180; fax: (517) 432-4503; email: irb@msu.edu; or regular mail at: HRPP, 202 Olds Hall, East Lansing, Michigan, 48824-1047.

Please be sure and print out or email yourself the last page of the survey as evidence of your participation. You will need this printed page to collect your free gift/award.

Prior to taking the survey, you may wish to zoom your screen in or out to improve the readability of the survey questions. Also, please be sure to check your answers prior to advancing each page. The survey does not allow you to scroll back through previously completed pages.

Appendix H

College Student Survey – Posted on Website

Appendix H: College Student Survey – Posted on Website

College Student Survey

1. Please indicate your gender:

    - o Male
    - o Female

2. Please indicate your age in years (type in):

    Please Note: You must be at least 18 years of age to participate in the survey.

    _____

3. Please indicate your academic rank in college:

    - o 1st year undergraduate
    - o 2nd year undergraduate
    - o 3rd year undergraduate
    - o 4th year undergraduate
    - o Fifth-year undergraduate
    - o Graduate student
    - o Lifelong learner
    - o Adult specialization
    - o Other, please specify _____

4. Please indicate your race/ethnicity:

    (check all that apply)

    - o White-not Hispanic (includes Middle Eastern)
    - o Black-not Hispanic
    - o Hispanic or Latino
    - o Asian or Pacific Islander
    - o American Indian or Alaskan Native
    - o Other, please specify _____

5. What is your approximate GPA (cumulative grade point average) right now?

   (using the drop down menu, please choose the number that most closely matches your GPA)

   - o 4.0
   - o 3.9
   - o 3.8
   - o 3.7
   - o 3.6
   - o 3.5
   - o 3.4
   - o 3.3
   - o 3.2
   - o 3.1
   - o 3.0
   - o 2.9
   - o 2.8
   - o 2.7
   - o 2.6
   - o 2.5
   - o 2.4
   - o 2.3
   - o 2.2
   - o 2.1
   - o 2.0
   - o 1.9
   - o 1.8
   - o 1.7
   - o 1.6
   - o 1.5 or below

6. During the college school year, please describe your primary living situation:

   - o Single sex residence hall
   - o Co-ed residence hall
   - o Greek housing (fraternity or sorority)
   - o non-Greek shared living
   - o Off-campus with roommate/s
   - o Off-campus with parent/s
   - o Off-campus alone
   - o Substance-free residence hall
   - o Other, please specify _____

College Student Survey

7. Please indicate the degree of your agreement to the following statements by clicking on the appropriate number that corresponds to the answer key.

   Please note that (1) indicates "Not Agree" and (4) indicates "Strongly Agree".

Not Agree			Strongly Agree
1	2	3	4

I am willing to make sacrifices to be healthy.

1	2	3	4

A big part of happiness is health.

1	2	3	4

Health isn't one of my big concerns.

1	2	3	4

I would rather have fun than be healthy.

1	2	3	4

College Student Survey

8. Please read the following statements. Below each statement you will find five numbers, ranging from (1) Strongly Disagree, (2) Disagree, (3) Neither Agree Nor Disagree, (4) Agree, and (5) Strongly Agree.

   Click on the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you neither agree nor disagree, circle "3", and if you strongly agree, circle "5", etc.

Strongly Disagree		Neither		Strongly Agree
1	2	3	4	5

There is not much I can do to help myself.

1	2	3	4	5

Often, there is no way I can complete what I have started.

1	2	3	4	5

I can't begin to understand my problems.

1	2	3	4	5

I am overwhelmed when I have personal difficulties and problems.

1	2	3	4	5

I don't know how to begin to solve my problems.

1	2	3	4	5

There is not much I can do to make a difference in my life.

1	2	3	4	5

College Student Survey

9. Continue using same directions as previous page.

   REMINDER DIRECTIONS:

   Please read the following statements. Below each statement you will find five numbers, ranging from (1) Strongly Disagree, (2) Disagree, (3) Neither Agree Nor Disagree, (4) Agree, and (5) Strongly Agree.

   Click on the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you neither agree nor disagree, circle "3", and if you strongly agree, circle "5", etc.

Strongly Disagree		Neither		Strongly Agree
1	2	3	4	5

I haven't yet found my life's purpose.

1	2	3	4	5

I don't know who I am, where I came from or where I am going.

1	2	3	4	5

I have a lack of purpose in my life.

1	2	3	4	5

In this world, I don't know where I fit in.

1	2	3	4	5

I am far from understanding the meaning of life.

1	2	3	4	5

There is great void in my life at this time.

1	2	3	4	5

College Student Survey

10. Please read the following statements. Below each statement you will find seven numbers, ranging from (1) Strongly Disagree on the left to (7) Strongly Agree on the right.

    Click on the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you are neutral, circle "4", and if you strongly agree, circle "7", etc.

Strongly Disagree			Neutral			Strongly Agree
1	2	3	4	5	6	7

When I make plans, I follow through with them.

1 2 3 4 5 6 7

I usually manage one way or another.

1 2 3 4 5 6 7

I feel proud that I have accomplished things in my life.

1 2 3 4 5 6 7

I usually take things in my stride.

1 2 3 4 5 6 7

I am friends with myself.

1 2 3 4 5 6 7

I feel that I can handle many things at a time.

1 2 3 4 5 6 7

I am determined.

1 2 3 4 5 6 7

I have self-discipline.

1 2 3 4 5 6 7

College Student Survey

11. Continue using same directions as previous page.

REMINDER DIRECTIONS:

Please read the following statements. Below each statement you will find seven numbers, ranging from (1) Strongly Disagree on the left to (7) Strongly Agree on the right.

Click on the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you are neutral, circle "4", and if you strongly agree, circle "7", etc.

Strongly Disagree			Neutral			Strongly Agree
1	2	3	4	5	6	7

I keep interested in things.

1	2	3	4	5	6	7

I can usually find something to laugh about.

1	2	3	4	5	6	7

My belief in myself gets me through hard times.

1	2	3	4	5	6	7

I can usually look at a situation in a number of ways.

1	2	3	4	5	6	7

My life has meaning.

1	2	3	4	5	6	7

When I am in a difficult situation, I can usually find my way out of it.

1	2	3	4	5	6	7

I have enough energy to do what I have to do.

1	2	3	4	5	6	7

College Student Survey

The following question pertains to the types of substances you have used over your lifetime.

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12. OVER YOUR LIFETIME, what types of drugs have you ever used? Some examples are included for each category.

    (check all categories that apply)

    - o Tobacco (cigarettes, cigars, smokeless tobacco)
    - o Alcohol (beer, wine, liquor)
    - o Marijuana (pot, hash, hash oil)
    - o Caffeine (coffee, tea, chocolate, soda)
    - o Cocaine (crack, rock, freebase)
    - o Amphetamines (Adderall, Ritalin, Provigil, diet pills, speed, meth, crank)
    - o Designer (intentional use only) (Ecstasy, roofies, GHB, Liquid X)
    - o Hallucinogens (acid, mushrooms, angel dust)
    - o Tranquilizers or Sleeping Pills (Special K, Valium)
    - o Barbiturates (Amytal, Phenobarbitol)
    - o Narcotics (heroin, morphine, Vicodin, Oxycontin, codeine)
    - o Analgesics or OTC medications (aspirin, Tylenol, NSAIDs)
    - o Inhalants (solvents, nitrous, glue, gasoline)
    - o Anabolic steroids (Android, Anadrol, Durabolin, Oxandrin, Winstrol)
    - o Other, please specify _____

College Student Survey

The following question pertains to the types of substances you have used during the past 12 months.

13. DURING THE PAST 12 MONTHS, what types of drugs have you used?

Some examples are included for each category.

(check all categories that apply)

- o Tobacco (cigarettes, cigars, smokeless tobacco)
- o Alcohol (beer, wine, liquor)
- o Marijuana (pot, hash, hash oil)
- o Caffeine (coffee, tea, chocolate, soda)
- o Cocaine (crack, rock, freebase)
- o Amphetamines (Adderall, Ritalin, Provigil, diet pills, speed, meth, crank)
- o Designer (intentional use only) (Ecstasy, roofies, GHB, Liquid X)
- o Hallucinogens (acid, mushrooms, angel dust)
- o Tranquilizers or Sleeping Pills (Special K, Valium)
- o Barbiturates (Amytal, Phenobarbitol)
- o Narcotics (heroin, morphine, Vicodin, Oxycontin, codeine)
- o Analgesics or OTC medications (aspirin, Tylenol, NSAIDs)
- o Inhalants (solvents, nitrous, glue, gasoline)
- o Anabolic steroids (Android, Anadrol, Durabolin, Oxandrin, Winstrol)
- o Other, please specify _____

College Student Survey

The following series of questions concerns information about your potential involvement with DRUGS during the past 12 MONTHS. These drugs "DO NOT include your use of ALCOHOLIC BEVERAGES".

> The various classes of drugs may include: cannabis (e.g. marijuana, hash), solvents, tranquilizers (e.g. Valium), barbiturates, cocaine, stimulants (e.g. speed), hallucinogens, (e.g. LSD) or narcotics (e.g. heroin).

For each item, carefully read the statement and decide if your answer is "Yes" or "No". If you have difficulty with a statement, choose the response that is mostly right.

14. Have you used drugs other than those required for medical reasons?

    - o Yes
    - o No

(Mandatory Question: You may choose "not" to answer this question. If this is the case, you will also be choosing to discontinue your participation in the remainder of the survey and you will need to exit the survey by closing your Internet browser).

College Student Survey

15. The following questions concern information about your potential involvement with "or use" of DRUGS during the past 12 MONTHS. These drugs "DO NOT include your "use" of ALCOHOLIC BEVERAGES".

YES	NO
1	2

Have you used more than one drug at a time?
1 2

Are you always able to stop using drugs when you want to?
1 2

Have you had blackouts or flashbacks as a result of drug use?
1 2

Do you ever feel bad or guilty about your drug use?
1 2

Have family members ever complained about your involvement with drugs?
1 2

Have you stayed away from your family because of your drug use?
1 2

Have you engaged in illegal activities to obtain drugs?
1 2

Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?
1 2

Have you had medical problems as a result of your drug use (e.g. memory loss, hepatitis, convulsions, bleeding, etc.)?
1 2

College Student Survey

The following series of questions pertain to your use of ALCOHOLIC BEVERAGES.

Please Note: A drink is defined as one can or bottle of beer (12 oz.), or one glass of wine (4 oz.), or one can or bottle of wine cooler (12 oz.), or one straight shot of liquor (1 ½ oz. – 80 proof spirits), or one (single shot) mixed drink.

16. How often do you have a drink containing alcohol?

- o Never
- o Monthly or less
- o 2 to 4 times a month
- o 2 to 3 times per week
- o 4 or more times a week

17. How many drinks containing alcohol do you have on a typical day when you are drinking?

- o 1 or 2
- o 3 or 4
- o 5 or 6
- o 7 to 9
- o 10 or more

18. For women, how often do you have four or more drinks on one occasion?

For men, how often do you have five or more drinks on one occasion?

- o Never
- o Monthly or less
- o 2 to 4 times a month
- o 2 to 3 times per week
- o 4 or more times a week

College Student Survey

19. Please mark the answer that is correct for you.

NEVER	LESS than MONTHLY	2 to 4 times a MONTH	2 to 3 times a WEEK	4 or more times a WEEK
1	2	3	4	5

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

1 2 3 4 5

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

1 2 3 4 5

How often during the last year have you needed a drink in the morning to get yourself going after a heavy drinking session?

1 2 3 4 5

How often during the last year have you had a feeling of guilt or remorse after drinking?

1 2 3 4 5

How often during the last year have you been unable to remember what happened the night before because of your drinking?

1 2 3 4 5

College Student Survey

20. Please mark the answer that is correct for you.

NO	YES, but not in the last year	YES, during the last year
1	2	3

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

1	2	3

Has a relative, friend, doctor, or other health worker been concerned about your drinking or suggested you cut down?

1	2	3

College Student Survey

Next, you will be asked a few remaining questions pertaining to "SUBSTANCE ABUSE" patterns that may or may not be present in your genetic (or blood) and non-genetic (or non-blood) family members.

Please read the following definition of "SUBSTANCE ABUSE" (established by the American Psychiatric Association in the Diagnostic and Statistical Manual of Mental Disorders or DSM-IV-TR) to assist you in identifying any past or present problems:

"A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following four criteria, occurring within a 12-month period:

- Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home (*e.g. repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school, neglect of children or household)*
- Recurrent substance use in situations in which it is physically hazardous *(e.g. driving an automobile or operating a machine when impaired by substance use)*
- Recurrent substance-related legal problems *(e.g. arrests for substance-related disorderly conduct)*
- Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance *(e.g. arguments with spouse about consequences of intoxication, physical fights)"*

21. Using the definition for substance abuse provided above, do any of your

    Genetic [Blood] Relatives

    or

    Non-Genetic [Non-Blood] Relatives (including "adoptive, step-relatives, or cohabitating relatives, other non-legal family members, or "very" close friends) have a past or present problem with substance abuse?

    o Yes
    o No

    (Mandatory Question: You may choose "not" to answer this question. If this is the case, you will also be choosing to discontinue your participation in the remainder of the survey and you will need to exit the survey by closing your Internet browser).

College Student Survey

The next two questions refer to your Genetic [Blood] Relatives.

22. For each category, please indicate how many of your

Genetic [Blood] Relatives

have a past or present problem with substance abuse.

(type in the appropriate number for each category)

_____ Children
_____ Mother
_____ Father
_____ Brothers (includes half-brothers)
_____ Sisters (includes half-sisters)
_____ Maternal Grandparents
_____ Paternal Grandparents
_____ Aunts or Uncles
_____ First Cousins

23. What types of drugs have posed a past or present problem with your

Genetic [Blood] Relatives?

(check all categories that apply)

- o Tobacco (cigarettes, cigars, smokeless tobacco)
- o Alcohol (beer, wine, liquor)
- o Marijuana (pot, hash, hash oil)
- o Caffeine (coffee, tea, chocolate, soda)
- o Cocaine (crack, rock, freebase)
- o Amphetamines (Adderall, Ritalin, Provigil, diet pills, speed, meth, crank)
- o Designer (intentional use only) (Ecstasy, roofies, GHB, Liquid X)
- o Hallucinogens (acid, mushrooms, angel dust)
- o Tranquilizers or Sleeping Pills (Special K, Valium)
- o Barbiturates (Amytal, Phenobarbitol)
- o Narcotics (heroin, morphine, Vicodin, Oxycontin, codeine)
- o Analgesics or OTC medications (aspirin, Tylenol, NSAIDs)
- o Inhalants (solvents, nitrous, glue, gasoline)
- o Anabolic steroids (Android, Anadrol, Durabolin, Oxandrin, Winstrol)
- o Other, please specify _____

College Student Survey

The final two questions refer to your Non-Genetic [Non-Blood] Relatives and family members bearing "no formal legal" relationship but nonetheless considered family by you.

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24. For each category, please indicate how many of your NonGenetic [Non-Blood] Relatives have a past or present problem with substance abuse.

    REMEMBER: Non-Genetic [Non-Blood] Relatives include: "very" close friends, and adoptive, step, or cohabitating" family members and family members bearing "no formal legal" relationship but nonetheless considered family by you.

    For each category, please add up and type in the appropriate number.

    _____ Romantic Partner or Spouse
    _____ Very Close Friends
    _____ Children (Step, Adoptive, or Cohabitating)
    _____ Mother (Step, Adoptive, or Cohabitating)
    _____ Father (Step, Adoptive, or Cohabitating)
    _____ Brothers (Step, Adoptive, or Cohabitating)
    _____ Sisters (Step, Adoptive, or Cohabitating)
    _____ Grandparents (Step, Adoptive, or Cohabitating)
    _____ Aunts or Uncles (Step, Adoptive, or Cohabitating)

College Student Survey

25. What types of drugs have posed a problem (past or present) for your

Non-Genetic [Non-Blood] Related family members ("very" close friends, adoptive, step, cohabitating, or other non-legal family members)?

(check all categories that apply)

- o Tobacco (cigarettes, cigars, smokeless tobacco)
- o Alcohol (beer, wine, liquor)
- o Marijuana (pot, hash, hash oil)
- o Caffeine (coffee, tea, chocolate, soda)
- o Cocaine (crack, rock, freebase)
- o Amphetamines (Adderall, Ritalin, Provigil, diet pills, speed, meth, crank)
- o Designer (intentional use only) (Ecstasy, roofies, GHB, Liquid X)
- o Hallucinogens (acid, mushrooms, angel dust)
- o Tranquilizers or Sleeping Pills (Special K, Valium)
- o Barbiturates (Amytal, Phenobarbitol)
- o Narcotics (heroin, morphine, Vicodin, Oxycontin, codeine)
- o Analgesics or OTC medications (aspirin, Tylenol, NSAIDs)
- o Inhalants (solvents, nitrous, glue, gasoline)
- o Anabolic steroids (Android, Anadrol, Durabolin, Oxandrin, Winstrol)
- o Other, please specify _____

College Student Survey

RS-15 is a modified version of the Resilience Scale, developed and tested by James T. Neill and Katica L. Dias and appears in the (2001) article, Adventure education and resilience: The double-edged sword. *Journal of Adventure Education and Outdoor Learning, 1*(2), 35-42.

College Student Survey

This completes the survey!

Please print or email yourself a copy of this page to present as evidence of your participation in receiving your gift/award. Please remember, your survey responses are anonymous and receiving your gift/ward will not require use of your name or identity.

Thank you for taking the time to participate!
Your answers are greatly appreciated!

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