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# Explicating Global Wellbeing In College Students Using Health Risk Behaviors And Adjustment To College

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# EXPLICATING GLOBAL WELLBEING IN COLLEGE STUDENTS USING HEALTH RISK BEHAVIORS AND ADJUSTMENT TO COLLEGE

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## ABSTRACT

Priority health risk behaviors including binge drinking, unsafe driving, and unprotected sex are often times established in adolescence, extend into college life, are interrelated, and negatively impact wellbeing. A paucity of research exists associating behaviors with perceptions of wellness. Without baseline knowledge of how college students' life-style choices, behaviors, and adjustment influences their sense of wellness, professionals do not have standards to evaluate the effectiveness of wellness-oriented interventions.

The purpose of this study was to explicate global wellbeing in 18-24 year old college students. Explaining global wellbeing was based on the influence of specific health risk behaviors and adjustment to college.

Adam's Multiple Dimensions of Perceived Wellness guided this descriptive, explanatory study. Subjects ($N = 281$) were recruited from randomly selected entry-level courses from a medium-sized public university. A three-part customized survey was administered. Descriptive analysis included summary tables, charts, percentages, and measures of central tendencies. Inferential analysis included multiple regression and ANOVAs.

Global wellbeing correlated with students' mental health risk ($r = -.402$; $p \leq .01$), academic performance ($r = -.267$; $p \leq .01$), and adjustment to college ($r = .165$; $p \leq .01$). Stepwise regression explained 24.3% of variance in global wellbeing by loading the

single indexed variable of mental health risk ($R^2 = .243$; $p < .001$; ANOVA: $F(1, 249) = 72.139$; $p < .001$; *Beta* = -.474; $t(249) = -8.493$; $p < .001$). Mental health risk also correlated with students' health risk behaviors ($r = .322$; $p \leq .01$), and academic performance ($r = .620$; $p \leq .01$). The only other variable that correlated with students' health risk behaviors was academic performance ($r = .433$; $p \leq .01$).

Mental health needs are integrally connected with students' health risk behaviors, academic performance, and global wellbeing. Wellbeing is a holistic perceptual construct. Focusing wellness efforts on areas of choice can improve wellness in all dimensions, as well as globally. Assessing global wellbeing and conducting health risk assessments as part of college wellness programs can guide the appropriate level of intervention by identifying at-risk students. These practices could provide the foundation for evidence-based health promotion and wellness programs.

To: My family

# CHAPTER I

## INTRODUCTION

What does it mean to be well? Why do people seek out this meaning? Meanings are personal and unique. Meanings influence experiences, actions, core values, and outcomes. It is purposeful meanings that are deliberately chosen to form foundations for future reference. People seek out the meaning of wellness because lives are fuller and richer when life means something positive (Montgomery-Dossey, Keegan, & Guzzetta, 2005).

Personal meanings of life experiences are directly linked with our body systems and influence our state of wellness or illness. Therefore, perceived meanings affect the body; and the body affects emotions and meanings of wellness. All other things being equal, positive perceptions and meanings of wellness have been shown to increase levels of health (Adams, Bezner, & Steinhardt, 1997). When wellness is absent, bodies become empty and vulnerable. This emptiness can become the spawning ground for depression, low self-esteem, disease, and self-destructive behaviors (Kadison & DiGeronimo, 2004; Montgomery-Dossey et al., 2005).

The distinction between being well, versus being ill, has been ambiguous in the research literature. "A relationship is readily recognized as existing between health, disease, wellness and illness. However, there is little consensus on what the relationship

is, and, in fact, there is little agreement on what these concepts actually mean" (Jensen & Allen, 1993).

Wellness research had ambiguously measured wellness (a) as the lack of depression, (b) as the lack of emotional distress and anxiety, (c) as having satisfaction with your life, (d) as being happy, (e) as being physically and functionally well, (f) as being psychologically well, (g) as being emotionally well, (h) as being socially supported, and (i) as being spiritually well (Acton, 1994). Wellness and illness are vastly more complex than previously believed. Wellness goes beyond addressing bio-physical health issues. Rather, wellness also comprises psycho-social and spiritual components (Adams, Bezner, Drabbs, Zambarano, & Steinhardt, 2000; Montgomery-Dossey et al., 2005). For this study, wellness will be considered a global self-reported perceptual construct consisting of six inter-related dimensions including (a) physical, (b) social, (c) psychological, (d) emotional, (e) intellectual, and (f) spiritual (Adams et al., 2000).

Entering college is a major marker of youths' transition from childhood to adulthood. This period offers exciting opportunities for young people to explore, recognize, and mold personal values and lifestyle choices. However, this new-found autonomy does not come without inherent risks. Immature members of this subpopulation may still embrace the adolescent notion of invincibility (Douglas et al., 1997). Naïve young adults are vulnerable to physical, emotional, psychological, and spiritual harm when they test their wings of independence for the first time away from the safety of their life-long friends and family (Kadison & DiGeronimo, 2004).

## Statement of the Problem

The symptoms associated with poor health, mental distress, and high-risk behaviors of our nation's families, children, and adolescents have been the focus of many research efforts (Acton, 1994; Cameron, 1999; Center for Disease Control-Morbidity & Mortality Weekly Review [CDC-MMWR], 1997; Kann, Kinchen, Williams, & Ross, 2000). The constructs of wellbeing, quality-of-life, and life-satisfaction have been vigorously investigated from the perspective of the elderly, the dying, and those with chronic diseases (Acton, 1994; Estwing-Ferrans, Johnson-Zerwic, Wilbur, & Larson, 2005; Ferrans, 1996).

Research conducted by the United States Center for Disease Control (CDC-MMWR, 1997) and the American College Health Association [ACHA] (2006) have identified a very real health problem plaguing American youth culminating from the following behaviors and life-style choices: (a) poor sleep patterns, (b) use of alcohol and/or illicit drugs, (c) binge drinking, (d) unprotected sex, (e) multiple sex partners, (f) failure to use safety devices such as seatbelts and helmets, (g) drinking and driving choices, and (h) depressive and anxious behaviors.

Research findings from several studies directly link the risky health behaviors and unhealthy life-style choices of 18-24 year old Americans identified by the CDC (CDC-MMWR, 1997) and the American College Health Association (ACHA, 2006) to the four leading causes of mortality and morbidity for this age group. These causes include (a) intentional and unintentional injuries, (b) motor vehicle crashes, (c) homicide, and (d)

mental illness (Barrios, Everett, Simon & Brener, 2000; Cameron, 1999; Jacobs, 1999; Kann et al., 2000).

Health-risk behaviors are often established during youth, extend into adulthood, interrelated, and preventable (Kann et al., 2000). Violent death and injury, teenage pregnancy, and symptoms of mental distress (Douglas et al., 1997; Kann et al., 2000; Kisch, Leino & Silverman, 2005), along with a host of high risk social behaviors, such as binge drinking and unprotected sex (Allery, 2004; Chen & Allery, 2005), have been recognized as the major challenge to our young people's health and wellbeing (Cameron, 1999). If health care providers and college leaders are going to address these significant public health threats, they will need to understand what factors influence the perceptions of health and wellbeing of this age group (Nicoteri & Arnold, 2005).

According to the 1995 United States National College Health Risk Behavior Survey (NCHRBS), college students are particularly vulnerable to involvement with unhealthy activities such as binge drinking, driving while intoxicated, and having unprotected sex (Douglas et al., 1997). Recent research efforts indicate that these unhealthy life-style choices continue to threaten the wellbeing of this young adult population (ACHA, 2006; Allery, 2004; Chen & Allery, 2005; Kann et al., 2000). The health concerns of our youth today are largely embedded in behaviors that lead to a variety of long-term negative health and social consequences (Kadison & DiGeronimo, 2004).

Accessing the young adult population for health promotion, and/or disease prevention is challenging. This age group is relatively healthy and typically does not seek

healthcare services. In the United States, one-fourth of all 18-24 year olds attend post-secondary institutions (Barrios, Everett, Simon, & Brener, 2000). Therefore, a large number of young adults could be reached through research-based strategies offered by college administrators (Kadison & DiGeronimo, 2004).

Little wellness-oriented research has been done involving healthy young adults (Astedt-Kurki, Hopia, & Vuori, 1999; Spenciner-Rosenthal & Cedeno-Schreiner, 2000). A paucity of research exists associating the behaviors of young adults to their perceptions of health and wellbeing (Adams et al., 2000; Carlton & Henrich, 1997; Kadison & DiGeronimo, 2004). Baseline knowledge of how college students' life-style choices, behaviors, adjustment to college, or family backgrounds influence their sense of wellness is missing. Without this baseline knowledge, benchmarks or standards to evaluate the effectiveness of wellness-oriented interventions cannot be established.

Researchers have not yet identified the relationships among biophysical, demographic, and psychosocial factors that may lead to a poor sense of wellbeing in otherwise healthy young adults. After research is conducted that identifies these relationships between the health problems and the sense of wellbeing of young adults, further research is needed to explicitly identify the factors that may foster a positive sense of wellbeing in this population.

In order to begin to assure wellbeing and long life to young adults, Health care providers must first determine what their current perceptions about health and wellness are. Then, an understanding of the factors that influence their perceptions is needed. The

next step in applying this knowledge clinically is to discover the predictive influence these factors have on the health and wellbeing of young adults.

## Study Purpose

The basis of this research was to explicate self-reported global wellbeing (GWB) in traditional college students. The purposes were to describe GWB in this population and discover if GWB has influencing factors. The most parsimonious combination of those factors that maximally explained the variance of GWB in college students was explored. Specifically, this study intended to (a) explicate and measure the construct of GWB in 18-24 year old college students, (b) test a portion of the wellness model used for the framework of this study (Adams, 2007) by determining if GWB is perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students, (c) explicate and measure the construct of student adjustment to college in 18-24 year old college students, and (d) describe the predictive influence demographic characteristics, identified health risk behaviors, and adjustment to college have on the GWB of 18-24 year old students.

Preliminary information was needed to accomplish the primary goal of explicating. First, the relationships among the six identified dimensions of college students' GWB were described. These dimensions were (a) physical, (b) social, (c) emotional, (d) psychological, (e) intellectual, and (f) spiritual. Second, the relationships among the four facets of students' adjustment to college and GWB were explained. The four facets of students' adjustment to college included (a) academic adjustment, (b) social adjustment, (c) personal-emotional adjustment, and (d) degree of commitment to

educational goals/attachment to their institution. Finally, the relationships among the predictor variables (demographic characteristics, health risk behaviors, and student adjustment to college) and GWB were identified.

## Specific Aims

Aim 1: Explicate and measure the construct of GWB in 18-24 year old college students.

This was accomplished in three steps. The first step measured GWB using the Perceived Wellness Survey (Adam et al., 1997). The second step further analyzed the GWB of students by measuring each of the six dimensions of GWB including (a) physical, (b) social, (c) emotional, (d) psychological, (e) intellectual, and (f) spiritual. The final step identified the interrelationships between the six GWB dimensions and the composite construct of GWB.

Aim 2: The second aim was to determine if GWB was perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students.

This entailed testing a portion of the theoretical framework used in this study (Adams, 2007) which asserts GWB can only be a positively assigned value on a unidirectional continuum. The alternative to this unidirectional assertion is that GWB is perceived as either a positively or negatively assigned value on a bidirectional continuum.

This was accomplished in two steps utilizing the Arizona Integrative Outcomes Scale [AIOS] (Bell, Cunningham, Caspi, Meek, & Ferro, 2004) along with the Perceived Wellness Survey [PWS] (Adams et al., 1997). The first step involved asking the students

to place an 'X' at the point that best summarized their 'overall sense of wellbeing for the previous month' on a 100 mm, horizontally displayed visual analogue scale (VAS). The AIOS is a one-item, VAS with the low anchor being, 'worst you have ever been' and the high anchor being, 'best you have ever been'. The second step correlated the students' overall PWS response scores with their AIOS responses.

Aim 3: Explicate and measure the construct of student adjustment to college in 18-24 year old college students which included (a) academic adjustment, (b) personal-emotional adjustment, (c) social adjustment, and (d) goal/commitment/attachment to the institution by administering the Student Adaptation to College Questionnaire [SACQ] (Baker & Siryk, 1999).

Aim 4: Describe the relationships and predictive influence of students' demographic characteristics, identified health risk behaviors, and adjustment to college with GWB.

## Significance

Nursing has a rich history in promoting the eudemonistic (wellness-oriented) paradigm of health (Acton, 1994). Today, wellbeing is a timely research topic due to the current emphasis on (a) the societal value of living healthy, (b) holistic wellness-based care throughout the healthcare industry (Montgomery-Dossey et al., 2005), and (c) wellness-based holistic student development on campuses throughout the United States (Hettler, 1998; Kadison & DiGeronimo, 2004; Swinford, 2002).

However, significant gaps in the research literature related to wellbeing exist. First, very little mental distress or wellness-oriented research has addressed adolescents transitioning to young adults (Astedt-Kurki, Hopia & Vuori, 1999; Spenciner-Rosenthal

& Cedeno-Schreiner, 2000). Second, even less research evaluated the effectiveness of formal wellness programs in promoting the awareness of wellbeing in healthy young people; and/or improving their sense of wellbeing (Adams et al., 2000; Carlton & Henrich, 1997; Sivik, Butts, Moore & Hyde, 1992; Swinford, 2002).

Researchers have identified the unhealthy life-style choices vulnerable college students choose to engage in such as binge drinking, driving while intoxicated, and having unprotected sex (ACHA, 2006; CDC-MMWR, 1997; Douglas et al., 1997; Kadison & DiGeronimo, 2004). To date, researchers have failed to connect the perceived 'whys' that drive and/or motivate students to behave in either healthy or unhealthy ways (Adams et al., 2000; Carlton & Henrich, 1997).

Multiple researchers have reported how quality-of-life is affected by the aging process, chronic disease, and end-of-life issues (Acton, 1994; Ellerman & Reed, 2001; Haas 1999; Ruff-Dirksen, 1990; Stuifbergen, Seraphine, & Roberts, 2000). However, these studies did not first establish a quality-of-life comparative norm or baseline. How healthy young adults perceive their biophysical, demographic, and psychosocial wellness factors would provide this contextual information. In other words, previous research has not examined how these wellness factors affect the sense of wellbeing of young adults prior to experiencing the aging process, chronic diseases, and end-of-life issues.

To date, wellness research has not addressed how family backgrounds, life-style choices, or adjustment to college may influence the perception of wellness in college students (Adams et al., 2000; Carlton & Henrich, 1997; Kadison & DiGeronimo, 2004). Since one-fourth of all 18-24 year olds attend post-secondary institutions in the United

States (Barrios, Everett, Simon, & Brener, 2000), a significant proportion of young adults could be accessed through college-based wellness research efforts (Kadison & DiGeronimo, 2004).

Since 1948, the World Health Organization (WHO) has defined health as the existence of physical, mental, and social wellbeing; and not just the absence of disease and illness (WHO, 1952). United States healthcare practitioners, researchers, and society itself have placed progressively more emphasis on health and wellness issues. The federal policy, Healthy People 2010, has established health-related quality-of-life benchmarks. These standards are actively supported by the United States Department of Health and Human Services—Office of Disease Prevention and Health Promotion (DHHS/ODPHP, 2006). For instance, longevity and quality of life for all Americans are primary goals of Healthy People 2010 (Adams et al., 2000; DHHS/ODPHP, 2006).

The American College Health Association (ACHA), the Carnegie Foundation, and the U.S. Center for Disease Control (CDC) share the Healthy People 2010 vision for improving the health and wellbeing of young adults attending post-secondary institutions (ACHA, 2006; Adams et al., 2000; CDC-MMWR, 1997; Swinford, 2002). These adolescents transitioning to adulthood are faced with making their own personal health care decisions as they begin their independent life on campus (Kadison & DiGeronimo, 2004). Furthermore, college students typically experience developmental and behavioral linked risks to health that are limited to this period in their lives (Allery, 2004; Barrios et al., 2000; Chen & Allery, 2005; Kadison & DiGeronimo, 2004; Kann et al., 2000; Kisch, Leino & Silverman, 2005).

Luckily, college campuses offer a prime milieu for young adults to make positive lifestyle changes and improve their health, wellness, and quality-of-life (Grace, 1997). Enhancing the quality-of-life of students; along with their academic performance has been a focus of university educators, professional staff, and administrators for many years (Adams et al., 2000; Sivik et al., 1992). Despite this shared vision, exploration of how holistic wellbeing is perceived by young-adults has been lacking (Chickering, Dalton, & Stamm, 2006).

## Limitations/Delimitations

Limitations in research may appear in the form of measurement and control problems, or may be due to human complexity (Polit & Beck, 2004). For example, in this research project the author recognized the difficulty in measuring the subjective constructs of adjustment to college and GWB.

To counter these limitations, the subjects' perceptions were measured using likert-like survey instruments incorporated within this project's customized survey. Each of these instruments has been utilized in similar research populations; and has demonstrated satisfactory validity and reliability ratings. The Perceived Wellness Survey (Adams et al., 1997) and the Student Adaptation to College Questionnaire (Baker & Siryk, 1989) also showed evidence of construct validity in previous research efforts. Thus, the proposed constructs of adjustment to college and GWB (represented by the survey tools included in the customized survey) were considered valid (Burns & Grove, 2005; Hutchison, 1999) and accepted for this research project.

A recognized limitation of the chosen self-report surveys was the transparency of purpose in each of the questions. The results were vulnerable to faking or rigging of the responses (Burns & Grove, 2005) in order to provide a socially desirable response or to respond in jest. To control for this, the principle investigator (PI) intentionally 'set the scene and mood' for the participating students. The PI supplied a brief explanation of the study and the potential benefit the results could have for future students on their campus. This explanation was provided just prior to filling out the instrument to each randomly chosen class who participated in this study.

Generalizability was identified as a potential limitation. For example, the short duration of the data collection period, the cross-sectional design, as well as the size of the sample limits the generalizability of the conclusions. Furthermore, the PI acknowledged that self-reported data limits the ability to determine the extent of under- or over-reporting of findings (Burns & Grove, 2005). The researcher understood that obtaining subjects from a single university located in the Upper Midwest region of the United States also impacts generalizability of the findings (Polit & Beck, 2004).

The researcher utilized heterogeneity as a control method to increase the generalizability of findings. Diverse characteristics of the research subjects were identified through the collection of demographic and psychosocial factors (Burns & Grove, 2005).

The control method of homogeneity was also used to counter the identified limitations of this study identified limitations. For example, the inclusion/exclusion criteria controlled for age, level of education, and marital status of those students

included in the study. The demographics of the student population in the chosen campus also provided homogeneity in the subjects. Finally, the calculated sample size ($N = 300$) was based on a pre-selected moderate effect size ($R^2 = 0.13$), with a power set at 0.80, along with an alpha of 0.05 helped control for Type II errors (Burns & Grove, 2005).

## Assumptions

The researcher assumed that:

1. The health-wellness continuum, as well as the disease-illness continuum, designates that the measurable indicators of health and disease are more objective in nature; whereas, the measurable indicators of wellness and illness are more subjective in nature (Haas, 1999).
2. The construct of GWB is subjective and individually perceived, thus perceptions are measurable through self-reporting.
3. GWB is experienced by every sentient individual that has developmentally progressed into adolescence. These individuals are cognitively aware of and able to assign a relative value to their sense of GWB.
4. The sense of GWB is not always a positive notion as represented by the theoretical framework of this study (Adams et al., 1997). Instead, the researcher remained open to the idea that individuals can perceive their overall sense of GWB as either negative or positive.

There were methodological assumptions the PI made in conjunction with this project. The researcher assumed:

1. All respondents would answer the surveys honestly and follow the instructions completely.
2. The subjects selected for this study are representative of 18-24 year old traditional college students of the Midwestern region of the United States.

## Definition of Terms

The science of nursing is challenged in that so many of its concepts are words used in ordinary language; whose meanings lack singular exactness. Precision is necessary for the conveyance of clarity. When ambiguity occurs, the exactness of concepts in a scientific sense is disrupted (Gibson, 1991; Norris, 1982). The following description of terms was intended to maximize definitional clarity to the readership:

1. *Global Wellbeing*: As one begins to transcend all of the dimensions of wellbeing, one is experiencing wellbeing holistically (Coward, 1996). By capitalizing on inner resources and expanding human potentials multi-dimensionally, one is capable of maximizing their subjectively measurable marker of their own quality-of-life. This consummate subjective indicator is GWB (Acton, 1994; Adams et al., 1997; Haas, 1999). The Model of Perceived Wellness was adopted to represent GWB for this study (Adams et al., 1997) (see Appendix A for a visual representation of the Multiple Dimensions of Perceived Wellness theory).
2. *Dimensions of global wellbeing*: In accordance with Adams and his colleagues (Adams et al., 1997; Adams, Bezner, Garner, & Woodruff, 1998; Adams et al., 2000), there are six distinct dimensions of wellness in addition to the overall sense of GWB.

a. *Physical wellbeing* is an individualized subjective opinion and/or measure of acceptance/satisfaction of physical appearance, performance, function, and/or health (Adams et al., 1997).

b. *Social wellbeing* is defined as "the perception of having support available from family or friends in times of need and the perception of being a valued support provider" (Adams et al., 1997, p. 211). Social wellbeing includes the degree of environmental mastery by finding a balance between autonomy, social support network, and connection with others (Adams et al., 2000).

c. *Emotional wellbeing* is defined as possession of a secure self-identity and a positive sense of self-regard, both of which are facets of self esteem. Self esteem is a major component of emotional wellness (Adams et al., 2000). "The value placed on self-identity is called self-regard and has been defined as the extent to which one prizes, values, approves or likes oneself" (Adams et al., 1997, p. 211).

d. *Psychological wellbeing* is experienced when there is a perceived balance between desired and attained goals. In other words, psychological wellbeing is experienced when one recognizes and works toward and/or achieves his/her purpose in life (Acton, 1994).

e. *Intellectual wellbeing* is the perception of being internally energized by an optimal amount of intellectually stimulating activity. Intellectual over-load and under-load is associated with adverse health effects (Adams, et al., 1997; Maslow, 1943, 1954, 1971; Maslow & Lowery, 1998).

f. *Spiritual wellbeing* is an existential experience in which personal limitations are extended transpersonally to connect one to a higher power or objective greater than the self. Spirituality is "a positive perception of meaning and purpose in life" (Adams et al., 1997, p. 210). The author also believes it is possible to promote and measure the development of spiritual wellness while remaining sensitive to individual values and belief systems (Adams et al., 2000).

3. *Student adjustment to college* is multifaceted and involves demands varying in kind and degree. These adjustments require a variety of coping responses (or adaptations) which vary in effectiveness. The ability to adapt (i.e., cope) to the college environment influences the perceptions of wellbeing in students. Measuring adjustment to college assesses how well college students are adapting (i.e., coping) to the demands of the college experience holistically. Aspects of student adjustment to college include (a) academic adjustment, (b) social adjustment, (c) personal-emotional adjustment, and (d) attachment. This construct was operationalized by employing the Student Adaptation to College Questionnaire (SACQ) (Baker & Siryk, 1999)

4. *Traditional college students* are 18-24 year old young adults attending postsecondary institutions. These young adults have never been married; nor are they parents. Typically, traditional college students have recently moved greater than fifty miles away from their family home to attend school.

5. *First generation college students* are students who are the first member of their family to attend a postsecondary institution.
6. *TRIO-eligible students* are a group of low income, first generation college students who qualify for federally funded programs designed to help these students overcome class, social, and cultural barriers to higher education. These federally funded programs define low income as students coming from families with annual incomes less than $25,000. TRIO-eligible students can be supported through several programs including Upward Bound, Student Support Services, and McNair Post-Baccalaureate Achievement programs (Filkins & Doyle, 2002).
7. *Body-mass-index* (BMI) is a formula that correlates heights and weights with risks to health. It is especially useful for evaluating health risks of obesity. The BMI range of 18.5 – 24.9 represents weighing a physically health amount (Sizer & Whitney, 2003).

## Summary

The dialogue in this chapter identified that the leading causes of death and social problems for young people in the United States are known to be behavioral and injury-related. Often, these priority health risk behaviors are established during adolescence, extend into adulthood, are interrelated, and negatively impact health. It is also known that these critical behaviors are preventable. However, very little wellness-oriented research involving young adults has been conducted to associate these critical behaviors with the wellness of this population.

The significance for this study is supported in part by the CDC (CDC-MMWR, 1997) and the American College Health Association (ACHA, 2006). These organizations

have been tracking the health risk behavior trends in college students since 1995. Poor adjustment to the college environment and subsequent attrition rates have been associated with these health risk behaviors (Allery, 2004; Chen & Allery, 2005). College campuses across the United States have implemented multidimensional wellness programs and wellness centers to address these identified high risk needs (Chen, 2005; DiMonda, 2005; Hettler, 1998; Nicoteri & Arnold, 2005; Sivik et al., 1992). To date these campus programs have offered wellness-based strategies without empirical evidence to indicate how students' behaviors and adjustment to college may influence their perceptions of wellbeing. Thus far, research has not evaluated how college-based wellness strategies affect the wellness perceptions of young adults.

The purpose of this study was to explicate GWB in 18-24 year old college students. Explaining GWB of traditional college students was based on the predictive influence of specific demographic characteristics, health risk behaviors, and their adjustment to college.

The Multiple Dimensions of Perceived Wellness model (Adams et al., 1997) was chosen to guide this descriptive explanatory research project. This model provided the best (and only) holistic, empirically-based, conceptual framework available to measure GWB of young, healthy adults.

The PI addressed the purpose of this study by focusing research efforts on the following four aims: (a) Explicated and measured the construct of GWB in 18-24 year old college students, (b) Determined if GWB is perceived as a strictly positive construct versus a positive or negative construct by 18-24 year old college students, (c) Explicated

and measured the construct of student adjustment to college in 18-24 year old college students, and (d) Described the relationships and predictive influence of demographic factors, identified health risk behaviors and adjustment to college with GWB.

The identified significant gaps in current wellness research literature revealed a paucity of research associating the behaviors of young adults with their perceptions of health and wellbeing (Adams et al., 2000; Carlton & Henrich, 1997; Kadison & DiGeronimo, 2004). Without baseline knowledge of how the family backgrounds, life-style choices, behaviors, or adjustment to college influence the wellness of students, benchmarks to evaluate the effectiveness of wellness-oriented interventions do not exist.

The need for further nursing knowledge development focusing on a young, healthy, adult population was found to be a necessary step in order to grasp the full meaning of previously completed quality-of-life research. The results of this study designed to address the previously explained purpose and specific aims would begin to establish the needed baseline wellness knowledge of the young adult population.

Finally, the limitations and assumptions along with definitions of key terms were presented. This information was provided as a foundation for the review of literature, data gathering, and analyses to follow in the upcoming chapters.

# CHAPTER II

## LITERATURE REVIEW

A review of the literature indicated there is a lack of wellness-oriented research focusing on healthy young adults (Adams et al., 1997; Astedt-Kurki, Hopia, & Vuori, 1999; Spenciner-Rosenthal & Cedeno-Schreiner, 2000). Furthermore, a gap in the research exists associating the behaviors of young adults to their perceptions of health and wellbeing (Adams et al., 2000; Carlton & Henrich, 1997; Kadison & DiGeronimo, 2004). Baseline knowledge of how college students' life-style choices, behaviors, adjustment to college, or family backgrounds influence their sense of wellness is missing. Without this baseline knowledge, benchmarks or standards to evaluate the effectiveness of wellness-oriented interventions cannot be established.

To date, researchers have not yet identified the relationships among biophysical, demographic, and psychosocial factors that may lead to a poor sense of dimensional or GWB in otherwise healthy young adults. After research is conducted that identifies these relationships between the health challenges and the sense of wellbeing of young adults, further research is needed to explicitly identify the factors that may foster a positive sense of wellbeing in this population. In order to begin to best serve adolescents transitioning to adulthood, initial steps need to be taken to determine their current perceptions about health and wellbeing and what factors influence these perceptions.

The purpose and aims of this study guided the structure of this literature review. The purpose of this study was to explicate GWB in 18-24 year old college students. Assessing GWB in these students incorporated identifying the predictive influence of specific demographic characteristics, health risk behaviors, and their adjustment to college.

The following four aims provided the direction and focus for this study: (a) Explicate and measure the construct of GWB in 18-24 year old college students, (b) Determine if GWB is perceived as a strictly positive construct versus a positive or negative construct by 18-24 year old college students, (c) Explicate and measure the construct of student adjustment to college in 18-24 year old college students, and (d) Describe the relationships and predictive influence of students' demographic factors, identified health risk behaviors, and adjustment to college with GWB.

## Understanding the Construct of Global Wellbeing

### *Meanings and Usage of Wellbeing*

The Oxford Dictionary and Thesaurus (1996) described wellbeing as a state of being well, healthy, and/or contented. The tenth edition of the Merriam-Webster's Collegiate Dictionary extended this explanation of wellbeing to include experiencing the conditions of happiness and/or prosperity (1999). The fourth edition of Random House Webster's Dictionary reiterated these previous sources by identifying wellbeing as "a state characterized by health, happiness, and prosperity" (2001, p. 813).

For nursing-related purposes, the term, wellbeing requires a more complete and contextually rich meaning. The Mosby's fifth edition of their Medical, Nursing and Allied Health Dictionary provides this full-bodied clarity by describing wellbeing as "the

achievement of a good and satisfactory existence as defined by the individual" (1998, p. 917).

*Historical and Professional Uses of the Concept of Wellbeing*

The topic of wellbeing (and its related constructs) has been of interest to other disciplines for years. As early as 490-429 BC, Pericles made the connection between health and feelings of wellbeing (Wilcock et al., 1998). The World Health Organization (WHO) in its 1946 definition of health advanced the contemporary notion of health beyond the absence of disease by linking it to a state of mental, physical, and social wellbeing. This perception has survived over fifty years of rapid social, technological, and health science changes (WHO, 1952).

In 1967, a sociologist named Wilson, while researching the correlates of happiness, did not expressly characterize wellbeing; however, he did conclude that the "happy person is a young, healthy, well-educated, well-paid, extroverted, optimistic, worry-free, religious, married person with high self-esteem, high job morale, modest aspirations, of either sex, and of a wide range of intelligence" (Acton, 1994, p. 294).

The term 'wellbeing' has been used synonymously with the expressions 'quality-of-life', 'life-satisfaction', 'happiness', 'health promotion', and 'wellness'. Unfortunately, reviewing the numerous articles related to wellbeing and similar constructs is difficult because of multiple interpretations and measurements. It is a complex, multifaceted concept which continues to defy consensual meaning (Acton, 1994).

Farquhar (1995) suggested that lack of consensus is because quality-of-life and wellbeing are multidisciplinary terms, being used by everyone from advertising

executives and politicians to social scientists and economists. In 1984, a sociologist named Diener prepared a comprehensive historical review of subjective wellbeing, including its structure, influences, and measurement (Diener, Suh, Lucus & Smith, 1999). Diener defined wellbeing as a personal subjective and holistic evaluation of all aspects of his or her life, including positive and not just negative aspects (Acton, 1994).

A composite definition of subjective wellbeing has been gleaned from several literary sources (Acton, 1994; Adams et al., 1997; Haas, 1999; Stanley & Cheek, 2003; Wilcock et al., 1998; Wilson, 1967; Xavier, et al., 2003). Subjective wellbeing can be simply described as a personal valuation of general happiness. Such an appraisal is often times articulated in affective terms; when questioned about subjective wellbeing, research participants frequently said, "I feel good". Therefore, subjective wellbeing is a global affective evaluation. Even within healthcare, this concept is poorly defined, has multiple interpretations, and various methods of measurements (Acton, 1994; Adams et al., 1997; Estwing-Ferrans et al., 2005; Haas, 1999).

### *Defining Attributes of Wellbeing*

An examination of the literature and meanings of wellbeing have uncovered a number of shared characteristics. The identification of such essential traits lends a hand in defining the concept, delineating wellbeing from other related and similar ideas, and serves as conditional criteria for naming the occurrence of the phenomenon of wellbeing. This process provides understanding, clarity, consensus, and universality (Dingley, Roux, & Bush, 2000). The defining attributes of wellbeing derived from this analysis are as follows.

*Multiple Dimensions of Wellbeing*

Global (or transcendental) wellbeing is comprised of multiple dimensions including (a) physical, (b) emotional, (c) social, (d) intellectual, and (e) spiritual. The degree of importance of each dimension to the whole is what makes wellbeing unique for each person (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000; Haas, 1999; McDaniel & Bach, 1994). Consider a situation of a newly married couple encountering relationship issues. Their problems result in on-going arguments and exchanging cruel, verbally abusive dialogue. They each will likely experience a decline in their global sense of wellbeing due to the impact their fighting has on their emotional and social dimensions of wellness.

*Hierarchical, Dynamic, and Temporal Nature of Global Wellbeing*

How an individual subjectively defines wellbeing may change day-to-day. In the short-run, an individual will also re-weigh the relative importance of each dimension. The various intrinsic and extrinsic motivators driving this individual to continually re-appraise his/her sense of wellbeing can be shifting in degree of significance. These dynamic qualities also change with the various developmental stages/ages of life (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000; Haas, 1999; McDaniel & Bach, 1994; Neuman & Fawcett, 2002).

As an example, re-consider the struggling newlyweds mentioned earlier. Assume this couple worked out their early-marriage problems, developed a strong and supportive partnership, and are approaching their 35$^{th}$ anniversary. They have had the opportunity to form a trusting bond; experience thirty-five years of health, happiness, and financial success together. The wife finds out she has breast cancer with a good prognosis if she

were to choose a mastectomy. The physical and psychological dimensions of her wellness threaten her global sense of wellbeing. However, the long, healthy, and supportive marriage of this couple bolsters the woman's emotional, psychological, and social wellness dimensions. Therefore, at this juncture, the woman places less emphasis on physical beauty. Her strong sense of love and belonging counters the impact physical disfigurement could have on her self-esteem. Her global sense of wellbeing actually increases as a result of her breast cancer experience. In other words her strong marriage has validated her social connectedness and self-worth which in turn bolsters her GWB.

*Interactive Nature of Global Wellbeing*

Wellbeing is influenced by the constant exchange between the individual and his or her environment. This ongoing interface also exists between the multiple dimensions of this concept, the inner core needs/basic structure, and the self-care capacity of individuals (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000; Maslow, 1971; McDaniel & Bach, 1994; Neuman & Fawcett, 2002) (see Appendix C to visualize Maslow's Hierarchy of Needs and the self-care capacity of individuals).

*Congruent Nature of Global Wellbeing*

Wellbeing is affected by how an individual reacts to stressors. This reaction defines the agreement or lack of agreement between the hopes and expectations and the actual conditions or life stressors of an individual (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000; McDaniel & Bach, 1994; Neuman & Fawcett, 2002).

*Mastery as an Attribute of Global Wellbeing*

When an individual experiences a (positive) sense of wellbeing, he/she will experience a mastery of the situation. Mastery is comprised of certainty, planned change,

acceptance, and growth. It is a human response to difficult or stressful experiences in which competency and control have been gained over the occurrence of stress (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000; Dingley, Roux, & Bush, 2000; Maslow, 1971; Neuman & Fawcett, 2002).

Ongoing consideration of these attributes help researchers and clinicians recognize the personal, relative nature of GWB. Embracing the complexity and the subjectivity of this construct is necessary when planning meaningful research studies and/or interventions for various target populations.

## The Construct of Wellbeing within the Context of Nursing

This section will clarify the meaning of wellbeing within the context of nursing practice and research. The purpose of this clarification is to provide an integrated, precise language, and taxonomy of wellbeing for nurses. This course of action will facilitate efforts of nurse clinicians and researchers to operationalize the central tenet of wellbeing. The larger goal of this effort is to begin the arduous task of unwinding the interwoven definitional threads that inextricably weave the overlapping constructs of health, life-satisfaction, quality-of-life, and wellbeing into the common fabric of nursing science and praxis (Acton, 1994).

If nursing is seen in accordance to Jean Watson (1985) as the study of caring in the human health experience, nurses must first understand the reality of that experience for those who live it. An integral part of understanding the reality of the experiences of individuals is a carefully thought-out description of a concept or phenomenon related to an area of concern. A clear understanding and articulation of the concept or phenomenon can provide a common language and a point of relativity for nurses which have universal

application. Without this common understanding, ambiguity and confusion occur which not only "impedes the development of theoretical constructs, but essentially creates a roadblock in the implementation of nursing care" (Dingley, Roux, & Bush, 2000, p. 30).

The science of nursing is challenged in that so many of its concepts are words in ordinary language that lack the elements of a classification system made up of categories, taxonomies, and rules. Such precision is necessary for a scientific discipline. When ambiguity occurs, the exactness of concepts in a scientific sense is disrupted. Wellbeing is one of those ambiguous nursing constructs (Gibson, 1991; Norris, 1982).

Nursing as a profession is committed to the promotion and achievement of health and wellbeing. Though few researchers and clinicians dispute its existence, current literature does not fully nor discriminately describe the concepts of health, wellbeing, or quality-of-life. These and other terms and phrases are used interchangeably when addressing the multi-dimensional paradigm of wellbeing (Acton, 1994; Dingley et al., 2000; Haas, 1999).

The discipline of nursing is in the process of refocusing its view of health away from the positivistic disease—illness paradigm of the traditional medical model. In its place, nursing science is embracing the holistic model of health that suggests nurses are engaged in helping people develop and heal, so they can vie with daily life events and can live happy, interactive lives (Acton, 1994; Montgomery-Dossey et al., 2005; Smith, 1981). This eudemonistic or wellness-oriented conception of health supports a sense of GWB and self-awareness. This perspective views illness as a condition that impedes the wellness process (Jones & Meleis, 1993; Smith, 1981).

Acton (1994) suggested this paradigm shift implies that the nursing profession is concerned with helping and motivating people to be the best they can be given the contextual circumstances of their life situations. As nursing redefines its role in this unconstrained approach to practice; outcomes that embrace contextual and holistic human interactions must be clearly defined (Montgomery-Dossey et al., 2005). "In other words, the disease or problem must be transcended and interactive human processes must be explored. The subjective construct of 'wellbeing' is an outcome appropriate for the measurement of human processes" (Acton, 1994, p. 6).

In 1994, Acton conducted an exhaustive examination of wellbeing as a concept for theory, practice, and research within and beyond the discipline of nursing. The result of this review suggests that definitional ambiguity continues to surround wellbeing in the research literature (Acton, 1994; Dingley et al., 2000; Haas, 1999; Seedhouse, 1995). Within the twenty-six nursing studies reviewed, Acton identified twenty-six different types of instruments used to measure wellbeing (1994).

The diversity in the use of research tools to measure wellbeing identified by Acton suggests a significant lack of consensus among nurse scientists concerning the defining attributes of wellbeing. A lack of a singular wellness-based theoretical framework grounded in nursing theory was also revealed by the literature review conducted by Acton in 1994. This suggestion is further supported by the inconsistent and/or nonexistent use of conceptual definitions in the review of nursing wellness literature presented by Acton (1994).

*Global Wellbeing in the Context of Nursing*

As early as 1974, the nurse theorist Betty Neuman defined wellness as an unwavering wholistic condition in which system components are in balance with the interrelated whole. This harmony is based on the interrelationships of variables which influence the amount of resistance to stressors (Neuman & Fawcett, 2002).

By capitalizing on inner capacities and expanding human potentials multi-dimensionally, one is capable of maximizing the subjectively measurable indicator of his/her own quality-of-life. That subjective indicator is wellbeing (Acton, 1994; Adams et al., 1997; Haas, 1999).

Transcendence was described by Frankl (1963, 1969) as the inherent attribute of humans to reach out beyond them and therefore make meaning of their lives (Coward, 1996). The review of literature revealed that this consummate sense of wellness identified as transcendental or general wellbeing is also identified as quality-of-life (Acton, 1994; Haas, 1999).

The literature explained this inclusive sense of wellness as a transcendence of all the dimensions of wellbeing. When one experiences this holistic event, it can be referred to as a sense of GWB (Acton, 1994; Deiner, Suh, Lucas, & Smith, 1999; Ferrans, 1996; Haas, 1999; McDaniel & Bach, 1994; Seedhouse, 1995; Stanley & Cheek, 2003; Wan, Counte, & Cella, 1997; Xavier et al., 2003). The World Health Organization (1952) described this close relationship between what people do and their subjective GWB as striving to attain a state of complete physical, mental, and social wellbeing (Wilcock et al., 1998). The principal investigator supports that GWB is a self-actualized, transcendental, and subjective experience of quality-of-life at any given point in time.

*Hierarchical Integration of Global Wellbeing with Similar Concepts in Nursing*

To provide a distinction of the similar terms within this topic, quality-of-life is considered to be the overarching cumulative valuation of life including the subjective measurements of wellbeing. In some circumstances, objective indicators (i.e., functional capacities) may supplement or, in the case of an individual unable to subjectively comprehend, serve as a proxy assessment of quality-of-life (Haas, 1999).

In an analysis of wellbeing, Acton (1994) and Haas (1999) pointed out that wellbeing is often used interchangeably with quality-of-life. According to Haas, this association is incorrect because wellbeing is purely subjective; whereas, quality-of-life has both subjective and objective features (see Appendix B to visualize these features).

In an analysis of wellbeing, Acton (1994) proposed that the term 'wellbeing' is often used interchangeably with 'functional-status', 'life-satisfaction', and 'quality-of-life'. She proposed that life-satisfaction is only one of several subjective measures of wellbeing. Haas (1999) resolved these inconsistent overlapping definitions of related constructs by proposing hierarchical relationships between quality-of-life and GWB.

*Quality-of-Life*

Haas (1999) envisioned quality-of-life as a broad intangible concept with both subjective and objective components. The subjective component, often referred to as wellbeing, is considered the primary indicator of quality-of life. The corporeal component, represented by functional capacity or functional status, is a critical, as well as empirical indicator of quality-of-life. Life-satisfaction is a subjective partial assessment of wellbeing; and thus also an attributional indicator of quality-of-life. Quality-of-life is comprised of domains which, though they may vary slightly, generally are identified as

physical, psychological, social, and spiritual dimensions. These four domains can manifest both objective indicators of quality-of-life (i.e., functional status) and subjective indicators of quality-of-life (i.e., wellbeing). In an effort to visualize the hierarchical model of global quality-of-life, Haas developed a graphical representation (see Appendix B to view Haas's 1999 conceptualization of global quality-of-life).

Adhering to an individualistic philosophy, Ferrans (1996) defined quality-of-life as "a person's sense of wellbeing that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her" (p. 296). Ferrans repeated a common mistake of many previous researchers (i.e., Acton, 1994), using one similar construct (i.e., wellbeing) to define the other (quality-of-life). This failure resulted in an ambiguously defined construct of quality-of-life.

*Health Related Quality-of-Life (HRQL)*

Wan and his colleagues reported conflicting opinions amongst various quality-of-life researchers; whether HRQL should be conceived and measured as a multidimensional or one-dimensional construct (Wan et al., 1997). These researchers came to a consensus that HRQL is subjective. Wan et al. conceptualized HRQL as "the gap or disparity between an individual's expectations and achievements. [They also found] that personal expectations influenced overall HRQL, as well as influenced the individual dimensions of HRQL" (p. 32). This ambiguous definition supported Estwing-Ferran's (et al., 2005) critique that "the distinction between health-related and nonhealth-related quality-of-life cannot always be clearly made" (p. 336).

Global wellbeing is a multidimensional cumulative evaluation of current life circumstances. This subjective evaluation is in the context of the culture systems in which one lives and the values he/she holds (Adams et al., 2000; Haas, 1999).

To further clarify the construct of wellbeing, it is important to understand that life-satisfaction is a purely subjective indicator and only represents a portion of wellbeing. Life-satisfaction is a derived indicator of quality-of-life through its global, yet partial measurement of subjective wellbeing (Haas, 1999).

### *Similar Concepts of Global Wellbeing in Nursing*

#### *Health*

Smith (1981) observed in her literature review that health has been consistently described in four theoretically distinct paradigms of health including (a) clinical, (b) role-performance, (c) adaptive, and (d) eudemonistic. The clinical model of health reflects the medical model's contention that the absence of disease or disease-related symptoms identifies one as being healthy (Acton, 1994; Montgomery-Dossey, Keegan, & Guzzetta, 2005).

The second approach, referred to as the role-performance model of health, is identified as the ability of a person to perform his/her assigned responsibility in society (Acton, 1994). Thus, "to be healthy in this paradigm is to be able to participate in society and to perform [assigned] social tasks and responsibilities" (Acton, p. 4). To be healthy in the adaptive model of health is to be able to adjust to changes and environmental challenges. An individual is considered 'ill' within the adaptive model of health when he/she suffers a disconnect from his/her personal surroundings (Acton, 1994).

To be healthy in the eudaemonistic paradigm the literature suggests that one strives to be the best that he/she can be, given the circumstances of his/her life situation. This implies that nurses are concerned with helping people grow and heal, holistically and contextually (Acton, 1994; Adams et al., 2000; Montgomery-Dossey et al., 2005; Smith, 1981).

*Life-satisfaction*

Quality-of-life is repeatedly considered the same as life-satisfaction within the literature. Many authors view life-satisfaction as one indication of wellbeing and happiness (Acton, 1994; Haas, 1999; McDaniel & Bach, 1994). Haas supported the 1987 differentiation of life-satisfaction and quality-of-life presented by Sartorius. These researchers suggested that life-satisfaction is the realization of a goal or the sense of approaching that goal; while quality-of-life is derived from of the multiple levels of goal attainment amongst the various goals a person sets for themselves.

*Functional Status*

It has been suggested in the literature that the three constructs of health status, functional status, and quality-of-life are often used interchangeably to refer to the same domain of health (Haas, 1999). Leidy (1994) defined functional status as "a multidimensional concept characterizing one's ability to provide for the necessities of life; that is those activities people do in the normal course of their lives to meet basic needs, fulfill usual roles, and maintain their health and wellbeing" (p.197). Haas conceptualized functional status as a multi-dimensional objective indicator of quality-of-life. On the other hand, Haas (1999) viewed wellbeing as a multidimensional subjective indicator of quality-of-life.

## The Global Wellbeing Continuum

Global wellbeing is seen as a subjective human experience. GWB is the perceived interaction of the multiple dimensionalities of wellbeing. These dimensions can be visualized as separate, yet interrelated objective-subjective continuums (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000). The health-wellness continuum, as well as the disease-illness continuum indicates that the measurable indicators of health and disease are more objective in nature; whereas, the measurable indicators of wellness and illness are more subjective in nature (Delaney, 1994; Jensen & Allen, 1993; Pender, 1987). The Model of Perceived Wellness (Adam, 1997) supports the interaction of the multiple dimensionalities of GWB.

Neuman and Fawcett (2002) also envisioned illness on the opposite end of a continuum from wellness. According to Neuman and Fawcett, illness "represents instability and energy depletion among the system parts or subparts affecting the whole" (p. 324).

### *Valence and Dimensionality of Global Wellbeing*

An overall (or global) sense of wellbeing is realized after an internalized, self-perceived summing-up process takes place. This process involves a subconscious weighing of the various dimensions of wellbeing. A person intuitively ranks the importance of each dimension. This assigned importance of each wellness dimension is contextually based on how the person interprets each event that impacts his/her wellness at a particular point in time (Adams et al., 1997; Adams et al., 2000).

According to the theoretical framework of Multiple Dimensions of Perceived Wellness (Adams et al., 1997), each dimension can only have a positive value. Therefore,

an overall or global sense of wellbeing can only take on a positive significance (Adams et al., 1997; Adams et al., 2000). Other authors postulated that an overall or global sense of wellbeing can be perceived as a negative or positive construct (Acton, 1994; Bell et al., 2004; Haas, 1999; Wan et al., 1997). To date, a thorough review of the literature revealed that these opposing theoretical assumptions have not been tested.

In 2004, an integrated complementary and alternative medicine group of researchers headed by psychiatrist, Dr. Iris Bell completed a series of three studies to pilot a scale named the Arizona Integrative Outcomes Scale (AIOS). The AIOS is a one-item, visual analogue self-rating scale designed to measure the overall sense of wellbeing for the past 24 hours or for the past month (Bell et al., 2004).

The AIOS is a 100 mm horizontal bipolar line anchored on one end of the continuum with "worst you have ever been" and the other end anchored with "best you have ever been". Subjects are instructed to reflect on their sense of wellbeing, taking into account their physical, mental, emotional, social, and spiritual condition over the previous 24 hours [or past month]. Subjects are then instructed to mark the line with an "X" at the point that summarizes their overall sense of wellbeing (Bell et al., 2004). According to Dr. Bell, subjects intuitively recognize the half-way point of the line as the point where their wellbeing transitions from negative to positive. However, this assumption was not tested in her studies. This simple visual analogue scale allows subjects to indicate if they perceive their GWB as either negative or positive without researcher bias (I. R. Bell, personal communication, March 28, 2007).

Bell (et al., 2004) successfully tested the validity of the AIOS visual analogue scale. The AIOS "assessed self-rated global sense of spiritual, social, mental, emotional,

and physical wellbeing" (p. 1) in three sub-studies. The preliminary results of this new and simple AIOS tool development effort shows promise in directly measuring the subjective dynamic qualities of the GWB construct.

The first sub-study "tested the AIOS scale's ability to discriminate unhealthy individuals ($n$=50) from healthy individuals ($n$=50) in a rehabilitation outpatient clinic sample...[The] rehabilitation patients scored significantly lower than the healthy controls on the AIOS and a current global health rating [$p < 0007$]"(Bell et al., 2004; p.1). The second sub-study evaluated the concurrent validity of the AIOS by comparing ratings of GWB to degree of psychological distress as measured by the Brief Symptom Inventory in undergraduate college students ($N = 458$). "[The] AIOS scores were inversely related to distress ratings ($r = -0.40$),[$p < 0.01$]" (Bell et al., 2004; p.1). The third sub-study investigated the correlations between the AIOS and positively- and negatively-valenced tools (Positive and Negative Affect Scale and the Positive States of Mind Scale) in a different sample of undergraduate students ($N = 62$). "[The] AIOS was significantly correlated with positive affect [$r = 0.57$; $p < 0.01$] and positive states of mind [$r = 0.45$; $p < 0.01$] and inversely correlated with negative affect [$r = -0.59$; $p < 0.01$]" (Bell et al., 2004; p. 1).

However, the AIOS measure of overall wellbeing was not correlated to any of the dimensions that comprise the global construct. Furthermore, the available literature describing the development of the AIOS does not overtly discuss if this bidirectional scale includes both positive and negative valence possibilities of wellbeing (Bell, et al., 2004).

Several dimensions of wellbeing, wellness, and/or quality-of-life have been identified in the literature. The most common themes and/or distinct dimensions of subjective wellbeing include physical, social, emotional, psychological, intellectual, and spiritual (Acton, 1994; Adams et al., 1997; Ferrans, 1996; Haas, 1999; McDaniel & Bach, 1994; Seedhouse, 1995; Stanley & Cheek, 2003; Wan et al., 1997; Xavier, et, 2003).

This literature search has revealed these sub-concepts (physical, social, emotional, psychological, intellectual, and spiritual) as the core health-related domains of the multidimensional construct of wellbeing. These dimensions have been the focus of chronically ill and end-of-life research efforts in the area of health-related quality-of-life (Acton, 1994; Adams et al., 1997; Ferrans, 1996; Haas, 1999; McDaniel & Bach, 1994; Seedhouse, 1995; Stanley & Cheek, 2003; Wan et al., 1997; Xavier, et, 2003).

*Physical Wellbeing*

This is also referred to in the literature as functional status. However, a significant distinction has been made by some authors between these two similar constructs (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000; Haas, 1999). Physical wellbeing is an individualized subjective opinion and/or measure of perceived acceptance or satisfaction with the physical appearance, performance, function, and/or health of oneself. In contrast, functional status is an objective measure of the physical appearance, performance, function, and/or health derived from a third party (Haas, 1999). Examples of measuring functional status include taking a blood pressure or calculating body-mass index.

Adams and colleagues (1997) defined this dimension of wellness as a positive perception and expectation of physical health. Acknowledging and measuring perceived physical health integrates available health information by accounting for differences in health preferences, values, needs, and attitudes (Adams et al., 1997). Furthermore, Adams reported that "good perceived physical health has been positively associated with higher levels of physical activity and negatively associated with musculoskeletal symptoms and diseases and psychological problems" (1997, p. 210).

*Social W*ellbeing

Adams et al. (1997) defined social wellness as "the perception of having support available from family or friends in times of need and the perception of being a valued support provider" (p.211). Social wellbeing encompasses the degree of environmental mastery by finding a balance between autonomy, social support, and connectedness (Adams et al., 1997; Boland, 2000; Weinstein, 2001).

*Emotional Wellbeing*

This dimension is affiliated with the affective component of wellbeing. Affect is related to the immediate feeling aspects of an experience. Other facets of emotional wellbeing include the intuitive ranking an individual does to determine the degree of his/her sense of love, sense of belonging, and sense of self-acceptance (Adams et al., 2000; Chamberlain & Haaga, 2001; Coward, 1996). Adams and colleagues (1997) posited that:

> ...emotional wellness is defined as possession of a secure self-identity and a positive sense of self-regard, both of which are facets of self-esteem. Self-esteem is a major component of emotional wellness. . . The value placed on self-

identity is called self-regard and has been defined as the extent to which one prizes, values, approves or likes oneself. (p. 211)

*Psychological* Wellbeing

Psychological wellbeing has been associated with the cognitive component of wellbeing. A positive sense of psychological wellbeing is subjectively experienced when there is a perceived congruence between desired and attained goals (Acton, 1994; Adams et al., 1997; Adams et al., 1998; Adams et al., 2000). In other words, psychological wellbeing is when one recognizes and works toward and/or achieves his/her purpose in life.

*Intellectual Wellbeing*

Another component of GWB is the intellectual dimension of wellness. Intellectual wellness is the perception of being internally energized by an optimal amount of intellectually invigorating activity. Adams et al., reported that both intellectual burden, as well as intellectual deficit has been associated with poor health affects (1997).

*Spiritual Wellbeing*

Spirituality refers to a self-transcendence in which personal limitations are extended transpersonally (Adams et al., 2000; Montgomery-Dossey, Keegan, & Guzzetta; 2005) to "connect one to a higher power or objective greater than the self. Attaining spiritual wellbeing is a process that provides meaning and purpose in life" (Ellerman & Reed, 2001, p. 701). Adams and colleagues (1997) also believed that spirituality is a positive perception of meaning and purpose in life. They contend that spirituality is the most empirically supported wellness dimension to date; associated with positive health outcomes and wellbeing. Adams et al. (2000) purported it is possible to promote and

appraise the development of spiritual wellness while remaining responsive to different values and belief systems.

## Conceptual Framework of this Study

### *Multidimensional Wellness Model*

In addition to being perceptually focused, the Perceived Wellness Model (Adams et al., 1997) makes a rigorous framework to guide this research for several reasons. Philosophically, there is a good fit between the beliefs of the author and underpinnings of the model. Furthermore, the corresponding thirty-six question research tool (the Perceived Wellness Survey) developed by Adams et al. (1997) followed sound theoretical and psychometric standards. After extensive examination of the wellness literature, this model was the only theory and survey instrument that was specifically developed to measure perceived multidimensional wellness in a healthy young adult population.

Adam's multidimensional perceived wellness model and survey tool were selected for this research project because of three key literature-based principles used in their development. Adams purports that these three principles are common to all conceptualizations of wellness: (a) multi-dimensionality, (b) balance among dimensions, and (c) salutogenesis--defined as causing health rather than illness (Acton, 1994; Adams et al., 2000; Montgomery-Dossey, Keegan & Guzzetta; 2005) (see Appendix A to view the multiple dimensions of the Perceived Wellness Model).

The Perceived Wellness Model (Adams et al., 1997) includes the core dimensions of GWB identified in the reviewed literature (Acton, 1994; Adams et al., 1997; Adams et al., 1998; Adams et al., 2000; Haas, 1999; Montgomery-Dossey, Keegan, & Guzzetta; 2005) including the: (a) physical, (b) social, (c) emotional, (d) psychological,

(e) intellectual, and (f) spiritual dimensions of wellness. Second, it is dynamically bidirectional, which incorporates balance among dimensions. Thirdly, the measure of perceived wellness through the Perceived Wellness Survey (PWS) is unique (Adams et al., 1997; Adams et al.; Adams et al., 2000)

The Perceived Wellness Model (Adams et al., 1997) explicitly represents a systems approach on the vertical and horizontal paths. Any vertical movement symbolizes changes in illness and wellness. Horizontal movement is the dynamic, balance-seeking force along each dimension of wellness. The salutogenic pole of this model is represented by the perimeter of the conical model (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000 (see Appendix A to view the multiple dimensions of the Perceived Wellness Model).

Global wellbeing can be influenced by the integrated combination of the dimensions of wellbeing, the internally perceived drivers initiated from within an individual, and/or from external environmental stressors. The magnitude of each dimension combined with the balance among the dimensions determines the degree of perceived GWB (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000).

Perceived wellbeing is a subjective indicator of quality-of-life. The Perceived Wellness Survey is the tool to empirically measure quality-of-life indirectly. By measuring perceptions which by and large precede overt symptomology, practitioners and researchers could concentrate their efforts on the wellness-oriented pole of each wellness dimension (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000).

Adams and colleagues (1997) acknowledged the evidence that point to the power that standard risk factors (such as choosing to live a risky life-style) have on quality-of-

life. However, they contended that health perceptions have been identified as one of the strongest predictors of physical and mental health care utilization. They proposed that perceptions are also significant because they may actually pave the way for explicit demonstration of illness or wellness; and may therefore be fertile groundwork for prevention, early intervention, or lasting wellness (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000).

In summary, the Multiple Dimensions of Perceived Wellness model is a holistic approach to health and balanced wellness. Adams and his research partners purported wellbeing is a multidimensional perception which can be subjectively measured (1997; 1998; 2000). A thorough review of the wellness literature revealed that only the Multiple Dimensions of Perceived Wellness model (a) directly measured GWB subjectively, (b) was salutogenic, (c) dynamically measured the balance between identified wellness dimensions, and (d) was developed and tested on the healthy young adult population. Therefore, the theoretical and structural components of this model are a logical fit with the purpose and specific aims of this project.

## Historical Development of Wellness in Higher Education

The wellness movement in our society and in higher education began to take shape in the 1970's. However, its roots reach back to the 1960's and the work of Dr. Halbert Dunn (1961). Many of Dunn's ideas and concepts were compiled into his 1961 book entitled, "High Level Wellness" (DiMonda, 2005; Hettler, 1998). This work reportedly formed the foundation of the current wellness movement (Ardell, 2000). The definition of wellness first suggested by Dunn is an integrated method of functioning

which is oriented to maximizing the potential of which an individual is capable, within the environment where he is functioning (Ardell, 2000; Dunn, 1961; Hettler, 1998).

Since the 1970's, Astin (1999), Chickering (1969), Tinto (1997), and other leaders in higher education, have promoted their ideas of how to integrate holistic, development of students into the missions of higher education (DiMonda, 2005; Kadison & DiGeronimo, 2004; Upcraft, 1993). This trend is based on the premise that during their college experience, students are transitioning toward an independent identity and belief system. It is believed that most of this evolution takes place outside of the classroom (Elleven & Spaulding, 1997; Kadison & DiGeronimo, 2004).

Currently, postsecondary institutions across the United States are charged with the responsibility to create a campus environment conducive of holistic student development (Astin, 2000; Kadison & DiGeronimo, 2004). This milieu is being supported via campus-wide policy and programming efforts around the country (Hettler, 1998). For instance (a) multiple colleges have incorporated health and wellness courses into their core curriculum (Ardell, 2000; Hettler, 1998), (b) freshmen are encouraged to participate in formal orientation programs (Kadison & DiGeronimo, 2004), and (c) higher education leadership across the United States have integrated authenticity and spirituality in curriculum, student affairs, community partnerships, and campus-specific policy changes (Chickering, Dalton, & Stamm, 2006).

## College Students as a Vulnerable Population

If nursing is defined as the scholarship of caring in the human health experience (Watson, 1985), nurses must first understand what the reality of that experience is for those who live it. An integral part of this is a carefully thought-out understanding of the

population under investigation. If the art and science of nursing is positioned toward helping those who are experiencing changes in health, then understanding how vulnerability impacts perceived health and sense of wellbeing is key (Spiers, 2000).

A clear conception and articulation of who these individuals are and what their vulnerabilities are will provide a common point of relativity. Without this common understanding, ambiguity and confusion may occur, impeding development of nursing knowledge (Dingley, Roux, & Bush, 2000). Furthermore, without this clear understanding of the population under consideration, along with their weaknesses, the implementation of culturally safe nursing care will be hindered (Fuller, 2003).

A critical exploration of vulnerability as it relates to traditional college students in the United States will be presented in this section. This thesis was developed in the following manner. First, a discussion of the construct of vulnerability was introduced. This construct was considered in the context of the college population based on Spiers' differential interpretation of vulnerability (Spiers, 2000; Aday, 1994). Finally, the proposition that college students are a vulnerable population was explored utilizing the conceptual framework for research presented by Flaskerud and Winslow in 1998.

### *Vulnerability*

Vulnerability is one of those ambiguous words that evade conceptual exactness (Spiers, 2000). Yet, "a significant emphasis has been placed by scholars, healthcare professionals, governments, and funding agencies on the social and economic determinants of health disparities in vulnerable populations" (Flaskerud et al., 2002, p. 74).

According to Aday, the word vulnerable comes from the Latin verb *vulnerare* which translates *'to wound'*. Therefore, to be vulnerable is to be in a situation of being harmed or ignored, as well as provided aid by others in society (2001).

In its usage in the context of nursing, vulnerability speaks to the susceptibility to health problems, harm, or neglect. Inherent to this interpretation of vulnerability is the differential risk of poor bodily, mental, emotional or social health (Aday, 2001; de Chesnay, 2005; Leight, 2003). Spiers revealed that the term 'vulnerability' has been historically used to identify individuals and groups at risk of harm (2000). She reiterated other authors' premise that almost all uses of this term in nursing reflect epidemiological principles of population-based relative risk (Aday, 1994, 2001; Flaskarud & Winslow, 1998; Flaskarud et al., 2002; Spiers, 2000).

Spiers (2000) suggested that epidemiological views of vulnerability do not sufficiently explain the holistic human experience. She set forth a new approach to conceptualizing vulnerability. Spiers envisioned this construct based on perceptions that are either externally defined by others (i.e., the 'etic' or historically epidemiological perspective) or intrinsically defined from the point of view of the person (i.e., the 'emic' perspective). There is value in both approaches (Spiers, 2000). According to de Chesney (2005), "Etic approaches are helpful in understanding the nature of risk in a quantifiable way. Whereas, emic approaches enable one to understand the whole of human experience and, in so doing, help people capitalize on their capacity for action" (Spiers, 2000, p. 5).

Spiers suggested that their principles are not always mutually exclusive, but the two approaches form a basis for differentiating vulnerability as relative risk (i.e., etic) from vulnerability as a state of being (i.e., emic). Emic perceptions of vulnerability are

experiential and qualitative, while etic perceptions involve identification of individuals or groups who are at particular risk according to normalized benchmarks set by specialists and derived from the general population (Spiers, 2000; deChesnay, 2005).

In clinical settings, nurses encounter potentially vulnerable individuals seeking healthcare during the course of their day. Often times astute nurses intuitively recognize some individuals as lacking the ability to make healthy personal life-style choices, to make sound personal decisions, to sustain autonomy, and/or to self-regulate. Moore and Miller (1999) reported that through experience, nurses recognize that these susceptible individuals are more likely to experience real or potential harm and require special protection to assure that their wellbeing and rights are preserved. However, being diagnosed with an illness does not automatically render a person vulnerable. According to Moore and Miller, someone who is diagnosed with an illness and due to that illness lacks the ability to maintain personal independence and self-determination may be considered vulnerable.

Nurse investigators may wish to include groups of 'at risk' individuals in research projects. Moore and Miller (1999) reported Silva's 1995 proposition that conceptualizing these individuals as vulnerable is a somewhat difficult undertaking and requires a watchfulness on the part of nurses since advances in science and technology and the vibrant nature of societal attitudes may have a bearing on which individuals are perceived as vulnerable (i.e., etic) or which groups of individuals *wish* to be perceived as vulnerable (i.e., emic) (Spiers, 2000).

This section identified that there is not a singular definition of vulnerability that can adequately serve all forms of research and practice. The 'etic' perspective is most

appropriate for population-based application. Whereas, the 'emic' perspective is most appropriate for understanding vulnerability as an experiential state (Spiers, 2000). There needs to be a congruent fit of the term vulnerability, within the context of its use and with the population this term is being used to describe or investigate.

If a specific group is going to be identified as a vulnerable population by researchers and practitioners alike, the construct needs to be contextualized. The following paragraphs will explore why an etic definition of vulnerability best supports the unique attributes of late adolescents transitioning into early adulthood (Kadison & DiGeronimo, 2004; Spiers, 2000).

According to the Piagetian (1972) view of cognitive development, there are four different stages of understanding. Concrete and formal operations are the two stages relevant to adolescents' and young adults' developmental tasks (Smith-Hendricks, 1998). To understand why the etic perspective of vulnerability is appropriate for this late adolescent population it is necessary to examine the work done by Smith-Hendricks addressing the transition of the adolescent from concrete operational thinkers to formal operational thinkers.

Smith-Hendricks (1998) expands Piagetian theory about late adolescence/early adulthood by explaining that concrete thinking persons relate to their present reality by only using previously experienced events for problem solving. Concrete operational thinkers view their world very egocentrically, and fixate on only one facet of a situation. Concrete operational thinkers exhibit an ability to think about relationships between intentions but are not capable of considering the consequences of their actions (Kadison & DiGeronimo, 2004; Piaget, 1972; Smith-Hendricks, 1998).

*Increased Relative Risk in the College Student Population*

This transition from adolescence to adulthood is a time in young people's lives when they experience rapid, emotional, cognitive, and social change. Unfortunately, these transitioning adolescents often partake in many detrimental health behaviors. The CDC (CDC-MMWR, 1997) and the American College Health Association (2006) have identified these potentially health-compromising behaviors in nation-wide surveys of college students. Currently, surveyed students self-reportedly continue to take part in these health compromising behaviors including (a) binge-drinking, (b) unprotected sex, and (c) unsafe driving behaviors (Allery, 2004; Chen & Allery, 2005). These actions continue to place college students at risk of experiencing health compromising outcomes including: (a) suicide, (b) motor-vehicle injuries, and (c) sexually-transmitted diseases (Barrios et al., 2000; Brener, Hassan, & Barrios, 1999; Douglas et al., 1997; Grace, 1997).

Furthermore, the youth engaging in health-compromising behaviors have poor health later, lower educational attainment, and less economic productivity than their peers (Kadison & DiGeronimo, 2004). The complexity of these changes places these young people at risk for injury, chronic conditions, morbidity, and mortality (Allery, 2004; Kadison & DiGeronimo, 2004; Weinstein, 2001; Yeaman, 1994).

Driven by their concrete-operational decision-making, these young adults encounter these risks at a time when their immature cognitive development (Smith-Hendricks, 1998) obscures their ability to contemplate the potentially devastating consequences of their poor lifestyle choices and behaviors (Allery, 2004; Kadison & DiGeronimo, 2004). These concrete-operational thinking youth are incapable of

employing a 'lived experience' of their vulnerability because unless they perceive that some aspect of their self is threatened, they do not have the capacity to respond to the threat. In other words, these young people are no more capable of experiencing their own vulnerability in an 'emic' perspective (Spiers, 2000) than toddlers are capable of assessing their own vulnerabilities while experiencing their physical environment.

In contrast, if concrete-operational thinkers evolve to formal-operational thinkers, they consider alternatives and potential consequences of each choice before taking action. Formal thinkers comprehend relationships among logical elements and set aside personal resources to think about thinking (Piaget, 1972; Smith-Hendricks, 1998). Researchers report that for many adolescents, this aspect of cognitive development occurs later than the physiological development of puberty (Bruning, Schraw, Norby, & Ronning, 2004; Evans, Forney, & Guido-DiBrito, 1998; Kadison & DiGeronimo, 2004). Furthermore, Smith-Hendrick (1998) purported that some individuals never attain a formal level of thinking. This "delayed development in the [formal] level of thinking has potentially serious consequences for young people; especially when encountering high-risk situations" (p. 15). Furthermore, these students' risk exposure is magnified when they move away to college and experience relative autonomy for the first time (Kadison & DiGeronimo, 2004).

In its familiar (i.e., epidemiological) usage, vulnerability speaks most appropriately to college students' susceptibility to certain health problems, harm, or neglect (Aday, 2001; Kadison & DiGeronimo, 2004; Kisch et al., 2005; Leight, 2003; Phillips, 1992; Rogers, 1997). Inherent in the etic conceptualization of vulnerability is the differential risk (Aday, 2001; deChesnay, 2005; Spiers, 2000) of college students to poor

physical, psychological, or social health (Kadison & DiGeronimo, 2004; Phillips, 1992; Smith-Hendricks, 1998).

## Conceptualizing Traditional College Students' Vulnerability

While most relevant studies that define the college student population rely on some use of population criteria, it is likely more important to emphasize those college students and college campuses across the United States which contain a rich diversity of people and resources that cannot be fairly characterized in any brief description (Leight, 2003). For the purpose of this discussion, traditional college students are defined as single 18 to 24 year olds who are attending college for the first time at a campus that is at least 50 miles from their parents' home. Therefore, these young people are living away from home for the first time in their lives as well as pursuing post-secondary education.

Certain groups of people in the United States have been commonly considered vulnerable to an increased risk of poor health. Although more obscure from the public eye than other vulnerable groups, traditional college students fit this 'differential risk' definition of vulnerability (Aday, 2001; Allery, 2004; CDC, 1997; Flaskerud & Winslow, 1998; Jacobs, 1999; Kadison & DiGeronimo, 2005; Kisch, Leino, & Silverman, 2005; Leight, 2003; Weinstein, 2001; Yeaman, 1994). Based on the earlier discussion, the working definition of vulnerable populations that most closely fits the traditional college student population is the 'etic' approach. These young adults are best described as a social group who has an increased susceptibility to adverse health outcomes (Flaskerud & Winslow, 1998; Leight, 2003).

Are traditional college students vulnerable? The author proposes that college students are a vulnerable population by utilizing the conceptual framework of Flaskerud

and Winslow (1998; Aday, 1994). Using this framework to view college students as vulnerable will be defended by reviewing selected findings in the college health literature. This line of reasoning provides empirical indicators for the concepts of Flaskerud and Winslow's model (1998) as well as for this research project.

## *Resource Availability of College Students*

### *First Model Concept—Social Resources*

The theoretical components that comprise the social resources concept are (a) human capital, (b) social connectedness, and (c) environmental resources. Traditional college students face multiple barriers within the social resource construct presented by Flaskerud and Winslow's vulnerable populations framework (1998).

Human capital includes issues surrounding income, jobs, education, and housing (Flaskerud & Winslow, 1998; Leight, 2003). Students encounter all of these issues on a daily basis while attempting to secure a college degree. While in the midst of grappling with the difficult developmental tasks involving identity, relationships, intimacy, and sexuality, these students face simultaneous problems with academic, extracurricular, parental, and cultural pressures. Their proverbial straw that for some students will be what breaks them are twofold: the practical concerns of paying for college and the subjective fear for personal safety and peer acceptance (Allery, 2004; Kadison & DiGeronimo, 2004; Nathan, 2005).

Social connectedness is another key theoretical component of social resources. Rebekah Nathan (2005), a cultural anthropologist, provided an analysis of a university community from the prospective of the student. She brought out the potential risk of social isolation today's college students create for themselves. According to Nathan,

today's university student adheres to the paradoxical construct of the 'individual community'. "... [including] informal social connections; there is an increasing individualism in American life that is evident in our universities as well." (p. 52). Community spaces on campus have changed in function. Today, college students often retreat to public spaces such as the student union to browse the internet and/or talk on their cell phones. Public spaces on campus currently support students to avoid social interaction. In other words, community spaces have become a way to create more private options (Nathan, 2005). Social isolation in public spaces is just one behavior that places college students at risk for a lack of social connectedness.

The divorce rate in the United States is another critical factor within the construct of human capital that places college students at higher risk of severed social connectedness. A significant portion of young people in the U.S. are products of divorced families. This leads to impaired financial support from their families. Most colleges have a financial aid policy requiring both parents to contribute to the cost of education, even when one or both parents are unwilling. The tensions of the divorce are reignited with the young adult at the center of the dispute (Kadison & DiGeronimo, 2004).

Divorced families, along with worsening economic times, place the burden of paying for higher education on the student. In Kadison and DiGeronimo's 2004 book on campus life, it is reported that the average undergraduate leaves school with a debt of $18,900, up 66 percent from 1999. They also report that the number of jobs for college graduates is declining along with the expected salary for the jobs that are available. The dismal bottom line is that if students succeed and graduate from college, they are entering a very difficult job market saddled with educational debt (Kadison & DiGeronimo, 2004).

These financial burdens place students in the precarious position of making some very touchy decisions. These survival-level choices place their health and wellbeing in jeopardy. If they choose to live off-campus to save money, they may be choosing to reside in higher crime rate areas that offer relatively lower monthly rental costs. They may be choosing to work later hours which increases their risk of being a victim of crime either at their place of work or while commuting to and from their place of employment (Kadison & DiGeronimo, 2004).

*Second Model Concept—Relative Risk of College Students*

There are several major ongoing national databases that provide ample evidence that identifies the relative risk of young adults. Simply by being an older adolescent/young adult and/or a traditional college student places these individuals at much greater risk compared to the entire U.S. population for (a) depression, (b) alcohol-related injuries, (c) acquiring sexually transmitted diseases, and (d) being a victim of abuse. Furthermore, these young people have reported higher levels of stress, fatigue, depressive symptoms, and mental illness than in previous years (Allery, 2004; CDC, 1997; Chen & Allery, 2005; Jacobs, 1999; Kadison & DiGeronimo, 2004; Kisch, Leino, & Silverman, 2005; Rosenthal & Schreiner, 2000; Weinstein, 2001; Yeaman, 1994).

Kisch, Leino, and Silverman (2005), as well as Chen and Allery (2005) found significant consistency between the 1995 National College Health Risk Behavior Survey findings (CDC-MMWR, 1997) and the 2000 National College Health Assessment (Allery, 2004) suicide prevalence rates among college students. The consistency of results from these two very large randomized studies reinforces the increased relative

health risk of college students based on the prevalence of suicidal ideation and suicidal behavior among college students (Jacobs, 1999; Kadison & DiGeronimo, 2004).

*Third Model Concept—Health Status*

"Health issues present our college campuses with a paradox. It is a leveler that cuts across boundaries of race, class, sexual orientation, and all other categories into which we slice and measure our society" (Allery, 2004). The documented health needs and status of college students are more critical means of supporting the premise that this population experiences vulnerabilities unique to them (Douglas et al., 1997; Grace, 1997; Jacobs, 1999; Kadison & DiGeronimo, 2004; Kisch, Leino, & Silverman, 2005; Spenciner-Rosenthal & Cedeno-Schreiner, 2000; Weinstein, 2001; Yeaman, 1994).

Kadison and DiGeronimo (2004) liken students' college experience to a three-ring circus and the students are the unwilling jugglers. They juggle the multiple pressures of academic accomplishment, social relationships, and work schedules with their activities of daily living (2004). Just when these students are mastering this newly acquired juggling act they need to answer to their parents' expectations and find the time to solve unexpected and unrehearsed problems (i.e., financial aid funds that don't arrive as planned). Some manage to maintain this awkward balancing act without dropping their consignment, but for others the act is just too difficult to maintain the momentum. These students end up relinquishing some of their burden (Kadison & DiGeronimo, 2004). This results in these students experiencing the ill-effects of stress (Kisch, Leino, & Silverman, 2005; Weinstein, 2001; Yeaman, 1994).

Kisch et al. (2005), as well as Kadison & DiGeronimo (2004) reported high rates of hopelessness, sadness, and feelings of being overwhelmed from their review of the

2000 National College Health Assessment Survey. Chen and Allery (2005) corroborated these ongoing problems affecting the psychological wellbeing of traditional college students based on the findings from the University of North Dakota's 2004 Behavioral Health Status Report.

Differential mortality rates are the ultimate empirical indicators of impaired health status of an identified vulnerable population. The incidence of suicide among adolescents and young adults tripled between the mid 1950s and the mid-1980s (Brener, Hassan, & Barrios, 1999). Suicide is currently the third leading cause of death among the U.S. college-aged population (Barrios et al., 2000). College students throughout the nation report increasing levels of depressive symptoms and suicidal ideation. Among adults, those 18-24 years old have the highest incidence of reported suicide ideation (Kadison & DiGeronimo, 2004; Kisch et al., 2005).

The National College Health Assessment findings from the spring 2000 survey reported a relationship between suicidal behavior and depressed mood. Depressed mood, difficulties of sexual identity, and problematic relationships all increase the likelihood of vulnerability to suicidal behavior (Kisch et al., 2005). In their analysis of this national data, Kisch and colleagues identified episodic heavy drinking being associated with suicidal ideation. Furthermore, Kisch et al. (2005) reported evidence that students in their early years of college had greater vulnerability for suicide attempts than their upper classmen cohorts.

A finding that further identifies the college student population as vulnerable (as evaluated by the vulnerable population framework) is that the three leading causes of death for adolescents and young adults aged 15-24 years old include (a) unintentional

injury (i.e., motor vehicle crashes); (b) homicide; and (c) suicide. Researchers have found that the increased risk for all three of these causes of death may be related to suicidal ideation (Barrios et al., 2000; CDC-MMWR, 1997). According to the 1995 U.S. National College Health Risk Behavior Survey (NCHRBS) the 12 million college undergraduates enrolled in this nation's 3,600 colleges and universities are particularly vulnerable to involvement in high risk behaviors including (a) drinking, (b) driving while intoxicated, (c) unsafe sexual intercourse, (d) depression, and (e) closely associated suicide (CDC-MMWR, 1997).

In the months and weeks prior to committing a self-harm action, healthcare providers in clinics and emergency departments will be the primary contact and point of care for the majority of these young people at risk (Gairin, House, & Owens, 2003). Sadly, nearly one-fifth of the people seen in Urgent Care facilities and Emergency Departments due to self-harm who later died by suicide were 'not in contact' with local mental health services (Gairin et al., 2003).

Kadison and DiGeronimo (2004), as well as Kisch et al. (2005) reported that our nation's youth are feeling helpless and hopeless. Kadison and DiGeronimo (2004) also reported that:

> Many students in this college generation have been raised in a culture of conformity and high expectations . . . but as the bar continues to be raised higher and the academics become more and more challenging, this culture sets up a classic situation for stress and early burnout. (p. 43)

Based on the analysis presented in this section, college students fit the definition of vulnerability of the conceptual models of Aday (2001) and Flaskerud and Winslow (1998). This social group does have a differential risk and susceptibility to adverse health outcomes. Inherent to this construct of college student vulnerability is their increased relative risk for poor physical, psychological, and social health (Chen & Allery, 2005; Douglas et al., 1997; Grace, 1997; Jacobs, 1999; Kadison & DiGeronimo, 2004; Kisch et al., 2005; Spenciner-Rosenthal & Cedeno-Schreiner, 2000; Weinstein, 2001; Yeaman, 1994). This age-groups' inability to reflect on the consequences of their actions secondary to their level of cognitive development (Smith-Hendricks, 1998) only increases their vulnerabilities. This is a complex burden endured by the future leaders of our society.

### *Influencing Factors of College Students' Wellbeing and Vulnerability*

#### *Demographic factors*

Demographic factors provide a link between wellness circumstances and processes and the experience of GWB. Factors included that are likely to arbitrate perceived GWB are structural aspects such as (a) age, (b) gender, (c) ethnicity, (d) socio-economic background of family, (e) educational background of the student and birth family, and (f) geographical location of the student and family home (Hutchison, 1999).

#### *Physical Resilience Factors*

Physical resilience factors influence the perception and expectation of physical health. Considering the influence that acceptance, satisfaction, and outlook has on how an individual perceives his/her physical appearance, performance, function, and/or health is important because physical resilience factors may explain the disparity in the health

preferences, values, needs, and attitudes within a population (Adams et al., 1997; Chamberlain & Haaga, 2001; Haas, 1999).

*Social Connectedness Factors*

The social connectedness factor includes components including social support networks, social embededness, social climate, and reciprocity. These aspects of social connectedness were established through factor analysis. At times, social networks may be sources of both positive and negative stress. Network structure, perceived social support, and received social support operate in different ways with respect to health and mental health outcomes (Adams et al., 2000; Hutchison, 1999). The social connectedness factor was operationalized by gathering data concerning school housing arrangements, number of close friends/family within 50 miles of school, intimate relationships, and type/number of group commitments (Boland, 2000; Weinstein, 2001).

*Emotional Centeredness Factors*

Emotional centeredness factors measure facets of self-esteem, such as self-regard self-image, unconditional self-acceptance, and the extent perfectionism mediates self-esteem and GWB (Adams et al., 1997; Chamberlain & Haaga, 2001; Purdon, Antony, & Swinson, 1999). Adams et al., (1997) used factor analysis to identify a secure self-identity and a positive sense of self-regard as components of emotional wellbeing.

*Psychological Factors*

Psychological factors have been correlated with GWB and health (Adams et al., 2000; Boland, 2000; Spenciner-Rosenthal & Cedeno-Schreiner, 2000). The psychological resource of dispositional optimism regulates individual perceptions and reactions to how one will perceive outcomes to the events and circumstances of life (Adams et al., 1997).

The degree of depression and perceived stress (Flett, Madorsky, Hewitt, & Heisel, 2002; Flett, Besser, Davis, & Hewitt, 2003) are other ways researchers have measured how individuals experience the events and circumstances of life (Adams et al., 2000).

*Spirituality Factors*

Spirituality factors have been correlated with GWB. Perception of life purpose has been negatively associated with perceived lack of social support and depression. Perceived life purpose is positively associated with self-esteem and social connectedness (Adams et al., 2000; Adams et al., 1997; Boland, 2000; Fry, 2001).

A critical exploration of vulnerability as it relates to traditional college students in the United States was presented in this section. This thesis was developed by first discussing the construct of vulnerability. This construct was operationalized for the college population by employing Spiers' interpretation of vulnerability (2000). College students' vulnerability was explored by utilizing the conceptual framework for vulnerable populations (Flaskerud & Winslow, 1998; Aday, 1994). Multidimensional attributes and life-style behaviors that can influence students' health and wellbeing were identified.

## Summary

The literature indicates that the construct of wellbeing has been at the center of interest in our society for many years. For the past several decades, health care professionals have redefined health and wellbeing to encompass the eudemonistic or wellness-oriented paradigm. Simultaneously, higher education has also placed wellness and holistic development of their students at the center of their attention.

This review of the literature has revealed that the construct of perceived GWB has not been adequately defined as a construct, nor tested in relation to college student

behaviors. However, dimensional wellbeing and GWB (the key concepts of this study) can be effectively measured via the Perceived Wellness Survey (Adams et al., 1997).

A critical analysis of the literature revealed that college students are a vulnerable population. Furthermore, the literature has identified 'what' unhealthy life-style choices this vulnerable population is choosing to participate in. What is lacking is the connection of the students' perceived rationale that drives and/or motivates them to cope in either healthy or unhealthy ways. If the underlying rationale can by unveiled then nursing may be able to construct appropriate individual, community, and national interventions that mediate the GWB of young people. More importantly, if the rationale can be revealed then nursing can design evidence-based wellness programs to enhance the multiple dimensions of wellbeing as well as increase the GWB of young adults.

Multiple researchers have extensively reported how quality-of-life is affected by the aging process, chronic disease, and end-of-life issues (Acton, 1994; Ellerman & Reed, 2001; Haas, 1999; Ruff-Dirksen, 1990; Stuifbergen, Seraphine, & Roberts, 2000). These studies did not establish how healthy young adults perceive their biophysical, demographic, and psychosocial factors that may affect their GWB and subsequently affect their quality of life. Researchers have sought to solve complex quality-of-life problems of the infirmed and dying without establishing a quality-of-life baseline. In order to discuss quality-of-life and wellbeing in our society, research efforts need to also focus on explicating the construct of wellbeing of young healthy adults.

Research conducted by the CDC (CDC-MMWR, 1997) and the American College Health Association (ACHA, 2006; Allery, 2004; Chen & Allery, 2005) identified a very real health problem plaguing young adults in campuses across the United States. These

research findings directly linked health risk behaviors and unhealthy life-style choices of 18-24 year old American youths to the four leading causes of mortality and morbidity for this age group. These health-risk behaviors are often established during youth, extend into adulthood, are interrelated and preventable (Kann et al., 2000). In order to begin to assure quality and long life to these young adults, we must identify (a) what their current perceptions about health and wellbeing are, (b) what factors influence their perceptions of health and wellbeing, and (c) whether these factors can be effectively modified through wellness-based strategies.

This subpopulation is difficult to access. Generally, 18-24 year olds are physically healthy. They lack the chronic health conditions and financial resources to seek regular medical attention. As researchers and nurses, it is important to remember that one-fourth of all 18-24 year olds in the United States attend post-secondary institutions (Barrios et al., 2000). Therefore, a significant proportion of young adults could be reached through research-based strategies offered by college communities.

# CHAPTER III

# METHODOLOGY

In the previous chapters, the author identified significant gaps in current wellness literature. The need for knowledge development focusing on young adults was found to be a necessary link to contextually grasp the full meaning of existing quality-of-life research findings.

These findings helped shape the purpose of this study. The purpose was to describe GWB in 18-24 year old college students and discover if GWB has influencing factors. Explaining these students' GWB was partially based on finding the most parsimonious combination of specific demographic characteristics, health-risk behaviors, and adjustment to college that maximally correlate with GWB.

Specifically, this study intended to (a) explicate and measure the construct of GWB in 18-24 year old college students, (b) test a portion of the wellness model used for the framework of this study (Adams, 2007) by determining if GWB is perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students, (c) explicate and measure the construct of student adjustment to college in 18-24 year old college students, and (d) describe the relationships and predictive influence demographic characteristics, identified health risk behaviors, and adjustment to college have on the GWB of 18-24 year old students.

The first aim was to explicate and measure the construct of GWB in 18-24 year old college students. This occurred by first measuring GWB followed by measuring the six dimensions of the concept. Finally, the interrelationships with the composite construct of GWB were examined. This was operationalized by administering the Perceived Wellness Survey (Adams et al., 1997).

The second aim was to determine if GWB was perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students. This entailed testing a portion of the theoretical framework (Adams, 2007) which asserts GWB can only be a positively assigned value on a unidirectional continuum. This aim was accomplished in two steps utilizing the Arizona Integrative Outcomes Scale (AIOS) (Bell et al., 2004) and the Perceived Wellness Survey (PWS) (Adams et al., 1997).

The first step of aim two required the students to subjectively measure their perceived GWB utilizing the AIOS. The AIOS summarizes the subjects' 'overall sense of wellbeing for the past month' on a 100 mm long, horizontally displayed line (Bell et al., 2004) that was embedded within the customized survey. Students were instructed to place an X at the point on the line that summarized their 'overall sense of wellbeing for the past month'.

The second step of this aim was to determine if GWB was perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students. The students' overall Perceived Wellness Survey score (Adams et al., 1997) was correlated with their AIOS visual analog scale score (Bell et al., 2004).

The third aim was to explicate and measure the construct of student adjustment to college in 18-24 year old college students. This took place by administering the Student Adaptation to College Questionnaire (Baker & Siryk, 1999). The SACQ measured four facets of adjustment to college; as well as the composite construct of student adjustment to college.

The final aim of this study explained the relationships and predictive influence of students' demographic factors, identified health risk behaviors and adjustment to college with the construct of GWB in 18-24 year old college students.

This chapter consists of the plan and steps that were implemented to investigate this study's purpose and aims. The components of the methodology are presented first, including descriptions of the research design, population, and sampling plan. The data collection methods are explained thereafter. Descriptions of the survey instrumentation are followed by a diagram of the data analysis plan. This chapter is concluded by an explanation of how the human rights and confidentiality of the subjects were protected.

## Research Design

The aims of this study were investigated by implementing a quantitative, explanatory research. This study also explored the relationships and predictive influence of the following independent variables (IV) (a) specific demographic factors, (b) identified health risk behaviors, and (c) students' adjustment to college has on the dependent variable (DV)-students' sense of multidimensional wellbeing (i.e., GWB). Stepwise regression was used to identify the most parsimonious linear combination of independent variables that maximally correlated with the dependent variable (i.e., GWB) (Mertler & Vannatta, 2002).

## Population

The target population for this study consisted of all traditional (18-24 year old) undergraduate college students. The accessible population was all 18-24 year old undergraduate students at a medium-sized research university in the upper Midwest.

## Sample

Full-time traditional aged (18-24 year old) undergraduate college students were randomly selected to participate in this study that sought to explain the influence of (a) specific demographic factors, (b) health-risk behaviors, and (c) adjustment to the college environment had on the GWB of traditional undergraduate students.

## Sampling Plan

The inclusion/exclusion criteria were established prior to subject selection. These criteria were selected to generate a sample representative of the traditional U.S. college student population. Participating students had to be between 18-24 years of age. They needed be undergraduate students attending on-campus courses. Subjects had to be living within a ten mile radius of the campus during the semester. Finally, subjects had to be unmarried and they could not be parents.

A complete list of all the survey courses offered for summer and fall semesters of 2007 was obtained from the Registrar's Office. Permission to access students through campus-based survey course classrooms was obtained from the Institutional Review Board of the chosen university. A random stratified sampling plan was used each semester to select classrooms from the lists of entry-level survey/introductory courses. Qualified students from these randomly selected courses were invited to participate. If, by chance, the same students were solicited to take the survey more than once, they were

advised that they did not qualify to complete the survey more than one time. This strategy intended to generate a representative sample of students who attend this college.

Multiple regression, a useful explanatory technique, was employed to address the fourth research aim (Pehhazur & Schmelkin, 1991). However, a major problem associated with regression analysis is inclusion of too many predictor variables for the number of subjects included in the study. There were 21 predictor variables planned for this project. The researcher risked finding significant *b* coefficients, just by chance, when the number of subjects is small relative to the number of independent variables in a regression analysis. It was also important to consider that stepwise regression methods can drift to noise in the data very easily and not generalize in a smaller dataset (Hazard-Munro, 2001). A power analysis to determine a statistically adequate sample size was employed.

Nunnally and Bernstein (1994) stated there must be at least 10 subjects per predictor (independent) variable "in order to even hope for a stable prediction equation" (p. 201). Following this statistical rule of thumb, this study required a minimum sample size (*N*) of 210.

According to Tabachnick and Fidell (2001), when testing *b* coefficients within a full model regression, it is necessary to have $N \geq 104 + m$, where m = the number of independent variables in the study. This reference indicates that a minimum sample size (*N*) of 123 subjects was needed.

In accordance with the power analysis guidelines of Hazard-Munro (2001), a moderate effect was selected, where $R^2$ of 0.13 was assigned. Next, a power of 0.80 with an alpha of 0.05 was chosen for this study. These parameters were entered into an online

statistics calculator along with the predetermined twenty-one predictor variables. A sample size ($N$) of 181 subjects was indicated (Soper, 2008)

The principal investigator (PI) recognized there was no golden formula or hard-and-fast rule for determining sample size with multiple regression. In an effort to plan for incomplete and/or invalid surveys, additional subjects were recruited for this study. Furthermore, it was important to the researcher to obtain a large enough sample size to have a better chance of capturing a statistically adequate amount of data in all levels of demographic and health-risk behavior variables. Therefore, the researcher planned to recruit subjects until a sample size ($N$) of at least 300 was obtained.

## Instrumentation

A customized survey packet consisting of four sections was created to explicate GWB in 18-24 year old college students. This pen and paper survey packet began with a demographic section followed by the subjects' health risk behaviors assessment. The third portion of the survey packet measured the perceived GWB of the subjects. The fourth and final section of the survey assessed the students' (adjustment) adaptation to college. The introduction of the study and the specific instructions for the survey took ten minutes to present. The composite survey took 30-45 minutes to complete (see Appendix D to view a representation of the packet used for this project).

### *Demographic Section of the Survey*

The PI custom built a demographic tool which measured components of the 18-24 year old college student population. The National College Health Risk Behavior Survey (NCHRBS) conducted in 1995 by the U.S. Center for Disease Control ($N = 4,609$), was the primary resource used to select the independent variables used in this study.

According to the NCHRBS, approximately one in five (20.5%) college students were overweight. Sadly, 41.6% of college students believed themselves to be overweight. The survey revealed several subgroup demographic differences as well. Males were more likely than females to not use seatbelts and to drive while intoxicated. Students aged 18-24 years were more likely than students aged greater than 24 years to report rarely or never wearing a bicycle helmet or riding with a driver who had been drinking alcohol. White students were more likely than both black and Hispanic students to report drinking alcohol while boating or swimming (CDC-MMWR, 1997).

The 2005 Behavioral Health Status Report provides the results of a biennial campus-wide survey to determine the status of behavioral health issues at the university this current study took place ($N = 879$). The core survey tool used in this 2005 Behavioral Health Status Report was the 57 question National College Health Assessment developed by the American College Health Association. The National College Health Assessment was derived from the 1995 NCHRBS (ACHA, 2006; CDC-MMWR, 1997; Chen & Allery, 2005). Specific independent variables that described and differentiated students' behaviors were identified. This 2005 Behavioral Health Status Report cross validated the selected independent variables identified via the 1995 NCHRBS results.

For instance, respondents reporting to have an 'A' grade point average were less likely than those with a 'B' or less to have used marijuana. Off-campus respondents who drink were more likely than their on-campus counterparts to report engaging in injuring others and having unprotected sex as a result of drinking. More than a quarter of the respondents indicated having felt overwhelmed and one-fifth felt exhausted nine or more times during the last school year (Chen & Allery, 2005).

The current college-based wellness literature supports the findings of the CDC's 1995 NCHRBS and helped in the selection process for the demographic categories used to describe and differentiate subgroups of college students in this study (ACHA, 2006; Allery, 2004; Brener, Hassan, & Barrios, 1999; CDC-MMWR, 1997; Chen, 2005; Chen & Allery, 2005; Douglas et al., 1997; DiMonda, 2005; Kadison & DiGeronimo, 2004). The nine demographic factors used to describe and differentiate groups of college students in this project are listed in Table 1.

Table 1

Selected Demographic Characteristics Surveyed of Research Subjects

| Demographic Characteristics Used to Describe Subgroups of College Students | |
|---|---|
| 1. Age | 7. Geographic Location of Upbringing |
| 2. Gender | -Urban |
| 3. Cultural Identity | -Rural |
| 4. Relationship Status | 8. Place of Residence during College |
| 5. Class Position in College | -Dormitory |
| -Freshman | -Campus Apartment |
| -Sophomore | -Sorority/Fraternity |
| -Junior | -Off-campus Housing |
| -Senior | 9. First-Generation College Status |
| 6. Academic Performance | -Family Income |
| -High School Grade Point Average | -Family's Highest Educational Attainment |
| -College GPA | -Eligible for TRIO federal programs |

*Health Risk Behaviors Section of the Survey*

Health-risk behaviors are prevalent within the 18-24 year old age group. The National College Health Risk Behavior Survey (NCHRBS) conducted in 1995 by the CDC ($N = 4,609$) indicated that many college students throughout the U.S. engage in behaviors that place them at risk for serious health problems (CDC-MMWR, 1997).

For instance, this national survey found that more than one third (41.5%) of 18-24 year old college students reported episodic heavy drinking during the 30 days preceding the survey. It also revealed that nearly thirty percent (27.8%) reported drinking alcohol and driving during the thirty days preceding the survey.

According to the NCHRBS only 37.7% of students who had had sexual intercourse during the three months before completing the survey had used a condom. One quarter of the18-24 year old respondents (25.7%) reported having six or more sexual partners (CDC-MMWR, 1997).

The questions selected for the health risk behavior section of this survey were derived from the National College Health Risk Behavior Survey conducted in 1995 by the United States Center for Disease Control (CDC-MMWR, 1997; Douglas et al., 1997).

The twelve specific behaviors isolated for this investigation were affirmed by the 2004 results of the National College Health Assessment created by the American College Health Association administered on the campus that was used for this research project (Allery, 2004; Chen & Allery, 2005). For instance, almost 10% of the respondents said they had felt very sad nine or more times during the last school year. Nearly 7% said they had felt things were hopeless nine or more times during the same timeframe (Chen & Allery, 2005). Table 2 displays the twelve health risk behaviors and risky life-style choices assessed in this study.

Table 2

Health risk behaviors and life-style choices of research subjects

| Health Risk Behaviors Assessed in this Study | |
|---|---|
| 1. Sleep patterns | 8. Use of protective devices |
| 2. Body Mass Index (BMI) | -Sports gear |
| 3. Use of alcohol &/or illicit drugs | -Seatbelts |
| 4. Binge drinking | -Helmets |
| 5. Unprotected sex | 9. Social connectedness behaviors |
| 6. Multiple sex partners | 10. Degree of depression |
| 7. Drinking and driving behaviors | 11. Degree of anxiety |
| | 12. Degree of spirituality-religiosity |

*Perceived Wellness Section (PWS) of the Survey*

The Perceived Wellness Survey (PWS) was originally developed as a health-oriented, multidimensional, positive measure of perceived wellness (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000). The PI received written permission to use the PWS in this study. Also, explicit public permission to use this scale was posted on the website of Dr Adams (Adams, 2007).

The PWS is a 36 item, self-report instrument which can be administered to groups of students in approximately 15 minutes. Each survey item was scored from 1—'very strongly disagree' to 6—'very strongly agree' (in the physical, spiritual, psychological, social, emotional, and intellectual dimensions). Negatively worded statements were designed to be reverse-scored (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000).

These six dimensional subscale scores were integrated by combining the magnitude (or mean of each dimension) with the balance (or the standard deviation) among dimensions into a positive wellness composite score (Adams et al., 1997; Adams

et al., 1998; Adams et al., 2000). A constant number of 1.25 was included in the mathematical representation of the PWS composite score to prevent the unlikely occurrence of a negative number or zero being calculated. Composite wellness scores range from three to twenty-nine. As the score increases, the sense of GWB increases (Adams et al., 2000).

The original PWS was derived through factor analysis from six previously established one-dimensional scales. The source scales' internal consistency and reliability reference alphas ranged from 0.72 to 0.91. The PWS's internal consistency and reliability alpha equaled 0.91 in three samples involving young healthy adults (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000). The PWS successfully underwent rigorous face validity, discriminant validity, and content validity examinations (Adams et al., 1997). All of these validation studies used young healthy adults as their subjects (Adams et al., 1997; Adams et al., 1998; Adams et al., 2000).

*Arizona Integrated Outcomes Scale Section of the Survey*

The Arizona Integrated Outcomes Scale (AIOS) is a one-item, visual analogue, self-rating scale with two alternative forms (Bell et al., 2004). The first version provides for daily ratings of perceived overall wellbeing (AIOS-24h). The second version which was chosen for this study is referred to as the AIOS-1m. This application provides for ratings of perceived overall wellbeing over the previous 30 days. The PI received written and verbal permission to use the AIOS scale from Dr. Bell.

It only took moments to complete the AIOS by placing an "X" on the point of the 100mm horizontal line that summarized the overall sense of wellbeing. The low anchor

was labeled 'worst you have ever been' and the high anchor was labeled 'best you have ever been' (Bell et al., 2004).

According to I.R. Bell (personal communication, March 28, 2007), if a subject places an X at any point between 0-49mm on the AIOS, the subject indicated he/she is experiencing a negative sense of GWB. If a subject places an X at any point between 50-100mm on the scale, the subject indicated he/she is experiencing a positive sense of GWB.

Bell and colleagues (2004) tested the validity of this new simple AIOS visual analogue scale in three studies. The first study provided concurrent validity of the AIOS by significantly distinguishing between rehabilitation patients' self-reported GWB ($n = 50$) compared to their caregivers' self-reported GWB ($n = 50$). "An ANOVA controlling for age revealed that patients reported significantly lower GWB and overall physical health status than did their caregivers [$F_{2, 98} = 5.0, p < 0.01$)]" (Bell et al., p. 4).

The second study conducted by Bell and colleagues (2004) examined the convergent validity of the AIOS by comparing it with self-reported measures of global physical health status and self-reported psychological distress in healthy undergraduate college students ($N = 458$). According to Bell (et al., 2004):

> . . . a simultaneous regression analysis was conducted using ... [self-reported psychological distress]... and current self-rated global health as independent variables to explain variance in AIOS ratings.... The overall model was significant ($F_{4,455} = 65.8, p < 0.001$)... The amount of variance explained in the AIOS ratings was fair ($R^2_{ADJ} = 22\%$)... The AIOS scores were negatively related to psychological distress ($B = -1.0$) and positively related to current health status

($B = 5.5$). Both variables were significantly different from zero (psychological distress: $t(455) = -8.0, p < 0.001$; physical health: $t(455) = 6.0, p < 0.001$). (p. 5)

The first two studies reported by Bell and colleagues in their 2004 report focused on correlating negative factors with GWB. The authors concluded that the lack of negative experiences or symptoms were associated with better states of overall wellbeing. Their third study successfully hypothesized that the AIOS not only would be inversely correlated with measures of negative affect and psychological distress, but also positively correlated with measures of positive affect and states of mind.

Another regression analysis was conducted using positive/negative affect and positive states of mind as independent variables to explain 57% of the variance in AIOS ratings. Again, the overall model was found to be significant ($F_{5,48} = 12.6, p < 0.001$). Both the positive and negative poles of the affect variable were the only significant predictors of GWB [B = 1.06, p <0.007, B = -1.46, p < 0.003, respectively] (Bell et al., 2004).

The intentional structural characteristic of the AIOS scale (Bell et al., 2004) (i.e., the omission of a negative and/or positive assignment of GWB) provided the basis for investigating the contested portion of the Perceived Wellness theoretical framework (Adams et al., 2007) in this study. Adam's assertion that GWB can only be a positively assigned value on a unidirectional continuum (personal communication, April 3, 2007) was correlated with the positive and/or negative AIOS scores.

*Student Adaptation to College Questionnaire Section of the Survey*

The Student Adaptation to College Questionnaire (SACQ) was originally developed for publication in 1989 and takes roughly 20 minutes to administer. The

Western Psychological Services has granted the researcher written permission to use the 1999 updated instrument and manual in this study (Baker & Siryk, 1999). Both the survey and user manual were incorporated into the customized survey without alteration.

Baker and Siryk (1999) developed the SACQ based on the belief that adjustment to college is multidimensional and requires varying kinds of expectations and coping responses that may fluctuate in effectiveness. The tool contains 67 statements pertaining to various facets of the students' experience in adjusting to college and campus life. Individual questions for the SACQ were tallied in the direction of positive adjustment to college. The higher the score, the better adjusted the student was (Estrada, Dupoux, & Wolman, 2006).

The SACQ has four subscales scored on a 9-point rating scale ranging from 'applies very closely to me' to 'doesn't apply to me at all'. This instrument reverse-scores the negatively worded statements. Survey respondents did not see the scoring values associated with their responses (Baker & Siryk, 1999; Estrada et al., 2006).

Internal consistency reliabilities for the four subscales and the full scale have been calculated. Coefficient alpha values for the current SACQ range from 0.81 to 0.90 for the Academic Adjustment subscale; .83 to .91 for the Social Adjustment subscale; 0.77 to 0.86 for the Personal-Emotional Adjustment subscale; 0.85 to 0.91 for the Attachment subscale; and 0.92 to 0.95 for the full scale (Baker & Siryk, 1999; Estrada et al., 2006).

The validity of the SACQ was determined from inter-correlation data from 34 separate administrations of the questionnaire at 21 different colleges and universities. The Academic Adjustment subscale shares one item with the Attachment subscale. The

Attachment subscale shares eight items with the Social Adjustment subscale. As a result, the inter-correlation values are higher for these pairings (Baker & Siryk, 1999).

As for the other subscale pairings of the SACQ, the inter-correlation numbers gathered from the 16 small-school samples and the 18 samples from other institutions are similar. The Academic Adjustment/Social Adjustment inter-correlation was 0.45 and 0.39. Academic Adjustment/Personal-Emotional Adjustment inter-correlation was 0.60 and 0.55. Finally, the Social Adjustment/Personal-Emotional Adjustment inter-correlation was 0.49 and 0.42. In addition, the original SACQ survey and the later 67 item version were validated through criterion relations (Baker & Siryk, 1999).

Since the current version of the SACQ became available, it has been used in over one hundred dissertations (Dissertation Abstracts List of Records, 2006). This extensive application of the SACQ as a research tool allowed the authors to establish sound reliability and validity figures (Baker & Siryk, 1999).

## Data Collection

A randomized list of introductory/survey-level courses that satisfied the sampling plan criteria was constructed. The PI contacted each of these faculty members. Permission to access the potential subjects was obtained from the faculty in charge of each of the selected classrooms.

One mutually agreeable 50-minute block of time was arranged with each instructor. During their regularly scheduled class times, students were educated about this research project, and invited to complete the paper and pen survey administered by the PI. Upon completing the survey, participating students received a beverage gift were

informed that their gift certificate would expire at the end of the semester that it was earned.

After the initial round of data collection during summer semester 2007, the data was entered into SPSS, analyzed, and examined. Based on feedback from dissertation committee members, no protocol changes were recommended. The subsequent data collection efforts continued during the fall semester of 2007. The PI successfully met the pre-established number of randomly collected surveys in October, 2007. The goal was to collect at least 300 surveys. The actual number of surveys collected was 301.

## Data Analysis

Data analysis to explain GWB began immediately after the initial data collection period, and continued throughout the remainder of the project. In accordance with the statistical guidelines of Hazard-Munro (2001) a moderate effect was pre-selected ($R^2$=0.13). A power of 0.80, along with an alpha of 0.05 was also pre-established for this study.

After each set of data was entered, it was reviewed and validated for accuracy of input. Variables were transformed and/or cases deleted based on this examination. Cases were dropped from the final data file if found to be incomplete. Incomplete SACQ survey responses were addressed per instructions within the user manual (Baker & Siryk, 1989).

Descriptive analyses including summary tables, charts, percentages and measures of central tendencies were then employed (Mertler & Vannatta, 2002). Prior to conducting regression techniques, the data was screened for any omissions and/or outliers. The data was then evaluated for the fulfillment of the test assumptions which address the issue of linearity, homoscedasticity and normality. "Linearity and normality

was assessed through the examination of the various bivariate scatter plots and Kolmogorov-Smirnov statistics. Homoscedasticity was evaluated by applying the results of Box *M* Test" (Mertler & Vannatta, 2002, p. 173).

The issue of multicollinearity among predictor variables is common in social science research. "Therefore tolerance statistics were obtained for each independent variable. A value of 0.1 was set as the cut-off point for this study. If the tolerance value for a given independent variable was less than 0.1 then multicollinearity [becomes] a distinct problem" (Mertler & Vannatta, 2002, p. 169).

The investigator utilized stepwise regression technique by entering the data into the 15.0 version of Statistical Package for the Social Sciences (SPSS™) for Windows. Due to the multiple independent variables in this study, a correlation matrix was created for all the variables which provided the correlations between the dependent variable and the independent variables as well as the correlations between each independent variable.

Each of the four research aims for this study was examined. First, the relationships among the six wellness dimensions with GWB were explored including (a) physical, (b) social, (c) emotional, (d) psychological, (e) intellectual, and (f) spiritual dimensions of wellness. These identified relationships began the process of explicating the GWB construct.

Secondly, The PI determined if traditional college students perceived GWB as a strictly positive construct (Adams, 2007) or if they perceive GWB as a positive and/or negative construct (Bell et al., 2004). The PI correlated the students' overall Perceived Wellness Survey score (Adams et al., 1997) with their AIOS visual analog scale score (Bell et al., 2004).

Thirdly, the PI measured the construct of student adjustment to college in 18-24 year old college students which included (a) academic adjustment, (b) personal-emotional adjustment, (c) social adjustment, and (d) goal/commitment/attachment to the institution by administering the Student Adaptation to College Questionnaire (SACQ). The scores were calculated based on the user manual of the SACQ (Baker & Siryk, 1999).

Finally, correlations of the demographic, health-risk behaviors, and adjustment to college factors with GWB were investigated. Revealing these existing relationships extended the goal to fully describe GWB. Then, statistically significant stepwise regression models were generated to further explain what GWB is in this group of 18-24 year old college students. The resultant regression equation helped explain how specified health-risk behaviors, along with demographic and college adjustment factors influence GWB in this population of young adults.

## Protection of Human Subjects

Approval of the human subjects protection plan was obtained from the dissertation advisory committee. To assure adequate protection of human subjects, an IRB proposal was submitted and approved by the Institutional Review Board of the university where this study took place (see Appendix E to review the IRB approval document).

Further protection of human subjects was evident within the implied consent informational sheet attached to the front of each survey packet. This implied consent information sheet indicated that there were no anticipated discomforts or risks expected through the study. The only minor inconvenience foreseen was the time allotted to fill out the attached survey. Students were informed that the decision whether or not to

participate in the study would not prejudice any future relations with the University and was completely voluntary. Also, if an individual chose to begin the survey, he or she was free to discontinue participation at any time without prejudice (see Appendix F to see the entire informed consent form).

Another information sheet including how to access student health, student counseling, and local wellness resources was provided to all potential study participants. Students were reminded not to place any identifying information on their surveys.

Additionally, confidentiality would be maintained through data collection and data entry processes. Surveys were coded in order to identify which classrooms they came from. Selected classrooms and participant names or any other personal identifiers were not attached to the classroom-coded surveys. The surveys and aggregate data files were kept within locked, separate files. The individual surveys will be destroyed within three years upon completion of this study.

## Summary

This chapter discussed the plan and steps to be implemented to investigate this purpose and aims of this study. The components of the research methodology were presented first including descriptions of the research design, population, and sampling plan. Description of the customized self-report survey packet was followed by the details of the data collection method. The data analysis plan was described. This section concluded by explaining how the human rights and confidentiality of the subjects were protected.

# CHAPTER IV

## RESULTS

The basis of this research was to explicate self-reported global wellbeing (GWB) in traditional college students. The specific purposes were to (a) describe GWB in this population, (b) discover if GWB had influencing factors, as well as (c) reveal the most parsimonious combination of those factors that maximally correlate with the GWB of 18-24 year old college students.

There were four research aims for this study. They were to (a) explicate and measure the construct of global wellbeing (GWB) in 18-24 year old college students, (b) determine if GWB is perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students, (c) explicate and measure the construct of student adjustment to college in 18-24 year old college students, and (d) describe the most parsimonious combination of demographic characteristics, identified health risk behaviors, and adjustment to college that explains GWB.

Chapter three described thoroughly the quantitative, explanatory methodology as well as the research design, population, and random sampling plan. These were followed by the details of the data collection method, survey instrumentation, data analysis plan, and the human rights plan. Chapter four presents the data management and analysis results followed by a description of the study sample ($N$=301). A hierarchical presentation of findings reported by research aims will then be introduced based on the

respective analyses plans (they are no longer data analysis plans--you already carried them out-reword). A summary of results will conclude each research aim.

## Data Management

### *Storage and Access*

Survey responses were entered into an SPSS® statistical program for analysis. This database was stored on a secure dedicated research laptop computer. Data were backed up on a research-dedicated external storage device (USB memory stick). The research laptop, memory-stick, and printouts are being kept in a filing cabinet in a locked area (or building) and only accessible to the researcher and dissertation chair. The original paper-based surveys are being housed in a secure filing cabinet until May, 2011.

### *Missing Data and Distributional Properties*

The completed data base was screened for missing data, outliers, and, when appropriate, normalcy and distributional properties. Following the recommendation of Polit and Beck (2004), twenty cases were eliminated prior to analysis. This process will be discussed in the next section. Survey items that were missing or incomplete were not included in each of the applicable analyses. Incomplete cases were assessed for value. In cases where the subject did not answer every question, responses that were given were analyzed . Missing items throughout the dataset were coded with the SPSS® default of a period (.).

Prior to conducting regression analyses, the data were screened again for any omissions and outliers. The data were evaluated for the fulfillment of the test assumptions which address the issues of linearity, homoscedasticity, and normality. "Linearity and normality were assessed through the examination of the bivariate scatter plots and

Kolmogorov-Smirnov statistics. Homoscedasticity was evaluated by applying the results of the Box *M* Test" (Mertler & Vannatta, 2002, p. 173).

According to Mertler and Vannatta (2002) the issue of multicollinearity among predictor variables is common in social science research. "Therefore, tolerance statistics [were] obtained for each independent variable. A value of 0.1 [was] set as the cut-off point for this analysis" (p. 169).

## Description of Sample

### *Final Sample Selection Process*

A stratified random sampling plan was used to select classrooms from a list of entry-level survey/introductory campus-based courses. Each instructor of these randomly selected courses gave permission for the Principal Investigator (PI) to enter his/her classroom. Students from these randomly selected courses were invited to participate in the study by the PI. Tables 3a and 3b represent the data collection progress for Summer 2007 and Fall 2007 semesters.

Table 3

(a) Survey collection progress during summer semester, 2007

| Summer Semester—2007 | | |
|---|---|---|
| Random Class # | Possible # of Students Enrolled in Class | Actual # of Surveys Collected in Class |
| 012 | 8 | 5 |
| 007 | 15 | 7 |
| 004 | 18 | 13 |
| 015 | 25 | 10 |
| SUMMER 2007 TOTAL | 66 | 35 |

Table 3

Survey collection progress (b) During fall semester, 2007

| Fall Semester—2007 | | |
|---|---|---|
| Random Class # | Possible # of Students Enrolled in Class | Actual # of Surveys Collected in Class |
| 299 | 110 | 97 |
| 069 | 27 | 17 |
| 482 | 17 | 14 |
| 146 | 35 | 20 |
| 523 | 85 | 45 |
| 111 | 24 | 17 |
| 470 | 90 | 56 |
| FALL 2007 TOTAL | 388 | 266 |

The data collection strategy generated 301 total surveys during the summer and fall semesters of 2007. This total represents a 66% participation rate of the 454 undergraduate students enrolled in these introductory campus-based courses. Table 3c summarizes the data collection process of the two semesters.

Table 3c

c) Survey collection progress: Summary of summer and fall semesters—2007

| Summary of Dissertation Surveys Collected | | |
|---|---|---|
| | Possible # of Students Enrolled in Classes | Actual # of Surveys Collected in Classes |
| GRAND TOTALS | 454 | 301 |

To qualify for this study, undergraduate students had to be (a) between 18-24 years of age, (b) unmarried, and (c) living within ten miles of the university campus. Exclusionary demographic criteria included (a) not living with a parent/guardian, (b) not being a parent, and (c) not being an international student.

The inclusion/exclusion criteria that were established prior to subject selection guided the case elimination process from the 301 cases in the dataset to 281 cases. The elimination of twenty cases will be discussed later in this section. The purpose of this study's inclusion/exclusion parameters was to generate a dataset that represented the 18-24 year old traditional college student population.

During the data collection process, the PI verbally explained to the students who should and who should not complete the survey. The informed consent provided the same guidelines in writing. Questions were included in the survey to validate whether students who completed the survey met these inclusion/exclusion criteria. If subjects did not respond to the specific survey questions designed to verify the study qualification criteria, those cases were also eliminated from the dataset. Applying these criteria, resulted in the elimination of twenty cases (7%) of the 301 original surveys collected.

Cases were removed if they did not meet the inclusion/exclusion criteria designed to create a representative sample of traditional U.S. college students. The completed surveys were eliminated from the final sample if respondents indicated they were married, parents, 25 years old or older, no age listed, lived greater than ten miles from campus, or failed to respond to questions indicating their cultural identity, relationship status, who they lived with, or where they lived. Any cases that revealed international student status were also eliminated from the data set. The twenty remaining minority cases who were U.S. citizens; as well as the nine cases who reported living with their parent/guardian within the ten mile radius from campus were kept in the final representative sample of traditional U.S. college students. If specific questions were left blank, those cases were omitted from relevant analyses. The final working dataset

contained 281 usable surveys. This finalized sample was used to address the research aims of this study

*Description of Sample Based on Demographic Independent Variables*

Table 4 summarizes the gender, age, and cultural identity of the final sample (valid $N = 281$) of 18-24 year old traditional college students. There were 195 (69.4%) male traditional college students represented in this study compared to 86 (30.6%) female traditional college students.

Table 4

Frequency and percent of total by gender, age and cultural identity of student participants

| Demographic Characteristic: Gender, age and cultural identity | | |
|---|---|---|
| Gender | Frequency (*n*) | Valid Percent (%) |
| Males | 195 | 69.4 |
| Females | 86 | 30.6 |
| Total *N* | 281 | 100.0 |
| Age (in years) | (*n*) | (%) |
| 18 years old | 115 | 40.9 |
| 19 years old | 77 | 27.4 |
| 20 years old | 38 | 13.5 |
| 21 years old | 19 | 6.8 |
| 22 years old | 16 | 5.7 |
| 23 years old | 14 | 5.0 |
| 24 years old | 2 | 0.7 |
| Total *N* | 281 | 100.0 |
| Cultural Identity | (*n*) | (%) |
| White not Hispanic | 262 | 93.2 |
| Black not Hispanic | 5 | 1.8 |
| Hispanic-Latino | 3 | 1.1 |
| Asian | 7 | 2.5 |
| Other | 2 | 0.7 |
| Total *N* | 281 | 100.0 |

The mean age of the 281 students was 19 years and 4 months. Almost 41% ($n = 115$; valid percent=40.9%) of the students in this study were 18 years old. Another

27% ($n$ = 77; valid percent=27.4%) of the students were 19 years old. Thirty-eight students (valid percent = 13.5%) out of the 281 in the sample were twenty years old. The remaining 51 students in the study ranged from 21 years old through 24 years old. They accounted for 18% of the 281 participants (valid percent = 18.2 %).

Approximately 93% ($n$ = 262; valid percent = 93.2%) of the 281 college students self-reported to be White-not Hispanic. Seven students (valid percent = 2.5%) reported an Asian cultural identity. Another 1.8% ($n$ = 5) reported Black-not Hispanic cultural identity. Hispanic-Latino students only made up another 1.1% ($n$ = 3) of the total student sample (valid $N$ = 281). The remaining minority students were grouped into the 'other' category and accounted for less than one percent of the total student sample (valid $N$ = 281; $n$ = 2; valid percent = 0.7%).

Table 5

Frequency and percent of total by students' relationship status

| Demographic Characteristic: Relationship status of students | | |
|---|---|---|
| | Frequency ($n$) | Valid Percent (%) |
| Single-not dating | 117 | 41.6 |
| Single-casual dating | 61 | 21.7 |
| Single-committed to one person | 103 | 36.7 |
| Total $N$ | 281 | 100.0 |

Table 5 addresses the relationship status of the 281 students participating in this study. Nearly 42% ($n$ = 117; valid percent = 41.6%) indicated they were single and currently not dating. Another 103 out of 281 students (36.7%) reported that they were single and exclusively dating one person. The remaining 61 respondents (21.7%) claimed to be single and casually dating.

Table 6 depicts the breakdown of where students live while at college and who they live with while at college. Nearly sixty percent (valid $N = 281$; $n = 167$; valid percent = 59.5%) of student participants reported living in residence halls. Of those 167 students, 21 resided in 'freshmen only' floors (valid percent = 7.5%). Another 12 students (valid percent = 4.3%) reported living in campus-subsidized apartments; while 8 students (valid percent = 2.8%) indicated living in a fraternity or sorority. The remaining 94 students (valid percent = 33.5%) reported living in 'off-campus' housing that was less than or equal to ten miles from school.

Table 6

Frequency and percent of total by students' housing arrangements at college

| Demographic Characteristic: Housing arrangements at college | | |
|---|---|---|
| Housing arrangement of students at college | Frequency (*n*) | Valid Percent (%) |
| Residence Hall | 146 | 52.0 |
| Residence Hall-Freshman floor | 21 | 7.5 |
| Campus Apartment | 12 | 4.3 |
| Fraternity/Sorority | 8 | 2.8 |
| Off campus≤ 10 miles from campus | 94 | 33.5 |
| Total *N* | 281 | 100.0 |
| Who students live with while attending college | (*n*) | (%) |
| Alone | 42 | 14.9 |
| Roommate-same sex | 206 | 73.3 |
| Roommate-opposite sex | 13 | 4.6 |
| Boyfriend/girlfriend | 10 | 3.6 |
| Parent/guardian/relative | 10 | 3.6 |
| Total *N* | 281 | 100.0 |

Nearly 78% (valid $N = 281$; $n = 219$; valid percent = 77.9%) of the students in this study lived with a roommate. Of those 219 students, only 13 (4.6% of 281 students) reported living with a roommate of the opposite sex, whereas 206 (73.3% of 281 students) reported living with a roommate of the same sex. Another (valid $N = 281$;

3.6%) of the respondents indicated that they were living with their boyfriend or girlfriend. The last ten students in this study (3.6%) reported they lived with their parent, guardian, or relative within a ten mile radius of campus while attending college.

Table 7 exhibits that 218 out of 278 respondents (78.4%) reported they qualified as a college freshman (i.e. earning $\leq$ 45 college credits). Only 36 out of 278 of the students (12.9%) reported qualifying as a college sophomore (i.e. earned 46 through 90 college credits). Twenty-two out of 278 students (7.9%) were juniors (earned 91 through 135 credits). Only two students (0.7%) in the study were seniors (earned $\geq$ 136 credits).

Table 7

Frequency and percent of total by students' class standing

| Demographic Characteristic: Class standing based on earned college credits | | |
|---|---|---|
| Class standing of study participants | Frequency (*n*) | Valid Percent (%) |
| Freshman (0 – 45 credits) | 218 | 78.4 |
| Sophomore (46 – 90 credits) | 36 | 12.9 |
| Junior (91 – 135 credits) | 22 | 7.9 |
| Senior (136 – 160 credits) | 2 | 0.7 |
| Total *N* | 278 | 100.0 |

Table 8 shows that 151 out of 281 (53.7%) of the respondents reported they had completed high school as 'A' students. It is important to note that 122 out of 281 (43.4%) of the respondents were in their first semester at the university and did not have a cumulative college GPA to report at the time of this study. Therefore, the following percentages will be calculated from an adjusted total (adjusted $N$= 281 - 122 = 159). At the time of this study only 56 out of 159 (35.2%) students reported having a cumulative college GPA equal to an 'A' (3.5-4.0).

Table 8 also indicates that the number and percentage of students earning a cumulative GPA equal to a 'C' in college (valid $N = 159$; $n = 49$; valid percent = 30.8%) increased compared to their high school GPA (valid $N = 281$; $n = 35$; valid percent = 12.5%). At the same time, the number and percentage of students earning a cumulative GPA equal to a 'B' in college (valid $N = 159$; $n = 50$; valid percent = 31.4%) decreased slightly when compared to their high school GPA (valid $N = 281$; $n = 93$; valid percent = 33.1%).

Table 8

Frequency and percent of total by students' high school and college grade point average

| Demographic Characteristic: High School and College GPA | | |
|---|---|---|
| Students' High School GPA | Frequency (*n*) | Valid Percent (%) |
| Earned GED | 1 | 0.4 |
| (F) 0.0 to 1.49 GPA | 0 | 0.0 |
| (D) 1.5 to 1.99 GPA | 1 | 0.4 |
| (C) 2.0 to 2.99 GPA | 35 | 12.5 |
| (B) 3.0 to 3.49 GPA | 93 | 33.1 |
| (A) 3.5 to 4.0 GPA | 151 | 53.7 |
| Total *N* | 281 | 100.0 |
| Students' College GPA | (*n*) | (%) |
| In college < 1 semester—no college GPA | 122 | 43.4 |
| (F) 0.0 to 1.49 GPA | 1 | 0.4 |
| (D) 1.5 to 1.99 GPA | 3 | 1.1 |
| (C) 2.0 to 2.99 GPA | 49 | 17.4 |
| (B) 3.0 to 3.49 GPA | 50 | 17.8 |
| (A) 3.5 to 4.0 GPA | 56 | 19.9 |
| Total *N* | 281 | 100.0 |

Table 9 captures three indicators of the degree of the students' reported independent living status. The first set of data identifies if students reported experiencing independent living for the first time. The second set of numbers signifies how far away

students reported that their families were from campus. The third set of frequencies depict whether respondents were raised in an urban or rural environment.

Two-thirds of the students (valid $N = 280$; $n = 185$; valid percent = 66.1%) in this study are living away from their family home for the first time. Whereas, 85 respondents (valid $N = 280$; valid percent = 30.7%) reported this is not their first time living away from home. Only nine out of 280 students in this study (3.2%) reported living within ten miles from campus in the home of their parent/guardian.

Table 9

Degree of independent living status of students

| Demographic Characteristic: Degree of independent living status | | |
|---|---|---|
| Is this the first time you've lived away from your home? | Frequency (*n*) | Valid Percent (%) |
| No | 85 | 30.7 |
| Yes | 185 | 66.1 |
| N/A-still living with parent | 9 | 3.2 |
| Total *N* | 280 | 100.0 |
| How far is this campus from your family 'home'? | (*n*) | (%) |
| < 60 miles | 38 | 13.6 |
| 61-120 miles | 30 | 10.7 |
| 121-180 miles | 15 | 5.4 |
| 181-360 miles | 82 | 29.3 |
| 361-720 miles | 49 | 17.7 |
| > 720 miles | 66 | 23.6 |
| Total *N* | 280 | 100.0 |
| Were you brought up in a rural or an urban location? | (*n*) | (%) |
| Big city ≥100,000 people | 51 | 18.3 |
| Small city ≥20,000 & <100,000 | 97 | 34.8 |
| Big town ≥10,000 & <20,000 people | 33 | 11.8 |
| Town ≥1,000 & <10,000 people | 52 | 18.6 |
| Small town <1,000 people | 20 | 7.2 |
| Rural – able to walk to > 1 neighbor's house in < 15 min | 16 | 5.7 |
| Rural isolated – unable to walk to > 1 neighbor's house… | 10 | 3.6 |
| Total *N* | 279 | 100.0 |

Table 9 also shows that 66 of the respondents' family homes were reported their family home being greater than 720 miles away from the college campus (valid $N$ = 280;valid percent = 23.6%). Another 49 subjects attending this college that were 361-720 miles away from their family homes (valid $N$ = 280; valid percent = 17.7%). The largest group of study participants reported that their family homes were located 181-360 miles from this college (valid $N$ = 280; $n$ = 82; valid percent = 29.3%). Only 15 of the respondents' family homes were between 121-180 miles from the college campus (valid $N$ = 280; valid percent = 5.4%). Thirty students' family homes were reported to be between 61-120 miles from the university (valid $N$ = 280; valid percent = 10.7%). Approximately 14% of the respondents reported that their family homes were less than 60 miles from the college campus being represented in this study (valid $N$ = 280; $n$ = 38; valid percent = 13.6%).

The third set of frequencies in Table 9 depict whether respondents were raised in an urban or rural environment. This demographic helps identify those students who were experiencing an urban lifestyle for the first time when they arrive to college.

Greater than 50% of students in this study (valid $N$ = 279; $n$ = 148) were raised in an urban environment. Of these 148 students, 51 students' family homes were reported to be in a city with greater than 100,000 people (valid $N$ = 279; valid percent = 18.3%). Another 97 out of the 279 students in the sample were reportedly raised in small cities where the population ranged between 20,000 and 100,000 people (valid percent = 34.8%).

Thirty-three students (valid $N$ = 279; valid percent = 11.8%) reported being raised in a town with a population range of 10,000 to 20,000 people. Another 52 students (valid

percent = 18.6%) said they were raised in towns where the population ranged between 1,000 and 10,000. Twenty respondents (valid percent = 7.2%) reported being from towns with less than 1,000 people. Sixteen students (valid percent = 5.7%) reported that they were brought up in rural areas in which they had more than one neighbor that was within a 15 minute walk from their family home. Only ten students reported that they were brought up in isolated rural areas in which one or no neighbors lived within a 15 minute walk from their family home.

Table 10

Student family annual income range

| Demographic characteristic: Family annual income ranges* | | |
|---|---|---|
| | Frequency (*n*) | Valid Percent (%) |
| ≤$25,000 per yr | 4 | 1.6 |
| $25,001-39,999 per yr | 10 | 4.1 |
| $40,000-59,999 per yr | 38 | 15.6 |
| $60,000-79,999 per yr | 45 | 18.4 |
| $80,000-99,999 per yr | 28 | 11.5 |
| $100,000-199,000 per yr | 89 | 36.5 |
| $200,000-300,000 per yr | 24 | 9.8 |
| >$300,000 per yr | 6 | 2.5 |
| Total *N* | 244 | 100.0 |
| *Mean = $113,155; Median = $90,000; SD = $110,955 | | |

Table 10 represents the breakdown of reported family income. The mean family household income was reported to be $113,155 per year. The median family income as reported by the participants was $90,000 per year. (valid $N = 244$; SD = $110,955). Nearly 79% of the participants indicated that their family's household incomes were ≥ $60,000 per year (valid $N = 244$; $n = 192$; valid percent = 78.7%). According to the

United States Department of Agriculture Economic Research Service, the 2004 median household income of the state this study occurred was $39,233 (USDA website, 2008).

Table 11 depicts the 2006 earned annual income of the students participating in this study. The students' reported mean annual income ($5,976) and their median annual income ($5000) were relatively close to each other. However, the standard deviation of $5,788 (valid $N = 263$; Range = $50,000) indicates a great amount of variability in students' 2006 annual income.

Table 11

Students' reported personal annual income

| Demographic Characteristic: Students' personal annual income | | | |
|---|---|---|---|
| | Mean | Median | Standard Deviation |
| Students' 2006 annual income | $5,976 | $5,000 | $5,788 |
| Total Valid $N$= 263 | | | |

Table 12

Students' hours worked while attending college

| Demographic Characteristic: Hours/week student worked while attending college* | | |
|---|---|---|
| | Frequency ($n$) | Valid Percent (%) |
| 0-2 hrs worked per wk | 146 | 53.3 |
| 3-10 hrs worked per wk | 33 | 12.0 |
| 11-20 hrs worked per wk | 50 | 1.2 |
| 21-30 hrs worked per wk | 28 | 10.2 |
| 31-40 hrs worked per wk | 15 | 5.5 |
| Worked > 40 hrs per wk | 2 | 0.7 |
| Total $N$ | 274 | 100.0 |
| *Mean = 9 hrs/wk; Median = 0 hrs/wk; SD = 12 hrs/wk | | |

The range of hours that the students reported working while attending college is represented in Table 12. The reported hours these participants worked per week shows a great amount of variability (valid $N = 263$; mean = 9 hrs/wk; median/mode = 0 hrs/wk; $SD$ = 12 hrs/wk; Range = 50 hrs/wk). More than fifty percent of the participants reported working zero to two hours per week ($N$= 274; $n$ = 146; valid percent = 53.3%). Only 45 students ($N$=274; valid percent = 16.4%) reported working greater than 21 hours per week.

Table 13

Education level attained by parents of respondents

| Demographic Characteristic: Education level attained by parents of respondents | | | | |
|---|---|---|---|---|
| | Mother | | Father | |
| | Frequency (n) | Valid Percent (%) | Frequency (n) | Valid Percent (%) |
| Not sure of parents' education | 1 | 0.4 | 6 | 2.2 |
| Did not finish High School | 3 | 1.1 | 5 | 1.8 |
| Earned a GED | -- | -- | 1 | 0.4 |
| High School graduate | 36 | 12.8 | 39 | 14.0 |
| Some college courses | 44 | 15.7 | 31 | 11.1 |
| Comm College/Tech College grad | 46 | 16.4 | 43 | 15.4 |
| Some grad school education | 13 | 4.6 | 10 | 3.6 |
| Graduate school/professional grad | 33 | 11.7 | 48 | 17.2 |
| Total $N$ | 281 | 100.0 | 279 | 100.0 |

As presented in Table 13, participants reported that 105 of their mothers (valid $N$= 281; valid percent = 37.4%) had successfully earned a baccalaureate degree; whereas 96 of the participants' fathers (valid $N$= 279; valid percent = 34.4%) had successfully earned a baccalaureate degree. Although more mothers reportedly earned 4-year degrees than fathers, the reverse is true when looking at who successfully completed graduate/professional degrees. Only 33 students reported that their mothers (valid $N$= 281; valid percent = 11.7%) had completed graduate degrees compared to 48 of the

participants' fathers (valid $N$= 279; valid percent = 17.2) who completed graduate degrees. Students reported that approximately 14% of their mothers (valid $N$= 281; $n$ = 40) did not complete more than a high school education, compared to the 18% of fathers (valid $N$= 279; $n$ = 51) that did not complete more than a high school education.

First generation college students were identified from three survey questions. Students qualified as first-generation college students if they indicated they were the first member of their immediate family (mother, father, siblings) to attend a postsecondary institution. Table 14 shows that 40 out of 281 respondents (14.2%) qualified as first generation college students in this study.

Table 14

Students' qualifications for 1st generation college student status and TRIO eligibility status

| Demographic Characteristic: First generation college student & TRIO eligibility | | |
|---|---|---|
| Does subject qualify as 1st generation student? | Frequency ($n$) | Valid Percent (%) |
| No; Student is not a 1st generation college student | 241 | 85.8 |
| Yes; Student is a 1st generation college student | 40 | 14.2 |
| Total $N$ | 281 | 100.0 |
| Does subject qualify as TRIO eligible student? | ($n$) | (%) |
| No; Student is not TRIO eligible | 264 | 95.3 |
| Yes; Student is TRIO eligible | 13 | 4.7 |
| Total $N$ | 277 | 100.0 |

TRIO-eligible students are a group of first generation college students who qualify for federally funded programs designed to help these students overcome class, social, and cultural barriers to higher education. These federally funded programs require that first generation students come from families with annual incomes less than poverty levels established by the federal government (Filkins & Doyle, 2002). Table 14 depicts that only 13 out of 277 respondents (valid percent = 4.7%) met the TRIO eligibility

requirements. The 13 TRIO-eligible students comprised approximately 33% of the 40 subjects that qualified as first generation students in this study.

*Description of Sample Based on Health-Related Independent Variables*

The questions selected for the health risk behavior section of this survey were derived from the National College Health Risk Behavior Survey conducted in 1995 by the United States Center for Disease Control (CDC-MMWR, 1997; Douglas et al., 1997). The specific behaviors isolated for this investigation were affirmed by the 2004 results of the National College Health Assessment created by the American College Health Association administered on the campus of a Midwestern university with approx 14,000 students (Allery, 2004; Chen & Allery, 2005).

The ACHA used the 1995 National College Health Risk Behavior Survey (created by the CDC) to develop their NCHA survey (ACHA, 2006). The ACHA-NCHA was administered on the campus where the study took place for the third time in the spring of 2004 (Allery, 2004; Chen & Allery, 2005). The PI selected the health-related independent variables in this study based on the 2004 ACHA-NCHA survey results obtained on the campus that this study took place. The PI anticipated the identification of easily measured behaviors that could serve as part of a future, evidence-based 'wellness' screening tool for health care providers and higher education administrators.

Traditional aged college students require about 9 hours of sleep each night; however, most receive only 7 to 8 hours (Carskadon, 2002). Students in this study were queried regarding how many hours of sleep a night s/he needed in order to feel rested in the morning. The mean number of hours of sleep per night in order to feel rested upon rising was 7.6 hours. The median number of hours of sleep per night in order to feel

rested upon rising was eight hours (valid $N$= 279; $SD$ = 1.15 hours). This suggests the students in this study were operating with a minimum of a one hour sleep deficit every night. Based on the 2005-University Behavioral Health Survey Report results for the year 2004 (Chen & Allery, 2005), 24.6% of respondents (valid $N$ = 879) reported that sleep difficulties negatively impacted their academic performance within the last school year.

Students were then asked how many times in the past 7 days they failed to awaken in the morning feeling rested. Out of the 279 students who responded to this question, 66 (23.7%) reported that they had not felt rested 3 out of the past 7 days when they got up in the morning. Twenty students (7.2%) stated that they failed to get enough sleep to feel rested seven out of the past seven days. In contrast, another twenty students (7.2%) indicated that they did get enough sleep to awaken feeling rested every day out of the past 7 days. The mean number of days (out of seven) that students failed to awaken in the morning and feel rested was 3.03 days ($SD$ = 1.9 days). Both the median and the mode were 3 days.

Table 15

Students' Body Mass Index

| Health-Related Characteristic: Body Mass Index (BMI) Ranges* | Frequency ($n$) | Valid Percent (%) |
|---|---|---|
| Underweight BMI range (<18.5) | 7 | 2.5 |
| Healthy BMI range (18.5 – 24.9) | 180 | 65.2 |
| Overweight BMI range (25.0 – 29.9) | 71 | 25.8 |
| Obese BMI range (≥ 30.0) | 18 | 6.5 |
| Total $N$ | 276 | 100.0 |

*Mean BMI = 23.9; Median BMI = 23.4; SD = 3.8

Table 15 displays the frequencies and percentages of students within various Body Mass Index (BMI) ranges. These values were derived from self-reported weights and heights. The BMI has been an established health screening tool to diagnose obesity and manage weight loss. Obesity is classified as a health risk known to lead to increased morbidity and mortality throughout the lifespan (Sizer & Whitney, 2003). The negative impacts obesity has on health, longevity, and quality-of-life have been well documented (ADA, 2008; AHA, 2008). Obesity has been identified as an epidemic in the United States. Besides obesity, clinicians also use the BMI to diagnose and manage Anorexia nervosa (an eating disorder resulting in starvation) and bulimia (a binge-purge eating disorder). Young people are more prone to both of these psychological disorders than older populations (Sizer & Whitney, 2003).

Based on this self-reported information, nearly two-thirds (65.2%) of the students had healthy BMI values, 89 out of 276 students (32.2%) had values in the overweight and/or obese BMI ranges, and only 7 out of 276 respondents (2.5%) had BMI values in the underweight BMI range. The mean BMI (23.9; $SD = 3.8$) and median BMI (23.4) values were very close to each other and were at the higher end of the healthy BMI range (18.5 – 24.9) (Sizer & Whitney, 2003).

The BMI ranges obtained from this study corresponded closely with the 2005 Behavioral Health Survey Report results for the year 2004 (Chen & Allery, 2005). Out of the 879 students polled, (a) 64.1% were in the healthy BMI range, (b) 31% were in the combined overweight/obese BMI range, and (c) 4.9% were in the underweight BMI range. When assessing obesity via BMI measurements, the sample surveyed in 2007

(valid $N$ =281) for this study was representative of a larger set of students (valid $N$ = 879) from the same campus that was surveyed in 2004 (Chen & Allery, 2005).

Table 16a displays the student responses regarding their use of safety equipment and/or gear (i.e. helmets, padding, etc.) while taking part in sports activities. Nearly 25% (valid $N$= 280; $n$ = 68; valid percent = 24.3%) reported they did not partake in any sports activities that required using safety equipment or gear. Whereas, 122 out of the 280 students (43.6%) indicated that they never wear safety equipment/gear when participating in sports. In comparison, only 21 out of the 280 respondents (7.5%) reported that they always wear safety equipment/gear when doing sports; and approximately ten percent (29 out of the 280 students; valid percent = 10.3%) used safety gear most of the time.

Table 16

Student safety behavior: (a) use of safety equipment/gear while doing sports activities during the past 12 months

| Health-Related Behavior: Safety equipment usage habits of students* | | |
|---|---|---|
| During the past 12 months, how often did you wear safety equipment/protective gear such as a helmet and/or padding when doing sports? | Frequency ($n$) | Valid Percent (%) |
| n/a-I do not do sports that require safety equipment/gear | 68 | 24.3 |
| I ALWAYS wear safety equipment/gear when doing sports | 21 | 7.5 |
| MOST OF THE TIME I wear safety equipment/gear when doing sports | 29 | 10.3 |
| SOMETIMES I wear safety equipment/gear when doing sports | 16 | 5.7 |
| I RARELY wear safety equipment/gear when doing sports | 24 | 8.6 |
| I NEVER wear safety equipment/gear when doing sports | 122 | 43.6 |
| Total $N$ | 280 | 100.0 |
| *Median = I rarely wear safety equipment; Mode = I never wear safety equipment | | |

On the average, the percentage of students in this study who chose to wear protective gear during sport activities appeared to correlate to the percentage of students who chose to wear helmets as reported in the 2005 Behavioral Health Survey Report. The

results in this study suggests that the percentage of students wearing helmets decreased as the perceived potential risk of self-harm (due to speed) decreased: (a) 35.0% (valid $N$ = 229) always wore a helmet when riding a motorcycle, (b) 4.2 % (valid $N$ = 506) always wore a helmet when riding a bicycle, and (c) 3.0% (valid $N$ = 440) always wore a helmet when in-line skating (Chen & Allery, 2005).

Another identified health risk behavior known to lead to increased morbidity and mortality of 18-24 year olds is seatbelt use (Barrios et al., 2000; CDC-MMWR, 1997). Table 16b presents the frequency and percentage of total responses (valid $N$ = 281) related to these students' reported seatbelt use when driving and/or riding in a motorized vehicle. The number of students who disclosed they never wore a seatbelt was essentially the same whether they were driving ($n$ = 7; valid percent = 2.5%) or if they were passengers ($n$ = 6; valid percent = 2.1%). In contrast, 182 out of 281 respondents (64.8%) reported they always wore a seatbelt when driving a car; and 165 out of 281 (58.7%) students reported always wearing a seatbelt when they were a passenger in a car. According to the 2005 Behavioral Health Survey Report conducted on the same campus in 2004, only 51.4% (valid $N$ = 806; $n$ = 414) reported that they always wore a seat belt when 'riding in a car'. Whereas, 1.6% (valid $N$ = 806; $n$ = 13) reported they never wore a seat belt (Chen & Allery, 2005). Interestingly, 17 (6.1%) more students in this study always used their seatbelt when they drove, compared to when they were passengers.

Table 16

Student safety behavior: (b) Use of seatbelts during the past 12 months of students

| Health-Related Behavior: Seat belt habits of students* | | |
|---|---|---|
| During the past 12 months, how often did you wear a seat belt when riding as a passenger in a car? | Frequency (*n*) | Valid Percent (%) |
| I ALWAYS wear a seatbelt as a passenger | 165 | 58.7 |
| MOST OF THE TIME I wear a seatbelt as a passenger | 64 | 22.8 |
| SOMETIMES I wear a seatbelt as a passenger | 33 | 11.7 |
| I RARELY wear a seatbelt as a passenger | 13 | 4.6 |
| I NEVER wear a seatbelt as a passenger | 6 | 2.2 |
| Total *N* | 281 | 100.0 |
| *Median = Always wear a seatbelt; Mode = Always wear a seatbelt | | |
| During the past 12 months, how often did you wear a seat belt when driving a car? | (*n*) | (%) |
| n/a; I don't drive | 7 | 2.5 |
| I ALWAYS wear a seatbelt when I drive | 182 | 64.8 |
| MOST OF THE TIME I wear a seatbelt when I drive | 48 | 17.1 |
| SOMETIMES I wear a seatbelt when I drive | 22 | 7.8 |
| I RARELY wear a seatbelt when I drive | 15 | 5.3 |
| I NEVER wear a seatbelt when I drive | 7 | 2.5 |
| Total *N* | 281 | 100.0 |
| *Median = Always wear a seatbelt; Mode = Always wear a seatbelt | | |

Table 17a displays the reported use of alcohol and/or drugs. Only 47 out of 279 (valid percent = 16.9%) respondents reported to have never drunk or used drugs up to this point in their lives. Another 35 students (12.5%) of the students reported to have not drunk or used drugs in the past 30 days. This indicates that 82 students (valid *N*= 279; valid percent = 29.4%) assumed zero health risk related to consuming alcohol or illicit drugs at the time of this survey. However, this also indicates that 197 (70%) of the students in this study have assumed a degree of health risk related to their drinking and/or drug use behaviors (valid *N*= 279; valid percent = 70.6%).

Table 17

Student behavior: (a) alcohol &/or illicit drug use behaviors

| Health-Related Behavior: Drinking and substance use behaviors of students* | | |
|---|---|---|
| During the past 30 days, how many times (if any) did you drink any alcoholic beverage and/or use illegal drugs while partying or socializing? | Frequency (*n*) | Valid Percent (%) |
| I never drink or use drugs | 47 | 16.9 |
| I drank or used drugs 0 times in past 30 days | 35 | 12.5 |
| I drank or used drugs 1 time in past 30 days | 26 | 9.3 |
| I drank or used drugs 2 or 3 times in past 30 days | 39 | 14.0 |
| I drank or used drugs 4 or 5 times in past 30 days | 41 | 14.7 |
| I drank or used drugs 6 or 8 times in past 30 days | 34 | 12.2 |
| I drank or used drugs 9 or more times in past 30 days | 57 | 20.4 |
| Total *N* | 279 | 100.0 |
| *Median=Drank 2-3 Xs in past 30 days; Mode=Drank ≥ 9 times in past 30 days | | |

Table 17

Student behavior: (b) binge drinking behaviors

| Health-Related Behavior: Binge drinking behaviors of students* | | |
|---|---|---|
| During the past 30 days, how many times (if any) did you drink 5 or more alcoholic drinks in a sitting (i.e. binge drink)? | Frequency (*n*) | Valid Percent (%) |
| I never drink or use drugs | 47 | 16.8 |
| I drank ≥ 5 alcoholic drinks 0 times in past 30 days | 63 | 22.6 |
| I drank ≥ 5 alcoholic drinks 1 time in past 30 days | 28 | 10.0 |
| I drank ≥ 5 alcoholic drinks 2 or 3 times in past 30 days | 50 | 17.9 |
| I drank ≥ 5 alcoholic drinks 4 or 5 times in past 30 days | 30 | 10.8 |
| I drank ≥ 5 alcoholic drinks 6 or 8 times in past 30 days | 27 | 9.7 |
| I drank ≥ 5 alcoholic drinks 9 or more times in past 30 days | 34 | 12.2 |
| Total *N* | 279 | 100.0 |
| *Median=Drank 2-3 Xs in past 30 days; Mode=Drank 0 times in past 30 days | | |

The number of times in the past 30 days students reported as having participated in binge drinking (consuming ≥ 5 alcoholic beverages in one sitting) is displayed in Table 17b. Excluding the 47 students (16.8%) who reported to never have used alcohol or

drugs, 169 of the 279 (valid percent = 60.6%) students disclosed that they participated in binge drinking at least one time in the past 30 days.

Of interest, only 51students (18.3%) reported being twenty-one years old or older. Therefore, 118 underage students (42.3%) indicated they had participated in illegal binge drinking. In other words, 118 (42%) of the students reporting to binge drink were under the legal age to drink. Fifty-seven (20%) of the students (valid *N*= 279) reported binge drinking between four and eight times in the past thirty days. Another 34 (12.2%) students (valid *N*= 279) reported binge drinking nine or more times in the past thirty days. Of the 169 students disclosing that they participated in binge drinking at least one time in the past 30 days, the majority (*n* = 91; valid percent = 53.8%) reported multiple occurrences in this highly risky behavior.

Table 18 indicates that nearly two-thirds of the participants chose *not* to ride with an impaired driver during the past 30 days (valid *N*= 280; *n* = 184 valid percent = 65.7%). Interestingly, 32 or 11% of students indicated choosing *not* to drive impaired (valid *N*= 281; *n* = 216; valid percent = 77.1%). However, Table 18 also indicates that more students (96 out of 280; valid percent = 34.3%) chose to assume the risk of riding with an impaired driver; compared to the 65 (Valid *N*= 281; valid percent = 23%) students who chose to assume the risk of driving impaired at least once in the thirty days prior to taking this survey.

Table 18

Students' drinking and driving behaviors

| Health-Related Behavior: Drinking and driving choices of students* | | |
|---|---|---|
| During the past 30 days, how many times did you ride in a vehicle driven by someone who had drunk beer/alcohol and/or used illegal drugs? | Frequency (*n*) | Valid Percent (%) |
| I never ride with an impaired driver | 54 | 19.3 |
| I rode 0 times with an impaired driver in past 30 days | 130 | 46.4 |
| I rode 1 time with an impaired driver in past 30 days | 36 | 12.9 |
| I rode 2 or 3 times with an impaired driver in past 30 days | 32 | 11.4 |
| I rode 4 or 5 times with an impaired driver in past 30 days | 9 | 3.2 |
| I rode 6 or 8 times with an impaired driver in past 30 days | 8 | 2.9 |
| I rode 9 or more times with an impaired driver in past 30 days | 11 | 3.9 |
| Total *N* | 280 | 100.0 |
| *Median = Mode = 0 times rode with impaired driver | | |
| During the past 30 days how many times did you drive a vehicle when you had drank beer/alcohol and/or used illegal drugs? | (*n*) | (%) |
| I never drive impaired driver | 58 | 20.6 |
| I drove 0 times as an impaired driver in past 30 days | 158 | 56.3 |
| I drove 1 time as an impaired driver in past 30 days | 28 | 10.0 |
| I drove 2 or 3 times as an impaired driver in past 30 days | 17 | 6.0 |
| I drove 4 or 5 times as an impaired driver in past 30 days | 6 | 2.1 |
| I drove 6 or 8 times as an impaired driver in past 30 days | 7 | 2.5 |
| I drove 9 or more times as an impaired driver in past 30 days | 7 | 2.5 |
| Total *N* | 281 | 100.0 |
| *Median = Mode = Drove 0 times in past 30 days as an impaired driver | | |

According to the ACHA, 52% of students (valid $N = 54,111$) in a national database had vaginal intercourse at least once in the past 30 days. Approximately 63% of that subgroup did not use condoms, thereby increasing their risk of contracting sexually transmitted infections (ACHA, 2008; Klein, Geaghan, & MacDonald, 2007).

The students surveyed for this study demonstrated similar risky behaviors. Table 19 depicts 104 of the respondents (valid $N = 280$; valid percent = 37%) reported never having had sexual intercourse with anyone up to this point in their life. Out of the 176 remaining students (63%) who reported having been sexually active up to this point in

their life, only 86 (48.9%) reported to have always used a condom during sexual intercourse. For the sake of discussion, the PI assumed that the students' condoms succeeded in providing adequate protection from exposure to sexually transmitted diseases. Table 19 still identified that 90 of the 280 students in this study (cumulative percent = 32%) have participated in unprotected sexual encounters; therefore, assuming the risk of being exposed to multiple sexually transmitted diseases.

Table 19

Sexual behaviors of students that may have predisposed them to contracting sexually transmitted diseases (STDs)

| Health-Related Behavior: Sexual intercourse & STD protection choices of students* | | |
|---|---|---|
| At this point in your life, how many partners have you had sexual intercourse with? | Frequency (*n*) | Valid Percent (%) |
| I have never had sexual intercourse with anyone | 104 | 37.2 |
| I have had 1 sexual partner so far in my life | 67 | 24.0 |
| I have had 2-3 sexual partners so far in my life | 63 | 22.5 |
| I have had 4-5 sexual partners so far in my life | 20 | 7.1 |
| I have had 6-8 sexual partners so far in my life | 13 | 4.6 |
| I have had 9 or more sexual partners so far in my life | 13 | 4.6 |
| Total *N* | 280 | 100.0 |
| *Median # or sexual partners = 1; Mode # of sexual partners = 0 | | |
| How often do you and/or your partner use condoms when having sexual intercourse? | (*n*) | (%) |
| N/A; I have never had sexual intercourse with anyone | 104 | 37.2 |
| I ALWAYS use condoms when I am having sexual intercourse | 86 | 30.6 |
| MOST OF THE TIME I use condoms when having sex... | 37 | 13.2 |
| SOMETIMES I use condoms when having sexual intercourse | 19 | 6.8 |
| I RARELY use condoms when having sexual intercourse | 10 | 3.6 |
| I NEVER use condoms when having sexual intercourse | 24 | 8.6 |
| Total *N* | 280 | 100.0 |
| *Median frequency of using condoms = ALWAYS<br>*Mode frequency of using condoms = n/a; I have never had sexual intercourse with anyone | | |

Interestingly, there were three females that wrote a comment beside this survey question response that they had marked 'never use condoms' or 'only occasionally use

condoms.' These young women wrote, "I am on birth-control pills." This is concerning because this statement suggests the risk of contracting STDs did not enter their minds while adding this comment onto the survey.

Nathan (2005), a cultural anthropologist conducted an analysis of a university community from the perspective of the student. Her work brought out the potential risk of social isolation many of today's college students create for themselves. According to Nathan, today's university student adheres to the contradictory construct of the 'individual community'. "... [including] informal social connections; there is an increasing individualism in American life that is evident in our universities as well" (2005, p. 52). Today, college students often retreat to public spaces such as the student union to avoid social interaction. In other words, community spaces have become a way to create more private options (Nathan, 2005). Social isolation in public spaces is just one behavior that places college students at risk for a lack of social connectedness.

Table 20 displays the results of survey questions fashioned to capture student behaviors that identified their degree of connectedness with the campus community. A slight majority of the respondents (56.2%) indicated that they had not joined a college-sponsored club or activity since starting college (valid $N = 281$; $n = 158$). Only 38 out of 280 students (13.6%) reported that they never attended campus-based events and/or activities. In comparison, only 14 of the respondents (valid $N = 280$; valid percent = 5%) attended more than sixteen campus-based events during the past thirty days. The greatest proportion of students (37.9%) indicated that they had attended between one and three campus-based events/activities during the past thirty days (valid $N = 280$; $n = 106$).

Table 20

Social connectedness with campus community

| Health Risk Behavior: Social connectedness with campus community* | | |
|---|---|---|
| Since entering college, are you a member of school-supported clubs or activities? | Frequency (*n*) | Valid Percent (%) |
| No, I'm not a member of a school-supported club or activity | 158 | 56.2 |
| Yes, I am a member of a school-supported club or activity | 123 | 43.8 |
| Total *N* | 281 | 100.0 |
| During the past 30 days, how many campus-based events/ activities have you attended? | (*n*) | (%) |
| n/a; I don't attend campus-based events | 38 | 13.6 |
| 1 to 3 times | 106 | 37.9 |
| 4 to 8 times | 81 | 28.9 |
| 9 to 16 times | 41 | 14.6 |
| more than 16 times | 14 | 5.0 |
| Total *N* | 280 | 100.0 |
| Participate in regularly scheduled sports activities? | (*n*) | (%) |
| No, I don't participate in regularly scheduled sports activities | 178 | 63.6 |
| Yes, I do participate in regularly scheduled sports activities | 102 | 36.4 |
| Total *N* | 280 | 100.0 |
| During the past 30 days, how many times have you felt homesick? | (*n*) | (%) |
| n/a; I don't feel homesick | 73 | 26.3 |
| 1-3 times | 152 | 54.7 |
| 4-8 times | 34 | 12.2 |
| 9-16 times | 8 | 2.9 |
| > 16 times | 11 | 4.0 |
| Total *N* | 278 | 100.0 |
| *Median = 1-3 times; Mode = 1-3 times | | |

Table 20 also displays students' participation in regularly scheduled sports activities. Nearly two-thirds of the respondents (63.6%) reported that they did not participate in any regularly scheduled sports activities (valid $N = 280$; $n = 178$).

Slightly more than half (54.7%) of the students felt homesick one to three times over the past thirty days (valid $N = 278$; $n = 152$). Fifty-three (19.1 %) of the respondents (valid $N = 278$) reported feeling homesick four or more times over the past thirty days. In contrast, only 73 out of 278 students (26.3%) denied any feelings of being homesick.

Unfortunately, this study's survey questions were not designed to link students' feelings of homesickness to other factors of social connectedness, as well as their relationships with mental health, academic performance, and GWB.

Two sets of questions were devised to identify student behaviors related to their covert and overt depressive symptomology. Table 21a displays the results of the questions related to the masked, sub-clinical, covert depressive symptoms such as feeling sad, feeling isolated, and a sense of hopelessness.

Table 21

Degree of depressive symptomology of students: (a) covert

| Health-Related Behavior: Degree of depressive symptomology of students* | | |
|---|---|---|
| How often have you felt very sad since starting college? | Frequency (*n*) | Valid Percent (%) |
| Never | 77 | 27.4 |
| Rarely | 126 | 44.8 |
| Sometimes | 72 | 25.6 |
| Most of the time | 5 | 1.8 |
| Always | 1 | 0.4 |
| Total *N* | 281 | 100.0 |
| *Median = rarely; Mode = rarely | | |
| How often have you felt 'all alone' with no one to turn to or talk to? | *(n)* | *(%)* |
| -Never | 149 | 53.0 |
| -Rarely | 87 | 31.0 |
| -Sometimes | 32 | 11.4 |
| -Most of the time | 11 | 3.9 |
| -Always | 2 | 0.7 |
| Total *N* | 281 | 100.0 |
| *Median = never; Mode = never | | |
| How often have you felt things were hopeless since starting college? | (*n*) | (%) |
| -Never | 186 | 66.2 |
| -Rarely | 63 | 22.4 |
| -Sometimes | 27 | 9.6 |
| -Most of the time | 5 | 1.8 |
| Total *N* | 281 | 100.0 |
| *Median = never; Mode = never | | |

Cumulatively, 203 (72.2%) of the respondents reported that they either never or rarely felt 'very sad' since starting college (valid $N = 281$). Representing the other end of this 'frequency of feeling sad' continuum, only six students (valid $N = 281$; valid percent = 2.2%) reported feeling 'very sad' either always or most of the time. More than one-fourth of the respondents (valid $N = 281$; $n = 72$; valid percent = 25.6%) reported that they felt 'very sad' some of the time since starting college.

Students were also asked how many times they had accessed the student counseling center. Only six out of the 281 respondents (2.2%) reported accessing the counseling center at all. Five of these students had accessed the counseling center one to three times; and only one of these students reported accessing the counseling center four to eight times since starting college.

Table 21

Degree of depressive symptomology of students: (b) overt

| Health-Related Behavior: Degree of overt depressive symptomology of students* | | |
|---|---|---|
| How often have you felt so depressed that it was difficult to function? | Frequency (*n*) | Valid Percent (%) |
| Never | 216 | 77.7 |
| Rarely | 37 | 13.3 |
| Sometimes | 21 | 7.6 |
| Most of the time | 3 | 1.1 |
| Always | 1 | 0.4 |
| Total *N* | 278 | 100.0 |
| *Median = never; Mode = never | | |
| Have you ever been diagnosed with depression by a doctor? | (*n*) | (%) |
| No | 264 | 94.3 |
| Yes | 16 | 5.7 |
| Total *N* | 280 | 100.0 |
| Have you ever been prescribed medications for depression? | (*n*) | (%) |
| No | 268 | 95.4 |
| Yes | 13 | 4.6 |
| Total *N* | 281 | 100.0 |

Table 21b represents questions identifying the respondents who acknowledged some degree of depressive symptoms. Of the 278 respondents, 216 (77.7%) reported that they never felt so depressed that it was difficult to function. Another 37 out of 278 students (13.3%) indicated that they rarely felt so depressed that it was difficult to function. Only four students (cumulative $n = 1.5\%$) answered either 'most of the time' or 'always' to this question.

Sixteen out of 280 respondents (5.7%) reported that a doctor had diagnosed them with depression sometime in their past. This is almost 10% below the national numbers. In spring, 2007, 15.3% of college students (valid $N = 71,860$; $n = 10,775$) on campuses across the country reported 'having ever been diagnosed with depression' (ACHA-NCHA, 2008). This was up from 10.3% diagnosed with depression in the year 2000 (ACHA-NCHA, 2006). This represents a 5% increase in the incidence of diagnosed depression among college students over the past eight years (ACHA-NCHA, 2008).

Table 21

Degree of depressive symptomology of students: c) comparing GWB study sample versus ACHA-NCHA spring 2007 reference group data

| Frequency of reported feelings of depression | | | | | |
|---|---|---|---|---|---|
| How often since starting college have you felt so depressed that you could not function? | Fall-2007 GWB Study Sample | | How many times in the past school year have you felt so depressed that you could not function? | Spring-2007 ACHA-NCHA Reference Group Data | |
| | Frequency (*n*) | ValidPercent (%) | | Frequency (*n*) | Valid Percent (%) |
| Never | 216 | 77.6 | 0 times | 38,870 | 55.0 |
| Rarely | 37 | 13.3 | 1-4 times | 19,767 | 28.0 |
| Sometimes | 21 | 7.6 | 5-8 times | 5,099 | 7.2 |
| Most of the time | 3 | 1.1 | ≥ 9 times | 6,947 | 9.8 |
| Always | 1 | 0.4 | | | |
| Valid N = 278 | | | Valid *N* = 71,860 | | |

The results of this study, indentified 77.6% of the respondents (valid $N = 278$; $n = 216$) 'never' felt so depressed that it was difficult to function. In comparison, only 55% of the students in the 2007 national ACHA-NCHA Reference Group Data Report reported they never felt that depressed during the past school year. Table 21c compares the frequencies of reported student depression of these two studies.

*Degree of anxiety.* Anxiety is a normal human response to stress. Kadison and DiGeronimo (2004) reported that it is common to feel anxious before speaking in public, competing, performing, or being evaluated. "But anxiety disorders are serious medical illnesses [...] that affect approximately 19 million American adults and 9.1 percent of college students" (p. 119). "...[I]t is common for an anxiety disorder to accompany another anxiety disorder, substance abuse, eating disorders, or depression" (Kadison & DiGeronimo, 2004, p. 124).

More than three quarters of the respondents in this study (valid $N = 281$; cumulative $n = 213$; cumulative percent = 75.9%) reported having stress either sometimes, most of the time, or always. A finding that is of more concern regarding student mental distress is that nearly 30% of these students (valid $N = 281$; cumulative $n = 83$; cumulative percent = 29.5%) indicated they *felt so overwhelmed that they could not function* at least some of the time.

The feeling of being *overwhelmed by all that has to be done* is pervasive in today's college students. The ACHA-NCHA Spring, 2007 Reference Group Data Report reported that only 6.8% of American college students never felt overwhelmed. Whereas, 57.1% indicated feeling overwhelmed one to eight times in the past school year and 36% felt overwhelmed more than eight times in the past school year (ACHA-NCHA, 2008). In

order to fully grasp the impact depression, anxiety, and other mental health issues have on health, academic success, and wellbeing, more research efforts designed to link student perceptions, depressive symptoms, and behaviors, with academic performance, long-term health outcomes, and GWB are needed.

*Accessing school counseling services.* Students were also asked how many times they had accessed the student counseling center. Only six out of the 281 respondents (valid percent = 2.2%) in this study reported accessing the counseling center at all. The reported levels of depression and anxiety from these subjects were a stark contrast to the poor utilization of essentially *free* counseling services available on campus. The problem has been identified and documented. The resources have been made available. Yet, the precursory findings of this study suggest there remains a great chasm between those that need help and those ready and willing to provide the help

Questions were devised to identify student behaviors related to their degree of anxiety. Table 22 displays the results of these questions. Nearly a quarter of the respondents (valid $N$= 281; cumulative $n$ = 68; valid percent = 24.1%) reported to rarely or never feel stressed out about homework and/or money. However, this means that 213 (75.9%) of the students (valid $N$= 281) reported stress about homework and/or money either sometimes, most of the time, or always.

Table 22

Degree of anxiety-related symptomology of students

| Health-Related Behavior: Degree of anxiety-related symptomology of students* | | |
|---|---|---|
| How often have you felt 'stressed out' about homework and/or money? | Frequency (*n*) | Valid Percent (%) |
| Never | 17 | 6.0 |
| Rarely | 51 | 18.1 |
| Sometimes | 149 | 53.0 |
| Most of the time | 56 | 19.9 |
| Always | 8 | 2.8 |
| Total *N* | 281 | 100.0 |
| *Median = sometimes; Mode = sometimes | | |
| How often have you felt so overwhelmed that you couldn't function? | (*n*) | (%) |
| Never | 106 | 37.7 |
| Rarely | 91 | 32.4 |
| Sometimes | 71 | 25.3 |
| Most of the time | 11 | 3.9 |
| Always | 2 | 0.7 |
| Total *N* | 281 | 100.0 |
| Median = rarely; Mode = never | | |
| Have you ever been diagnosed with an anxiety disorder by a doctor? | (*n*) | (%) |
| No | 273 | 97.2 |
| Yes | 8 | 2.8 |
| Total *N* | 281 | 100.0 |
| Have you ever been prescribed medication for anxiety? | (*n*) | (%) |
| No | 275 | 97.9 |
| Yes | 6 | 2.1 |
| Total *N* | 281 | 100.0 |

Table 23a displays responses to questions designed to reveal students' beliefs about spirituality and religiosity. Nearly 70% of the respondents (valid *N*= 281; cumulative *n* = 193; valid percent = 69.2%) considered themselves to be spiritual. Similarly, 191 (67.9 %) of the students reported that they consider themselves to be religious (valid *N*= 281). Students were asked if they thought someone could be spiritual without being religious. Two hundred-thirteen respondents (77.2%) agreed with this notion (valid *N*= 276).

Table 23

Degree of spirituality and religiosity: (a) Spirituality and religious beliefs

| Health-Related Behavior: Spirituality and religious beliefs of students* | | |
|---|---|---|
| "I consider myself to be a spiritual person" | Frequency (*n*) | Valid Percent (%) |
| Very strongly disagree | 18 | 6.5 |
| Strongly disagree | 13 | 4.7 |
| Disagree | 55 | 19.7 |
| Agree | 136 | 48.7 |
| Strongly agree | 35 | 12.5 |
| Very strongly agree | 22 | 7.9 |
| Total *N* | 279 | 100.0 |
| "I consider myself to be a religious person" | (*n*) | (%) |
| Very strongly disagree | 30 | 10.7 |
| Strongly disagree | 18 | 6.4 |
| Disagree | 42 | 14.9 |
| Agree | 141 | 50.2 |
| Strongly agree | 29 | 10.3 |
| Very strongly agree | 21 | 7.5 |
| Total *N* | 281 | 100.0 |
| "I feel a person can be spiritual without being religious" | (*n*) | (%) |
| Very strongly disagree | 8 | 2.9 |
| Strongly disagree | 14 | 5.1 |
| Disagree | 41 | 14.9 |
| Agree | 159 | 57.6 |
| Strongly agree | 24 | 8.7 |
| Very strongly agree | 30 | 10.9 |
| Total *N* | 276 | 100.0 |
| *Median = 'agree'; Mode = 'agree' | | |

Table 23b displays responses to questions designed to describe the behaviors of students related to their spirituality and religiosity. Only 17 out of 280 students (6.1%) reported that they did not belong to any religious affiliation because they did not believe in a god or higher power. Twenty-one students out of 280 (7.5%) reported that they did not belong to any religious affiliation, but they do believe in a god or a higher power.

Table 23

Spirituality and religiosity: (b) Spirituality and religious behaviors

| Health-Related Behavior: Spirituality and religious beliefs of students* | | |
|---|---|---|
| Which specific religious affiliation do you claim to belong to? | Frequency (*n*) | Valid Percent (%) |
| I don't believe in god or higher power; I don't belong to a religion | 17 | 6.1 |
| I do believe in god or higher power; I don't belong to a religion | 21 | 7.5 |
| Christian-based religious group | 236 | 84.3 |
| Jewish-based religious group | 1 | 0.4 |
| Other | 5 | 1.8 |
| Total *N* | 280 | 100.0 |
| *Median = Mode = 'Christian-based religious group' | | |
| How often have you attended a place of worship in past 30 days? | (*n*) | (%) |
| n/a; I never go to church | 19 | 6.8 |
| 0 times | 145 | 51.8 |
| 1 time | 31 | 11.1 |
| 2 times | 31 | 11.1 |
| 3 times | 19 | 6.8 |
| 4 times | 12 | 4.3 |
| 5 to 8 times | 16 | 5.7 |
| 9 or more times | 7 | 2.5 |
| Total *N* | 280 | 100.0 |
| *Median = Mode = '0 times' | | |
| How many times have you prayed or meditated in past 30 days? | (*n*) | (%) |
| I DONT believe in a God or higher power; I never pray | 12 | 4.3 |
| I DO believe in a God or higher power; but I never pray | 16 | 5.7 |
| 0 times | 60 | 21.4 |
| 1 time | 18 | 6.4 |
| 2 times | 21 | 7.5 |
| 3 times | 30 | 10.7 |
| 4 times | 19 | 6.8 |
| 5 to 8 times | 33 | 11.7 |
| 9 or more times | 72 | 25.6 |
| Total *N* | 281 | 100.0 |
| *Median = 'prayed 3 times in past 30 days'; Mode = 'prayed 9 or more times in past 30 days' | | |

Nineteen students (valid $N = 280$; valid percent = 6.8%) indicated that they never attend church, while another 145 (valid percent = 51.8%; valid $N = 280$) reported not going to church at all in the past thirty days. Twenty-two percent (valid $N = 280$; $n = 62$) reported attending a place of worship one to two times in the past thirty days. Only 35 out

of 280 students (12.5%) attended a place of worship four or more times in the past thirty days.

However, the survey responses also demonstrated some ambiguity with regards to religious beliefs and practices of these college students. Only about half of those who considered themselves religious (valid $N = 280$; $n = 97$; valid percent = 34.6%) reported attending a place of worship at least once in the past thirty days. Of those who reported that they were religious, over ten percent claimed that they were not spiritual (valid $N = 189$; $n = 22$; valid percent = 11.6%). When only considering the religious subset of students, 17.9% indicated they had not prayed at all in the past 30 days (valid $N = 190$; $n = 34$).

The ambiguous spirituality/religiosity results of this study presented another confounding finding. There were 64 subjects that indicated that they were not religious or spiritual, yet of those 64 subjects, nearly 30% reported to have prayed at least once in the past 30 days ($n = 19$; valid percent = 29.7%). Another 11% of the 64 subjects that indicated that they were not religious or spiritual marked that they *do believe* in a god or higher power, but do not pray ($n = 7$; valid percent = 10.9%). And, 22% who did not consider themselves as religious or spiritual had attended church at least once in the past 30 days ($n = 14$; valid percent = 21.9%).

*Description of Sample Based on Student Adjustment to College*

Another variable in this study was student adjustment to the college environment. This variable was operationalized via Baker and Syrik's Student Adaptation to College Questionnaire (SACQ; 1989). A description of the SACQ findings will be presented later in this chapter when the third specific aim of this study is addressed.

## Statistical Findings of Study Aims

### *Aim 1: Explicate and Measure Global Wellbeing in College Students*

The first aim of this study was to explicate and measure the construct of global wellbeing (GWB) in 18-24 year old college students. This occurred by measuring global wellbeing; as well as measuring GWB's six dimensions including the (a) physical, (b) social, (c) emotional, (d) psychological, (e) intellectual, and (f) spiritual dimensions of wellness. The construct of GWB was operationalized by employing the Perceived Wellness Survey [PWS] (Adams et al., 1997). See Appendix A. The relationship each dimension has with the composite construct of GWB was evaluated. The interrelationships among GWB's six dimensions were also explored. The relationships and group differences among this study's independent variables and GWB were investigated.

The mean of the composite GWB score for all of the subjects (valid $N = 278$) was 15.598 out of a possible score ranging from 3.0 to 29. The median of the composite GWB score was 15.791. The standard deviation was 3.048.

*Relative Grouping of Students based on their GWB scores*

The philosophy about health and wellbeing adhered to by Dr. Troy Adams is that wellbeing should not be based on normative comparisons. Therefore, he believes that the interpretation of PWS scores should be based on ipsative (i.e., individualized repeated-measure) comparisons (T. Adams, personal communication, January, 24, 2008). This study intended to explore the usefulness of the PWS as a population-based screening tool for campus-based wellness programs. Therefore students needed to be grouped.

For normally distributed data, approximately 99.7% of the data lies within three standard deviations of the mean, known as the 99.7% Rule in statistics. Approximately 95% of the data lies within two standard deviations of the mean, recognized as the Approximate 95% Rule in statistics. Approximately 68% of the data lies within one standard deviation of the mean. This is referred to the Approximate 68% Rule in statistics (Pyrczek, 2002).

Frequencies were analyzed and organized in an ascending order. The frequencies of the 278 PWS scores were reviewed and determined to be normally distributed. Therefore, the PI utilized the Approximate 68% Rule to create three groups (Pyrczek, 2002). Cut points were set at the $15^{th}$, $16^{th}$, $84^{th}$, and $85^{th}$ percentiles in SPSS™.

The middle 68% (i.e., the frequencies within one standard deviation (+/-) of the mean) was called the mid-scoring group. The upper 16% of the distribution of GWB scores (i.e., $\geq$ 84th percentile) created the highest scoring group of students. The lowest scoring group landed below the $16^{th}$ percentile of the GWB frequency distribution.

If multiple cases scored the same value between the $15^{th}$ and $16^{th}$ percentiles, then the PI always erred away from the extreme (i.e., the percent of *N* was always adjusted so more students were moved in the 'healthier' group of students). As with the grouping of cases at the $15^{th}$ and $16^{th}$ percentiles, if multiple cases scored the same value between the $84^{th}$ and/or $85^{th}$ percentiles, the PI always adjusted the groups so more students were moved into the 'healthier' group. This grouping decision was done to avoid potential arguments that these results represent an over-exaggeration of 'at-risk' students.

Table 24a portrayed the composite GWB (PWS full scale) measures of central tendency. The first column of values represents GWB in raw scores. The second column

of values represents the same GWB measures that have been converted into *z*-scores. All of the scale and index scores described in this report were converted into *z*-scores. This action allows for comparative discussion between the various scales later in chapter five.

Table 24

Students' Global Wellbeing: (a) Measures of central tendency and group cut-points*

| | Perceived Wellness Survey COMPOSITE GWB raw score | Perceived Wellness Survey Composite GWB *z*-score |
|---|---|---|
| Valid *N* | 278 | 278 |
| Mean | 15.60 | 0 |
| Median | 15.79 | 0.06 |
| Std. Deviation | 3.05 | 0.99 |
| Range | 23.98 | 7.87 |
| Percentile Cut Points | | |
| 15th percentile | 12.60 | -0.98 |
| 16th percentile | 12.76 | -0.93 |
| 84th percentile | 18.32 | +0.88 |
| 85th percentile | 18.35 | +0.89 |

*Measured by the Perceived Wellness Survey (PWS) developed by Troy Adams & colleagues (1997)

Table 24

Students' Global Wellbeing: (b) Reported scores*

| | | Students with lowest reported level of wellness | | | Students with mid-range reported level of wellness | | | Students with highest reported level of wellness | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 – 15th Percentiles** | | | 16th - 84th Percentiles** | | | 85th – 100th Percentiles** | | |
| Construct | Range of scale | *n* | % of *N* | Range of scores | *n* | % of N | Range of scores | *n* | % of *N* | Range of scores |
| GWB | 3.0 to 29 | 44 | 15.8 | 3.2 to 12.51 | 190 | 68.4 | 12.76 to 18.30 | 44 | 15.8 | 18.31 to 27.19 |
| GWB transformed PWS into *z*-scores | -4.065 to +3.802 | 44 | 15.8 | -4.065 to -0.982 | 190 | 68.4 | -0.933 to +0.885 | 44 | 15.8 | +0.894 to +3.802 |

* Derived from self-reported full scale Perceived Wellness Survey (PWS) score (Adams etal., 1997)
**Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™

The relative low-middle-high grouping process of the 278 students' who reported perceived wellness (i.e. GWB) can be reviewed in Table 24b. This table represents the grouping of students based on their perceived sense of global wellbeing interpreted from their self-reported full scale Perceived Wellness Survey (PWS) raw scores (Adams et al., 1997) and as converted GWB *z*-scores.

The students with the relatively lowest sense of overall wellness were represented by the group of 44 (valid $N = 278$; valid percent = 15.8%) students scoring at or below the 15th percentile of the total group when measuring their self-reported perceived level of global wellbeing. These students had computed PWS full scale raw scores that ranged from 3.2 to 12.75 out of a possible of 29 points. The converted z-scores of the group of students with the lowest sense of GWB ranged from -4.065 to -0.982

The 190 (valid $N = 278$; valid percent = 68.4%) students with the reported midrange level of wellness was derived from the cases that occurred between the 16th and 84th percentile of the total group when measuring their self-reported perceived level of global wellbeing. The computed PWS full scale raw scores of this mid-range group of students ranged from 12.76 to 18.29 out of a possible of 29 points. The converted z-scores of the mid-range group of students went from -0.933 up to +0.885.

The highest scoring group of 44 (15.8% of 278) students, when measuring their self-reported perceived global wellbeing, was established by setting the $85^{th}$ percentile as the bottom cut-off point. These students' computed PWS full scale raw scores ranged from 18.30 to 27.19. The converted *z*-scores of the group of students with the relative highest sense of GWB ranged from +0.894 to +3.802.

*Explicating and Measuring the Six Dimensions of GWB*

The same grouping process utilizing the Approximate 68% Rule in statistics (Pyrczek, 2002) was employed to create the cut points for the three groups. They represent the low, mid-range, and high levels of dimensional wellness.

Table 25

Six dimensions of wellness: (a) Measures of central tendency and group cut-points*

| | Dimensions of Wellness | | | | | |
|---|---|---|---|---|---|---|
| | Physical | | Social | | Emotional | |
| | raw score | *z* score | raw score | *z* score | raw score | *z* score |
| Valid $N^+$ | 278 | 278 | 278 | 278 | 278 | 278 |
| Mean | 26.1 | 0 | 27.16 | 0 | 25.35 | 0 |
| Median | 26.0 | -0.02 | 27.00 | -0.04 | 25.00 | -.07 |
| SD | 5.12 | 1.00 | 4.42 | 0.99 | 4.87 | 0.99 |
| Variance | 26.2 | 1.00 | 19.54 | 1.00 | 23.69 | 1.00 |
| Range | 29.0 | 5.67 | 26.00 | 5.88 | 29.00 | 5.96 |
| Percentile Cut Points: | | | | | | |
| 15th | 21.9 | -0.83 | 23.00 | -0.94 | 20.00 | -1.10 |
| 16th | 22.0 | -0.80 | 23.00 | -0.94 | 21.00 | -0.89 |
| 84th | 31.4 | +1.03 | 31.00 | +0.87 | 30.00 | +0.96 |
| 85th | 32.0 | +1.15 | 32.00 | +1.10 | 30.00 | +0.96 |
| | Dimensions of Wellness | | | | | |
| | Psychological | | Intellectual | | Spiritual | |
| | raw score | *z* score | raw score | *z* score | raw score | *z* score |
| Valid $N^+$ | 271 | 271 | 278 | 278 | 278 | 278 |
| Mean | 25.95 | 0 | 25.51 | 0 | 26.67 | 0 |
| Median | 26.00 | 0.01 | 26.00 | 0.11 | 27.00 | 0.07 |
| SD | 4.03 | 0.99 | 4.40 | 0.99 | 5.04 | 0.99 |
| Variance | 16.27 | 1.00 | 19.33 | 1.00 | 25.39 | 1.00 |
| Range | 21.00 | 5.21 | 32.00 | 7.28 | 32.00 | 6.35 |
| Percentile Cut Points: | | | | | | |
| 15th | 22.00 | -0.98 | 22.00 | -0.80 | 22.00 | -0.93 |
| 16th | 22.00 | -0.98 | 22.00 | -0.79 | 22.64 | -0.80 |
| 84th | 30.00 | +1.01 | 29.00 | +0.79 | 32.00 | +1.06 |
| 85th | 30.20 | +1.06 | 29.15 | +0.83 | 32.00 | +1.06 |

*Measured by the Perceived Wellness Survey (PWS) developed by Troy Adams (et al., 1997)
$^+N = 281$

Table 25a displays the results of this grouping process, as well as the descriptive statistics of the six PWS subscales (i.e., the six dimensions of GWB). Frequencies of each

of the six PWS subscales were analyzed for normal distribution and then organized in an ascending order. The 15th, 16th, 84th, and 85th percentile cut points were used in SPSS™.

The 16th percentile lands one standard deviation below the mean of normally distributed data. This represents the beginning point of the mid-range scoring students for each of the six dimensions of wellness as measured by the Perceived Wellness Survey (Adams, et al., 1997). The 84th percentile represents one standard deviation above the mean. This cut point represents the high point of the mid-range scoring students for each of the six dimensions of wellness. The six subscales of global wellbeing generated raw scores that could range from a low of 1 to a high of 36. As was done with the composite GWB scores, z-scores were calculated for each of the wellness dimensions to allow for comparative discussions between the results of the various scales used in this study. This discussion will occur in chapter five.

Table 25b displays the grouping of students based on their dimensional GWB scores. Once again, if multiple cases had scores occurring at the 15th percentile, then the PI always adjusted the groups so more students were moved into the 'healthier' group. As mentioned earlier, this grouping decision was done to avoid potential concerns that the results were an over-exaggeration of 'at-risk' students.

The subscale scores among the six dimensions of the lowest scoring group of students had the greatest variability. Table 25b demonstrates that this group's intellectual and spiritual dimensional scores demonstrated the greatest variance. These subscale scores ranged from 4 to 22. The physical and emotional dimensions subscales scores ranged from 7 to 21 and 7 to 20, respectively. The social dimensional scores for the

relatively least well group ranged from 10 to 23. The psychological dimensional subscale had the least amount of variance with scores that ranged from 15 to 22.

Table 25

Six dimensions of wellness: (b) Students' dimensional GWB scores*

| | | Students with lowest reported level of wellness | | | Students with mid-range reported level of wellness | | | Students with highest reported level of wellness | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 – 15th Percentiles** | | | 16th - 84th Percentiles** | | | 85th – 100th Percentiles** | | |
| Wellness Dimension | Range of scales | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores |
| Physical raw scores | 1-36 | 41 | 14.7 | 7-21 | 193 | 69.4 | 22-31 | 44 | 15.8 | 32-36 |
| Physical transformed *z*-scores | -3.736 to +1.932 | 41 | 14.7 | -3.736 to -0.999 | 193 | 69.4 | -0.804 to +0.955 | 44 | 15.8 | +1.150 to +1.932 |
| Social raw scores | 1-36 | 47 | 16.9 | 10-23 | 189 | 68.0 | 24-31 | 42 | 15.1 | 32-36 |
| Social transformed *z*-scores | -3.883 to +1.999 | 47 | 16.9 | -3.883 to -.0942 | 189 | 68.0 | -0.715 to +0.868 | 42 | 15.1 | +1.095 to +1.999 |
| Emotional raw scores | 1-36 | 43 | 15.5 | 7-20 | 196 | 70.5 | 21-30 | 39 | 14.0 | 31-36 |
| Emotional transformed *z*-scores | -3.770 to +2.188 | 43 | 15.5 | -3.770 to -1.099 | 196 | 70.5 | -.0.894 to +0.956 | 39 | 14.0 | +1.161 to +2.188 |
| Psychological raw scores | 1-36 | 54 | 19.9 | 15-22 | 177 | 65.3 | 23-30 | 40 | 14.8 | 31-36 |
| Psychological transformed *z*-scores | -2.714 to +2.493 | 54 | 19.9 | -2.714 to -0.978 | 177 | 65.3 | -0.730 to +1.005 | 40 | 14.8 | +1.253 to +2.493 |
| Intellectual raw scores | 1-36 | 52 | 18.7 | 4-22 | 185 | 66.5 | 23-29 | 41 | 14.8 | 30-36 |
| Intellectual transformed *z*-scores | -4.893 to +2.385 | 52 | 18.7 | -4.893 to -0.799 | 185 | 66.5 | -0.572 to +0.793 | 41 | 14.8 | +1.020 to +2.385 |
| Spiritual raw scores | 1-36 | 44 | 15.8 | 4-22 | 186 | 66.9 | 23-31 | 48 | 17.3 | 32-36 |
| Spiritual transformed *z*-scores | -4.499 to +1.851 | 44 | 15.8 | -4.499 to -0.927 | 186 | 66.9 | -0.729 to +0.859 | 48 | 17.3 | +1.057 to +1.851 |
| GWB raw scores | 3-29 | 44 | 15.8 | 3.2-12.75 | 189 | 68.0 | 12.76-18.29 | 45 | 16.2 | 18.30-27.19 |
| GWB transformed *z*-scores | -4.065 to +3.802 | 44 | 15.8 | -4.065 to -0.982 | 190 | 68.4 | -0.933 to +0.885 | 44 | 15.8 | +0.894 to +3.802 |

The middle (approximate) 68% of the cases were grouped together based on the 16th and 84th percentile (pre-set) cut-off points. This established the mid-range group of students for each dimension of wellness. As with the 'lowest' group, if multiple cases had scores occurring at the 16th and/or 84th percentiles, the PI always adjusted the groups so more students were moved into the 'healthier' group. The range of dimensional wellness scores in the mid-range group of students had less variability than the lowest scoring group of students. The emotional subscale had the greatest spread of scores (21-30).

The group with the highest reported dimensional wellness scores consisted of the 16% of students at or above the 85th percentile. This group had the highest reported dimensional wellness scores when compared to the other students participating in the study. The range of dimensional wellness scores in this group had the tightest variability. The intellectual subscale had the greatest spread of scores within this group (30-36).

*Explicating GWB Based on Study's Independent Variables*

The subjects in this study had very similar mean scores of GWB when comparing these scores based on the ages of the students. Table 26 displays these mean GWB scores based on their ages.

When looking at mean GWB scores across the different ages of the students participating in this study, the mean GWB scores grouped by age are very similar. However, the variability is greater among the younger students compared to the older students.

Table 26

Composite GWB mean and standard deviation by age of students

| Subjects grouped by age (in years) | Valid *N* | Group Mean | Standard Deviation |
|---|---|---|---|
| 18 years old | 115 | 15.6899 | 3.331 |
| 19 years old | 76 | 15.2966 | 2.899 |
| 20 years old | 37 | 15.9934 | 3.019 |
| 21 years old | 19 | 15.2615 | 3.048 |
| 22 years old | 16 | 16.1619 | 1.995 |
| 23 years old | 13 | 15.0728 | 2.789 |
| 24 years old | 2 | 16.5450 | 2.179 |
| All Subjects | 278 | 15.5980 | 3.048 |

Figure 1

Decreasing variability of the mean GWB scores as the ages of the students increase

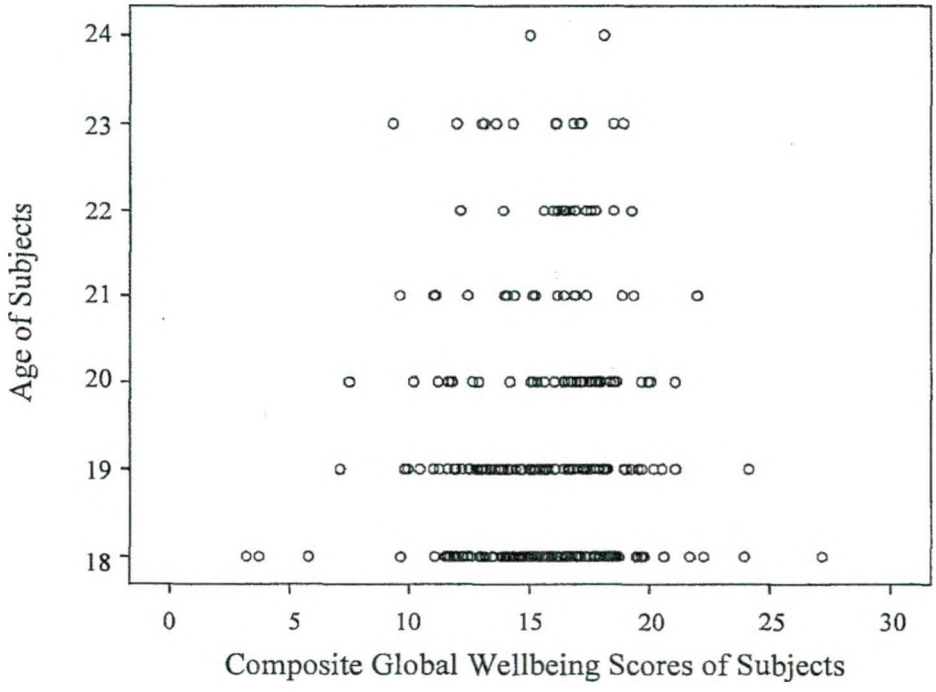


Figure 1 is a scatter plot that depicts the decreasing variability around the group means as the age of the students increase. As the age of the students increase, the standard deviation of their mean GWB scores decrease.

A one-way ANOVA was conducted to detect if age significantly affected traditional college students' composite GWB score as measured by the Perceived Wellness Survey (Adams et al., 1997). No significant difference was found ($F$ (6,271) = 0.466, $p$ = 0.833). The students (ranging in ages from 18 to 24) did not differ significantly in their composite GWB scores.

The GWB means of male and female students were compared using a two sample $t$-test. There were no significant differences in the students' GWB mean scores when they were compared by gender ($t$ (276) = 1.865, $p$ = .063).

A one way ANOVA was run to determine if students' self-reported cultural identity affected their mean GWB scores. It did not indicate students' mean GWB scores were significantly different based on their cultural identity ($F$ (5,272) = 0.749, $p$ = 0.587). A one-way ANOVA was run to see if distance of the family home from the university campus significantly affected students' composite GWB. The main effect of this analysis revealed that the mean composite GWB score was significantly different among traditional college students based on how many miles away from the campus their family home was located ($F$ (5,271) = 2.943, $p$ = 0.013). Table 27a displays the ANOVA post hoc test multiple comparisons. There was a statistically significant difference of the mean composite GWB scores between students whose families lived less than 60 miles from campus and students whose families lived 181-360 miles from campus.

Table 27

Distance of family home from campus versus GWB scores: (a) Post hoc tests[+] depicting statistically significant differences in mean GWB scores

Multiple Comparisons

| (I) 'Home' is how miles away from campus? | (J) 'Home' is how miles away from campus? | Mean Difference | Standard Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| < 60 miles from campus | 61 to 120 miles from campus | -0.370 | 0.735 | 0.996 | -2.480 | 1.741 |
| | 121 to 180 miles from campus | -1.724 | 0.916 | 0.416 | -4.354 | 0.906 |
| | 181 to 360 miles from campus | -2.007* | 0.594 | 0.011* | -3.712 | -0.302 |
| | 361 to 720 miles from campus | -1.372 | 0.655 | 0.293 | -3.252 | 0.507 |
| | > 720 miles from campus | -1.339 | 0.615 | 0.251 | -3.104 | 0.426 |
| 61 to 120 miles from campus | < 60 miles from campus | .3670 | 0.736 | 0.996 | -1.741 | 2.480 |
| | 121 to 180 miles from campus | -1.354 | 0.947 | 0.708 | -4.071 | 1.363 |
| | 181 to 360 miles from campus | -1.637 | 0.640 | 0.111 | -3.473 | 0.199 |
| | 361 to 720 miles from campus | -1.003 | 0.697 | 0.703 | -3.002 | 0.997 |
| | > 720 miles from campus | -0.969 | 0.660 | 0.683 | -2.861 | 0.922 |
| 121 to 180 miles from campus | < 60 miles from campus | 1.724 | 0.917 | 0.416 | -0.906 | 4.354 |
| | 61 to 120 miles from campus | 1.354 | 0.947 | 0.708 | -1.363 | 4.071 |
| | 181 to 360 miles from campus | -0.283 | 0.841 | 0.999 | -2.698 | 2.132 |
| | 361 to 720 miles from campus | 0.352 | 0.886 | 0.999 | -2.190 | 2.893 |
| | > 720 miles from campus | 0.385 | 0.856 | 0.998 | -2.073 | 2.843 |
| 181 to 360 miles from campus | < 60 miles from campus | 2.007* | 0.594 | 0.011* | 0.302 | 3.712 |
| | 61 to 120 miles from campus | 1.638 | 0.640 | 0.111 | -0.199 | 3.473 |
| | 121 to 180 miles from campus | 0.283 | 0.841 | 0.999 | -2.132 | 2.698 |
| | 361 to 720 miles from campus | 0.634 | 0.545 | 0.854 | -0.931 | 2.199 |
| | > 720 miles from campus | 0.668 | 0.496 | 0.759 | -0.757 | 2.092 |
| 361 to 720 miles from campus | < 60 miles from campus | 1.372 | 0.655 | 0.293 | -0.5073 | 3.252 |
| | 61 to 120 miles from campus | 1.003 | 0.697 | 0.703 | 0-.997 | 3.002 |
| | 121 to 180 miles from campus | -0.352 | 0.885 | 0.999 | -2.893 | 2.190 |
| | 181 to 360 miles from campus | -0.634 | 0.545 | 0.854 | -2.199 | 0.931 |
| | > 720 miles from campus | 0.033 | 0.568 | 1.000 | -1.597 | 1.663 |
| > 720 miles from campus | < 60 miles from campus | 1.339 | 0.615 | 0.251 | -0.426 | 3.104 |
| | 61 to 120 miles from campus | 0.969 | 0.659 | 0.683 | -0.922 | 2.861 |
| | 121 to 180 miles from campus | -0.385 | 0.856 | 0.998 | -2.843 | 2.073 |
| | 181 to 360 miles from campus | -0.668 | 0.496 | 0.759 | -2.092 | 0.757 |
| | 361 to 720 miles from campus | -0.033 | 0.568 | 1.000 | -1.663 | 1.597 |

* The mean difference is significant at the 0.05 level.
[+] Utilized Tukey HSD post hoc test

Table 27b depicts the findings that students whose parents lived 181-360 miles from campus had higher mean composite GWB scores (mean composite GWB score = 16.341, *SD* = 3.233) than those students whose parents lived less than sixty miles from campus (mean composite GWB score = 14.335, *SD* = 2.724). The mean difference of -2.006 was statistically significant with an *alpha* = 0.011.

Table 27

Distance of family home from campus versus GWB scores: (b) descriptive statistics

Case Summaries

| 'Home' is how miles away from campus? | Mean | Standard Deviation | Median |
|---|---|---|---|
| < 60 miles from campus | 14.335 | 2.724 | 14.4214 |
| 61 to 120 miles from campus | 14.704 | 3.372 | 15.2147 |
| 121 to 180 miles from campus | 16.058 | 2.963 | 15.6977 |
| 181 to 360 miles from campus | 16.341 | 3.233 | 16.1759 |
| 361 to 720 miles from campus | 15.707 | 2.687 | 16.2744 |
| > 720 miles from campus | 15.673 | 2.864 | 15.9110 |
| Total *N* | 15.612 | 3.046 | 15.7947 |

One-way ANOVAs were performed to see if mean composite GWB scores differed based on (a) whom students lived with and (b) where students chose to live. There were no significant differences in group mean composite GWB scores when looking at whom students chose to live with while at college ($F$ (6,271) = 1.08, $p$ = 0.38). There were no significant differences in group mean composite GWB scores when looking at where students chose to live while at college ($F$ (4,273) = 0.54, $p$ = 0.71).

A one-way ANOVA was run to find out if the students' relationship status affected group mean composite GWB scores. This analysis disclosed that students' composite GWB scores were not significantly different based on whether they were

single/not dating, single/casually dating, or single/committed to a significant other ($F$ (2,275) = 2.74, $p$ = 0.066).

A one-way ANOVA was calculated to see if GWB scores differed based on which self-reported category of body mass index (BMI) range students were in (underweight, healthy weight, overweight, or obese). There was no significant difference found in GWB scores based students' BMI ranges ($F$ (3,269) = 1.353, $p$ = 0.258). The PI re-coded BMI ranges into Healthy versus Unhealthy BMI ranges and then conducted a two sample $t$-test to see if there was a significant difference in GWB based on this grouping of BMIs. No significant difference was found in the composite GWB scores when comparing students with healthy versus unhealthy BMIs ($t$ (271) = -1.25, $p$ = 0.212).

A two sample $t$-test was carried out to determine if the high school performance of students affected their mean composite GWB scores. Students were grouped into either (a) those with relatively strong academic performance (received an A or B grade point average) in high school, or (b) those with relatively weak academic performance (i.e., students who received a C or D or F grade point average) in high school. Once again, this analysis disclosed that there is no statistically significant group differences in mean composite GWB scores of traditional college students' based on whether students performed academically strong in high school or if students performed academically poor in high school ($t$ (276) = 1.93, $p$ = 0.055).

A two sample $t$-test revealed that the mean composite GWB scores were not significantly different based on whether subjects qualified as first generation college students or not ($t$ (276) = 0.964, $p$ = 0.34). Another two sample $t$-test disclosed that the

mean composite GWB scores were not significantly different based on whether subjects were TRIO-services eligible college students or not ($t$ (272) = 0.247, $p$ = 0.81).

Further ANOVAs and $t$-tests were performed to decipher if there were any group differences in the students' mean composite GWB scores on the remaining independent variables. These tests also disclosed that the mean composite GWB scores were not significantly different based on the remaining independent variables in the study.

*Grouping of Health-Related Independent Variables into Index Scales*

Thus far in this analysis, students' composite GWB scores have not been adequately explained based on differences derived from the twenty-one individual demographic characteristics and health risk behaviors selected as the independent variables for this study. Therefore, the PI grouped survey questions into concept-related clusters and created index scales to represent these clustered constructs.

When each health-risk survey question was designed, the responses were assigned values so as the level of risk assumed by students increased, their survey question scores increased. The tallied scores from the individual survey questions within the concept-driven risk indices created the health risk index scores. These index scales were then used to examine the students' GWB based on the amount of overall risk assumed by students related to their (indexed) health risk behaviors (HRBs), mental health risks (MHRs), degree of spirituality and religiosity, and academic performance. In summary, as the point value increases for each of these index scales, the degree of assumed risk increases.

Table 28 represents the survey responses used to generate the index scale measuring students' health risk behaviors (HRBs) as a full scale. The range of points assigned to the full scale is 1-71. Four HRB clusters were formed. HRB Cluster 1

measures students' assumed biophysical health risk. HRB Cluster 2 renders students' assumed health risk based on their drug and alcohol usage/behaviors. Cluster 3 in this index captures students' assumed health risk related to contracting sexually transmitted diseases (STDs). Cluster 4 portrays students' assumed health risk related to their use of protective equipment or gear while driving and/or participating in contact sports.

Table 28

Survey responses used to generate the Health Risk Behavior Index

| Range of Subscale | Health Risk Behavior Index—Full Scale*<br>Range of Full Scale: 1-71 |
|---|---|
| 0-12 | HRB Cluster 1 questions*: Biophysical health risk rating |
| | Q24d—Healthy BMI ranges from reported height and weight<br>Q27—Do you participate in regularly scheduled sports activities?<br>Q30—How many times a week do you feel rested when you get up in the morning?** |
| 0-24 | HRB Cluster 2 questions*: Drug and alcohol health risk |
| | Q34—During the past 30 days, how many times did you ride in a vehicle driven by someone who had been drinking beer/alcohol and/or using illegal drugs?**<br>Q35—During the past 30 days how many times did you drive a car or other vehicle when you had been drinking beer/alcohol and/or using illegal drugs?**<br>Q36—During the past 30 days, how many times (if any) did you drink any alcoholic beverage and/or use illegal drugs while partying or socializing?**<br>Q37—During the past 30 days, how many times (if any) did you drink 5 or more alcoholic drinks in a sitting? |
| 0-20 | HRB Cluster 3 questions*: sexually transmitted disease (STD) risk |
| | Q38—At this point in your life, how many partners have you had sexual intercourse with?<br>Q39—How often do you and/or your partner use condoms when having sex? |
| 1-15 | HRB Cluster 4 questions*: Health risk related to self protection during dangerous sports |
| | Q31—During the past 12 months, how often do you wear a seat belt when riding in a car?<br>Q32—During the past 12 months, how often do you wear a seat belt when driving a car?<br>Q33—During the past 12 months, how often did you wear a helmet and/or protective gear when participating in sports? |

* As scores increase assumed health risk increases
**See survey for complete wording of question

Table 29 represents the survey responses used to generate the index scale measuring the construct of mental health risk (MHR) as a full scale. The range of points assigned to the full scale was 1-75. Three MHR clusters were formed. MHR Cluster 1

measures students' assumed mental health risk related to their reported degree of depressive symptomology. Cluster 2 renders students' assumed mental health risk based on their reported degree of anxiety-related symptomology. Cluster 3 in this index captures students' assumed mental health risk related to their degree of social connectedness with the campus community.

Table 29

Survey responses used to generate the Mental Health Risk Behavior Index

| Range of Sub-Scale | Mental Health Risk Behavior (MHR) Index—Full Scale*<br>Range of Full Scale 1-75 |
|---|---|
| 0-26 | Cluster 1 questions*: Degree of depressive symptomology |
| | Q40—Since college, have physical conditions affected your academic performance?**<br>Q42—Since college, have risky lifestyle behaviors affected your academic performance?**<br>Q44—Since college, how often have you felt very sad?<br>Q47—Since college, how often have you felt all alone with no one to turn to for help and/or to talk to?<br>Q48—Since college, how often have you felt things were hopeless?<br>Q49—Since college, how often have you felt so depressed that its difficult to function?<br>Q50—Have you ever been diagnosed with depression by a doctor?<br>Q52—Have you ever been prescribed medication for depression? |
| 0-26 | Cluster 2 questions*: Degree of anxiety related symptomology |
| | Q41—Since college, has any emotionally stressful situations affected your academic performance?**<br>Q45—Since college, how often have you felt stressed out about homework or money?<br>Q46—Since starting college, how often have you felt overwhelmed by your life or by all that you had to do to the point that you couldn't even function?**<br>Q51—Have you ever been diagnosed with an anxiety disorder by a doctor?<br>Q53—Have you ever been prescribed medication for anxiety? |
| 0-23 | Cluster 3 questions*: Degree of social connectedness with campus |
| | Q13— On the average, how many hours a week do you work for pay right now?**<br>Q25— Since entering college, are you a member of a social fraternity or sorority?<br>Q26a—Since entering college, are you a member of school-supported clubs or activities?<br>Q27a—Since college, do you participate in regularly scheduled sports activities?<br>Q28— During past 30 days, how many campus-based activities have you attended?**<br>Q43—During past 30 days, how many times have you felt homesick?**<br>Q47—Since college, how often have you felt all alone with no one to turn to for help and/or to talk to? |

* As scores increase assumed mental health risk increases

**See survey for complete wording of questions

Table 30 displays the survey responses used to produce the index scale measuring the construct of spirituality and religiosity as a full scale. The overall degree of spirituality-religiosity index score represents the assumed summative value related to college students' reported spirituality and religious beliefs and practices. Scores range from 0-26.

Table 30

Survey responses used to generate the Degree of Spirituality-Religiosity Index:

| Range of Subscale | Degree of Spirituality-Religiosity Index—Full Scale*<br>Range of Full Scale: 0-26 |
|---|---|
| 0-12 | Cluster 1 questions*: Degree of Spirituality |
| | Q56—I consider myself to be a spiritual person.<br>Q58—I feel a person can be spiritual without being religious.<br>Q61—I have prayed/meditated at least once in the past 30 days. |
| 0-14 | Cluster 2 questions*: Degree of Religiosity |
| | Q57—I consider myself to be a religious person.<br>Q59—Student affiliates self to a particular church/denomination.**<br>Q60—I attended church at least once in the past 30 days.<br>Q61—I have prayed/meditated at least once in the past 30 days. |

* The lower the demonstrates students' higher degree of spirituality and/or religiosity
**See survey for complete wording of questions

Two clusters were formed. The first cluster measures college students' identified conviction of reported spiritual beliefs. These variables include (a) reported degree of conviction whether or not they consider themselves to be a spiritual person, (b) reported degree of conviction whether or not they believe a person can be spiritual without being religious, and (c) reported number of times they prayed within the past thirty days. The lower the score indicates a higher degree of reported spirituality. Scores ranged from zero to twelve.

Cluster two represents the level of conviction of college students' reported religious beliefs and practices. These variables included (a) reported degree of conviction whether or not they considered themselves to be a religious person, (b) reported affiliation with a specific church, religion and/or denomination, (c) reported number of times they attended church within the past 30 days, and (d) reported whether they had prayed within the past thirty days. Scores ranged from 0 to 14.

Table 31

Survey responses used to generate the Academic Performance Index

| | Academic Performance Index—Full Scale*<br>Range of Full Scale 0-20 |
|---|---|
| | Q17b—What was your high school grade point average (GPA)?<br>Q20b—What is your college GPA?<br>Q40— Since starting college, have physical problems affected your academic performance?**<br>Q41— Since starting college, have stressful/emotional situations affected your academic performance?**<br>Q42— Since starting college, have your risky lifestyle behaviors affected your academic performance?** |

* The lower the score demonstrates students' higher degree of academic performance
**See survey for complete wording of questions

The Academic Performance Index was generated from five survey questions. See Table 31 to review the questions used to capture this construct. The range of this scale was 0 to 20. The higher the student scores on this index indicates an increased assumed risk due to poorer performance academically.

*Relative Grouping of Students based on Health Risk Behavior Index Scores*

The same grouping process utilizing the Approximate 68% Rule in statistics (Pyrczek, 2002) was employed to create the cut points for the three groups representing the relative low, mid-range, and high levels of assumed risk experienced by the students

in this study. Frequencies of each of the index scales were analyzed for normal distribution and then organized in an ascending order. Cut points were identified utilizing the 15th, 16th, 84th, and 85th percentiles in SPSS™. The 16th percentile represents one standard deviation below the mean. This corresponds to the beginning point of the mid-range scoring students for each of the index scales. The 84th percentile signifies one standard deviation above the mean. This cut point represents the high point of the mid-range scoring students for each of the index scales. As was done with the GWB scores, *z*-scores were calculated for each of the index scales. A comparative discussion between the results of the various risk index scales will occur later in chapter five.

Table 32 displays the overall HRB index scores representing the assumed summative health risk related to college students' behaviors and lifestyle choices. Raw scores ranged from 1-71.

Further examination of Table 32 reveals how the ranking of students' assumed HRBs occurred based on the frequencies of responses from the survey questions. Relative sorting of students in low, mid-range, and high risk groups was again based on the percentile cut-points associated with the Approximate 68% Rule of normally distributed data (Pyrczak, 2002). The group of students with the safest lifestyle and/or behaviors was below one standard deviation from the group mean (i.e., below the 16th percentile). The group of students with the riskiest lifestyle and/or behaviors was above one standard deviation from the group mean (i.e., above the 84th percentile).

Table 32

Health Risk Behavior (HRB) Index.

| | | | Students with lowest reported level of assumed health risk | | | Students with mid-range reported level of assumed health risk | | | Students with highest reported level of assumed health risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Group with safest lifestyle &/or behaviors | | | Group with average amount of assumed risk | | | Group with riskiest lifestyle &/or behaviors | | |
| | | | 0 - 15th Percentiles* | | | 16th - 84th Percentiles* | | | 85th - 100th Percentiles * | | |
| Health Risk Cluster | Range of scales | *N* | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores |
| Cluster 1: Bio-physical | 1-12 | 281 | 43 | 15.3 | 0-2 | 211 | 75.1 | 3-8 | 27 | 9.6 | 9-11 |
| Cluster 2: Drug &/or Alcohol | 0-24 | 281 | 44 | 15.7 | 0-1 | 196 | 69.7 | 2-15 | 41 | 14.6 | 16-24 |
| Cluster 3: STDs | 0-20 | 281 | 104 | 37.0 | 0 | 126 | 44.8 | 1-10 | 51 | 18.2 | 12-20 |
| Cluster 4: Self-protection | 1-15 | 281 | 38 | 13.5 | 1-2 | 210 | 74.7 | 3-9 | 33 | 11.8 | 10-15 |
| Overall HRB Index Raw Score | 1-71 | 281 | 46 | 16.4 | 3-13 | 192 | 68.3 | 14-37 | 43 | 15.3 | 38-59 |
| Overall HRB Index *z*-score | -1.99 to +3.03 | 281 | 46 | 16.4 | -1.99 to -1.09 | 192 | 68.3 | -0.99 to +1.06 | 43 | 15.3 | +1.15 to +3.03 |

* Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™.
- Ranking of students' assumed HRBs based on frequencies of responses from survey questions.
- As scores increase assumed health risk increases.

Students with the lowest reported level of assumed health risk conveyed the relatively safest lifestyle and/or health risk behaviors. These were the cases with the frequencies at or below the 15th percentile of the total. Their HRB cluster scores indicated the relatively lowest scores when measuring their assumed health risk in each of four

identified clusters of health behaviors. This grouping process was then repeated to identify the students with the riskiest overall health behavior scores.

Students falling within the mid-range frequency of cases were the students scoring between the 16th and 84th percentile of the total cases. Their overall HRB index scores represented the group of students reporting mid-range levels of assumed health risk in each of four identified clusters of health behaviors, as well as their overall health risk behavior index score.

Students with the greatest amount of assumed health risk reported the relatively riskiest lifestyle and/or health risk behaviors. These were the cases with the frequencies at or above the 85th percentile of the total. Their HRB cluster scores indicated the relatively highest scores when measuring their assumed health risk in each of four identified clusters of health behaviors. This grouping process was then repeated to identify the students with the riskiest overall health risk behavior scores.

Table 32 also displays the relative sorting of students for each of the four Health Risk Behavior (HRB) Index clusters. Cluster 1 scores represent identified biophysical health risk to college students. These behaviors include students' sleep patterns, physical activity levels, and their calculated body mass indices. Score ranges from 0 to 12. Cluster 1 intends to measure the students' biophysical health risk. It is comprised of three variables assessing the students' Body Mass Index ranges, their unmet sleep requirements, and level of physical activity.

The HRB Index Cluster 2 score represents identified health risk related to college students' alcohol/illicit drug use, drinking behaviors, and lifestyle choices. These behaviors include how often students choose to ride with an impaired driver, how often

they choose to drive while under the influence of drugs or alcohol, how often they choose to drink while partying/socializing, and how often they choose to binge drink. Scores range from 0 to 24.

The HRB Index Cluster 3 score represents college students' health risk related to contracting sexually transmitted diseases (STDs). These behaviors include the cumulative number of sexual partners for each student, as well as students' frequency of condom use. Score ranges from 0-20. Cluster 3 intends to measure the students' assumed health risk related to being exposed to sexually transmitted diseases (STDs). It is comprised of two variables assessing the students' number of sexual partners up to this point in their life, as well as the frequency of condom use.

HRB Index Cluster 4 scores represent health risk related to college students' behaviors and lifestyle choices indicating a willingness to expose self to injury and/or death while participating in high impact sports or while driving motorized vehicles. These behaviors include the students' use of protective gear during sports activities, as well as the use of seatbelts while riding in or driving a motor vehicle. Scores range from 1-15. Cluster 4 intends to measure the students' assumed health risk related to exposing himself or herself to injury and/or death while participating in high impact sports and/or being in motorized vehicles. It is comprised of three variables assessing the students' use of protective gear during sports activities, as well as the use of seatbelts while riding and/or driving a motor vehicle.

*Relative Grouping of Students based on their Mental Health Risk Index Scores*

Table 33 displays the overall Mental Health Risk (MHR) index scores representing the assumed summative mental health risk related to college students'

behaviors and lifestyle choices. Scores ranged from 0-75. Examination of Table 33 displays how the ranking of students' assumed MHRs occurred based on the frequencies of responses from the survey questions. Relative sorting of students in low, mid-range, and high risk groups was again based on the percentile cut-points associated with the Approximate 68% Rule of normally distributed data (Pyrczak, 2002). These cut-points were calculated from grouped data based on the frequencies generated from SPSS ™. The group of students with the lowest reported level of assumed mental health risk one below one standard deviations from the group means (i.e., at or below the $15^{th}$ percentile). The group of students with the highest reported level of assumed mental health risk was above one standard deviation from the group mean (i.e., at or above the $85^{th}$ percentile).

Table 33 also displays the relative ranking of students within each of the three MHR clusters. MHR Index Cluster 1 scores represent identified mental health risk to college students' based on their reported degree of depressive symptomology. These reported variables include (a) students' reported frequency of feeling sad, feeling all alone, feeling hopeless, and/or feeling depressed, (b) reports of student academic performance being affected by emotionally/physically depressive situations, and (c) reports of students being diagnosed with depression and/or being prescribed medication to treat depression. Scores could possibly range from 0 to 26.

Table 33

Mental Health Risk (MHR) Index.

| | | | Students with lowest reported level of assumed mental health risk | | | Students with mid-range reported level of assumed mental health risk | | | Students with highest reported level of assumed mental health risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Group with safest level of mental health | | | Group with mid range level of mental health | | | Group with riskiest level of mental health | | |
| | | | 0 - 15th Percentiles* | | | 16th - 84th Percentiles* | | | 85th - 100th Percentiles* | | |
| Mental Health Risk Cluster | Range of scales | *N* | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores | *N* | % of *N* | Range of scores |
| Cluster 1: Depressive symptoms | 0-26 | 281 | 86 | 30.6 | 0-1 | 161 | 57.3 | 2-6 | 34 | 12.1 | 7-16 |
| Cluster 2: Anxiety related symptoms | 0-26 | 281 | 80 | 28.5 | 0-2 | 167 | 59.4 | 5-12 | 34 | 12.1 | 13-20 |
| Cluster 3: Social connected-ness | 0-23 | 281 | 78 | 27.7 | 0-3 | 159 | 56.6 | 4-8 | 44 | 15.7 | 9-15 |
| Overall MHR Index raw score | 0-75 | 281 | 42 | 14.9 | 1-8 | 186 | 66.2 | 9-24 | 53 | 18.9 | 25-47 |
| Overall MHR Index *z*-score | -1.78 to +3.39 | 281 | 42 | 14.9 | -1.78 to -0.99 | 186 | 66.2 | -0.88 to +0.80 | 53 | 18.9 | +0.91 to +3.39 |

* Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™.
- Ranking of students' assumed MHR based on frequencies of responses from survey questions.
- As scores increase assumed mental health risk increases.

Cluster two scores within the MHR Index represents identified mental health risk related to college students' degree of anxiety-producing symptomology. These reported variables include (a) frequency of feeling stressed out and/or overwhelmed, (b) how student academic performance had been affected by experiencing emotionally stressful

situations, and/or (c) frequency of students diagnosed with anxiety and/or prescribed medication to treat anxiety. Scores could possibly range from 0 to 26.

Cluster three scores within the MHR Index as displayed in Table 33 represents identified mental health risk related to college students' lacking a sense of social connectedness with their campus community. These reported variables include students' reported frequency of (a) participating in campus-sponsored functions and sports events, (b) belonging to a sorority/fraternity or being a campus-based club member, (c) feeling all alone and/or feeling homesick, and/or (d) hours worked each week during the semester. Scores could possibly range from 0-23.

*Relative Grouping of Students based on Spirituality-Religiosity Index Scores*

Table 34 displays the relative ranking of students based on the two clustered Degree of Spirituality-Religiosity Index Scale. The full scale represents the summative degree of personal convictions about their own spirituality and religiosity based on their responses to survey questions. Scores ranged from 0-26. The higher the score indicates the lower degree of spirituality and/or religious convictions in their beliefs and practices.

The distribution only behaved normally at or above the group mean. Therefore, the Approximate 68% Statistical Rule was only applied to this portion of the distribution. Only the $84^{th}$-$85^{th}$ percentile cut-point was used to identify the two groups of students for this index. Clinically, it is of interest to identify those students with the least amount of spiritual/religious personal convictions. In other words, the group of students with the lowest level of spirituality/religiosity was at or above 2 standard deviations from the group mean (i.e., at or above the $85^{th}$ percentile).

Table 34

Relative grouping of students based on spiritual and religious beliefs and practices

| | | | Group of Students with mid-range degree of reported Spirituality-Religiosity | | | Group of Students with lowest degree of reported Spirituality-Religiosity | | |
|---|---|---|---|---|---|---|---|---|
| | | | 16th - 84th Percentiles * | | | 85th - 100th Percentiles * | | |
| Degree of Spirituality-Religiosity | Range of scales | N | *n* | % of N | Range of scores | *n* | % of N | Range of scores |
| Cluster 1: Degree of Spirituality | 0-12 | 281 | 108 | 38.4 | 1-3 | 50 | 17.8 | 4-12 |
| Cluster 2: Degree of Religiosity | 0-14 | 281 | 148 | 52.7 | 1-4 | 45 | 16.0 | 5-14 |
| Overall Degree of Spirituality-Religiosity Index raw score | 0-26 | 281 | 180 | 64.0 | 1-7 | 48 | 17.1 | 8-26 |
| Overall Degree of Spirituality-Religiosity Index *z* score | -0,846 to +4.339 | 281 | 180 | 64.0 | -0.647 to +0.550 | 48 | 17.1 | +0.749 to +4.339 |

* Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™
Frequencies occurring below the 16th percentile are not being represented in this table
Ranking of students' degree of spiritual and religious beliefs and practices based on frequencies from survey questions.
As scores increase degree of spirituality and/or religiosity decreases.

Table 34 displays the highest scoring group of students (valid $N = 281$; $n = 50$; valid percent = 17.8%). These students scored 4 to 12 in Cluster 1 (range of 0 to 12) which ranks them with the relatively lowest degree of reported spirituality (as measured by Cluster 1 survey questions). The group of students (valid $N = 281$; $n = 45$; valid percent = 16%) whose Cluster 2 scores ranged from 5 to 14 represented the relatively lowest degree of reported religiosity. The highest scoring group of students (valid $N = 281$; $n = 48$; valid percent = 17%) on the full scale (scores ranged from 8 to 26)

represented the relatively lowest degree of overall spirituality and religiosity as measured by the summation of both clusters' survey questions.

The lowest scoring group of students (valid $N$= 281; $n$ = 123; valid percent = 43.8%) which scored zero out of twelve represented the relatively highest degree of reported spirituality as measured by cluster one survey questions (this data was *not* displayed in Table 34). The group of students (valid $N$= 281; $n$ = 88; valid percent = 31.3%) which scored 0 out of 14 represented the relatively highest degree of reported religiosity as measured by Cluster 2 survey questions. The lowest scoring group of students (valid $N$ = 281; $n$ = 53; valid percent = 19%) on the full scale (which scored 0 out of 26) represents the relatively highest degree of overall spirituality and religiosity as measured by the summation of Cluster 1 and Cluster 2 survey questions.

*Relative Grouping of Students based on Academic Performance Index Scores*

The unequal frequency distribution of the Academic Performance Index scores required a similar approach to grouping the student responses that was applied with the Spirituality-Religiosity Index responses. Once again, the distribution behaved normally at or above the group mean. Therefore, the Approximate 68% Statistical Rule was only applied to this portion of the distribution.

See Table 35 to visualize how the 84$^{th}$-85$^{th}$ percentile cut-point was used to identify the two groups of students for this index. Once again, it is of greatest clinical interest to identify those students with the highest amount of assumed risk related to academic performance. The riskiest group of students was located at or above the 85$^{th}$ percentile, and had the poorest self-reported academic performance scores. Forty-three out of 281 students (valid percent = 15.3%) were identified as having the relatively

poorest reported level of academic performance. These students scored 6-15 points out of 15 possible points on the Academic Performance Index Scale.

Table 35

Relative grouping of students based on the Academic Performance Index

| | | | The combined students with highest and mid-range reported levels of academic performance* | | | Students with poorest reported level of academic performance*<br><br>Group with riskiest academic performance | | |
|---|---|---|---|---|---|---|---|---|
| | | | 0 - 84th Percentiles[a] | | | 85th - 100th Percentiles[b] | | |
| Index Score | Range of scale | *N* | *n* | % of *N* | Range of scores | *N* | % of *N* | Range of scores |
| Academic Performance Index raw score | 0-15 | 281 | 238 | 84.7% | 0-5 | 43 | 15.3% | 6-15 |
| Academic Performance Index *z* score | -1.006 to +4.361 | 281 | 238 | 84.7% | -1.006 to +0.783 | 43 | 15.3% | +1.141 to +4.361 |

* Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™.
- Ranking of students' academic performance based on frequencies from survey questions.
- As scores increase academic performance decreases.

The *z*-scores for GWB and the six wellness dimensions are summarized in Table 36. As mentioned earlier, the calculated *z*-scores of the risk index scores and GWB scores will allow for comparative discussion between each of these scales in chapter five.

Table 36

Summary of the relative grouping of students based on their GWB and risk index scores

| Name of Scale | Scales range | $N$ | 0 - 15th Percentiles* $n$ | % of $N$ | Scores range | 16th - 84th Percentiles* $n$ | % of $N$ | Scores range | 85th - 100th Percentiles* $N$ | % of $N$ | Scores range |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Overall_HRB Index $z$-score | -1.985 to +3.028 | 281 | 46 | 16.4 | -1.985 to -1.090 | 192 | 68.3 | -0.999 to +1.059 | 43 | 15.3 | +1.148 to +3.028 |
| Overall MHR Index $z$-score | -1.781 to +3.387 | 281 | 42 | 14.9 | -1.781 to -0.995 | 186 | 66.2 | -0.883 to +0.803 | 53 | 18.9 | +0.915 to +3.387 |
| Overall Spirituality-Religiosity Index $z$-score | -0,846 to +4.339 | 281 | n/a | n/a | n/a | 180 | 64.0 | -0.647 to +0.550 | 48 | 17.1 | +0.749 to +4.339 |
| Academic Performance Index $z$ score | -1.006 to +4.361 | 281 | n/a | n/a | n/a | n/a | n/a | n/a | 43 | 15.3 | +1.141 to +4.361 |
| GWB transformed $z$-scores | -4.065 to +3.802 | 278 | 44 | 15.8 | -4.065 to -0.982 | 190 | 68.4 | -0.933 to +0.885 | 44 | 15.8 | +0.894 to +3.802 |

* Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™.
- Ranking of students based on frequencies of responses from survey questions.

*Group Differences of GWB based on Indexed Independent Variables*

A two sample $t$ test was calculated comparing (a) the mean GWB score of subjects who identified themselves with HRB scores high enough to belong to the riskiest group of students (i.e., HRB scores were between 38-59 and were among the cases at or greater than the 85th percentile of the distribution) to (b) the mean GWB score of the remaining students by combining the lowest and mid-range groups based on reported levels of assumed health risk. No significant difference was found ($t$ (276) = 0.45, $p_{2\text{-tailed}}$ = 0.54). The mean GWB score of the riskiest HRB group (valid $N$ = 42; mean = 15.40, $SD$ =2.75) was not significantly different from the GWB mean of the rest of the students (valid $N$ = 236; mean = 15.63; $SD$ = 3.10).

A two sample *t*-test was then calculated comparing (a) the mean GWB score of subjects who identified themselves with MHR scores high enough to belong to the MHR riskiest group of students (i.e., students whose self-reported MHR scores were among the cases at or greater than the 85$^{th}$ percentile of the MHR distribution) to (b) the mean GWB score of the rest of the students (i.e., the group of students formed by combining the lowest and mid-range groups based on reported levels of assumed mental health risk). A significant difference existed in the mean GWB score between the riskiest MHR group of students when compared to the GWB mean score of the rest of the students ($t$ (276) = 5.09, $p_{2\text{-tailed}} < 0.001$). The mean GWB score of the riskiest MHR group was significantly lower (valid $N = 53$; mean = 13.76, $SD = 2.59$) than the mean GWB score of the rest of the subjects (valid $N = 225$; mean =16.03, $SD = 2.99$).

A two sample *t*-test was calculated comparing (a) the mean GWB score of subjects who identified themselves with Spirituality-Religiosity Risk scores high enough to belong to the riskiest group of students (i.e., students whose self- reported Spirituality-Religiosity Risk scores were at or greater than the 85$^{th}$ percentile of the distribution) to (b) the mean of the rest of the students. No significant difference was found ($t$ (276) = 0.71, $p_{2\text{-tailed}} = 0.48$). The mean GWB score of the riskiest Spirituality-Religiosity group (valid $N = 48$; mean = 15.31, $SD = 2.81$) was not significantly different from the GWB mean of the rest of the students (valid $N = 230$; mean = 15.66, $SD = 3.09$).

Another two sample t-test was calculated comparing (a) the mean GWB score of subjects who identified themselves with Academic Performance Risk scores high enough to belong to the riskiest group of students (i.e., students whose self-reported Academic Performance Risk scores were at or greater than the 85$^{th}$ percentile of the frequency

distribution) to (b) the mean of the rest of the students. A significant difference existed in the GWB mean score between the riskiest Academic Performance group of students when compared to the GWB mean score of the rest of the students ($t$ (276) = 3.35, $p$ = 0.001). The mean GWB score of the riskiest Academic Performance group was significantly lower (valid $N$ = 43; mean = 14.19, $SD$ = 3.23) than the mean GWB score of the rest of the subjects (valid $N$ = 235; mean = 15.86, $SD$ = 2.95).

*Relationships between GWB and Independent Variables*

Pearson correlation coefficients were calculated to examine the relationship between the subjects' composite GWB scores and several independent variables. Table 37 depicts the relationships between the composite GWB scores of students and selected independent variables of this study including (a) age, (b) gender, (c) cultural identity, (d) class standing in college, (e) high school grade point average, (f) place of residence during college, and (g) first generation college student status.

Table 37

Relationships between composite GWB scores and individual independent variables

| Pearson Correlations between GWB scores and individual independent variables | | | |
|---|---|---|---|
| | Valid N | *r* | *p* |
| GWB * Age | 278 | .000 | 0.995 |
| GWB * Gender | 278 | -.112 | 0.063 |
| GWB * Cultural Identity | 278 | -.072 | 0.234 |
| GWB * Number of days/week not feeling rested | 277 | -.154(**) | 0.010 |
| GWB * Relationship Status (not dating, casual dating, committed) | 278 | .032 | 0.591 |
| GWB * Class standing in College (Fresh, Soph, Jr, Sr) | 275 | -.051 | 0.396 |
| GWB * High School Academic Performance (GPA) | 277 | .163(**) | 0.006 |
| GWB * First time living away from family home | 277 | -.006 | 0.922 |
| GWB * Geographic Location of Upbringing (urban vs. rural) | 276 | -.072 | 0.234 |
| GWB * Place of Residence during College (dorms, apts, etc) | 278 | -.028 | 0.643 |
| GWB * First Generation College Student Status | 278 | -.058 | 0.336 |
| GWB * TRIO Eligible College Students | 274 | -.015 | 0.805 |

** Correlations were significant at the 0.01 level (2-tailed)

The number of days per week students reported having awoke not feeling rested was found to have a significant weak negative association with students' GWB scores (valid $N = 277$, $r = -.154$, $p = 0.010$). As the number of reported 'awaking tired' days per week increased, the students' GWB score decreased. The only other independent variable that was found to have a significant weak positive correlation with students' reported GWB scores was earned high school grade point averages (valid $N = 277$, $r = 0.163$, $p = 0.006$). In other words, as students' high school GPA increased, so did their GWB scores.

Pearson correlation coefficients were calculated to examine the relationship between the subjects' composite GWB scores and several more independent variables. The following correlations of independent variables with GWB were not found to be statistically significant (valid $N = 278$): (a) the students' reported family annual income ($r = -0.022$, $p > 0.05$), (b) the students' reported personal annual income ($r = 0.076$, $p > 0.05$), (c) the reported average number of hours the students worked per week during the semester ($r = -0.060$, $p > .05$), and (d) the reported number of college credits enrolled in during the semester ($r = 0.04$, $p > .05$).

Table 38 displays the relationships between the students' composite GWB scores and each of the clusters within the Health Risk Behavior Index, the Mental Health Risk Index, and the Degree of Spirituality-Religiosity Index. Weak significant negative associations were identified between each of the three Mental Health Risk Index clusters (valid $N = 278$): (a) As the degree of depressive symptomology increases, the students' GWB scores decrease ($r = -0.389$, $p < 0.01$ ); (b) As the degree of anxiety related

symptomology increases, the students' GWB scores decrease ($r = -0.380$ , $p < 0.01$); and (c) As the risk for social isolation increases, GWB scores decrease ($r = -0.216$ , $p < 0.01$).

Table 38

Relationships between composite GWB scores and clusters of risk index scores

| Pearson Correlations between GWB scores and clusters of risk index scores | *N* | *r* | *p* |
|---|---|---|---|
| GWB * HRB Cluster 1: Biophysical Health Risk Index Score (includes sleep patterns and BMIs) | 278 | -.114 | .057 |
| GWB * HRB Cluster 2: Drug & Alcohol Health Risk Index Score (includes use of alcohol &/or illicit drugs, binge drinking, & drinking-driving behaviors) | 278 | .022 | .715 |
| GWB * HRB Cluster 3: STD Risk Index Score (includes multiple sex partners & condom use) | 278 | .019 | .758 |
| GWB * HRB Cluster 4: Health risk related to self protection during dangerous sports (includes use of sports gear, helmets, & seatbelts) | 278 | -.095 | .113 |
| GWB * MHR Cluster 1: Degree of depressive symptomology | 278 | -.389(**) | .000 |
| GWB * MHR Cluster 2: Degree of anxiety related symptomology | 278 | -.380(**) | .000 |
| GWB * MHR Cluster 3: Degree of social connectedness with campus | 278 | -.216(**) | .000 |
| GWB * Degree of Spirituality Cluster 1 Index Score | 278 | -.102 | .089 |
| GWB * Degree of Religiosity Cluster 2 | 278 | -.028 | .637 |
| ** Correlations were significant at the 0.01 level (2-tailed) | | | |

Table 39 displays the relationships between the students' composite GWB scores and each of the full scale Risk Indices. The Health Risk Behavior Index scores and the Degree of Spirituality-Religiosity Index scores did not have any statistically significant associations with students' GWB scores. However, the Mental Health Risk Index full scale scores and the Academic Performance full scale scores revealed significant negative associations with students' GWB scores (valid $N$= 251): (a) as the risk for mental health

problems increased, students' GWB scores decreased ($r = -0.474, p < 0.01$); and (b) as the risk for poor academic performance increased, the students' GWB scores decreased ($r = -0.338, p < 0.01$).

Table 39

Relationship between GWB and Full Scale Risk Indices

| Pearson Correlations | | | | | | |
|---|---|---|---|---|---|---|
| | | Health Risk Behavior Index | Mental Health Risk Index | Spirituality-Religiosity Index | Academic Performance Index | PWS Global Wellbeing Score |
| Health Risk Behavior Index | *r* | 1.00 | | | | |
| | *p* | | | | | |
| | *N* | 251 | | | | |
| Mental Health Risk Index | *r* | 0.326(**) | 1.00 | | | |
| | *p* | 0.000 | | | | |
| | *N* | 251 | 251 | | | |
| Spirituality-Religiosity Index | *r* | -0.041 | -0.112 | 1.00 | | |
| | *p* | 0.514 | 0.077 | | | |
| | *N* | 251 | 251 | 251 | | |
| Academic Performance Index | *r* | 0.425(**) | 0.625(**) | -0.068 | 1.00 | |
| | *p* | 0.000 | 0.000 | 0.280 | | |
| | *N* | 251 | 251 | 251 | 251 | |
| Composite Global Wellbeing Score | *r* | -0.097 | -0.474(**) | -0.029 | -0.338(**) | 1.00 |
| | *p* | 0.126 | 0.000 | 0.643 | 0.000 | |
| | *N* | 251 | 251 | 251 | 251 | 251 |

** Correlations were significant at the 0.01 level (2-tailed)

*Exploring the Relationships among the Six Dimensions of GWB*

The relationships among the six wellness dimensions were explored. These dimensions included the (a) physical, (b) social, (c) emotional, (d) psychological, (e) intellectual, and (f) spiritual dimensions of wellness. These identified relationships extended the process of explicating global wellbeing as a construct within the traditional college student population.

Pearson correlation coefficients were calculated with the six dimensional subscales of the Perceived Wellness Survey (PWS) to determine if the dimensions were

unrelated or interrelated. A moderate to strong positive correlation existed between all of the dimensions (*r*'s ranged from 0.471 to 0.743) All correlations were significant at the 0.01 level (2-tailed).). Refer to Table 40 for the details.

Table 40

Relationships between the six dimensional subscales of the Perceived Wellness Survey

| Pearson Correlations between the 6 dimensions of wellness of the PWS* | | | | | | | |
|---|---|---|---|---|---|---|---|
| Subscale | | PSYCHO-LOGICAL | EMO-TIONAL | SOCIAL | PHYS-ICAL | SPIRIT-UAL | INTELL-ECTUAL |
| PSYCHOL-OGICAL | *r* | 1.00 | | | | | |
| | *p* | | | | | | |
| | *N* | 271 | | | | | |
| EMO-TIONAL | *r* | 0.680(**) | 1.00 | | | | |
| | *p* | 0.000 | | | | | |
| | *N* | 271 | 278 | | | | |
| SOCIAL | *r* | 0.617(**) | 0.695(**) | 1.00 | | | |
| | *p* | 0.000 | 0.000 | | | | |
| | *N* | 271 | 278 | 278 | | | |
| PHYS-ICAL | *r* | 0.471(**) | 0.590(**) | 0.529(**) | 1.00 | | |
| | *p* | 0.000 | 0.000 | 0.000 | | | |
| | *N* | 271 | 278 | 278 | 278 | | |
| SPIRIT-UAL | *r* | 0.735(**) | 0.743(**) | 0.728(**) | 0.516(**) | 1.00 | |
| | *p* | 0.000 | 0.000 | 0.000 | 0.000 | | |
| | *N* | 271 | 278 | 278 | 278 | 278 | |
| INTELLEC-TUAL | *r* | 0.520(**) | 0.696(**) | 0.611(**) | 0.576(**) | 0.701(**) | 1.00 |
| | *p* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |
| | *N* | 271 | 278 | 278 | 278 | 278 | 278 |

* PWS is the acronym for Perceived Wellness Survey (Adams, et al., 1997)
**Correlations were significant at the 0.01 level (2-tailed).

Pearson correlation coefficients were calculated with the composite GWB score from the PWS with the six dimensional subscales of this instrument to determine if the Composite GWB scores were related to any of the six dimensional subscales.

Table 41 demonstrates a moderate to strong positive correlation between all of the dimensions and the composite GWB score. A moderate to strong positive correlation existed between each of the dimensions and GWB (*r* ranged from 0.563 to 0.736). All correlations were significant at the 0.01 level (2-tailed).).

Table 41

Relationship between the Composite GWB scores and dimensional subscale scores

| Pearson Correlations between GWB and the 6 dimensions of wellness | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| GWB * Physical dimension of wellness | 278 | 0.635(**) | 0.000 |
| GWB * Social dimension of wellness | 278 | 0.563(**) | 0.000 |
| GWB * Emotional dimension of wellness | 278 | 0.736(**) | 0.000 |
| GWB * Psychological dimension of wellness | 271 | 0.664(**) | 0.000 |
| GWB * Intellectual dimension of wellness | 278 | 0.702(**) | 0.000 |
| GWB * Spiritual dimension of wellness | 278 | 0.657(**) | 0.000 |
| ** Correlations were significant at the 0.01 level (2-tailed) | | | |

*Summary of Statistical Findings for Aim 1*

The construct of GWB in the randomized sample of traditional college students was operationalized using the PWS (Adams et al., 1997). Subjects were placed into relative (a) low, (b) middle, and (c) high scoring groups based on their self-reported full scale PWS responses. The same grouping process was used for each of the six dimensional wellness subscale scores, as well.

Relatively highest scoring, mid-range scoring, and lowest scoring groups were established based on the Approximate 68% Rule for normally distributed samples in statistics (Pyrczek, 2002). Cut points were identified utilizing the $15^{th}$—$16^{th}$ percentiles and the $84^{th}$—$85^{th}$ percentiles.

The full scale (composite) GWB mean scores were compared in an effort to identify statistically significant group differences in GWB based on each of the twenty-one independent variables in this study. There was only one statistically significant group difference in composite GWB mean scores found when conducting ANOVAs with the study's twenty-one independent variables. The author realizes that because of the number

of independent variables studied, this result could have occurred just by chance (Hazard-Munro, 2001)

The one-way ANOVA analysis revealed that the mean composite GWB score was significantly different among traditional college students based on how many miles away from the campus their family home was located ($F$ (5,271) = 2.94, $p$ = 0.013). The post hoc test identified students whose parents lived 181-360 miles from campus had higher mean composite GWB scores (mean composite GWB score = 16.341, SD = 3.233) than those students whose parents lived less than sixty miles from campus (mean composite GWB score = 14.335, $SD$ = 2.724). The mean difference of -2.006 was statistically significant with an *alpha* = 0.011.

Pearson correlation coefficients were calculated between GWB scores and each of the twenty-one independent variables. A weak positive association ($r$ = 0.163) between GWB and students' high school grade point average was found to be statistically significant ($p$ = 0.006). A weak negative association ($r$ = -0.154) was identified between the number of days per week students feel 'not rested' and their self-reported GWB scores ($p$ = 0.01).

The independent variables were then grouped to create four index scales to measure risk assumed by each student in the study. The same grouping process used with the GWB scores [i.e., applying the Approximate 68% Rule (Pyrczek, 2002)] to set cut points at the $15^{th}$—$16^{th}$ percentiles and the $84^{th}$—$85^{th}$ percentiles created groups with relatively low risk, mid-range risk, and high risk in the following indices: (a) Health Risk Behavior Index, (b) Mental Health Risk Index, (c) Spirituality-Religiosity Index, and (d) Academic Performance Risk Index.

The PI calculated *z*-scores for each of the risk indices and the GWB scores. This action was taken to allow for comparative discussion between the results of the various scales used in this study. This discussion will be presented in chapter five.

Two sample *t*-tests were computed to compare the mean GWB scores between (a) the riskiest groups of subjects (i.e., students whose self-reported indexed risk scores were among the cases at or greater than the 85$^{th}$ percentile of the distribution) and (b) the mean GWB scores of the rest of the subjects. A significant difference existed in the mean GWB scores between the riskiest MHR group of students ($t$ (276) = 5.093, $p_{2\text{-tailed}} < 0.001$) and the Academic Performance group of students ($t$ (276) = 3.349, $p_{2\text{-tailed}} = 0.001$) when compared to the GWB mean score of the rest of the students.

Pearson correlation coefficients were calculated to evaluate the associations between each of the risk indices with GWB. The Mental Health Risk Index full scale scores ($r$ = -0.474, $p < 0.01$) and the Academic Performance Index scores ($r$ = -0.338, $p < 0.01$) had statistically significant negative correlations with the GWB scores of students.

A statistically significant moderate to strong positive correlation was found between each of the wellness dimensions and GWB. The associations were: (a) the physical dimension and GWB $r = 0.635$, $p < 0.01$, (b) the social dimension and GWB $r = 0.563$, $p < 0.01$, (c) the emotional dimension and GWB $r = 0.736$, $p < 0.01$, (d) the psychological dimension and GWB $r = 0.664$, $p < 0.01$ (e) the intellectual dimension and GWB $r = 0.702$, $p < 0.01$, and (f) spiritual and GWB $r = 0.657$, $p < 0.01$. A moderate to strong positive correlation was found to exist between all of the wellness dimensions ($r$ ranged from 0.471 to 0.743). These correlations were significant at the 0.01 level.

*Aim 2: Determine if GWB is a Strictly Positive Construct*

The second aim of this study was to determine if GWB was perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students. This entailed testing a portion of the theoretical framework of this study. According to Adams, GWB can only be a positively assigned value on a unidirectional continuum (personal communication, April 3, 2007). This analysis was implemented in two steps utilizing the Arizona Integrative Outcomes Scale (AIOS) (Bell et al., 2004) and the Perceived Wellness Survey (PWS) (Adams et al., 1997).

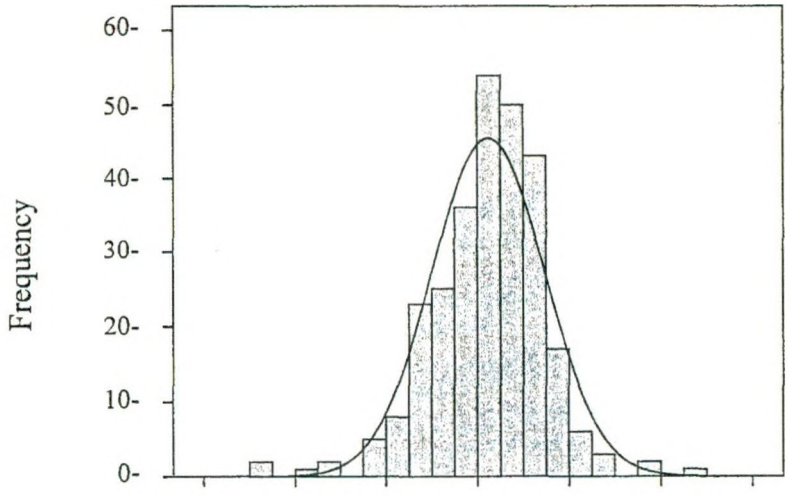
The first step of this aim was to measure the perceived GWB of students by utilizing the 100 mm visual analog scale of the AIOS. Students placed an 'X' at the point of the horizontally displayed line (Bell et al., 2004) embedded within the customized survey. This 'X' served to summarize their 'overall sense of wellbeing for the past month'. Each student's mark on the 100mm line was measured with a ruler. This measurement (in mm) became their GWB score as determined by the AIOS scale ($AIOS_{GWB}$).

The second step taken to determine if GWB was perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students was to correlate the students' overall Perceived Wellness Survey score (Adams et al., 1997) with their AIOS visual analog scale score (Bell et al., 2004). The intentional structural characteristic of Bell's AIOS scale (et al., 2004) (i.e., the omission of a negative and/or positive assignment of global wellbeing in the AIOS) provided the basis for investigating the contested portion of the theoretical framework in this study (Adams, 2007).

Figure 2 demonstrates the distribution of the full scale GWB scores derived from the Perceived Wellness Survey [PWS] (Adams et al., 1997) compared to a theoretical normal distribution. It is reasonable to assume that the distribution of the full scale GWB followed a normal distribution. This distribution had a mean of 15.6, a median of 15.79, and a standard deviation of 3.048 (valid $N = 278$).

Figure 2

Frequency histogram of GWB measured by Perceived Wellness Survey*

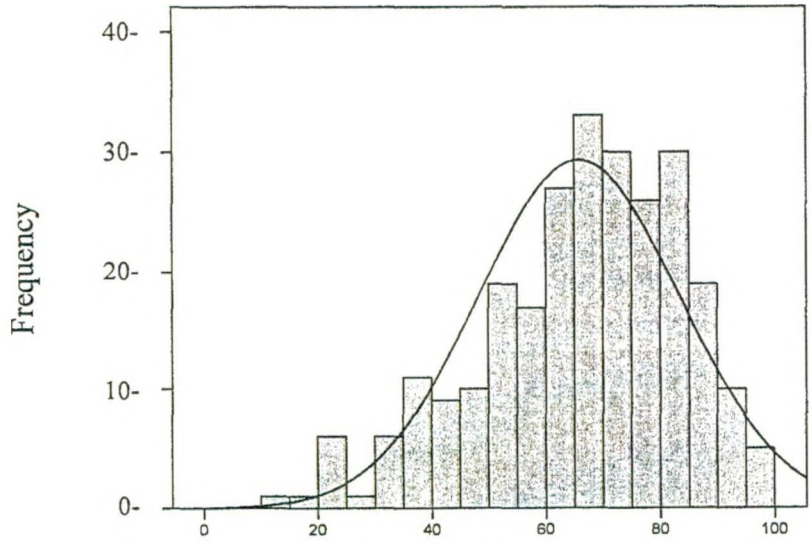



*Mean = 15.6; SD = 3.048; Valid $N$= 278

Figure 3 demonstrates the distribution the GWB scores as measured by the Arizona Integrated Outcomes Scale [AIOS] (Bell et al., 2004) compared to a theoretical normal distribution. It is reasonable to assume that the distribution of the AIOS scale followed a normal distribution. This distribution had a mean of 65.85, a median of 68.0, and a standard deviation of 17.74 (Valid $N$= 261).

Figure 3

Frequency histogram of GWB measured by Arizona Integrated Outcomes Scale*




*Mean = 65.85; SD = 17.743; valid *N*= 261

Pearson correlation coefficients were computed to evaluate the relationship between GWB as measured by the PWS (*N*= 278) and GWB as measured by AIOS (*N*= 261). These two measures of GWB had a statistically significant moderate positive correlation ($r = 0.478, p = 0.01$).

*Variability of the PWS Scores versus AIOS Scores Measuring GWB*

A coefficient of variation (CV) was calculated to measure the relative variation between these two sets of GWB measurement observations. The formula used was $CV_{(dataset\ 1)} = SD_{(dataset\ 1)} / mean_{(dataset\ 1)} \times 100\%$ (Pagano & Gauvreau, 2000). Whereas, CV stands for the coefficient of variation of the respective dataset, and SD stands for the standard deviation of the respective dataset. Therefore, the variability of the Perceived Wellness Survey GWB measurement was 19.6% ($CV_{(PWS\text{-}GWB)} = 3.048/15.59 \times 100\% = 19.6\%$). While, the variability of the Arizona Integrated Outcomes Scale GWB

measurement was 27% ($CV_{(AIOS\text{-}GWB)}$ = 17.743/65.85 X 100% = 27%). In other words, there was a greater degree of variability in the AIOS scale measurement of GWB than there was in the PWS scale measurement of GWB.

Figure 4

Scatter Plot demonstrating the variability of the PWS and AIOS measures of GWB

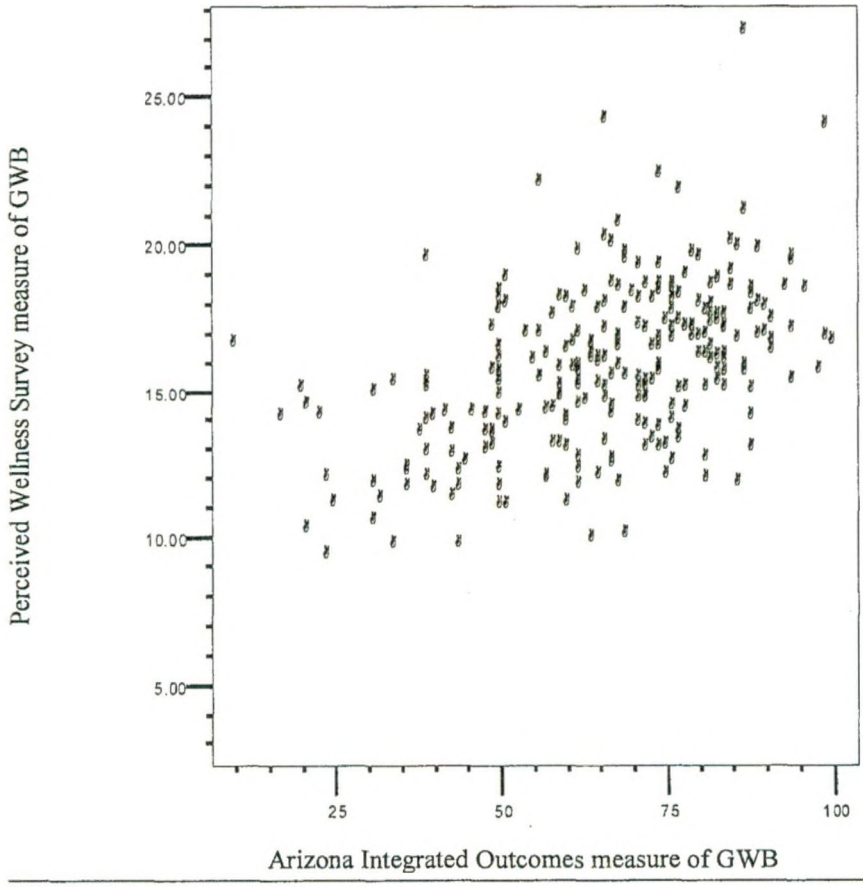



Figure 4 displays a scatter plot of the 261 cases that had both the PWS global wellbeing value, as well as an AIOS global wellbeing value. This figure provides a visual demonstration that case-by-case, there was more variability horizontally (i.e., within the AIOS measure of GWB) than there was vertically (i.e., within the PWS measure of

GWB). The scatter plot also displays the positive correlation between these two measures of GWB.

Table 42 displays the relationship between Bell and colleagues' AIOS wellness scale (2004) and the six dimensions of Adam's Perceived Wellness Survey (et al., 1997). All six of the PWS dimensional scores demonstrated a statistically significant weak to moderate positive association with the AIOS global wellbeing score ($r$'s range from 0.275 to 0.476 with each $p < 0.01$).

Table 42

Relationship between the Arizona Integrated Outcomes Scale and GWB

| Pearson Correlations between AIOS and GWB's 6 dimensions | | |
|---|---|---|
| | *r* | *p* |
| AIOS * GWB's Physical dimension of wellness | 0.329** | 0.000 |
| AIOS * GWB's Social dimension of wellness | 0.275** | 0.000 |
| AIOS * GWB's Emotional dimension of wellness | 0.476** | 0.000 |
| AIOS * GWB's Psychological dimension of wellness | 0.464** | 0.000 |
| AIOS * GWB's Intellectual dimension of wellness | 0.432** | 0.000 |
| AIOS * GWB's Spiritual dimension of wellness | 0.419** | 0.000 |

*N*= 261

** Correlations were significant at the 0.01 level (2-tailed)

*Relative Grouping of Students Based on their PWS vs. AIOS Scores*

As mentioned earlier in this chapter, the relative low-middle-high grouping process of the students' reported perceived wellness (i.e., GWB) scores was based on the Approximate 68% Statistical Rule. This rule supports the notion that 68% of the cases of a normally distributed sample are located within one standard deviation unit in both directions from the mean.

To review this grouping process, the frequencies of the PWS scores and the AIOS scores were reviewed and determined to be normally distributed. Frequencies were then

organized in an ascending order. Cut points were identified utilizing the 15th, 16th, 84th, and 85th percentiles in SPSS™. Table 43 compares the grouping of students' perceived sense of GWB interpreted from their self-reported PWS scores (Adams et al., 1997) and their self-reported AIOS scores (Bell et al., 2004).

Table 43

Comparison of GWB scores and grouping of students between the AIOS and the PWS

| | | | Students with lowest reported level of wellness | | | Students with mid-range reported level of wellness | | | Students with highest reported level of wellness | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0 – 15th Percentiles+ | | | 16th - 84th Percentiles+ | | | 85th – 100th Percentiles+ | | |
| GWB measured by the: | Range of scales | *N* | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores |
| AIOS* | 0-100 | 261 | 40 | 15.3 | 10 to 48 | 180 | 68.9 | 49 to 83 | 41 | 15.7 | 84 to 100 |
| AIOS scores trans-formed into *z*-scores | -3.15 to +1.92 | 261 | 40 | 15.3 | -3.15 to -1.01 | 180 | 68.9 | -0.95 to +0.97 | 41 | 15.7 | +1.02 to +1.92 |
| PWS** | 3-29 | 278 | 44 | 15.8 | 3.2 to 12.75 | 190 | 68.4 | 12.76-18.29 | 44 | 15.8 | 18.30 to 27.19 |
| PWS scores trans-formed into *z*-scores | -4.065 to +3.802 | 278 | 44 | 15.8 | -4.065 to -0.982 | 190 | 68.4 | -0.933 to +0.885 | 44 | 15.8 | +0.894 to +3.802 |

* Interpreted from self-reported score as marked on the Bell (et al., 2004) Arizona Integrated Outcomes Scale (AIOS)

**Interpreted from self-reported full scale wellness scores derived from Troy Adam's (1997) Perceived Wellness Survey (PWS)

\+ Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™

The students with the relatively lowest sense of overall wellness as measured by the PWS had scores ranging from 3.2 to 12.75 out of a possible of 29 points (PWS *z*-scores ranging from -4.065 to -0.982) Students with the relatively lowest sense of overall

wellness as measured by the AIOS had scores ranging from 0 to 48 (AIOS *z*-scores ranging from -3.15 to -1.01). The lowest scoring wellness group as measured by the PWS coincided with the lowest scoring wellness group as measured by the AIOS. The scores of the lowest group as measured by the AIOS were 0 through 48mm. The lowest scoring AIOS wellness group (0-48mm) corresponded with the section of the AIOS line considered to be the negative end of the bidirectional wellness continuum (between zero and 49 out of a possible 100 mm).

*Group Differences of AIOS-measured GWB based on Indexed Independent Variables*

A two sample *t*-test was calculated comparing the mean AIOS-measured GWB ($AIOS_{GWB}$) score of subjects belonging to the riskiest HRB group to the rest of the students in the study. No significant difference was found ($t$ (259) = .089, $p$ = .929). The mean $AIOS_{GWB}$ score of the riskiest HRB group (valid $N$ = 40; mean = 65.63, $SD$ = 19.384) was not significantly different from the $AIOS_{GWB}$ mean of the rest of the students (valid $N$ = 221; mean = 65.90, $SD$ = 17.476,).

A two sample *t*-test was then calculated comparing the mean $AIOS_{GWB}$ score of subjects who identified themselves as the riskiest group of students with regards to their MHR scores to the rest of the students. This time a significant difference did exist in the mean $AIOS_{GWB}$ score between the riskiest MHR group of students when compared to the mean $AIOS_{GWB}$ score of the rest of the students ($t$ (259) = 4.540, $p < 0.001$). The mean $AIOS_{GWB}$ score of the riskiest MHR group was significantly lower (valid $N$ = 51; mean = 56.10; $SD$ = 20.175) than the mean $AIOS_{GWB}$ score of the rest of the subjects (valid $N$ = 210; mean = 68.22, $SD$ = 16.290).

A two sample *t*-test was calculated comparing the mean $AIOS_{GWB}$ score of subjects who identified themselves as the riskiest group of students with regards to their Spirituality-Religiosity Risk scores to the mean $AIOS_{GWB}$ score of the rest of the students. No significant difference was found ($t$ (259) = -1.850, $p$ = 0.065). The mean $AIOS_{GWB}$ score of the students who were in the riskiest group related to their Spirituality-Religiosity responses (valid $N$ = 47; mean = 70.17; $SD$ = 16.929) was not significantly different from the mean $AIOS_{GWB}$ of the rest of the students (valid $N$ = 214; mean = 64.91, $SD$ = 17.815).

Another two sample *t*-test was calculated comparing the mean $AIOS_{GWB}$ score of subjects who identified themselves as the riskiest group of students with regards to their Academic Performance Risk scores to the rest of the students in the study. No significant difference was found ($t$ (259) = 1.893, $p$ = 0.059). The mean $AIOS_{GWB}$ score of the riskiest Academic Performance group (valid $N$ = 38; mean = 60.84, $SD$ = 20.282) was not significantly different from the mean $AIOS_{GWB}$ of the rest of the students (mean = 66.71, $SD$ 17.178, Valid $N$ = 223).

*Assessing Scale Congruence between AIOS-measured GWB and PWS-measured GWB*

As was indicated at the opening of this section, the second aim of this study was to determine if GWB was perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students. In order to fully respond to this query, it was necessary to assess if the two tools used to quantify GWB (a) were measuring the same construct, and (b) generated compatible results. Did both scales adequately and consistently identify the students with the lowest sense of perceived GWB?

In order to address these issues, the PI first selected only the 40 cases that made up the lowest scoring GWB group measured by the AIOS. Then, descriptive statistics were analyzed with this subset of data to evaluate how the GWB scores, as measured by the PWS fit with the lowest scoring $AIOS_{GWB}$ subset results. Furthermore, the PI ascertained how the GWB scores, as measured by the AIOS fit with the lowest scoring $PWS_{GWB}$ subset results. In other words, did both of these scales designed to measure perceived GWB consistently identify the students with the lowest GWB scores?

When only looking at the 40 cases that made up the lowest scoring group of students based on their $AIOS_{GWB}$ scores, (valid $n = 40$; range = 10mm through 48mm), the $PWS_{GWB}$ scores (valid $n = 40$; range = 9.33 through 19.48) did not completely correspond with the lowest $PWS_{GWB}$ group value ranges obtained from the entire dataset analysis: valid $N_{AIOS} = 261$; range = 10mm through 48 mm compared to valid $N_{PWS} = 278$; range = 3.2 through 12.75. Review Table 43 for details.

The PI then reversed the case selection process. In other words, only the cases that made up the lowest scoring group of students based on their $PWS_{GWB}$ scores were selected (valid $n = 44$; range = 3.2 through 12.60). The $AIOS_{GWB}$ scores, when only looking at this subset (valid $n = 39$; range = 21mm through 86mm) did not correspond with the lowest $AIOS_{GWB}$ group value ranges obtained from the entire dataset analysis: valid $N_{PWS} = 278$; range = 3.2 through 12.60 compared to valid $N_{AIOS} = 261$; range = 10mm through 48 mm (review Table 43 for details).

The next set of subset comparisons combined the mid-range group and highest scoring group of students based on their $AIOS_{GWB}$ and $PWS_{GWB}$ scores. This analysis was also derived from Table 43. The decision to create two comparison groups out of the

original three GWB groups was driven by the purpose of aim two. This purpose was to test this study's theoretical framework assumption that GWB can only be perceived as a positive construct (T. Adams, personal communication, April 3, 2007).

The lowest scoring $AIOS_{GWB}$ group had a range of 10mm through 48mm. This range coincided with the implied midpoint of the 100mm AIOS scale (i.e., 50mm). According to the authors of the AIOS, this midpoint implicitly denotes the positive/negative intersecting point of the scale (I. R. Bell, personal communication, March 28, 2007). Therefore two groups based on this information captured this implicit positive/negative intersecting point of the AIOS.

When only looking at the cases within the mid-range and high scoring groups of students based on their $AIOS_{GWB}$ scores, (valid $n = 221$; range = 49mm through 100mm), the $PWS_{GWB}$ scores (valid $n = 221$; range = 9.81 through 27.19) did not completely correspond with the combined (mid-range and high scoring) $PWS_{GWB}$ group ranges obtained from the entire dataset analysis: valid $N_{AIOS} = 261$; range = 49mm through 100 mm compared to valid $N_{PWS} = 278$; range = 12.76 through 27.19,

The PI then reversed the case selection process. In other words, only the cases that made up the combined mid-range and high scoring group of students based on their $PWS_{GWB}$ scores were selected (valid $n = 234$; range = 12.76 through 27.19). The $AIOS_{GWB}$ scores, when only looking at this subset (valid $n = 222$; range = 10mm through 100mm) did not correspond with the combined mid-range and high scoring $AIOS_{GWB}$ group value ranges obtained when looking at the entire dataset analysis: valid $N_{PWS} = 278$; range = 12.76 through 27.19 compared to valid $N_{AIOS} = 261$; range = 49mm through 100mm (review Table 43 for details).

*Summary of Statistical Findings for Aim 2*

The negatively and positively worded endpoints that serve as the anchors for the implied bi-directional AIOS visual analog scale provided the basis for investigating the contested portion of the theoretical framework in this study. The omission of an overt negative and/or positive assignment of global wellbeing in the AIOS scale (Bell et al., 2004) provided data to test Dr. Adams' assertion that GWB can only be a positively assigned value on a unidirectional continuum (T. Adams, personal communication, April 3, 2007).

Self-reported GWB as measured by the PWS was found to be significantly correlated to self-reported GWB as measured by the AIOS. Each of the six dimensional measures of wellness within the PWS was also found to be significantly correlated to the self-reported GWB as measured by the AIOS. However, the AIOS scores demonstrated more variability than the PWS scores did.

The number of cases within the lowest scoring wellness group as measured by the PWS (valid $n = 44$) coincided with the number of cases within the lowest scoring wellness group as measured by the AIOS (valid $n = 40$). The scores of the lowest group as measured by the AIOS were 0 through 48mm. Those AIOS scores (0-48) of the lowest scoring group of students corresponded with the portion of the AIOS visual analog scale considered to represent the negative end of this bidirectional wellness continuum.

Two sample *t*-tests were conducted to compare the mean $AIOS_{GWB}$ scores between the riskiest group of subjects (i.e., students whose self-reported indexed risk scores were among the cases at or greater than the 85$^{th}$ percentile of the distribution) and the mean $AIOS_{GWB}$ scores of the rest of the subjects. The only significant difference

found was between the mean $AIOS_{GWB}$ score of the riskiest MHR group of students ($t$ (259) = 4.540, $p_2 < 0.001$) when compared to the mean $AIOS_{GWB}$ score of the rest of the students.

It was noted that the mean $AIOS_{GWB}$ scores of the riskiest group of subjects (i.e., students whose self-reported indexed risk scores were among the cases at or greater than the 85$^{th}$ percentile of the distribution) were not below the midpoint of the AIOS visual analog scale. The mean $AIOS_{GWB}$ score for the (a) HRB riskiest group mean = 65.63 ($SD$ = 19.384); (b) MHR riskiest group mean = 56.10 ($SD$ = 20.175); (c) Spirituality-Religiosity riskiest group mean = 70.17 ($SD$ = 16.929); and (d) Academic Performance riskiest group mean = 60.84 ($SD$ = 20.282).

The lowest scoring $AIOS_{GWB}$ group, based on the 68% Statistical Rule, had a range of scores (10mm-48mm) that coincided with the implied negative portion of the 100mm AIOS scale (i.e., less than 50mm). This finding lent some support to the proposition that GWB was a bidirectional construct (i.e., both a positive and/or negative perception).

Further analyses of the AIOS and the PWS revealed inconsistencies when looking first at the (a) riskiest groups, and then at the (b) combined mid-range and high scoring groups. There were subset GWB ranges that did not coincide with the full data set GWB ranges. These incongruencies were noted in the AIOS, as well as the PWS. These ambiguous findings suggest these two instruments used to quantify GWB did not measure the same construct.

*Aim 3: Explicate and Measure Student Adjustment to College*

The third aim was to explicate and measure the construct of student adjustment to college in 18-24 year old college students. This was done by administering the Student Adaptation to College Questionnaire [SACQ] (Baker & Siryk, 1999).

*Further Elimination of Cases Based on Completeness of SACQ Surveys*

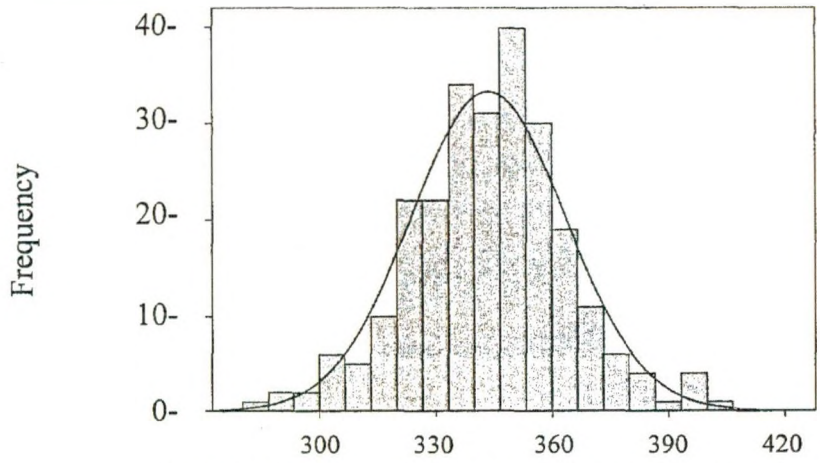
As described at the beginning of this chapter, twenty cases (7%) of the 301 original surveys were eliminated based on the original inclusion/exclusion criteria of the study. This resulted in a working dataset of 281 usable surveys for analysis of the first two aims of this study.

However, the last portion of the customized survey (containing the SACQ) had a significant number of cases with varying degrees of incomplete responses. These cases were evaluated, adjusted, and/or eliminated per instructions within the user manual created by Baker and Siryk (1989). Thirty more cases were removed (on top of the 20 cases eliminated prior to starting data analysis). In all, 50 cases, i.e., 17% of the original 301 surveys were eliminated. These actions resulted in an adjusted final data set consisting of 251 usable cases for the analysis of the third aim of this study.

This adjusted data set (valid $N = 251$) was screened again for any omissions and outliers. Then, the data were evaluated for the fulfillment of the test assumptions which addressed the issues of linearity, homoscedasticity, and normality. See Figure 5.

Figure 5

Frequency Histogram of SACQ Full Scale*




*$N$ = 251; Mean = 343.67; Median = 345.0; SD = 20.06

*Description and Components of the SACQ*

The SACQ was a copyrighted tool which contained 67 statements pertaining to various facets of the students' experience in adjusting to college and campus life. The survey was not reprinted in its entirety per usage permit purchased by the PI. The SACQ was scored on a 9-point rating scale ranging from 'applies very closely to me' to 'does not apply to me at all.' Negatively worded statements were reverse scored (Estrada, Dupoux, & Wolman, 2006).

Baker and Siryk (1999) developed the SACQ based on the belief that adjustment to college is multifaceted and requires varying kinds of expectations and coping responses that may fluctuate in effectiveness. According to the authors, the higher the SACQ score, the better adjusted the student was to the college environment. The SACQ used a multidimensional and perceptual approach to measuring student adjustment to the college environment. The full scale scores of the SACQ ranged from 67 to 607. The

SACQ addressed four aspects of student adjustment including (a) academic adjustment, (b) personal-emotional adjustment, (c) social adjustment, and (d) goal commitment/ attachment to the institution.

Table 44

Example of statements used to create 'academic adjustment to college subscale of SACQ

| Range of Subscale | Student Adaptation to College Questionnaire—Full Scale* |
|---|---|
| 1-216 | Academic Adjustment Subscale** |
| 1-54 | Cluster 1: Motivation (6 questions)<br>I know why I'm in college and what I want out of it.<br>My academic goals and purposes are well defined. |
| 1-36 | Cluster 2: Application (4 questions)<br>I have been keeping up to date with my academic work<br>I am attending classes regularly |
| 1-81 | Cluster 3: Performance (9 questions)<br>I am satisfied with the level at which I am performing academically<br>I enjoy writing papers for courses |
| 1-45 | Cluster 4: Academic Environment (5 questions)<br>I am satisfied with the number and variety of courses available at college<br>I am satisfied with the quality of courses available at college |

* See copyrighted SACQ survey to review all of the questions and complete wording of each question (Baker & Siryk, 1989)

**The higher the item raw score, the better the self-evaluated adjustment to college

Table 44 provides examples of the 24 survey questions used to create the four clusters that made up the 'academic adjustment to college' subscale of the SACQ. This subscale "measured student success in coping with the various educational demands characteristic of the college experience" (Baker & Siryk, 1999, p. 14). The four clusters within this subscale included (a) motivation, (b) application, (c) performance, and (d) academic environment.

Table 45 displays an example of the 20 survey questions used to create the four clusters that formed this subscale of the SACQ. The four clusters of this subscale included (a) general, (b) other people, (c) nostalgia, and (d) social environment. The

social adjustment to college subscale "measure[d] student success in coping with the interpersonal and/or societal demands inherent in the college experience" (Baker & Siryk, 1999, p. 15).

Table 45

Example of statements used to create 'social adjustment to college' subscale of SACQ

| Range of Subscale | Student Adaptation to College Questionnaire—Full Scale* |
|---|---|
| 1-198 | Social Adjustment Subscale** |
| 1-63 | Cluster 1: General (7 questions)<br>Is very involved with college social activities<br>Is satisfied with social life |
| 1-63 | Cluster 2: Other People (7 questions)<br>Is meeting people and making friends<br>Has good friends to talk about problems with |
| 1-36 | Cluster 3: Nostalgia (3 questions)<br>Is lonesome for home |
| 1-36 | Cluster 4: Social Environment (3 questions)<br>Is pleased about decision to attend this college |

* See copyrighted SACQ survey to review all of the questions and complete wording of each question (Baker & Siryk, 1989)

**The higher the item raw score, the better the self-evaluated adjustment to college

The personal-emotional adjustment to college subscale "focuse[d] on the intrapsychic state during [students'] adjustment to college, and the degree to which he/she [was] experiencing general psychological distress and any concomitant somatic problems" during the college experience" (Baker & Siryk, 1999, p. 15). Table 46 exhibits examples of the 15 survey questions used to create the two clusters that made up this subscale of the SACQ. The two clusters of this subscale included psychological and physical.

Table 46

Example statements used in 'personal-emotional adjustment to college' SACQ subscale

| Range of Subscale | Student Adaptation to College Questionnaire—Full Scale* |
|---|---|
| 1-135 | Personal-Emotional Adjustment Subscale** |
| 1-81 | Cluster 1: Psychological (9 questions)<br>Sometimes thinking gets muddled too easily<br>Being independent has not been easy |
| 1-54 | Cluster 2: Physical (6 questions)<br>Appetite is good<br>Feels in good health |

* See copyrighted SACQ survey to review all of the questions and complete wording of each question (Baker & Siryk, 1989)

**The higher the item raw score, the better the self-evaluated adjustment to college

The 'commitment and institutional attachment adjustment to college' subscale was "designed to measure [the] degree of commitment to educational-institutional goals and degree of attachment to the particular institution the student attended, especially the quality of the relationship or bond that [was] established between the student and the institution" (Baker & Siryk, 1999, p. 15).

Table 47

Example of statements used in 'commitment and institutional attachment adjustment to college' SACQ subscale

| Range of Subscale | Student Adaptation to College Questionnaire—Full Scale* |
|---|---|
| 1-63 | Commitment and Institutional Attachment** |
| 1-27 | Cluster 1: general (3 questions)<br>Is pleased with decision to go to college |
| 1-36 | Cluster 2: this college (4 questions)<br>Is pleased about attending this college<br>Expects to finish bachelor's degree |

* See copyrighted SACQ survey to review all of the questions and complete wording of each question (Baker & Siryk, 1989)

**The higher the item raw score, the better the self-evaluated adjustment to college

Table 47 shows examples of the seven survey questions used to create the two clusters that made up the 'commitment and institutional attachment adjustment to college subscale of the SACQ. The two clusters of this subscale include general and this college.

Table 48 shows the full scale and subscale z-score measures of central tendencies and distribution characteristics of the SACQ (Baker & Siryk, 1989). It is of interest to note that although the personal-emotional subscale had the greatest range (valid N = 251; mean = -0.0000012; median = -0.0005000; skewness = +0.661; range = 7.04171); the attachment/commitment subscale demonstrated the greatest degree of negative skewness (valid *N* = 251; mean = 0.0000006; median = 0.1523900; Skewness = -0.953; Range = 5.91379). The attachment/commitment subscale had the lowest minimum score (-4.04450), and the lowest maximum score (+1.86929). In contrast, the personal-emotional subscale had the highest minimum score (-2.64114), and the highest maximum score (+4.40057).

Table 48

SACQ full scale and subscales z-score measures of central tendencies

| | Academic Adjustment ZSCORE | Social Adjustment ZSCORE | Personal Emotional Adjustment ZSCORE | Commitment Attachment Adjustment ZSCORE | Full Scale ZSCORE |
|---|---|---|---|---|---|
| Valid *N* | 251 | 251 | 251 | 251 | 251 |
| Mean | -.0000002 | .0000002 | -.0000012 | .0000006 | -.0000005 |
| Median | .0016700 | -.0435000 | -.0005000 | .1523900 | .0663200 |
| Skewness | -.183 | -.278 | .661 | -.953 | .011 |
| Std. Error of Skewness | .154 | .154 | .154 | .154 | .154 |
| Kurtosis | 1.197 | 1.075 | 1.611 | 1.234 | .596 |
| Std. Error of Kurtosis | .306 | .306 | .306 | .306 | .306 |
| Variance | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Range | 6.81416 | 6.70181 | 7.04171 | 5.91379 | 5.78126 |
| Minimum | -3.56266 | -3.71868 | -2.64114 | -4.04450 | -2.87415 |
| Maximum | 3.25150 | 2.98313 | 4.40057 | 1.86929 | 2.90711 |

*Relative Grouping of Students Based on their SACQ scores*

Earlier in this chapter, it was explained how respondents were divided into three groups utilizing the Approximate 68% Rule in statistics (Pyrczek, 2002) based on their GWB scores and their risk index scores. This same process was followed to group respondents into three groups based on how well they were adjusting to their college experience. The mid-range (average adjusted) group of students started at the $15^{th}$ - $16^{th}$ percentile cut point of the frequency distribution and ended at the, $84^{th}$ - $85^{th}$ percentile cut point. These cases represented approximately 68% of the data that fell within one standard deviation on either side of the SACQ mean.

The high end of the lowest group was pre-set for the $15^{th}$ percentile. The lowest scoring 16% of the 251 cases were then placed in the 'lowest scoring group'. If multiple cases scored the same value at the $15^{th}$ percentile, then the PI always erred the in the 'healthier' direction.

The third and final group consisted of the top scoring 16% of the 251 cases that landed at or above the $85^{th}$ percentile. This group represented the highest scoring group of students.

The actual breakdown of the three groups, for this study, representing their full scale SACQ scores is displayed in Table 49. SACQ normative scores are included. Normative SACQ scores were calculated from data collected from U.S. college students ($N = 2,052$) during four academic semesters within the years 1980 and 1984 (Baker & Siryk, 1999).

Table 49

Relative grouping of students based on full scale scores from the SACQ

| Student Adjustment measured by the: | *N* | Students with lowest reported level of adjustment i.e., group with poorest degree of coping 0 – 15th Percentiles+ | | | Students with mid-range reported level of adjustment i.e., group with mid range degree of coping 16th – 84th Percentiles+ | | | Students with highest reported level of adjustment i.e., group with best degree of coping 85th – 100th Percentiles+ | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores | *n* | % of *N* | Range of scores |
| SACQ Normative sample scores | 2052 | -- | -- | 203 to 363 | -- | -- | 364 to 479 | -- | -- | 480 to 566 |
| SACQ* raw scores | 251 | 40 | 15.9 | 286 to 323 | 170 | 67.8 | 324 to 360 | 41 | 16.3 | 361 to 402 |
| SACQ* *z*-scores | 251 | 40 | 15.9 | -2.874 to -1.030 | 170 | 67.8 | -0.980 to +0.814 | 41 | 16.3 | +0.864 to +2.910 |

* As interpreted from students' self-reported full scale SACQ scores

\+ Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™

Full scale raw SACQ scores range from 67 to 603

Full scale SACQ *z*-scores range from -2.874 to +2.910

The bottom 40 students (valid $N = 251$; valid percent = 15.9%) had the lowest full scale SACQ raw scores ranging from 286 to 323. This group of students self-reported the relatively poorest degree of coping with the overall demands of their college experience. These results coincide with the normative findings, as described within the SACQ user manual (Baker & Siryk, 1999). The bottom 16% of the students from the normative sample ($N = 2,052$) reported the poorest degree of coping with the overall demands of their college experience with the normative scores ranging from 203 to 363. The ranges of the bottom 16% of the sample for this study (valid $N = 251$; range of scores = 286-323) fell within the normative full scale SACQ score range (i.e., 203-363; $N = 2,052$).

Table 49 also displays the middle 67.8% of the students (Valid $N = 251$; $n = 170$; raw scores = 324 to 360) self-reported having the mid-range levels of adjustment (i.e., average level of adjustment) with the overall demands of their college experience. The full scale range of the average scoring group of this study started and ended at lower points than the equivocal middle two-thirds of the normative sample (i.e., the 16$^{th}$ through the 84$^{th}$ percentiles; $N = 2,052$). The average normative group self reported full scale SACQ scores ranged from 364 to 479 (Baker & Siryk, 1999).

Table 49 also shows that 41 students in this study (valid $N = 251$; valid percent = 16.3%) self-reported having the highest full scale SACQ scores that ranged from 361 to 402 points (out of a possible of 603 points). This group of students had the relatively best degree of coping with the overall demands of their college experience. The best coping group of students in this study started and ended at lower points than the equivocal top group of the normative sample (i.e., the 85$^{th}$ through the 99$^{th}$ percentiles; $N = 2,052$). The best coping group of students in the normative sample scored SACQ full scale scores that ranged from 480 to 566 (Baker & Siryk, 1999).

The full scale range of SACQ scores of the bottom 16% of the study sample (valid $N = 251$) fell within the normative studies ranges (valid $N = 2,052$). This relationship was depicted in Table 49. The full scale range of SACQ scores of the relatively poorest coping group was 286 to 323. These scores fell within the normative full scale range of the poorest coping group (i.e., valid $N = 2,052$; range = 203-363).

Table 50

Relative grouping of students based on their subscale scores from the SACQ

| Student Adjustment* measured by SACQ Subscale | N | Students with lowest reported level of adjustment i.e., poorest degree of coping 0 – 15th Percentiles** | | | Students with mid-range reported level of adjustment i.e., average degree of coping 16th - 84th Percentiles** | | | Students with highest reported level of adjustment i.e. best degree of coping 85th – 100th Percentiles** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | n | % of N | Range | n | % of N | Range | n | % of N | Range |
| Academic (Normative) | 2052 | -- | -- | 60-121 | -- | -- | 122-171 | -- | -- | 172-207 |
| Academic raw score | 251 | 40 | 15.9 | 89-114 | 172 | 68.5 | 115-131 | 39 | 15.6 | 132-154 |
| Academic *z* score | 251 | 40 | 15.9 | -3.563 to -0.942 | 172 | 68.5 | -0.837 to +0.840 | 39 | 15.6 | +0.945 to +3.252 |
| Social (Normative) | 2052 | -- | -- | 47-102 | -- | -- | 103-152 | -- | -- | 153-175 |
| Social raw score | 251 | 38 | 15.1 | 61-87 | 174 | 69.3 | 88-103 | 39 | 15.6 | 104-123 |
| Social *z* score | 251 | 38 | 15.1 | -3.719 to -0.908 | 174 | 69.3 | -0.800 to +0.821 | 39 | 15.6 | +0.929 to +2.983 |
| Personal-Emotional (Normative) | 2052 | -- | -- | 35-78 | -- | -- | 79-116 | -- | -- | 117-133 |
| Personal-Emotional raw score | 251 | 37 | 14.8 | 50-63 | 173 | 68.9 | 64-78 | 41 | 16.3 | 79-106 |
| Personal-Emotional *z* score | 251 | 37 | 14.8 | -2.641 to -1.006 | 173 | 68.9 | -0.881 to +0.879 | 41 | 16.3 | +1.005 to +4.401 |
| Attachment (Normative) | 2052 | -- | -- | 39-80 | -- | -- | 81-121 | -- | -- | 122-134 |
| Attachment raw score | 251 | 39 | 15.6 | 42-73 | 169 | 67.3 | 74-93 | 43 | 17.1 | 94-104 |
| Attachment *z* score | 251 | 39 | 15.6 | -4.045 to -1.088 | 169 | 67.3 | -0.992 to +0.820 | 43 | 17.1 | +0.915 to +1.869 |

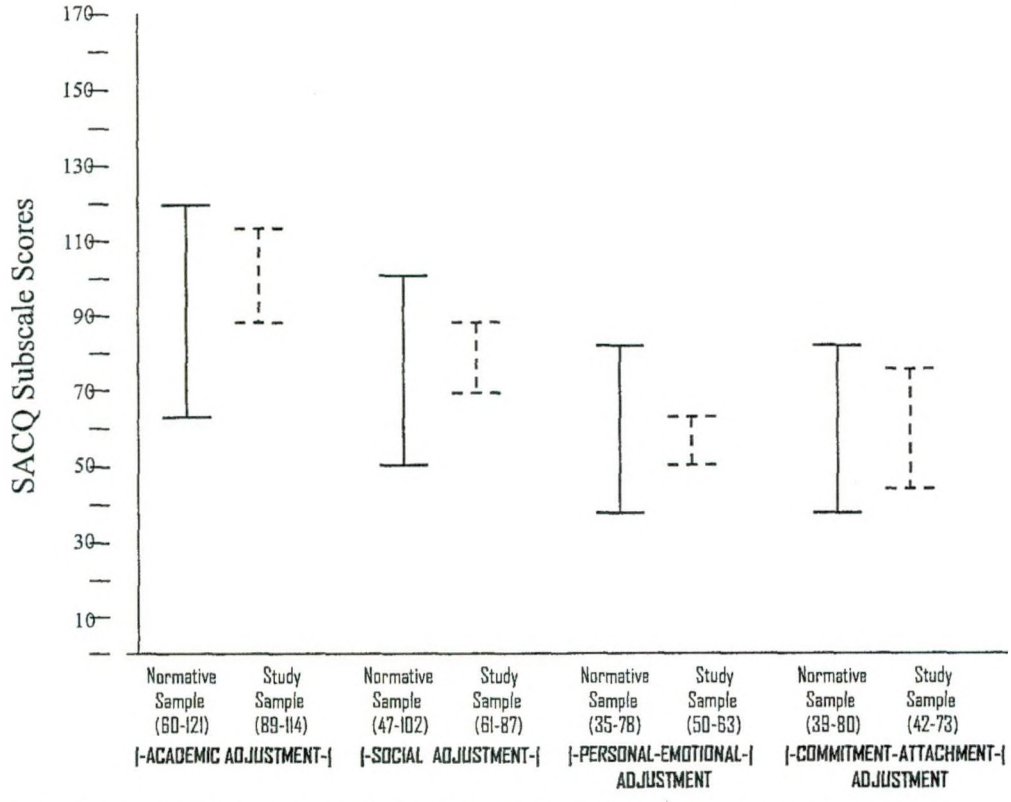
* As interpreted from self-reported subscale SACQ scores of students

**Percentiles are calculated from grouped data based on the frequencies generated from SPSS ™
Academic Adjustment subscale range: 24-216
Social Adjustment subscale range: 20-180
Personal-Emotional subscale range: 15-135
Attachment subscale range: 15-135

Similarly, Table 50 displays the normative subscale scores, as well as the subscale scores obtained in this study. The actual breakdown of the groups of students in this study (valid $N = 251$) based on their SACQ subscale scores (i.e., delineating the groups with the relative lowest degree of coping, the average degree of coping, and the best degree of coping) are also displayed in Table 50. The group SACQ subscale scores of the normative data calculated by Baker and Siryk (1999) are also included.

Figure 6

Comparing range of raw subscale SACQ scores* for groups of students with lowest reported level of adjustment**: scores of normative group vs. scores of this study




* Comparing Subscale Scores of Normative Sample with Scores of this Study

**Group with lowest reported level of adjustment (i.e. group with poorest degree of coping with demands of college) were at or below the 15th percentile of sample frequencies

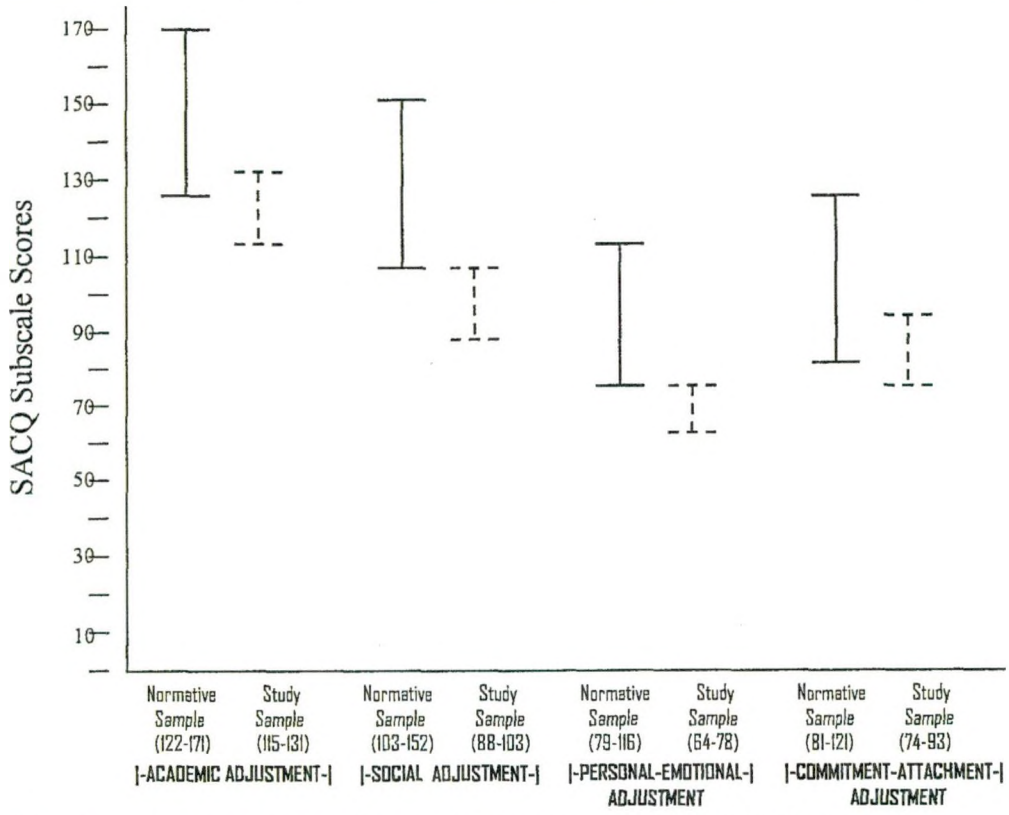
Figure 6 provides a visual expression of comparing the subscale scores within the group of students with the poorest degree of coping. Specifically, the normative range of

each subscale score is compared to the range of each subscale score obtained in this study when viewing the poorest coping group. Subscale scores of this study (valid $N = 251$) fell within the respective normative ranges of scores (valid $N = 2{,}052$): (a) current study academic adjustment subscale range of poorest coping group = 89-114 versus normative sample academic adjustment subscale range of poorest coping group = 60-121; (b) current study social adjustment subscale range of poorest coping group = 61-87 versus normative sample social adjustment subscale range of poorest coping group = 47-102; (c) current study personal-emotional subscale range of poorest coping group = 50-63 versus normative sample personal-emotional subscale range of poorest coping group = 35-78; and (d) current study commitment-attachment adjustment subscale range of poorest coping group = 42-73 versus normative sample commitment-attachment adjustment subscale range of poorest coping group = 39-80.

Specifically, Figure 7 demonstrates the declining SACQ scores of this study's average coping group of students when compared to the same group scores of the normative sample. Each of the subscale score ranges of the average coping group (Figure 7) and the subscale score ranges of the best coping group of this study (Figure 8) started lower than their respective normative ranges of scores. Furthermore, each of the subscale score ranges of the average coping group (Figure 7) and the subscale score ranges of the best coping group of this study (Figure 8) ended lower than their respective normative ranges of scores.

Figure 7

Comparing Range of Subscale SACQ Scores* for Groups of Students with Average Level of Adjustment**: normative scores vs. scores of this study



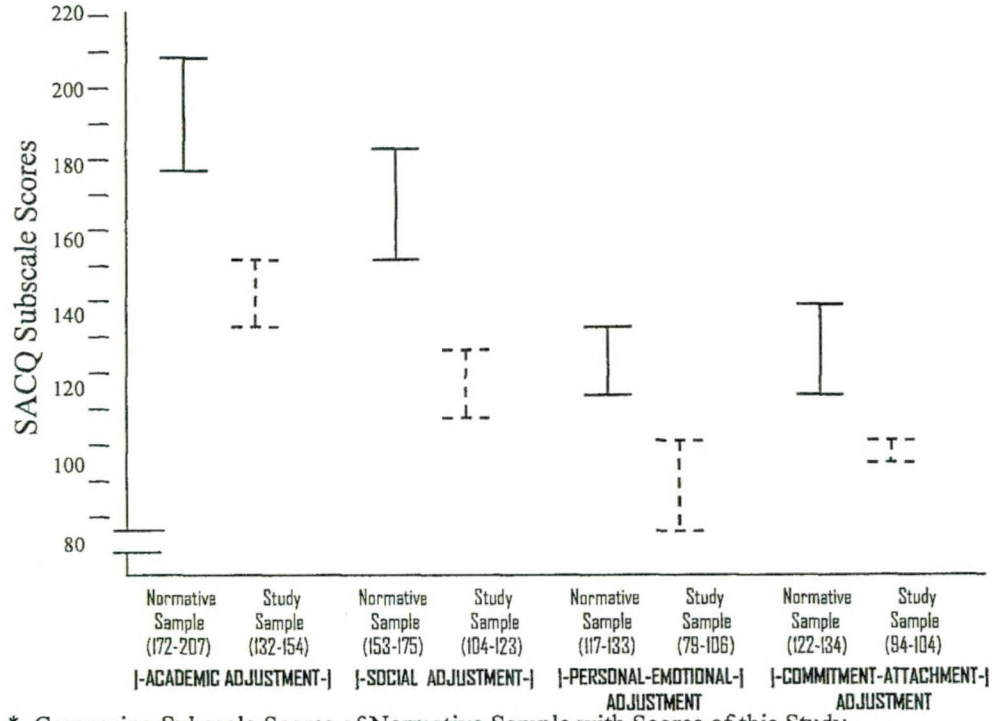

* Comparing Subscale Scores of Normative Sample with Scores of this Study

**Group with mid-range reported level of adjustment (i.e. group with average degree of coping with demands of college) between the 16th & 84th percentiles of sample frequencies

The PI recognized a trend when evaluating the SACQ full scale scores and the subscale scores obtained from this study (valid N = 251) compared to the SACQ scores presented by the normative values (valid *N* = 2,052) obtained by Baker and Siryk (1999) over two decades ago. Figures 7 and 8 provide a visual of this trend.

Figure 8

Comparing range of raw subscale SACQ scores* for groups of students with the highest (i.e., best) reported level of adjustment**: normative scores vs. scores of this study




* Comparing Subscale Scores of Normative Sample with Scores of this Study

**Group with highest reported level of adjustment (i.e. group with best degree of coping with demands of college) occur at or above the 85$^{th}$ percentile of sample frequencies

*Relationships among the SACQ full scale and subscale scores*

The relationships of the full scale SACQ with each of its four subscales were examined. Then the relationships among the four adjustment subscales of the SACQ were explored. These subscales included (a) academic adjustment, (b) social adjustment, (c) personal-emotional adjustment, and (d) commitment-attachment adjustment. These identified relationships extended the process of explicating the role student adjustment had in describing GWB as a construct within the traditional college student population.

Table 51

Correlations between the full scale SACQ and its four subscales

| Pearson Correlation | | Full Scale SACQ | Academic Adjustment Subscale | Social Adjustment Subscale | Personal-Emotional Adjustment | Commitment-Attachment Adjustment Subscale |
|---|---|---|---|---|---|---|
| Full Scale SACQ | *r* | 1.00 | | | | |
| | *p* | -- | | | | |
| | *N* | 251 | | | | |
| Academic Adjustment Subscale | *r* | 0.648(**) | 1.00 | | | |
| | *p* | 0.000 | -- | | | |
| | *N* | 251 | 251 | | | |
| Social Adjustment Subscale | *r* | 0.627(**) | 0.154(*) | 1.00 | | |
| | *p* | 0.000 | 0.014 | -- | | |
| | *N* | 251 | 251 | 251 | | |
| Personal-Emotional Adjustment Subscale | *r* | 0.366(**) | 0.077 | -0.025 | 1.00 | |
| | *p* | 0.000 | 0.226 | 0.696 | -- | |
| | *N* | 251 | 251 | 251 | 251 | |
| Commitment-Attachment Adjustment Subscale | *r* | 0.699(**) | 0.077 | 0.562(**) | 0.031 | 1.00 |
| | *p* | 0.000 | 0.226 | 0.000 | 0.623 | -- |
| | *N* | 251 | 251 | 251 | 251 | 251 |

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

**Correlations were significant at the 0.01 level (2-tailed).

Table 51 displays the Pearson correlation coefficient matrix using the full scale SACQ scores with the four SACQ adjustment subscales. This calculation was used to determine if the full scale SACQ score was related to any one subscale more than to another subscale. The full scale SACQ demonstrated a statistically significant medium to strong positive correlation with three of its four subscales: (a) academic adjustment ($r = 0.648, p < 0.001$), (b) social adjustment ($r = 0.627; p < 0.001$), and (c) commitment-attachment adjustment ($r = 0.699; p < 0.001$). The personal-emotional adjustment subscale only displayed a weak to medium positive correlation ($r = 0.366$) with the full scale SACQ that was statistically significant ($p < 0.001$).

Pearson correlation coefficients were calculated with the four subscales of the SACQ to determine if these areas of adjustment were independent or interrelated. Table

51 displays these relationships as well. The social adjustment subscale had a statistically significant weak positive correlation with the academic adjustment subscale ($r = 0.154$; $p = 0.014$). The social adjustment subscale also had a statistically significant medium positive correlation with the commitment-attachment adjustment subscale ($r = 0.562$; $p < 0.001$).

*Relationships between SACQ and the Other Independent Variables*

Pearson correlation coefficients were calculated to examine the relationship between student adjustment to college and the other individual independent variables included in this study. Table 52 depicts the relationships between the full scale SACQ scores of students and the independent variables of this study. The majority of the independent variables were not correlated with the overall adjustment to college, as measured by the full scale SACQ.

However, Table 52 displays several statistically significant weak correlations with the full scale SACQ were identified, including (a) age (valid $N = 251$; $r = -0.212$; $p = 0.001$); (b) who students lived with while in school (valid $N = 251$; $r = 0.145$; $p = 0.021$); (c) whether this was the first time students lived away from home (valid $N = 250$; $r = 0.146$, $p = 0.021$); (d) whether students were raised in an urban or rural environment (valid $N = 249$;$r = -0.126$; $p = 0.046$); (e) amount of time students felt hopeless since starting college (valid $N = 251$; $r = -0.133$; $p = 0.035$); (f) class standing of students in college (i.e., Freshman, Sophomore, Junior, or Senior) (valid $N = 251$; $r = -0.211$; $p = 0.001$); and (g) number of college credits earned to date (valid $N = 251$; $r = -0.208$; $p = 0.001$).

Table 52

Correlations between SACQ scores and other individual independent variables

| Pearson Correlations between SACQ scores and other individual independent variables | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| SACQ * Age | 251 | -0.212(**) | 0.001 |
| SACQ * Gender | 251 | 0.093 | 0.140 |
| SACQ * Cultural Identity | 251 | 0.034 | 0.589 |
| SACQ * Body Mass Index (BMI) | 248 | -0.044 | 0.495 |
| SACQ * # of times did sports activities in past 30 days | 250 | 0.047 | 0.463 |
| SACQ * # of days/week not feeling rested | 251 | -0.043 | 0.498 |
| SACQ * # times in past 30 days used alcohol/drugs | 250 | -0.0038 | 0.552 |
| SACQ * Relationship Status | 251 | 0.061 | 0.335 |
| SACQ * Who student lives with during semester | 251 | 0.145(+) | 0.021 |
| SACQ * Place of Residence during College | 251 | -0.060 | 0.347 |
| SACQ * First time student lives away from home | 250 | 0.146(+) | 0.021 |
| SACQ * Distance campus is from family home | 250 | 0.004 | 0.950 |
| SACQ * Geographic Location of Upbringing (urban versus rural) | 249 | -0.126(+) | 0.046 |
| SACQ * Family annual income | 221 | 0.110 | 0.104 |
| SACQ * Personal annual income | 238 | -0.033 | 0.612 |
| SACQ * First Generation College Student Status | 251 | 0.0034 | 0.587 |
| SACQ * TRIO Eligible College Students | 249 | -0.074 | 0.244 |
| SACQ * # of hours students worked/wk during semester | 246 | -0.022 | 0.730 |
| SACQ * # of times felt 'stressed out' about homework/money | 251 | -0.038 | 0.546 |
| SACQ * # of times felt so overwhelmed since starting college | 251 | -0.056 | 0.378 |
| SACQ * # of times felt hopeless since starting college? | 251 | -0.133(+) | 0.035 |
| SACQ * Class standing in college (Fresh, Soph, Jr, Sr) | 251 | -0.211(**) | 0.001 |
| SACQ * # of college credits earned | 251 | -0.208(**) | 0.001 |
| SACQ * High School academic performance (GPA) | 251 | 0.072 | 0.258 |

+ Correlations were significant at the 0.05 level (2-tailed)
**Correlations were significant at the 0.01 level (2-tailed)

Table 53a displays the relationships between overall adjustment to college and each of the full scale risk index scores including the (a) HRB, (b) MHR, (c) Degree of Spirituality-Religiosity, and (d) Academic Performance. No statistically significant correlations were identified between the full scale SACQ scores and the any of the full scale risk indices.

Table 53

Student adjustment and assumed risk correlations: (a) Full scale SACQ and risk indices

| Pearson Correlations between SACQ full scale scores and full scale risk index scores | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| SACQ * HRB | 251 | -0.088 | 0.163 |
| SACQ * MHR | 251 | -0.123 | 0.052 |
| SACQ * Spirituality-Religiosity | 251 | -0.015 | 0.818 |
| SACQ * Academic Performance | 251 | -0.036 | 0.569 |

+ Correlations significant at the 0.05 level (2-tailed)
** Correlations significant at the 0.01 level (2-tailed)

Table 53b displays the two clusters within all of the risk indices that had statistically significant correlations with the SACQ full scale. Only MHR Cluster 1 that addressed self-reported depressive symptoms (valid $N = 251$; $r = -0.129$; $p = 0.042$), and MHR Cluster 3 that addressed self-reported social connectedness (valid $N = 251$; $r = -0.144$; $p = 0.023$), demonstrated statistically significant weak negative correlations with overall student adjustment to college (SACQ full scale).

Table 53

Student adjustment and assumed risk correlations: (b) Full scale SACQ and clustered risk indices

| Statistically significant Pearson correlations between full scale SACQ scores and clusters of risk index scores | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| SACQ * MHR Cluster 1: Degree of depressive symptomology | 251 | -0.129(+) | 0.042 |
| SACQ * MHR Cluster 3: Degree of social connectedness with campus | 251 | -0.144(+) | 0.023 |

+ Correlations were significant at the 0.05 level (2-tailed)

*Exploring the Relationships between the Student Adjustment to College and GWB*

Examining the relationship of the full scale SACQ with the full scale PWS was done to evaluate the role student adjustment had in how students perceived their overall

sense of wellness. Correlations between the four subscales of the SACQ and the six subscales of the PWS were also reviewed. These identified relationships extended the process of explicating the role student adjustment had in describing GWB as a construct within the traditional college student population.

Table 54 displays the statistically significant weak positive correlations between the SACQ full scale scores and the GWB full scale scores (valid $N = 251$; $r = 0.165$; $p = 0.009$). Statistically significant weak positive correlations existed between (a) the social adjustment SACQ subscale scores and the GWB full scale scores (valid $N = 251$; $r = 0.163$; $p = 0.010$), and (b) the commitment/attachment adjustment SACQ subscale scores and the GWB full scale scores (valid $N = 251$; $r = 0.167$; $p = 0.008$).

Table 54

Correlations between GWB (as measured by PWS) and student adjustment to college

| Pearson Correlations between full scale $GWB_{PWS}$ and SACQ | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| $GWB_{PWS}$ * SACQ full scale | 251 | 0.165(**) | 0.009 |
| $GWB_{PWS}$ * Academic Adjustment SACQ subscale | 251 | 0.002 | 0.972 |
| $GWB_{PWS}$ * Social Adjustment SACQ subscale | 251 | 0.163(**) | 0.010 |
| $GWB_{PWS}$ * Personal-Emotional Adjustment SACQ subscale | 251 | -0.121 | 0.056 |
| $GWB_{PWS}$ * Commitment-Attachment Adjustment SACQ subscale | 251 | 0.167(**) | 0.008 |
| **Correlations were significant at the 0.01 level (2-tailed) | | | |

See Table 55 to review the correlations between overall student adjustment (as measured by the SACQ full scale) and the six identified dimensions of GWB (as measured by the PWS). There were statistically significant weak positive correlations between overall student adjustment to the college environment (as measured by the full scale SACQ scores) and each of the six dimensions of GWB. Overall student adjustment was directly related to: (a) $GWB_{PWS}$ psychological subscale (valid $N = 248$; $r = 0.206$;

$p = 0.001$); (b) $GWB_{PWS}$ emotional subscale (valid $N = 251$; $r = 0.184$, $p = 0.003$); (c) $GWB_{PWS}$ social subscale (valid $N = 251$; $r = 0.227$, $p = 0.000$); (d) $GWB_{PWS}$ physical subscale (valid $N = 251$; $r = 0.159$; $p = 0.012$); (e) $GWB_{PWS}$ spiritual subscale (valid $N = 251$; $r = 0.209$; $p = 0.001$); and (f) $GWB_{PWS}$ intellectual subscale (valid $N = 251$; $r = 0.140$; $p = 0.026$).

Table 55

Correlations between Overall Student Adjustment (SACQ full scale) and GWB as measured by the PWS

| Pearson Correlations between full scale SACQ and GWB | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| $SACQ_{full\ scale}$ * $GWB_{PWS}$ full scale | 251 | 0.165(**) | 0.009 |
| $SACQ_{full\ scale}$ * $GWB_{PWS}$ Physical subscale | 251 | 0.159(+) | 0.012 |
| $SACQ_{full\ scale}$ * $GWB_{PWS}$ Social subscale | 251 | 0.227(**) | 0.000 |
| $SACQ_{full\ scale}$ * $GWB_{PWS}$ Emotional subscale | 251 | 0.184(**) | 0.003 |
| $SACQ_{full\ scale}$ * $GWB_{PWS}$ Psychological subscale | 248 | 0.206(**) | 0.001 |
| $SACQ_{full\ scale}$ * $GWB_{PWS}$ Intellectual subscale | 251 | 0.140(+) | 0.026 |
| $SACQ_{full\ scale}$ * $GWB_{PWS}$ Spiritual subscale | 251 | 0.209(**) | 0.001 |

+ Correlations were significant at the 0.01 level (2-tailed)
**Correlations were significant at the 0.01 level (2-tailed)

The set of figures presented in Table 56 depicts the statistically significant correlations found between the student adjustment (SACQ) subscales and GWB subscales (as measured by the PWS). Even though overall student adjustment (as measured by the full scale SACQ) was found to be directly related to overall GWB (as measured by the full scale PWS) (valid $N = 251$; $r = 0.165$; $p = 0.009$) and to each of the six dimensions of GWB (see Table 55). The same blanket correlations between all of the SACQ and GWB subscale possibilities were not found.

Table 56

Correlations between student adjustment (SACQ) subscales and GWB subscales as measured by the PWS

| Statistically Significant Pearson Correlations between subscales of SACQ and GWB | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| SACQ Social subscale * $GWB_{PWS}$ Emotional subscale | 251 | 0.205(**) | 0.001 |
| SACQ Attachment Subscale * $GWB_{PWS}$ Physical subscale | 251 | 0.144(+) | 0.023 |
| SACQ Attachment Subscale * $GWB_{PWS}$ Social subscale | 251 | 0.168(**) | 0.008 |
| SACQ Attachment Subscale * Emotional $GWB_{PWS}$ subscale | 251 | 0.273(**) | 0.000 |
| SACQ Attachment Subscale * $GWB_{PWS}$ Psychological subscale | 251 | 0.208(**) | 0.001 |
| SACQ Attachment Subscale * $GWB_{PWS}$ Intellectual subscale | 251 | 0.259(**) | 0.000 |
| SACQ Attachment Subscale * $GWB_{PWS}$ Spiritual subscale | 251 | 0.244(**) | 0.000 |

+ Correlation was significant at the 0.05 level (2-tailed)
**Correlations were significant at the 0.01 level (2-tailed)

The SACQ social subscale was only found to be correlated with the $GWB_{PWS}$ emotional subscale with statistical significance (valid $N = 251$; $r = 0.205$; $p = 0.001$). Whereas, the SACQ institutional attachment/commitment subscale was found to be correlated with each of the six $GWB_{PWS}$ subscales: (a) $GWB_{PWS}$ physical subscale (valid $N = 251$; $r = 0.144$; $p = 0.023$), (b) $GWB_{PWS}$ social subscale (valid $N = 251$; $r = 0.168$; $p = 0.008$), (c) $GWB_{PWS}$ emotional subscale (valid $N = 251$; $r = 0.273$; $p = 0.000$), (d) $GWB_{PWS}$ psychological subscale (valid $N = 251$; $r = 0.208$; $p = 0.001$), (e) $GWB_{PWS}$ intellectual subscale (valid $N = 251$; $r = 0.259$; $p = 0.000$), and (f) $GWB_{PWS}$ spiritual subscale (valid $N = 251$; $r = 0.244$; $p = 0.000$).

*Summary of Statistical Findings for Aim 3*

The construct of student adjustment to their college environment in the randomized sample of traditional college students was operationalized using the SACQ developed by Baker and Siryk (1989). The data were adjusted to a valid *N* of 251 subjects. Then, the data were screened for any omissions and outliers and evaluated for

homoscedasticity and normality. After an explanation was given regarding how student adjustment (i.e., coping with college) was operationalized (via the SACQ), a description of the four components (i.e., subscales) within the full scale SACQ was offered.

Grouping of students based on their self-reported full scale SACQ scores culminated in three groups. Relatively highest scoring (i.e., the best coping), midrange scoring (i.e., the average coping), and lowest scoring (i.e., the poorest coping) groups of students were established based on the Approximate 68% Rule for normally distributed samples in statistics (Pyrczek, 2002). Cut points were identified utilizing the $15^{th}$—$16^{th}$ percentiles and the $84^{th}$—$85^{th}$ percentiles. The same grouping process was done for each of the four adjustment subscale scores as well.

A description was given regarding how the published normative SACQ data (N = 2,052) created by Baker and Siryk (1999) followed the same grouping process that was done in this study. Their normative data resulted from research conducted between 1980 through 1984.

The relationship between the full scale SACQ ranges of the bottom 16% of the sample (i.e., the poorest coping group) for this study (range of scores = 286-323, $N$ = 251) fell within the normative studies ranges (range of scores = 203-363, $N$ = 2,052). The same relationship existed within each of the four subscale scores when comparing the poorest coping group of the normative sample with the poorest coping group of this study. Specifically, when viewing the poorest coping group, subscale scores of this study ($N$ = 251) fell within the respective subscale normative ranges of scores ($N$ = 2,052).

The PI recognized a trend when evaluating the SACQ full scale scores and the subscale scores obtained from this study (N = 251) compared to the SACQ scores

presented by the normative values ($N = 2{,}052$) obtained by Baker and Siryk (1999) over two decades ago. Each of the score ranges of the average coping group and the score ranges of the best coping group of this study started lower than their respective normative ranges of scores. Furthermore, each of the score ranges of the average coping group and the score ranges of the best coping group of this study ended lower than their respective normative ranges of scores.

The relationships of the full scale SACQ with each of its four subscales were examined. Then the relationships among the four adjustment subscales of the SACQ were explored to extend the process of explicating the role student adjustment had in describing GWB as a construct within the traditional college student population. The full scale SACQ demonstrated a statistically significant medium to strong positive correlation with three of its four subscales: (a) academic adjustment ($r = 0.648, p < 0.001$), (b) social adjustment ($r = 0.627, p < 0.001$), and (c) commitment-attachment adjustment ($r = 0.699$, $p < 0.001$). The personal-emotional adjustment subscale only displayed a weak to medium positive correlation ($r = 0.366; p < 0.001$) with the full scale SACQ.

Pearson correlation coefficients were calculated between the four subscales of the SACQ to determine if these areas of adjustment were independent or interrelated. The social adjustment subscale had a statistically significant weak positive correlation with the academic adjustment subscale ($r = 0.154, p = 0.014$). The social adjustment subscale also had a statistically significant medium positive correlation with the commitment-attachment adjustment subscale ($r = 0.562, p < 0.001$).

Next, Pearson correlation coefficients were calculated between SACQ scores and each of the other independent variables to identify the relationships between the SACQ

and the other independent variables. The majority of the independent variables were not correlated with the overall adjustment to college, as measured by the full scale SACQ. However, several statistically significant weak correlations with the full scale SACQ were identified, including (a) age (valid $N = 251$; $r = -0.212$; $p = 0.001$); (b) who students lived with while in school (valid $N = 251$; $r = 0.145$; $p = 0.021$); (c) whether this was the first time students lived away from home (valid $N = 250$; $r = 0.146$, $p = 0.021$); (d) whether students were raised in an urban or rural environment (valid $N = 249$; $r = -0.126$; $p = 0.046$); (e) amount of time students felt hopeless since starting college (valid $N = 251$; $r = -0.133$; $p = 0.035$); (f) class standing of students in college (i.e., Freshman, Sophomore, Junior, or Senior) (valid $N = 251$; $r = -0.211$; $p = 0.001$); and (g) number of college credits earned to date (valid $N = 251$; $r = -0.208$; $p = 0.001$).

Pearson correlation coefficients were calculated between overall adjustment to college (SACQ) and each of the indexed independent variables including the (a) HRB, (b) MHR, (c) Degree of Spirituality-Religiosity, and (d) Academic Performance were conducted to identify any possible relationships the SACQ might have had with the collapsed (indexed) independent variables. No statistically significant correlations were identified between the full scale SACQ scores and the any of the full scale risk indices.

Pearson correlation coefficients were calculated between overall adjustment to college (SACQ) and the clusters within each of the indexed independent variables were conducted to identify any possible relationships the full scale SACQ might have had with the clusters within each of the collapsed (indexed) independent variables. Only two clusters within all of the risk indices were found to have statistically significant correlations with the SACQ full scale. The MHR Cluster 1 that addressed self-reported

depressive symptoms (valid $N = 251$; $r = -0.129$; $p = 0.042$), and MHR Cluster 3 that addressed self-reported social connectedness (valid $N = 251$; $r = -0.144$; $p = 0.023$), demonstrated a statistically significant weak negative correlation with overall student adjustment to college (SACQ full scale).

The final area of analysis for aim three explored the relationships between student adjustment to college and GWB. This was done to evaluate the role student adjustment had in how students perceived their overall sense of wellness.

Even though correlations were identified between GWB and high school GPA, no significant correlation was found between student adjustment to college and high school GPA ($r = 0.072$) $p = 0.258$). The same inconsistency was found when evaluating the question about the number of days per week students felt rested. Specifically, even though a correlation between GWB and feeling rested was identified, a correlation did not occur when comparing 'feeling rested' to the full scale SACQ ($r = -0.043$; $p = 0.498$).

Correlations between the four subscales of the SACQ and the six subscales of the PWS were reviewed. A statistically significant weak positive correlation exists between student adjustment (i.e., the SACQ full scale scores) and GWB (i.e., PWS full scale scores) with an $r$ of 0.165 (valid $N = 251$; $p = 0.009$). Furthermore, statistically significant weak positive correlations existed between (a) the social adjustment SACQ subscale scores and the GWB full scale scores (valid $N = 251$; $r = 0.163$; $p = 0.010$), and (b) the commitment/attachment adjustment SACQ subscale scores and the GWB full scale scores (valid $N = 251$; $r = 0.167$; $p = 0.008$).

There were statistically significant weak positive correlations between overall student adjustment to the college environment (as measured by the full scale SACQ

scores) and each of the six dimensions of GWB. Overall student adjustment was directly correlated with: (a) $GWB_{PWS}$ physical subscale (valid $N = 251$; $r = 0.159$; $p = 0.012$); (b) $GWB_{PWS}$ social subscale (valid $N = 251$; $r = 0.227$; $p = 0.000$); (c) $GWB_{PWS}$ emotional subscale (valid $N = 251$; $r = 0.184$; $p = 0.00$); (d) $GWB_{PWS}$ psychological subscale (valid $N = 248$; $r = 0.206$; $p = 0.001$); (e) $GWB_{PWS}$ intellectual subscale (valid $N = 251$; $r = 0.140$; $p = 0.026$); and (f) $GWB_{PWS}$ spiritual subscale (valid $N = 251$; $r = 0.209$, $p = 0.001$).

Overall student adjustment (as measured by the full scale SACQ) was found to be weakly directly correlated to overall GWB (as measured by the full scale PWS) (valid $N = 251$; $r = 0.165$; $p = 0.009$). Furthermore, the full scale SACQ was directly correlated with each of the six dimensions of GWB. However, correlations between every one of the four SACQ subscales and each of the six GWB subscales were not found. Only seven of the possible 24 subscale combinations were correlated.

The SACQ social subscale was only related to the $GWB_{PWS}$ emotional subscale with statistical significance (valid $N = 251$; $r = 0.205$, $p = 0.001$). Whereas, the SACQ attachment/commitment subscale was found to be correlated with each of the six $GWB_{PWS}$ subscales: (a) $GWB_{PWS}$ physical subscale (valid $N = 251$; $r = 0.144$; $p = 0.023$), (b) $GWB_{PWS}$ social subscale (valid $N = 251$; $r = 0.168$; $p = 0.008$), (c) $GWB_{PWS}$ emotional subscale (valid $N = 251$; $r = 0.273$; $p = 0.000$), (d) $GWB_{PWS}$ psychological subscale (valid $N = 251$; $r = 0.208$; $p = 0.001$), (e) $GWB_{PWS}$ intellectual subscale (valid $N = 251$; $r = 0.259$; $p = 0.000$), and (f) $GWB_{PWS}$ spiritual subscale (valid $N = 251$; $r = 0.244$; $p = 0.000$).

*Aim 4: Describe the most parsimonious combination of demographic characteristics, identified health risk behaviors, and adjustment to college that explains GWB*

The fourth aim intended to disclose the combination of those identified statistically significant independent variables which provided the most parsimonious explanation of the variance in GWB of traditional college students. Regression analysis was the strategy employed to accomplish aim four. Before the independent variables could be entered into a multiple regression model to further explain global wellbeing in this group of 18-24 year old college students, the PI needed to ascertain which independent variables and in what order they should be entered into the regression equation.

The first three aims of this study provided the information for this decision. The examination of the relationships and group differences of GWB with the individual and indexed independent variables identified several statistically significant findings.

Table 57

Statistically significant correlations between GWB and individual independent variables

| Pearson correlations between GWB and individual independent variables | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| GWB * Distance campus is from family home | 277 | 0.143# | 0.017 |
| GWB * High School academic performance (GPA) | 278 | 0.125# | 0.037 |
| GWB * Number of days/week not feeling rested | 277 | -0.154# | 0.010 |
| GWB * Degree physical problems affected academic performance | 278 | -0.214** | 0.000 |
| GWB * Degree stressful events affected academic performance | 278 | -0.263** | 0.000 |
| GWB * Frequency of times felt very sad since attending college | 278 | -0.273** | 0.000 |
| GWB * Frequency of times felt stressed out since attending college | 278 | -0.288** | 0.000 |
| GWB * Frequency of times felt overwhelmed since attending college | 278 | -0.305** | 0.000 |
| GWB * Frequency of times felt all alone since attending college | 278 | -0.311** | 0.000 |
| GWB * Frequency of times felt hopeless since attending college | 278 | -0.307** | 0.000 |
| # Correlations were significant at the 0.05 level (2-tailed) | | | |
| **Correlations were significant at the 0.01 level (2-tailed) | | | |

For the most part, the identified associations between GWB and the independent variables corresponded with the identified statistically significant group differences that resulted from ANOVAs described earlier in this chapter. These findings partially extended the researcher's goal to fully describe GWB. Table 57 summarizes the individual variables that had statistically significant correlations with GWB.

Because relatively few statistically significant weak correlations were identified between GWB and the individual independent variables, the independent variables were collapsed into concept-driven indices. These indexed scales included the (a) health-risk behaviors index scale (HRB), (b) mental health risk index scale (MHR), (c) spirituality-religiosity index scale, and (d) academic performance risk index scale. Pearson correlations between GWB and the indexed independent variables were performed.

Table 58

Statistically significant correlations between GWB scores and indexed independent variables

| Pearson correlations between GWB scores and indexed independent variables | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| GWB * MHR Full Index Scale | 278 | -0.402(**) | 0.000 |
| GWB * Academic Performance Risk Index | 278 | -0.267(**) | 0.000 |
| GWB * MHR Cluster 1: Degree of depressive symptomology | 278 | -0.389(**) | 0.000 |
| GWB * MHR Cluster 2: Degree of anxiety related symptomology | 278 | -0.380(**) | 0.000 |
| GWB * MHR Cluster 3: Degree of social connectedness with campus | 278 | -0.216(**) | 0.000 |
| **Correlations were significant at the 0.01 level (2-tailed) | | | |

Table 58 summarizes these findings. These relationships provided further contextual detail about how GWB was perceived by 18-24 year old college students.

The SACQ measured the independent variable of student adjustment to college. Correlations of this independent variable with GWB were conducted and presented

within the section of this chapter devoted to aim three. Table 59a summarizes the statistically significant correlations between GWB and student adjustment.

Table 59

GWB and student adjustment correlations: (a) Statistically significant correlations between full GWB and the SACQ

| Pearson Correlations between GWB and (a) full scale SACQ, (b) SACQ Subscales | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| $GWB_{PWS}$ * SACQ full scale | 251 | 0.165(**) | 0.009 |
| $GWB_{PWS}$ * Social Adjustment SACQ subscale | 251 | 0.163(**) | 0.010 |
| $GWB_{PWS}$ * Commitment-Attachment Adjustment SACQ subscale | 251 | 0.167(**) | 0.008 |
| ** Correlations are significant at the 0.01 level (2-tailed) | | | |

Table 59b summarizes the statistically significant correlations identified between the six dimensions of GWB and student adjustment. These relationships further contextualized the perception of GWB within this population.

Table 59

GWB and student adjustment correlations: (b) Statistically significant correlations between GWB dimensions and SACQ subscales

| Pearson correlations between SACQand GWB subscales | | | |
|---|---|---|---|
| | Valid *N* | *r* | *p* |
| $GWB_{PWS}$ Emotional subscale * SACQ Social subscale | 251 | 0.205(**) | 0.001 |
| $GWB_{PWS}$ Physical subscale * SACQ Attachment Subscale | 251 | 0.144(+) | 0.023 |
| $GWB_{PWS}$ Social subscale * SACQ Attachment Subscale | 251 | 0.168(**) | 0.008 |
| $GWB_{PWS}$ Emotional subscale * SACQ Attachment Subscale | 251 | 0.273(**) | 0.000 |
| $GWB_{PWS}$ Psychological subscale * SACQ Attachment Subscale | 251 | 0.208(**) | 0.001 |
| $GWB_{PWS}$ Intellectual subscale SACQ * Attachment Subscale | 251 | 0.259(**) | 0.000 |
| $GWB_{PWS}$ Spiritual subscale * SACQ Attachment Subscale | 251 | 0.244(**) | 0.000 |
| + Correlation was significant at the 0.05 level (2-tailed) | | | |
| **Correlations were significant at the 0.01 level (2-tailed) | | | |

*Diagnostics Required to Test Regression Assumptions Prior to Analysis*

Several diagnostic tests were conducted prior to conducting the regression analysis. These steps were used to assess if appropriate sample size was obtained to maintain power, and to test for normality, homoscedasticity, and collinearity.

The sample size available for aim four was 251subjects with complete surveys. The first three aims identified ten statistically significant individual independent variables, four statistically significant subscales of the health risk index scales, and two statistically significant subscales of student adjustment. Therefore, a maximum of sixteen potential predictor variables were entered into a stepwise regression equation. Based on the power needed for regression as discussed in chapter three (i.e., at least ten subjects for each predictor variable), it was considered reasonable to continue with the regression analysis plan.

The data set ($N = 251$) was checked for outliers. The PI chose to eliminate any cases that had outliers or missing data. Therefore the number of valid cases included in each analysis varied slightly.

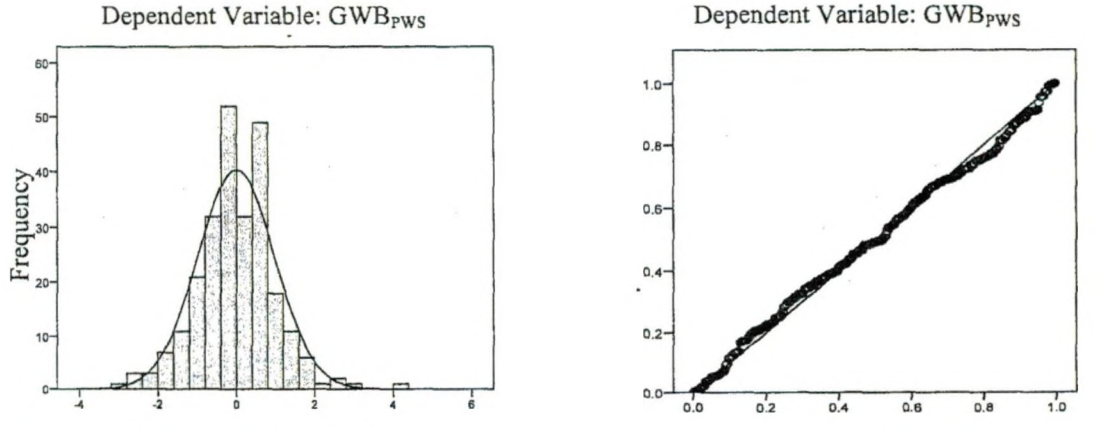
To show that the normality assumption was met, the Kolmogorov-Smirnoff (K-S) test was conducted with all of the statistically significant variables to be loaded into the regression equation. This test compares the final data set used for the regression analysis to a theoretical normally distributed dataset. A K-S statistic, degrees of freedom, and *p*-value were generated for every possible response to each of the survey questions that ended up qualifying as a statistically significant independent variable when related to the associated GWB score. The complete list of these values can be reviewed in Appendix G.

There were 144 measurable K-S values out of 218 (i.e., 66%) possible responses from these results. Only seven responses (4.9%) out the 144 K-S calculations generated $p$-values $\leq 0.05$. The remaining 96.1% of the $p$- values generated from the 144 K-S calculations ranged from 0.051 to 0.20. Since the K-S resulted in $p$-values greater than 0.05 in 96.1% of the cases, the normality assumption for the regression analysis was met.

Each of the variables used in the regression equations were found be normally distributed. According to Hazard-Munro (2001), if the relationships of the variables included within the regression are linear and the dependent variable is normally distributed for each value of the independent variables then the distribution of the residuals should be approximately normal. This relationship can be assessed by looking at a histogram of the standardized residuals (SPSS, 2006).

Figure 9

Distribution: Normal versus Regression Model




(a) Histogram of Standardized Residuals

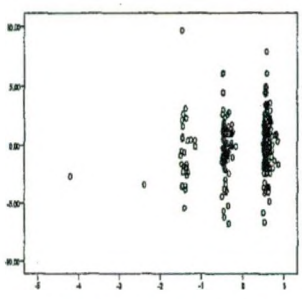
(b) Normal Probability Plot

See Figure 9a to visualize a normal curve interposed on the essentially normal distribution of the standardized residuals of the variables used in the regression equation conducted for this study. Figure 9b demonstrates how closely the model fits the data used to run the planned regression which further substantiated the normality assumption.

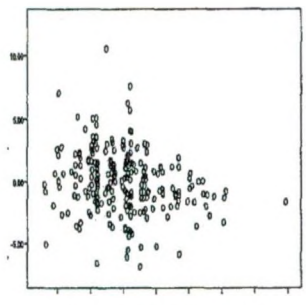
To check for homoscedasticity, the residuals were plotted against the predicted values and against the independent variables. In other words, "for every value of X, the distribution of Y scores must have approximately equal variability" (Hazard-Munro, 2001, p. 246) in order to satisfy the assumption of homoscedasticity. When the standardized predicted values of GWB were plotted against the observed values of each of the statistically significant independent variables in the final regression model, the variability at each 'X' value was acceptably similar (Hazard-Munro, 2001) in each of the scatter diagrams depicted in Figure 10.

Figure 10

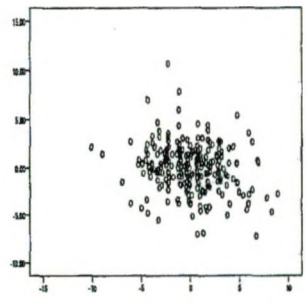
Partial Regression Plots of statistically significant independent variable (x axis) vs. dependent variable (y-axis, i.e., $GWB_{PWS}$)



X = High School GPA
vs.
Y = $GWB_{PWS}$



X = MH Cluster 1
vs.
Y = $GWB_{PWS}$



X = MH Cluster 2
vs.
Y = $GWB_{PWS}$

"If the tolerance value for a given independent variable was less than 0.1 then multicollinearity [becomes] a distinct problem" (Mertler & Vannatta, 2002, p. 169). As stated in chapter three, a value of 0.1 was set as the cut-off point for this study. The collinearity statistics and analyses of residuals were included as part of the regression analysis. These calculations will be presented along with the final regression model.

*Presentation of Regression Results*

The PI chose to enter all ten of the statistically significant individual independent variables. These included (a) distance of family home college campus, (b) high school GPA, (c) frequency in past 7 days not felt rested, (d) degree physical problems affected academic performance, (e) degree stressful situations affected academic performance, (f) frequency felt 'very sad' since starting college, (g) frequency felt 'stressed out' about homework/money, (h) frequency felt so overwhelmed that could not function, (i) frequency felt 'all alone' with no one to turn/talk to, and (j) frequency felt things were hopeless since starting college.

The next decision was to decide how to enter the statistically significant health risk index scales. Both the academic performance risk index scale and the mental health index scale were associated with GWB with statistical significance. The PI decided to enter the statistically significant health risk index scales at the cluster level. This decision was based on the research goal to identify any specific behavior or set of behaviors that would best explain GWB in this population. The three statistically significant MH clusters entered into the equation provided this specificity. The three health risk clusters entered into the equation included mental health risk (a) cluster 1: degree of depression, (b) cluster 2: degree of anxiety, and the (c) cluster 3: degree of social connectedness.

The Academic Performance risk scale was created from several of the statistically significant independent variables that were already entered into the equation. In order to avoid entering interrelated constructs, the Academic Performance risk scale was not loaded into the regression model.

Similarly, instead of entering the statistically significant full SACQ score, the PI chose to enter the two statistically significant SACQ subscales. Again, the purpose was to generate specific areas of adjustment to college that potentially explained the greatest variance in GWB. The two statistically significant SACQ subscales entered into the regression model included the SACQ Social Adjustment subscale and the SACQ Attachment/ Commitment subscale.

Table 60

Descriptive statistics of variables used in the forward stepwise regression model

| | Mean | Std. Deviation |
|---|---|---|
| GWB | 15.79 | 2.775 |
| Q9-Distance of family home college campus* | 4.04 | 1.663 |
| Q17-High School GPA* | 4.40 | 0.761 |
| Q30-Frequency in past 7days not felt rested* | 3.04 | 1.853 |
| Q40-Degree physical problems affected academic performance* | 0.45 | 0.791 |
| Q41-Degree stressful situations affected academic performance* | 0.91 | 1.049 |
| Q44-Frequency felt 'very sad' since starting college* | 1.02 | 0.796 |
| Q45-Frequency felt 'stressed out' about homework/money* | 1.93 | 0.850 |
| Q46-Frequency felt so overwhelmed that couldn't function* | 0.96 | 0.895 |
| Q47-Frequency felt 'all alone' with no one to turn/talk to* | 0.68 | 0.838 |
| Q48-Frequency felt things were hopeless since starting college* | 0.45 | 0.722 |
| MHcluster1 Degree of Depression* | 3.59 | 3.252 |
| MHcluster2 Degree of Anxiety* | 7.62 | 4.294 |
| MHclstr3Degree of Social Connectedness* | 5.55 | 2.848 |
| SACQ SOCIAL ADJUSTMENT Subscale* | 95.40 | 9.270 |
| SACQ ATTACHMENT Subscale* | 84.42 | 10.501 |

*Other statistical analyses conducted earlier in this chapter found these independent variables to be significantly related to GWB

$N = 250$

A multiple regression was conducted using the forward stepwise method to determine the most parsimonious combination of (statistically significant) independent variables that maximally explained the variance in GWB of 18-24 year old college students. The descriptive statistics of the variables entered into this model can be reviewed in Table 60.

Table 61

Order of statistically significant independent variables entered/removed from model

| Variables Entered/Removed for Stepwise method of regression equation* | | | |
|---|---|---|---|
| Model | Variables Entered | Variables Removed | Stepwise Method |
| 1 | MHclstr2DgreeOfAnxty | none. | Enter Criteria: Probability-of-F-to-enter <= 0.05 Probability-of-F-to-remove >= 0.1 |
| 2 | MHclstr1DgreeOfDeprssn | none. | Enter Criteria: Probability-of-F-to-enter <= 0.05 Probability-of-F-to-remove >= 0.1 |
| 3 | Q17-High School GPA? | none. | Criteria: Probability-of-F-to-enter <= 0.050 Probability-of-F-to-remove >= 0.1 |
| * Dependent Variable: $GWB_{PWS}$ | | | |

A regression model was generated using the stepwise method. Table 61 displays the order in which the statistically significant independent variables were entered into the equation. Three predictor variables qualified to be entered based on the pre-set probability criterion of their resultant $F$ values (i.e., $p \leq 0.05$). No independent variables qualified to be removed from the model based on the pre-set probability criterion of their resultant $F$ values (i.e. $p \geq 0.1$).

The final model equation helped explain how clusters 1 and 2 of the mental health-risk behavior index along with the demographic characteristic of high school GPA predicted global wellbeing in this population of young adults. The final model indicated that 24.3% of the variability in GWB could be explained by these three factors

($R^2 = 0.243$, $R^2_{adj} = 0.243$). Table 62a displays the model summary and Table 62b presents the associated ANOVA summary matrix ($F$ (1,246) = 26.348; $p < 0.001$).

Table 62

Model summary: (a) explaining variability in overall GWB

Model Summary+

| Model | $R$ | $R^2$ | Adjusted $R^2$ | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | $R^2$ Change | $F$ Change | $df1$ | $df2$ | Significance $F$ Change |
| 1* | .440 | .193 | .190 | 2.49717 | .193 | 59.472 | 1 | 248 | 0.000 |
| 2** | .477 | .228 | .222 | 2.44803 | .035 | 11.057 | 1 | 247 | 0.001 |
| 3*** | .493 | .243 | .234 | 2.42873 | .015 | 4.94 | 1 | 246 | 0.027 |

* Predictors: (Constant), MHclstr2DgreeOfAnxty
** Predictors: (Constant), MHclstr2DgreeOfAnxty, MHclstr1DgreeOfDeprssn
***Predictors: (Constant), MHclstr2DgreeOfAnxty, MHclstr1DgreeOfDeprssn, Q17-HS GPA?
\+ Dependent Variable: $GWB_{PWS}$

Table 62

Model summary: (b) ANOVA Summary of forward stepwise multiple regression model

Regression ANOVA Table+

| Model | | Sum of Squares | $df$ | Mean Square | $F$ | Significance |
|---|---|---|---|---|---|---|
| 1* | Regression | 370.857 | 1 | 370.857 | 59.472 | .000(*) |
| | Residual | 1546.495 | 248 | 6.236 | | |
| | Total | 1917.352 | 249 | | | |
| 2** | Regression | 437.121 | 2 | 218.561 | 36.470 | .000(**) |
| | Residual | 1480.230 | 247 | 5.993 | | |
| | Total | 1917.352 | 249 | | | |
| 3*** | Regression | 466.262 | 3 | 155.421 | 26.348 | .000(***) |
| | Residual | 1451.089 | 246 | 5.899 | | |
| | Total | 1917.352 | 249 | | | |

* Predictors: (Constant), MHclstr2DgreeOfAnxty
** Predictors: (Constant), MHclstr2DgreeOfAnxty, MHclstr1DgreeOfDeprssn
***Predictors: (Constant), MHclstr2DgreeOfAnxty, MHclstr1DgreeOfDeprssn, Q17-HS GPA?
\+ Dependent Variable: pwsGWB

A summary of regression coefficients obtained from this calculation is presented in Table 63. This matrix depicts that all three of the variables that remained in the final

equation significantly contributed to the model (MH Cluster 2 had a $p = 0.001$, MH Cluster 1 had a $p = 0.002$, and High School GPA had a $p = 0.027$).

The collinearity statistics included in Table 63 provides further evidence that the assumption of linearity was satisfied. The tolerance values ranged from 0.520 to 0.991 in the final model. Because the tolerance equals 1- $R^2$, a tolerance of 0.523 for the Mental Health Risk Cluster 2 (Degree of Anxiety) meant that 47.7% (1 - 0.523 = 0.477) of the variability in this variable was shared with the other two predictor variables. Since the other values for tolerance were essentially the same or higher, multicollinearity was not a significant problem in this analysis.

Table 63

Regression model coefficients with collinearity statistics

Coefficients[+]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | *t* | *p* | Tolerance | VIF |
| 1 | (Constant) | 17.96 | .322 | | 55.71 | .000 | | |
| | MHclustr2-Degree of Anxiety | -.284 | .037 | -.440 | -7.71 | .000 | 1.00 | 1.00 |
| 2 | (Constant) | 17.87 | .317 | | 56.36 | .000 | | |
| | MHclustr2-Degree of Anxiety | -.170 | .050 | -.262 | -3.40 | .001 | .524 | 1.91 |
| | MHcluster1-Degree of Depression | -.219 | .066 | -.257 | -3.33 | .001 | .524 | 1.91 |
| 3 | (Constant) | 15.85 | .960 | | 16.52 | .000 | | |
| | MHclustr2-Degree of Anxiety | -.172 | .050 | -.266 | -3.47 | .001 | .523 | 1.91 |
| | MHclustr1-Degree of Depression | -.207 | .066 | -.243 | -3.16 | .002 | .520 | 1.92 |
| | High School GPA? | .452 | .203 | .124 | 2.22 | .027 | .991 | 1.01 |

+Dependent Variable: $GWB_{PWS}$

The variance inflation factor (VIF) is the reciprocal of tolerance (SPSS, 2006). These values provided further evidence that the linearity assumption was met for this analysis. Since the three predictor variables within the final regression model had acceptably high tolerance levels, their variance inflation factors were acceptably small. This provided further evidence that the three independent variables left in the final equation to explain 24.3% of the variability of GWB in 18-24 year old college students were of statistical significance.

*Summary of Statistical Findings for Aim 4*

The fourth aim intended to disclose the combination of statistically significant independent variables which provided the most parsimonious explanation of the variance in GWB of traditional college students. Regression analyses were used to accomplish this task.

Several statistical diagnostics were considered prior to conducting the regression. These steps provided evidence that the sample size (N = 251) was sufficient to maintain statistical power. Cases with data points missing were eliminated from the analysis. Outliers were examined. Furthermore, the requisite assumptions necessary to conduct a regression analysis were satisfied, including the tests for normality, homoscedasticity, and collinearity.

The PI entered all ten of the statistically significant individual independent variables. These included (a) distance of family home college campus, (b) high school GPA, (c) frequency in past 7 days not felt rested, (d) degree physical problems affected academic performance, (e) degree stressful situations affected academic performance, (f) frequency felt 'very sad' since starting college, (g) frequency felt 'stressed out' about

homework/money, (h) frequency felt so overwhelmed that could not function, (i) frequency felt 'all alone' with no one to turn/talk to, and (j) frequency felt things were hopeless since starting college.

Both the academic performance risk index scale and the mental health risk index scale were associated with GWB with statistical significance. These health risk index scales were included in the model at the cluster level including the (a) Mental Health Risk Cluster 1: degree of depression, (b) Mental Health Risk Cluster 2: degree of anxiety, and the (c) Mental Health Risk Cluster 3: degree of social connectedness, along with the (d) Academic Performance Risk Scale.

Similarly the two SACQ subscales found to be associated with GWB with statistical significance were entered into the regression model. These subscales included SACQ Social Adjustment subscale and SACQ Attachment/ Commitment subscale.

A multiple regression was conducted using the forward stepwise method to determine the most parsimonious combination of the sixteen statistically significant independent variables that maximally explained the variance in GWB of 18-24 year old college students.

Three predictor variables qualified to be entered. The final model equation helped explain how clusters 1 and 2 of the Mental Health-Risk Index, along with the demographic characteristic of high school GPA predicted global wellbeing in this population of young adults. The final model indicated that 24.3% of the variability in GWB could be explained by these three factors ($R^2 = 0.243$, $R^2_{adj} = 0.243$, $F(1,246) = 26.348$, $p < 0.001$). A summary of regression coefficients obtained from this calculation depicted the contributions each of the three predictor variables provided in the final

model (Mental Health Risk Cluster 2 had a $p = 0.001$, Mental Health Risk Cluster 1 had a $p = 0.002$, and high school GPA had a $p = 0.027$).

## Chapter Summary

Chapter four revealed the results of this descriptive study. When the student grouping process (based on the 68% Statistical Rule) was applied to GWB (and to each of the six dimensions of GWB—as measured by the PWS) resulted in identifying students with increased relative risk when measuring GWB. By analyzing the indexed scales the potential/relative risk assumed by students was identified in the areas of their reported (a) Health Risk Behaviors (HRBs), (b) Mental Health Risk Behaviors (MHRs), (c) degree of spirituality-religiosity, and (d) academic performance.

Group differences and correlations between GWB and (a) the individual survey questions, (b) the risk indices, and (c) student adjustment [measured by the SACQ (Baker & Siryk, 1999] helped differentiate how GWB was perceived by the 18-24 year old college students who participated in this study. Group differences and Pearson correlations between the PWS (Adams, 2007) and the AIOS visual analog scale (Bell et al., 2004) were also calculated to test the underlying philosophical assumption of unidirectionality of the theoretical framework adopted for this study. The statistical analyses done regarding this assumption revealed ambiguous findings worthy of future investigation. Furthermore, a trend of declining group SACQ scores of the subjects from this study was identified when compared to the group SACQ scores from the normative data provided by the SACQ authors (Baker & Siryk 1999). Exploration of these findings is necessary.

Stepwise regression techniques revealed that 24.3% of the variability in GWB could be explained. The only three variables that remained in the final model to account for this 24.3% variability in GWB of traditional college students were (a) Mental Health Risk Cluster 2, which measured the degree of anxiety, (b) Mental Health Risk Cluster 1, which measured the degree of depression, and (c) high school GPA.

## Conclusion

The GWB of 18-24 year olds was explored through statistical means. The quantitative analyses conducted within this chapter involved using the PWS as a measure of GWB in the traditional college student population. This measure of GWB was tested as a population-based screening tool for the first time in this study. The results of this descriptive study provided the preliminary findings for future GWB research including (a) theory development, (b) research tool development, (c) health risk (especially mental health risk) screening strategies of transitioning adolescents, (d) early intervention strategies for at-risk students attending higher education, and (e) evidence-based strategies for wellness program planning. Discussion about the findings within this chapter will be presented in chapter five. Implications and recommendations for research, education, clinical application, and policy will be offered after this discussion.

# CHAPTER V

# DISCUSSION

Chapter five includes the discussion of the results, implications, and recommendations for future research. Discussion of the results is approached in relation to the four specific aims. Results are also explored from the perspective of the theoretical framework used in this study (see Appendix A). Implications for nursing, young adult health, and research are presented and the chapter concludes with recommendations related to this research for higher education, nursing education, nursing practice, nursing research, and policy. A brief overview of the entire study including a recap of the purpose and specific aims begins this section to guide and re-orient the reader prior to the discussion sections.

## Overview of Study

### *Purpose*

The basis of this work was to explicate self-reported global wellbeing (GWB) in traditional college students. The specific purposes were to (a) describe GWB in this population, (b) discover if GWB had influencing factors, and (c) reveal the most parsimonious combination of those factors that maximally correlate with the GWB of 18-24 year old college students.

*Specific Aims*

Four research aims were the focus of this study. They were to (a) explicate and measure the construct of GWB in 18-24 year old college students; (b) determine if GWB was perceived as a strictly positive construct versus perceived as a positive and/or negative construct by 18-24 year old college students; (c) explicate and measure the construct of student adjustment to college in 18-24 year old college students; and (d) describe the most parsimonious combination of demographic characteristics, identified health risk behaviors, and adjustment to college that explains GWB.

*Background and Significance*

It has been identified that the leading causes of death, illness, and social problems for young people in the United States are known to be behavioral, injury-related, and preventable (Barrios, Everett, Simon & Brener, 2000; Cameron, 1999; Jacobs, 1999; Kann et al., 2000). Priority health risk behaviors (HRBs) including (a) binge drinking, (b) unsafe driving, and (c) unprotected sex, are established during adolescence. These HRBs extend into adulthood, are interrelated, and negatively impact health and wellbeing. One-fourth of all 18-24 year olds in the United States attend post-secondary institutions (Barrios et al., 2000). Therefore, a significant proportion of adolescents transitioning into adulthood are accessible through research-based strategies offered by college communities.

The importance of this study was supported in part by the CDC (CDC-MMWR, 1997) and the American College Health Association (ACHA, 2008). These organizations have been tracking the health risk behavior trends in college students since 1995. Poor

adjustment to the college environment and subsequent attrition rates have been associated with health risk behaviors (Allery, 2004; Chen & Allery, 2005).

College campuses across the United States have implemented multidimensional wellness programs and wellness centers to address these identified high-risk needs (Chen, 2005; DiMonda, 2005; Hettler, 1998; Nicoteri & Arnold, 2005; Sivik et al., 1992). To date, these programs have offered wellness-based strategies without empirical evidence to indicate how students' behaviors and adjustment to college may influence their perceptions of wellbeing. Thus far, research has not evaluated how college-based wellness programs affect the wellness perceptions of young adults.

*Overview of Literature Review*

The author identified key findings, as well as, significant gaps in current wellness research. The literature indicated that the construct of wellbeing has been of central interest for many years. For the past several decades, health care professionals have redefined health and wellbeing to encompass the eudonomistic or wellness-oriented paradigm. Simultaneously, higher education has also placed wellness and holistic development of students at the center of their attention.

Perceived GWB has not been adequately defined as a construct. GWB has not been adequately tested in relation to college student behaviors or adjustment. However, dimensional wellbeing and GWB (the key concepts of this study) have been effectively measured in this population via the Perceived Wellness Survey (Adams, Bezner, & Steinhardt, 1997).

Nursing knowledge focusing on the wellness perceptions of young, functioning, adults was found to be a missing cornerstone of wellness information. Multiple

researchers have extensively reported how quality-of-life is affected by the aging process, chronic diseases, and end-of-life issues (Acton, 1994; Ellerman & Reed, 2001; Haas, 1999; Ruff-Dirksen, 1990; Stuifbergen et al., 2000). However, a paucity of research exists associating the behaviors of young adults with their perceptions of health and wellbeing (Adams et al., 2000; Carlton & Henrich, 1997; Kadison & DiGeronimo, 2004).

College students were identified as a vulnerable population. The review identified the unhealthy life-style choices this vulnerable population has chosen to participate in. The literature failed to connect the perceived rationales that drive and/or motivate young adults to behave in healthy or unhealthy ways. In order to begin to assure quality and long life to these young people, the following must be identified about this age group (a) what are their current perceptions about health and wellbeing, (b) what factors influence their perceptions of health and wellbeing, and (c) can these factors be effectively modified through wellness-based strategies.

Baseline knowledge of how life-style choices, behaviors, or adjustment to college influence the wellness of students does not exist. Therefore, evidence-based benchmarks to evaluate the effectiveness of wellness-oriented interventions do not exist. The ability to fully describe GWB from the perspective of transitioning adults will enhance the meaning of previously completed quality-of-life research.

### *Methodology*

The Multiple Dimensions of Perceived Wellness model (Adams, Bezner, & Steinhardt, 1997) guided this descriptive explanatory research project. Full-time, unmarried, undergraduate college students between the ages of 18-24 years ($N = 301$) were recruited in randomly selected entry-level (survey) courses. Data collection

occurred July through October, 2007 at a medium-sized, research-based, public university located in the upper Midwest region of the United States. A three-part customized pen and paper survey was administered (Appendix D). The survey measured demographic and HRB variables, adjustment to college, and the dependent variable of GWB. Students received a gift certificate (Appendix E) worth $2.50 toward a beverage of their choice at a campus-based coffee shop after completing their survey.

*Data Analysis and Results*

The sample and individual survey questions were depicted through descriptive analyses that included summary tables, charts, percentages, and measures of central tendencies. Prior to conducting stepwise regression, ANOVAs and correlations, the data were evaluated for the fulfillment of the test assumptions which address the issues of linearity, homoscedasticity, and normality.

In order to fully describe GWB, data was categorized to facilitate comparative analyses. The four indexed independent variables were created to represent the sample population's reported (a) health risk behaviors (HRBs), (b) mental health risk behaviors (MHRs), (c) degree of spirituality-religiosity, and (d) academic performance. Subjects were grouped into relative low, mid-range, and high range groups based on wellness and assumed risk scores utilizing the 68% Statistical Rule.

A significant difference did exist in the GWB mean scores between (a) the riskiest MHR group of students when compared to the GWB mean scores of the rest of the students ($p < 0.001$), and (b) the riskiest academic performance group of students when compared to the GWB mean scores of the rest of the students ($p = .001$). The mean GWB scores were significantly lower for the students in the riskiest MHR and riskiest academic

performance groups of students when compared to the rest of the students in the study. Students whose parents lived 181-360 miles from campus had statistically significant ($p = 0.011$) higher mean composite GWB scores (GWB $m = 16.341$, $SD = 3.233$) than those students whose parents lived less than sixty miles from campus (GWB $m = 14.335$, $SD = 2.724$).

There were only three variables that remained in the final regression model that explained 24.3% of the variability in the GWB of traditional college students. Those variables were: (a) Mental Health Risk Cluster 2, which measured degree of anxiety; (b) Mental Health Risk Cluster 1, which measured degree of depression; and (c) high school GPA.

## Discussion of Results

The focus of this study was to fully describe GWB and not to directly change the prevalence rates of the many risky behaviors and life-style choices identified as issues in this population. Therefore, it is beyond the scope of this research to engage in lengthy discussions about each of these individual risky behaviors within the context of this dissertation.

Instead, the discussion focuses on how the independent variables included in this study autonomously explicate GWB in traditional aged college students. The discussion will be organized by the specific aims. First, the PI will address how the description of GWB was extended based on: (a) individual demographic variables, (b) individual health risk behaviors, (c) clusters of health risk behaviors (d) clusters of mental health risks (e) clusters of spirituality/ religiosity beliefs and practices, and (f) academic performance risk factors. Next, the underlying philosophical assumptions of the theoretical framework

used in this study will be discussed. The discourse will then address how the description of GWB was extended based on college adjustment factors utilizing the SACQ. The discussion will then present the clinical significance of the final regression model generated. The most parsimonious combination of demographic characteristics, identified health risk behaviors, and adjustment to college that explained GWB will be discussed. This section will close with a discussion of the additional findings of this study.

### *Discussion of Study Aims*

#### *Aim 1: Explicate and Measure GWB in Traditional College Students*

The first aim of this study was to explicate and measure the construct of global wellbeing (GWB) in 18-24 year old college students. This occurred by measuring perceived global wellbeing; as well as measuring the six dimensions of GWB including the (a) physical, (b) social, (c) emotional, (d) psychological, (e) intellectual, and (f) spiritual dimensions of wellness.

The perceived GWB of the sample of persons in this study (valid $N = 278$; mean = 15.60; $SD = 3.05$) was similar to documented values obtained from other groups of young adults whose PWS means ranged 15.31 – 16.51 [with standard deviations ranging from 3.12-4.04] (Adams et al., 2000; Bezner & Hunter, 2001). This similarity provides further validation of the PWS as an effective tool to measure GWB in the healthy, young adult population. It also corroborates the PI's decision to utilize Adam's et al. (1997) Multiple Dimensions of Perceived Wellness theory as a framework for this study.

This author contends that the constructs of health and wellbeing are not the same thing. To be healthy requires behaviors that promote length and quality of life. To be well requires personal beliefs, perceptions and motivational satisfaction in where one is at in

his/her journey of becoming all that he/she can be (Hoffman, 2008).

People with high levels of perceived wellness know how to cope with stress and stay resilient. People with high levels of perceived wellness are those who remain focused on goals of self-actualization (Hoffman, 2008). According to Maslow's (1971), hierarchy of needs people can demonstrate healthy behaviors without being well. However, people cannot be well without demonstrating healthy behaviors.

This study demonstrated an integral link between stress, anxiety, HRBs, GWB and academic performance. The reciprocal association of mental distress with GWB, academic performance and HRBs in this study suggests that people with low levels of perceived wellness don't know how to cope with stress and are not resilient. It is plausible to conceive that people with low levels of wellness are unable to focus on self-actualizing life goals.

Living unhealthy life styles increases the likelihood of experiencing increased rates of morbidity and/or mortality. The more individuals partake in unhealthy behaviors such as poor eating habits, lack of rest and physical activity, smoking, drinking, and unprotected sex, the greater their risk of experiencing increased rates of morbidity and/or mortality. According to Hey, Calderon and Carroll (2006):

> College health professionals are ever challenged by more and more college students engaging in health risk behaviors such as unprotected sex, alcohol and substance abuse, low physical activity and poor nutrition. Moreover, to comprehensively address some of these (what appear to be mostly physical) health behaviors, the mental and spiritual aspects of a student's health needs to be

assessed...Looking at health promotion in a more global view can reveal new and possibly more effective approaches to improving needed health behaviors. (p 130)

Tapping into people's intrinsic motivators that drive personal perceptions of health and wellbeing is a necessary starting point for nurses to view health promotion in a more global manner. Changing client health behaviors is the outcome of health promotion. The actions to achieve this outcome need to be an interim focus of health promotion. Helping clients recognize what gives them the inner strength to cope with life stressors will in turn affect the following chain of events: (a) reduce stress, (b) reduce anxiety, (c) increase personal energy to devote to making life changes, (d) positively influence morbidity and mortality factors, (e) foster physical, emotional, and psychological dimensional wellness, which in turn (f) fosters GWB, and ultimately (g) sustain healthier life-style behaviors.

*Explicating GWB based on age, gender, and cultural identity.* The subjects in this study had very similar mean GWB scores when comparing these scores based on the age, gender, and cultural identity of the students. A one-way ANOVA did not reveal a significant difference in college students' composite GWB ($p = 0.833$) based on age. However, it is interesting to note that the variability in GWB decreased as age increased. Decreasing variability in GWB as students became older is not a surprising finding. Considering 18 year olds are entering college and living independently for the first time, some of these new undergraduates respond to these new experiences gracefully and see great opportunity for personal growth. Others see these experiences as stress-provoking and react negatively to the challenges. Only the students who learn how to cope with these stressors remain in college. Therefore, as the age of students increased, only the

'adjusted' students remained to be polled. Thus, the decrease in mean GWB score variability was found in the survey results.

There were no significant differences found in the students' GWB mean scores when compared by gender ($p = .063$) or based on cultural identity ($p = 0.587$). These findings may have been skewed due to the structure of this sample (valid $N = 281$): (a) 93.2% white, (b) 69.4% male, and (c) 68.3% either 18 or 19 years of age. This generation has been raised with the social norm of equality and acceptance of diverse differences. Therefore, these statistical findings fit with the social structure of the time.

*Explicating GWB based on distance of family home from campus.* The mean GWB score was significantly different among traditional college students based on how many miles away from the campus their family home was located ($p = 0.013$). Students whose parents lived 181-360 miles from campus had higher mean GWB scores than those students whose parents lived less than sixty miles from campus ($p = 0.011$).

One could speculate that the students going to school in closer proximity to their families experienced greater conflict transitioning roles from dependent child to autonomous young adult. The degree students find balance between autonomy, social support, social resources, social responsibility, and community connectedness helps define their social wellness (Adams, Bezner, & Steinhardt, 1997; Boland, 2000; Weinstein, 2001). This balance between students' perceptions of having support available from loved ones in times of need and the perceptions of being valued as a support provider fosters the sense of social wellness (Adams, Bezner, & Steinhardt, 1997).

*Explicating GWB based on living arrangements and relationship status.* There were no significant group differences in mean GWB scores when looking at (a) whom

students chose to live with while at college ($p = 0.38$), (b) where students chose to live while at college ($p = 0.71$), or (c) whether they were single/not dating, single/casually dating, or single/committed to a significant other ($p = 0.066$). The PI did not expect these findings based on the anecdotal information received from college students during student advising experiences encountered as a nursing instructor. The PI has had multiple conversations with students about how their extremely stressful experiences with roommates and/or how significant others impacted their academic performance, level of stress, and sense of self.

*Explicating GWB based on GPA of students*. High school GPA was found to have a significant weak positive correlation with students' reported GWB scores (valid $N = 277, r = 0.163, p = 0.006$). In other words, as students' high school GPA increased, so did their GWB scores. However, there was no statistically significant group differences in mean composite GWB scores of traditional college students' based on whether students performed academically strong in high school (received an A or B grade point average) or if students performed academically poor in high school (i.e., students who received a C, D, or F grade point average) [$t\ (276) = 1.93, p = 0.055$]. In a study by DiMonda (2005) six dimensions of wellness behaviors (measured by the Testwell College edition survey) were compared with students' college GPA. DiMonda's data indicated a relationship between undergraduate student wellness behaviors (valid $N = 564$) and college GPA. As wellness behaviors increased on two of the six dimensions of wellness (Emotional Management and Self care) so did the GPA. These relationships were not identified in this study. However, it is important to point out that the Testwell

College Survey measures student behaviors not student perceptions (Hey, Calderon, & Carroll, 2008).

*Explicating GWB based on first generation and/or TRIO eligibility.* GWB scores were not significantly different based on whether subjects qualified as first generation college students or not ($p = 0.34$), or if subjects were TRIO-services eligible college students or not ($p = 0.81$). Comparative discourse about these findings is limited. No studies were identified using first generation and TRIO-eligibility as variables to study GWB. There has been a trend of more first generation students and TRIO-eligible students entering higher education (Chen, 2005). According to Gibbons and Shoffner (2004), first generation students tend to differ from students who are not first generation college students in terms of cognitive and non-cognitive measures. The results from this study did not identify any differences in student adjustment or GWB. Therefore, more research designed to measure perceived wellness and wellness behaviors based on first generation and/or TRIO eligibility is needed to validate or refute these precursory findings.

*Explicating GWB based on sleep patterns.* Using sleep patterns as an independent variable in GWB research and as a clinical indicator was supported by the findings of this study. The number of days per week students reported 'not feeling rested' in the morning was found to have a significant weak negative correlation with students' GWB scores ($r = -0.154, p = 0.010$). As the number of reported 'awaking tired' days per week increased, the students' GWB score decreased.

The value of this independent variable (i.e., frequency of not feeling rested in the morning) as a useful clinical indicator was extended after the PI regrouped the study

sample into two groups using day '3' (the mean/median/mode) as the cut point. The first group represented all subjects who indicated they had awakened 'feeling un-rested' for three or more days out of seven. The second group was all of the subjects that indicated they had awakened 'feeling un-rested' for two or fewer days out of seven. The PI then looked for statistically significant group mean differences of students' GWB and their indexed risk scores based on how many mornings students awoke 'feeling un-rested'.

Table 64

GWB scores based on number of times in last 7days students felt un-rested in the morning: (a) Group mean differences of GWB and indexed risk scores

Group mean differences of students GWB and indexed risk scores based on if:
Students felt un-rested < 3 mornings out of the last 7 days
versus
Students felt un-rested ≥ 3 mornings out of the last seven days

| | | Levene's Test for Equality of Variances | | *t*-test for Equality of Means | | |
|---|---|---|---|---|---|---|
| | | *F* | Sig. | *t* | *df* | *p* |
| GWB | Equal variances assumed | 0.186 | 0.667 | -3.092 | 275 | 0.002* |
| HRB | Equal variances assumed | 0.025 | 0.876 | 3.498 | 277 | 0.001** |
| MHR | Equal variances not assumed | 5.972 | 0.015 | 6.134 | 275 | 0.000** |
| Academic Performance Risk | Equal variances assumed | 2.888 | 0.090 | 3.852 | 277 | 0.000** |

* Significant at the 0.01 level (two-tailed)
**Significant at the 0.001 level (two-tailed)

Independent sample *t* tests comparing the group of students who awoke feeling un-rested 3 or more mornings out of the last 7 days to the group of students who awoke feeling un-rested less than 3 mornings out of the last 7 days were calculated. Significant differences were found in the group means of students based on their (a) GWB scores

($p = 0.002$), (b) HRB scores, ($p = 0.001$), (c) MHR scores ($p \leq 0.001$), and their (d) academic performance risk scores ($p \leq 0.001$). See Table 64a to review these statistically significant group mean differences.

The clinical significance of these *t*-test findings became apparent when interpreting the mean scores of the group of students who felt un-rested three or more mornings out of the last week when compared to the mean scores of the group of students who felt un-rested less than three mornings out the last week. Table 64b displays these comparisons.

Table 64

GWB scores based on number of times in last 7days students felt un-rested in the morning: (b) Measures of central tendency of GWB and risk index scores

| Felt un-rested three to seven mornings out of last seven days Versus Felt un-rested zero to two mornings out of last seven days | | | | | |
|---|---|---|---|---|---|
| | Q30-# of Xs in last 7days you felt un-rested in am? | Valid *N* | Mean | Std. Deviation | Range of Scale |
| GWB score | ≥ 3 days* | 160 | 15.12 | 2.901 | 3.0-29.0 |
| | < 3 days** | 117 | 16.25 | 3.148 | |
| HRB score | ≥ 3 days* | 161 | 27.06 | 10.834 | 1.0-71.0 |
| | < 3 days** | 118 | 22.42 | 11.058 | |
| MHR score | ≥ 3 days* | 161 | 19.47 | 9.139 | 1.0-75.0 |
| | < 3 days** | 118 | 13.45 | 7.248 | |
| Academic Performance Risk | ≥ 3 days* | 161 | 3.35 | 2.923 | 0-20.0 |
| | < 3 days** | 118 | 2.08 | 2.460 | |

* ≥ mean/median/mode
**< mean/median/mode

The mean GWB score of students who felt un-rested three or more mornings out of the last seven (mean = 15.12; *SD* = 2.901) was significantly lower than the mean GWB score of the students who felt un-rested less than three mornings out of the last seven (mean = 16.25; *SD* = 3.148). The mean HRB score (i.e., level of health behavior risk)

assumed by students who felt un-rested three or more mornings out of the last week (mean = 27.06; *SD* = 10.834) was significantly higher than the mean level of health behavior risk assumed by students who felt un-rested less than three mornings out of the last week (mean = 22.42; *SD* = 11.058). The mean MHR score (i.e., level of mental health risk) assumed by students who felt un-rested three or more mornings out of the last week (mean = 19.47; *SD* = 9.139) was significantly higher than the mean level of mental health risk assumed by students who felt un-rested less than three mornings out of the last week (mean = 13.45; *SD* = 7.248). The mean academic performance risk score (i.e., level of academic performance risk) assumed by students who felt un-rested three or more mornings out of the last week (mean = 3.35; SD = 2.923) was significantly higher than the mean level of academic performance risk assumed by students who felt un-rested less than three mornings out of the last week (mean = 2.08; SD = 2.460).

*Explicating GWB based on BMIs of students.* No significant difference in GWB scores based students' BMI ranges ($p = 0.258$) was identified in this study. This finding was somewhat unexpected based on general media coverage depicting overweight people as *unhappy*. The PI re-coded BMI ranges into healthy versus unhealthy BMI ranges. Once again, no significant group difference was found in the mean GWB scores when comparing students with healthy versus unhealthy BMIs ($p = 0.212$).

The lack of findings was perplexing. As a nurse with years of experience promoting health and wellbeing in her clients, the PI had seen the clinical connection between a young person's BMI, self-image, and sense of wellbeing. Even though GWB showed no significant group differences based on BMI, the author was determined to understand the perceptual or behavioral connection of students' BMI with either poor

adjustment to college, or increased assumed health risk. Only the mean MHR score i.e., level of mental health risk assumed by students within the healthy BMI range (mean = 17.68; *SD* = 8.96) was found to be significantly higher ($p = 0.05$) than the mean level of MHR assumed by students in the unhealthy BMI ranges (mean = 15.42; *SD* =8.75). This finding provided contextual clarity regarding the complex interrelationships between the various independent variables included in this study and their influence on GWB.

*Explicating GWB based on clustered independent variables.* Thus far in this analysis, students' composite GWB scores have not been adequately explained based on differences derived from the 21 individual demographic characteristics and health risk behaviors selected as the independent variables for this study. "[T]here is limited research describing the impact of multiple, concurrent behaviors on wellness in the college population" (LaFountaine, Neisen, & Parsons, 2006). The lack of findings thus far has hindered the ability to fully describe GWB in this population. This prompted the grouping of the survey questions into concept-related clusters and culminated in the creation of index scales to represent the clustered constructs of (a) health risk behaviors (HRBs), (b) mental health risks (MHRs), (c) spirituality-religiosity beliefs and practices, and (d) academic performance risks. Furthermore, relative sorting of students into low, mid-range, and high risk groups for (a) HRBs, (b) MHRs, (c) spirituality-religiosity beliefs and practices, (d) academic performance risks, and (e) GWB was done to explicate the relationships these indexed variables had.

*Explicating GWB based on the HRB index scale.* No significant difference was found ($p = 0.54$) when comparing the mean GWB score of the riskiest HRB group of traditional college students with the mean GWB score of the rest of the students. At first

glance this finding seems anti-intuitive from the perspective of health-care providers and college administrators. However, this study measured the self-reported perceptions of traditional college students.

Emic perceptions [of vulnerability] are experiential and qualitative, while etic perceptions involve identification of individuals or groups who are at particular risk according to normalized quantifiable benchmarks set by specialists and derived from the general population (Spiers, 2000; deChesnay, 2005). Spiers (2000) identified that there is not a singular definition of vulnerability that can adequately serve all forms of research and practice. The 'etic' perspective is most appropriate for population-based application. Whereas, the 'emic' perspective is most appropriate for understanding vulnerability as an experiential state. There needs to be a congruent fit of the term vulnerability within the context of its use and with the population this term is being used to describe or investigate. In the future, nurse investigators need to consider the vibrant nature of societal attitudes on college campuses that may have a bearing on (a) whether the highest risk group of students perceived their behaviors as risky (i.e., vulnerable), (b) how they measured healthy behaviors and wellness, and/or (c) whether the population *wishes* to be perceived as vulnerable (Moore &Miller, 1999). Future research will need to be designed to differentiate between these divergent perspectives of risk, vulnerability, health, and wellbeing.

*Explicating GWB based on the MHR index scale.* Many of the emotional and physical symptoms common in the college population including (a) fatigue, (b) depression, (c) anxiety, (d) ineffective coping behaviors and (e) sleep disturbances can be attributed to stress (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005). Previous research

has shown relationships between stressful life events and poor health-related quality of life among college students (Arthur, 1998; Damush, Hays & DiMatto, 1997; Grace, 1997; Greenberg, 1981). The findings in this study statistically link GWB with the clustered mental health risks included in the MHR index score. These findings extend the understanding of how mental health factors influence GWB in college students.

The mean GWB score of the riskiest MHR group was significantly ( $p < 0.001$) lower (valid $N = 53$; mean = 13.76, $SD = 2.59$) than the mean GWB score of the rest of the subjects (valid $N = 225$; mean =16.03, $SD = 2.99$). As the risk for mental health problems increased in students, their GWB scores decreased (valid $N = 251$; $r = -0.474$, $p < 0.01$).

Of even greater clinical significance was the existence of significant weak negative correlations between GWB and each of the three Mental Health Risk Index clusters (valid $N = 278$). Results showed: (a) As the degree of depressive symptomology increased, the students' GWB scores decreased ($r = -0.389$, $p < 0.01$); (b) As the degree of anxiety related symptomology increased, the students' GWB scores decreased ($r = -0.380$, $p < 0.01$); and (c) As the risk for social isolation increased, the GWB scores decreased ($r = -0.216$, $p < 0.01$). The ability to differentiate between types of mental distress could offer tangible, workable, solutions to students experiencing emotional duress.By identifying specific areas of mental health issues that are correlated with GWB, health care providers, counselors, wellness programs and college administrators can individualize their efforts based on the needs of each student.

*Explicating GWB based on indexed spiritual/religious beliefs and practices.* College denotes a phase when transitioning adults are seeking and exploring life's

possibilities (Muller & Dennis, 2007). Swartz (2001) conveyed that college students are receptive to enhancing their spiritual dimension.

The overall degree of spirituality-religiosity index score in this study represented the assumed summative value related to college students' reported spirituality and religious beliefs and practices. Unfortunately, the absence of any significant findings between the composite GWB score and the clustered spirituality-religiosity variables in this study failed to find any of the linkages as mentioned above. The degree of Spirituality-Religiosity full scale index scores, as well as its two clusters did not have any statistically significant correlations with students' GWB scores. Furthermore, the mean GWB score of the riskiest Spirituality-Religiosity group (valid $N = 48$; mean = 15.31, $SD = 2.81$) was not significantly different from the GWB mean of the rest of the students (valid $N = 230$; mean = 15.66, $SD = 3.09$). Since the 1990's there has been an explosion of research examining religion, spirituality, and health (Mills, 2002). To date, no single tool has emerged as a spirituality measurement standard (Hall, Meader, & Koenig, 2008).

The lack of significant findings in this study may be a function of how the PI chose to measure the degree of spirituality-religiosity in this sample of college students. Another possibility for not finding any relationships or group differences may be due to conducting the research in the Bible belt region of the United States. More work is needed to support or refute the findings in this study.

*Explicating GWB based on indexed academic performance risks.* The academic performance risk full scale scores revealed significant negative correlations with students' GWB scores. As the risk for poor academic performance increased, the students' GWB scores decreased ($r = -0.338$, $p < 0.01$). Furthermore, the mean GWB

score of the riskiest academic performance group was significantly ($p = 0.001$) lower (valid $N = 43$; mean = 14.19, $SD = 3.23$) than the mean GWB score of the rest of the subjects (valid $N = 235$; mean = 15.86, $SD = 2.95$). These findings are congruent with the individual components of this index scale discussed earlier. Specifically, the same relationships and group differences were identified when comparing GWB scores with high school GPAs and individual mental health questions.

The calculated *z*-scores of the four risk index scales and GWB scale allowed for comparative discussion between each of these scales. There were students in both the spirituality-religiosity riskiest group, as well as the academic performance riskiest group whose scores were greater than four standard deviations from the group mean. Early identification of these students (in relative extreme risk) by college student services could facilitate early intervention opportunities. This type of proactive student mentoring could avert attrition rates and enhance the holistic development of college students.

There were a small number of students in the riskiest HRB group, the riskiest MHR group, and the lowest scoring GWB group whose scores were greater than three standard deviations from the group mean. Early identification of these 'at-risk' students by health-care professionals could reduce mortality in this population. This type of proactive screening throughout their academic career and subsequent early intervention could save the lives of those few individuals on self-destructive paths, as well as all of the members of the campus community that may come within the line of fire of these 'at-risk' students.

*Explicating the six dimensions of GWB.* The moderate to strong positive correlations ($r$'s ranged from 0.471 to 0.743; $p \leq 0.01$) identified in this study between all

of the six dimensional subscales (a) physical, (b) social, (c) emotional, (d) psychological, (e) intellectual, and (f) spiritual reinforced the findings from previous studies utilizing the PWS tool. Similarly, the moderate to strong positive correlations ($r$'s ranged from 0.563 to 0.736; $p \leq 0.01$) between the six dimensional subscales of this instrument with the composite GWB score further corroborated the findings from work conducted by Adams, Bezner and Steinhardt (1997).

*Congruence of perceived dimensional wellness and risk scales.* Pearson correlations were calculated for each of the six dimensions of wellness with each of the four risk index scales. The statistically significant negative correlations between the following scale dyads suggest that the measured perception of dimensional wellness was congruent with its intended paired scale which was designed to measure the various assumed risks and/or behaviors associated with that perception. For instance the MHR index scale was negatively correlated with (a) the psychological dimension of wellness [$r = -0.427, p \leq 0.001$], (b) the emotional dimension of wellness [$r = -0.427, p \leq 0.001$], and (c) the social dimension of wellness [$r = -0.305, p \leq 0.001$]. The spirituality-religiosity index scale was correlated with the spirituality dimension of wellness ($r = -0.128, p = 0.033$). The academic performance scale was correlated with the intellectual dimension of wellness ($r = -0.238, p \leq 0.001$).

The correlations found between the above mentioned risk index scale-wellness dimension scale dyads lends evidence-based credence to the notion that behavior and perception are closely related to each other (Adams et al., 1997). Table 65 displays these dyad relationships. However, causality between these variables was not established in this descriptive study.

Table 65

Pearson correlations of the six dimensions of wellness with the 4 risk index scales

| Wellness Dimension | | HRB Index | MHR Index | Spirituality-Religiosity Index | Academic Performance Index |
|---|---|---|---|---|---|
| PSYCHOLOGICAL valid $N = 271$ | Pearson Correlation | -0.039 | -0.427(**) | -0.072 | -0.233(**) |
| | $p$ | 0.527 | 0.000 | 0.240 | 0.000 |
| EMOTIONAL valid $N = 278$ | Pearson Correlation | -0.003 | -0.443(**) | 0.013 | -0.238(**) |
| | $p$ | 0.954 | 0.000 | 0.835 | 0.000 |
| SOCIAL valid $N = 278$ | Pearson Correlation | -0.011 | -0.305(**) | -0.062 | -0.219(**) |
| | $p$ | 0.856 | 0.000 | 0.299 | 0.000 |
| PHYSICAL valid $N = 278$ | Pearson Correlation | 0.053 | -0.291(**) | 0.032 | -0.238(**) |
| | $p$ | 0.378 | 0.000 | 0.595 | 0.000 |
| SPIRITUAL valid $N = 278$ | Pearson Correlation | -0.098 | -0.366(**) | -0.128(*) | -0.248(**) |
| | $p$ | 0.104 | 0.000 | 0.033 | 0.000 |
| INTELLECTUAL valid $N = 278$ | Pearson Correlation | -0.107 | -0.321(**) | 0.050 | -0.238(**) |
| | $p$ | 0.075 | 0.000 | 0.403 | 0.000 |

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

The statistically significant weak negative correlations between the MHR index and all six dimensions of wellness reinforce the earlier findings that mental health variables are critical in explicating GWB in traditional college students. The statistically significant weak negative correlations between the MHR index scores and the (a) psychological dimension of wellness, (b) emotional dimension of wellness, and (c) the social dimension of wellness supports the notion that perceived GWB as measured by the PWS tool falls within the affective domain of human nature.

By looking at the spiritual dimension of wellness separate from the composite construct of GWB, two statistically significant negative correlations were identified.

Spiritual wellness was found to have a weak negative correlation with the academic performance risk index ($r$ = -0.248, $p \leq 0.001$) and with the MHR index ($r$ = -0.366, $p \leq 0.001$). This mental health –spirituality association was also revealed in a study conducted by Knox, Langehough, Walters, and Rowley (1998). These researchers reported that college students who scored higher on the Allport Spirituality Scale were found to be more emotionally sound.

*Aim 2: Determine if GWB is a Strictly Positive Construct*

The negatively and positively worded endpoints that serve as the anchors for the implied bi-directional AIOS visual analog scale provided the basis for investigating the contested portion of the theoretical framework in this study. The omission of an overt negative and/or positive assignment of global wellbeing in the AIOS scale (Bell et al., 2004) provided data to test Adams' assertion that GWB can only be a positively assigned value on a unidirectional continuum (T. Adams, personal communication, April 3, 2007). Whereas, Bell (personal communication, April, 3, 2007) contended that GWB could be perceived as either positive or negative.

GWB as measured by the PWS ($N$= 278) and GWB as measured by AIOS ($N$= 261) were positively correlated to each other ($r$ = 0.478, $p$ = 0.01).The variability of the Perceived Wellness Survey GWB measurement, as measured by the coefficient of variance, was less than (19.6%) the variability of the Arizona Integrated Outcomes Scale GWB measurement ( 27%). Furthermore, all six of the PWS dimensional GWB scores demonstrated statistically significant weak to moderate positive correlations with the AIOS global wellbeing score ($p < 0.01$) with $r$'s ranging from 0.275 to 0.476. The AIOS measure of GWB did appear to be related to the PWS measure of GWB in this study.

At this early juncture in this philosophical query, the implied negative portion of the AIOS (i.e., 0 – 49 mm out of the 100 mm scale) appeared to be identifying the 'least well' group of students based on their AIOS-GWB scale. The scores of the lowest group as measured by the AIOS were 0 through 48mm. Those AIOS scores (0-48) of the lowest scoring group of students corresponded with the portion of the AIOS visual analog scale considered to represent the implied negative end of a bidirectional wellness continuum. This finding lent preliminary support to the proposition that GWB was a bidirectional construct (i.e., both a positive and/or negative perception).

Further analysis revealed that the mean AIOS- GWB scores of the riskiest group of subjects (i.e., students whose self-reported indexed risk scores were among the cases at or greater than the 85$^{th}$ percentile of the distribution) were *not* below the midpoint of the AIOS visual analog scale. The mean AIOS-GWB score for the (a) HRB riskiest group mean = 65.63 (*SD* = 19.384); (b) MHR riskiest group mean = 56.10 (*SD* = 20.175); (c) Spirituality-Religiosity riskiest group mean = 70.17 (*SD* = 16.929); and (d) Academic Performance riskiest group mean = 60.84 (*SD* = 20.282).

Additional scrutiny of the AIOS and the PWS data revealed philosophical inconsistencies when looking first at the (a) riskiest groups, and then at the (b) combined mid-range and high scoring groups. There were subset GWB ranges that did not coincide with the full data set GWB ranges.

These incongruent findings were noted in the AIOS, as well as the PWS. These ambiguous findings suggest these two instruments used to quantify GWB may be measuring different constructs perceptually. If these tools are not measuring the same

construct, definitive conclusions drawn about their philosophical underpinnings would be faulty.

The philosophy about health and wellbeing adhered to by Adams is that wellbeing should not be based on normative comparisons. He believes that the interpretation of PWS scores should be based on individualized, repeated-measure comparisons (T. Adams, personal communication, January, 24, 2008). In this sense, Bell is in agreement with Adams (I. R. Bell, personal communication, April, 3, 2007). She revealed that her intention surrounding the development of the AIOS was to create an easy-to-use clinical tool while working with her chronically ill clients. In this study, the PWS and the AIOS were utilized as population-based normative tools instead of individualized repeated-measure tools. This innovative application merits further exploration. The need for further testing of the premise that GWB is strictly a positive construct versus and bidirectional construct requires further analysis as well.

*Aim 3: Explicate and Measure Student Adjustment to College*

The third aim was to explicate and measure the construct of student adjustment to college in 18-24 year old college students. This was done by administering the Student Adaptation to College Questionnaire [SACQ] (Baker & Siryk, 1999).

Adjustment to college was selected as a subjective measure of how the subjects in this study were adapting and coping with their college campus environment. The full-scale SACQ along with its four subscales were used as independent variables. The authors of the SACQ claimed that this tool can identify 'at-risk' students (Baker & Siryk, 1999; Kaase, 1994). Therefore, the degree of adjustment to the academic demands and

environmental stressors of the college campus, as measured by the SACQ, were included as possible influencing factors of the overall sense of wellbeing of the study subjects.

Grouping of students based on their self-reported full scale SACQ scores culminated in three groups. Relatively highest scoring (i.e., the best coping), midrange scoring (i.e., the average coping), and lowest scoring (i.e., the poorest coping) groups of students were established based on the Approximate 68% Rule for normally distributed samples in statistics (Pyrczek, 2002). The same grouping process was done for each of the four adjustment subscale scores as well. The published normative SACQ data ($N = 2,052$) created by Baker and Siryk (1999) followed the same grouping process that was done in this study. Their normative data resulted from research conducted between 1980 through 1984.

When viewing the poorest coping group of students (i.e., scoring below one standard deviation from the mean SACQ score, both the full scale and subscale scores of this study fell within the respective normative ranges of scores. These findings suggest that the SACQ continues to have the ability to identify those students with the greatest risk of not adjusting to their college environment.

However, the identified trend in declining SACQ scores within the best-coping and average-coping groups of the students in this study when compared to their normative counterparts deserves discussion. The SACQ full scale scores and the subscale scores obtained from this study started lower and ended lower than their respective normative ranges of scores within the average-coping and best-coping groups of students.

Granted, this downward trending sense of adjustment in today's college students requires further investigation before an absolute statement can be made. However, if this

finding has merit, it poses significant implications to the wellbeing of today's college students. In particular, the PI pondered the following questions: (a) Why have adjustment scores declined in the average-coping and best-coping groups of college students over the past two decades?; (b) What environmental factors could be negatively affecting current students' ability to perceive themselves as being well adjusted?; and (c) What shared experiences of today's 18-24 year old college students have negatively affected their ability to perceive themselves as being well adjusted?

According to Yeaton (2008):

> Individuals within any generation have different traits, but the shared experiences of its members impact certain attitudes and perspectives across the group. For example, the political environment, the business environment and the cultural environment represent some of the broad national trends that influence attitudes and perspectives. Technological advances also play a significant role in shaping a generation. (p. 69)

The Higher Education Research Institute (HERI) at the University of California, Los Angeles is a major source of information on the contemporary college student. After reviewing the 2001 HERI survey results ($N = 411{,}970$ subjects from 704 institutions), Schroeder (2003) suggested that there is indeed a new breed of student on college campuses today. The behaviors and attitudes of these students are quite different from previous generations (DiMonda, 2005). Young people born between approximately 1979 and 1994 have been identified as belonging to Generation Y (Gen Y) which is a group also referred to as the Mellennials. The current ages of Gen Y members span from 14 to 29 years (Yeaton, 2008).

These millennial adolescents and young adults have grown up within the digital revolution. They have been raised with personal computers, cell phones, and the internet as merely a part of their everyday life (Yeaton, 2008). Keeping up with the explosion of changing information and technology is as much of a daily challenge as mastering any small portion of this growing stream of knowledge.

These Gen Y students have experienced a significant portion of their politically cognizant lives in the aftermath of the terrorist attacks on the United States on September 11, 2001. A 2004 study was conducted by Seo, Blair, Torabi, and Kaldahl to examine the emotional, perceptual, attitudinal and behavioral changes among college students since the September 11$^{th}$ terrorist attacks using a cross-sectional survey of 1,059 students. Their results revealed this traumatic event had a considerable effect on college students' perceptions, lifestyles, attitudes, and mental/emotional health. The students indicated they were more anxious and emotionally unstable since the September 11$^{th}$ attack. The majority of these students also reported they were more concerned for their (a) personal safety [61%], (b) safety of family members [74%], (c) mode of travel [52%], (d) future of country [80%], and (e) world peace [81%] (DiMonda, 2005; Seo et al., 2004).

A constant environment of change and vulnerability can leave anyone feeling unsettled. Living in the reality that change and personal risk are constants everyone will always experience is a very difficult environment to feel 'well adjusted' in. These environmental factors are plausible explanations for the downward trending SACQ adjustment scores identified in this study.

There were several statistically significant correlations identified between student adjustment (as measured by the SACQ) and the independent variables in this study. For

instance, student adjustment was found to be correlated with the following survey questions: (a) age ($r$ = -0.212; $p$ = 0.001); (b) who students lived with while in school ($r$ = 0.145; $p$ = 0.021); (c) whether this was the first time students lived away from home ($r$ = 0.146, $p$ = 0.021); (d) whether students were raised in an urban or rural environment ($r$ = -0.126; $p$ = 0.046); (e) amount of time students felt hopeless since starting college ($r$ = -0.133; $p$ = 0.035); (f) class standing of students in college (i.e., Freshman, Sophomore, Junior, or Senior) ($r$ = -0.211; $p$ = 0.001); and (g) number of college credits earned to date ($r$ = -0.208; $p$ =0.001).

However, no statistically significant correlations were identified between the full scale SACQ scores and any of the full scale risk indices. Only two clusters within all of the risk indices were found to have statistically significant correlations with the full scale SACQ. The MHR Cluster 1 that addressed self-reported depressive symptoms ($r$ = -0.129; $p$ = 0.042) and MHR Cluster 3 that addressed self-reported social connectedness ($r$ = -0.144; $p$ = 0.023) demonstrated a statistically significant weak negative correlation with overall student adjustment to college (SACQ full scale).

Correlational inconsistencies between the constructs of student adjustment and GWB when compared with the independent variables of high school GPA and 'feeling rested' were revealed in this study. Even though correlations were identified between GWB and high school GPA ($r$ = 0.163; $p$ = 0.006), no significant correlation was found between student adjustment to college and high school GPA ($r$ = 0.072; $p$ = 0.258). The same inconsistency was found when evaluating the question about the number of days per week students felt rested. Specifically, even though a correlation between GWB and

feeling rested ($r$ = -0.154; $p$ = 0.010) was identified in this study, a correlation did not occur when comparing 'feeling rested' to the full scale SACQ ($r$ = -0.043; $p$ = 0.498).

However, correlations between every one of the four SACQ subscales and each of the six GWB subscales were not found. Only seven of the possible 24 subscale combinations were correlated. The SACQ attachment/commitment subscale was found to be correlated with each of the six GWB subscales: (a) GWB physical subscale ($r$ = 0.144; $p$ = 0.023), (b) GWB social subscale ($r$ = 0.168; $p$ = 0.008), (c) GWB emotional subscale ($r$ = 0.273; $p$ = 0.000), (d) GWB psychological subscale ( $r$ = 0.208; $p$ = 0.001), (e) GWB intellectual subscale ( $r$ = 0.259; $p$ = 0.000), and (f) GWB spiritual subscale ( $r$ = 0.244; $p$ = 0.000).

*Aim 4: Describe the most parsimonious combination factors that explain GWB*

The fourth aim intended to disclose the combination of those identified statistically significant independent variables which provided the most parsimonious explanation of the variance in GWB of traditional college students. Regression analysis was the strategy employed to accomplish this aim. Based on earlier analyses in Chapter 4, only the 16 independent variables found to have statistical significance with GWB were entered into the forward, stepwise multiple regression procedure to explain the variance in GWB in this group of 18-24 year old college students.

All ten of the statistically significant individual independent variables were used in the forward, stepwise multiple regression procedure. These included (a) distance of family home college campus, (b) high school GPA, (c) frequency in past seven days not felt rested, (d) degree physical problems affected academic performance, (e) degree stressful situations affected academic performance, (f) frequency felt 'very sad' since

starting college, (g) frequency felt 'stressed out' about homework/money, (h) frequency felt so overwhelmed that could not function, (i) frequency felt 'all alone' with no one to turn/talk to, and (j) frequency felt things were hopeless since starting college. The academic performance risk index scale, the mental health risk index scale, the SACQ Social Adjustment subscale, and the SACQ Attachment/ Commitment subscale were also included in the regression model because they were associated with GWB with statistical significance.

The decision to enter all statistically significant independent variables, along with the statistically significant risk indices at the cluster level was based on the goal of identifying as many specific manipulative factors available for personally designed wellness intervention plans. This decision was based on the research objective to identify any specific behavior or set of behaviors that would best explain GWB in this population. Entering the three statistically significant MHR clusters separately into the equation provided the greatest opportunity for specificity in planning individual wellness treatment plans. This same specificity for individualized wellness intervention plans was the rationale used in the decision to enter the statistically significant SACQ scores at the subscale level. Therefore, the mental health risk index scales and SACQ scores were included in the model at the cluster level including the (a) Mental Health Risk Cluster 1: degree of depression, (b) Mental Health Risk Cluster 2: degree of anxiety, and the (c) Mental Health Risk Cluster 3: degree of social connectedness, along with (d) SACQ Social Adjustment subscale, and (e) SACQ Attachment/ Commitment subscale. The statistically significant academic performance risk index scale was also included in the regression model to explain the variance in GWB.

Only three variables out of the possible 16 variables entered into the equation remained in the final model. In the end, it was the MHR cluster 2 (degree of anxiety) and the MHR cluster 1 (degree of depression), along with the demographic characteristic of high school GPA that explained 24.3% of the variance in GWB with statistical significance ($p < 0.001$) for this population of transitioning adults.

This result suggests four things. First of all, reducing mental distress in students and/or teaching them how to better manage their life stressors could significantly influence their wellness perceptions. Secondly, the health risk behaviors known to impact students' mortality and morbidity do not directly influence their perceptions of wellness. Thirdly, there remains a significant portion of GWB variability still unaccounted for based on the 16 variables included in this study's final regression model. Finally, the placement of high school GPA after degree of anxiety and after degree of depression in the final regression model suggests that high school GPA should not hold the clout it currently has in higher education decision-making processes.

### *Discussion of Additional Findings*

Throughout this research process, results were revealed that did not specifically address the four research aims identified at the beginning of this treatise. However, these additional findings provide valuable context to the primary purpose of explicating GWB in traditional college students. A discussion of these findings will be offered.

#### *Discussion of Sampling Plan and Subject Recruitment Process*

A stratified random sampling plan was used to select classrooms from a list of entry-level survey/introductory campus-based courses provided to the PI from the

registrar's office. The instructors of these randomly selected courses granted permission to the PI to enter their classrooms.

The pre-established randomization of the subject recruitment plan was affected by several unforeseen issues. First, contacting course instructors was problematic. This was particularly difficult during the shortened summer semester. Office hours were unknown. Some phone messages and emails providing an explanation of the research project and request to access students went unanswered.

The posted number of students enrolled in each course directed the recruitment decisions of the PI. The PI batched and emailed all of the instructors of the randomized courses up to the number of subjects still remaining to be recruited at the beginning of each school week. If these instructors had not returned a phone call or email by the end of the first week, a follow-up email and phone call was placed. If no response was received by the beginning of the second week, the recruitment process was initiated with another batch of courses. Each time the number of instructors emailed was based on the number of subjects still needed for the study and the number of instructors who declined the PI's request and/or never responded.

The willingness of instructors to relinquish a 50 minute block of lecture time was another problem the PI encountered. Several times instructors wanted the PI to access a section of their course that was not one of the randomly generated ones. This was because they had one section of their course that was further along in the curriculum than the section that had been randomly selected. A few instructors suggested that I come to all of their sections for the same reasons. With the intent to generate a randomized sample, the investigator chose to graciously decline these offers.

The PI did negotiate with a few willing instructors on the amount of time needed to complete the surveys. Three instructors agreed to grant the investigator thirty minutes at the end of their class period. Then, the students chose whether to stay beyond their regularly scheduled class time to complete the survey. This strategy did appear to impact the number of incomplete surveys turned in to the PI.

During the summer and fall semesters of 2007, eleven instructors granted the PI access to a possible 454 students. The 301 surveys completed represent a 66% survey collection rate. The PI had a 61.9% completion rate of the 281 usable surveys (out of a possible 454 students accessed).

At one point in the design phase of this project, the PI considered accessing students via their email accounts at school. A dissertation committee member with expertise in research design utilizing students on campus highly recommended face-to-face interaction during the data collection process. This committee member strongly adhered to the need of the PI to 'set the mood' in each of the classrooms to maximize the quality of the survey responses.

The investigator personally presented the purpose and significance of this study at the beginning of every course accessed. Any cases that did not respond to the survey questions designed to ascertain the qualifying criteria were eliminated. The PI reviewed each survey for completeness and quality of responses. Students that did not complete parts one and two were removed ($n = 10$). Only two cases had obvious insincere, sarcastic, and/or comedic responses. Applying all of these criteria, resulted in eliminating 20 cases (6.6%) of the 301 original surveys collected.

The length of the survey, the placement of the SACQ at the end of the customized survey, along with students' ability to stay beyond their scheduled class time likely impacted the valid sample size available for the analysis of aims three and four. Another 30 cases (9.9%) of the 301 original surveys were eliminated. In all, approximately 50 cases (16.6%) were eliminated from the SACQ analysis and the final regression analysis portion of this study (valid $N = 251$). This study preserved the tenets of randomization by eliminating less than 20% of the collected surveys (Burns & Grove, 2005).

It took students between 20 minutes and 65 minutes to answer the four part survey after receiving the introductory information. Overall, students appeared grateful to receive their beverage gift certificate (worth $2.50) in exchange for their completed survey and their time. Out of the 454 possible students registered for the classrooms accessed by the PI, 301 surveys were collected (66.3%). The successful percentage of surveys collected along with the number of students who willingly submitted completed/qualifying surveys suggests excellent participation from the students: (a) 93% subject participation rate for the analysis of aims one and two [valid $N = 281$; valid percent = 93.4%], and (b) 83% subject participation rate for the analysis of aims three and four [valid $N = 251$; valid percent = 83.4%]. These response rates also strongly support the face-to-face data collection method used in this study.

*Discussion of Sample Related to Demographic Independent Variables*

*Gender*. An anomaly was detected in the gender frequency distribution of the subjects. Theoretically, a random sample should generate a distribution representative of the university student population it portrays. The 2007 student profile of this university indicated that men account for 54.8% and women account for 45.2% of the 10,085

undergraduates (Institutional Research, 2008). There were 195 (69.4%) males in this study compared to 86 (30.6%) females. This disproportionate representation of males in the randomized sample obtained for this project can be partially explained by reviewing the classes that the PI was granted access to for subject recruitment.

Two of the eleven classrooms were large core courses for the Aviation program in this university. These two courses accounted for 50.2% ($n = 141$) out of the 281 usable surveys collected. Of these 141 subjects, 78.7% were male and 21.3% were female. "This program consists primarily of white male students. From year-to-year, females only make up 12-13% of the students" (personal communication, Kent Lovelace, Chair of Aviation Department, June 26, 2008)

The remaining 140 usable cases were much more representative of the entire university student population. The remaining 9 classrooms consisted of 60% males and 40% females.

*Age.* The mean age of the 281 participants was 19 years and 4 mos. Almost 41 percent of the students in this study were 18 years old ($n = 115$; valid percent=40.9%). The majority (valid $N = 281$, $n = 230$, valid percent = 81.9%) of the students were between the ages of 18 and 20. This was most likely a function of the sampling plan. The PI used entry-level survey courses as the pool of courses to randomly draw from. Students tend to enroll in these types of classes early in their academic careers. Eighteen to nineteen year olds made up nearly 70% of the students in this study (valid $N = 281$; $n = 192$; valid percent = 68.3%) compared to the 44.2% of respondents (valid $N = 879$; $n = 373$) from 2005 University Behavioral Health Status Report (2005-BHS Report) that were 18 to 19 years old (Chen & Allery, 2005).

*Cultural identity.* There were four percent more white students represented in the study sample ($N = 281$, $n = 262$; valid percent = 93.2%) compared to the actual student profile of this university ($N = 10{,}085$, $n = 8{,}994$; valid percent = 89.2%). There were nearly 2% fewer Native Americans among the subjects in this study ($N = 281$; $n = 2$; valid percent = 0.7%) in relation to the actual breakdown of cultural identification based on the university student profile (valid $N = 10{,}085$, $n = 257$; valid percent = 2.5%) (Institutional Research, 2008).

Both of these discrepancies could be explained by the two Aviation classrooms that accounted for 50.2% ($n = 141$) out of the 281 usable surveys collected for this study. See Table 66 to review these comparisons. According to Neuerburg, Assistant Director of the university's American Indian Student Services, only two or three of their Native American students have declared Aviation as a major (personal communication, June, 26, 2008).

Table 66

Comparison of student cultural identification: Study sample vs. university student profile

| Demographic Characteristic: Cultural Identity | | | | |
|---|---|---|---|---|
| | Study Sample | | Fall-2007 University Student Profile* | |
| | Frequency (*n*) | Valid Percent (%) | Frequency (*n*) | Valid Percent (%) |
| -White not Hispanic | 262 | 93.2 | 8,994 | 89.2 |
| -Black not Hispanic | 5 | 1.8 | 129 | 1.3 |
| -Hispanic-Latino | 3 | 1.1 | 112 | 1.1 |
| -Asian | 7 | 2.5 | 141 | 1.4 |
| -Native American/Alaskan Indian | 2 | 0.7 | 257 | 2.5 |
| -Other (or not reported) | 2 | 0.7 | 452 | 4.5 |
| Total *N* | 281 | 100.0 | 10,085 | 100.0 |

*Data gathered from Institutional Research (2008)

*Relationship status*. One hundred-three of the subjects in this study responded that they were single and in a committed relationship (valid $N = 281$; valid percent = 36.7%). This coincided closely with the 37.3% identified as single and in a committed relationship (valid $N = 863$; $n = 322$) based on the 2005-BHS Report for this university (Chen & Allery, 2005),

According to the study participants, almost 42 percent (valid $N = 281$; $n = 117$; valid $N = 281$; valid percent = 41.6%) indicated they were single and currently not dating. According to the 2005-Behavioral Health Survey Report from this university (Chen & Allery, 2005), almost 57% of the students were single and not dating (valid $N = 863$; $n = 491$; valid percent = 56.9%).

Based on this comparison, 15% fewer students were single and not dating during the data collection period of this study (July through October, 2007) than in the data collection period for the 2005-Behavioral Health Survey Report, (i.e., spring of 2004). The PI speculated that this discrepancy may be a function of classroom selection, timing of data collection, and pre-set exclusion criteria for the study. For instance, this 15% discrepancy may have been due to the high number of subjects ($n = 144$) who indicated this was their first semester in college (valid $N = 281$; valid percent = 43.4%). These students may still have been emotionally connected to a boyfriend/girlfriend 'back home.' Therefore considering themselves casually dating and/or in a committed relationship.

*College housing arrangements*. Table 67 depicts the comparative breakdown of where students reported to live while at college. One hundred-sixty seven students ($N = 281$; valid percent = 59.5%) in this study lived in residence halls in 2007.

Table 67

Comparison of housing arrangements at college: Study Sample vs. university institutional research data

| Comparison of housing arrangements at college: Study Sample vs. university institutional research data | | | | |
|---|---|---|---|---|
| | GWB Study Sample | | Fall-2007 Institutional Research Website | |
| Housing arrangements at college | Frequency (*n*) | Valid Percent (%) | Frequency (*n*) | Valid Percent (%) |
| -Residence Hall | 167 | 59.4 | 2,473 | 19.7 |
| -Campus Apartment | 12 | 4.3 | 955 | 7.6 |
| -Fraternity/Sorority | 8 | 2.8 | 462 | 3.7 |
| -Living $\leq$ 10 mi from campus | 94 | 33.5 | 8,669 | 69 |
| Total *N* | 281 | 100.0 | 12,559 | 100.0 |

The University Housing Department only reported 19.7% of all college students stayed in residence halls during the same timeframe (Institutional Research, 2008). This variation may be due to the structural affects of the sampling plan. For instance: (a) the classroom selection i.e., survey-level courses; (b) the high number of students attending this university for the first time; and (c) the pre-set inclusion/exclusion criteria for the study i.e. only undergraduates, and no married students or parents were allowed in this study. The same rationale provided above could also explain why 33.5% fewer students from the study lived off-campus compared to the university student housing figures [see Table 67] (Institutional Research, 2008).

*Class standing.* The same sampling plan decisions could also justify why the number of first year college students (i.e., freshman status) in the study (valid $N = 281$;

$n$ = 218; 78.4%) was 45.5% more than the number of freshmen in the 2005-Behavioral Health Survey Report ($N$ = 879; $n$ = 275; valid 32.9%) as reported by Chen and Allery (2005).

*First time living on own.* Two-thirds of the students in this study (valid $N$= 280; $n$ = 185; valid percent = 66.1%) reported that this was the first time living away from their family home. This demographic characteristic could also explain the greater percentage of students from this study living in the residence halls compared to the university information (Institutional Research, 2008).

*Geographical location of family home.* Nearly 200 students (valid $N$= 280; $n$ = 197; valid percent = 70.4%) reported their family home was at least a three hour drive from campus and 98 (valid $N$= 279; valid percent = 35.1%) disclosed coming from relatively rural environments. These demographics suggest that many of the subjects in this study were transitioning from dependent adolescents under the direct supervision of their parents to their new role as autonomous adults. Therefore, these young adults were being exposed to novel and potentially stressful events for the first time in their lives without direct guidance regarding their decision-making processes.

*Family income.* There was a significantly large difference between the $90,000 median annual household income (mean = $113,155; SD = $110,955) reported by the subjects of this study and the $39,233 median household income reported by the state in which this research was conducted (USDA website, 2008). This university draws a substantial number of students from its border states. The median annual household income reported for these three neighboring states ranged from $39,821 to $56,102. These figures were gathered in 2005-2006 by the United States Census (U.S. Census

website, 2008).This inconsistency could also be explained by the naivety of the young, inexperienced subjects responding to this survey question. With 40% of the subjects being 18 years old, and the mean age of the subjects equal to 19 years, 4 months, it is doubtful that these young people independently filed their own financial aid paperwork or even their own IRS tax forms. Support for this conjecture, in part, was based on the number of students that chose to leave this question blank. Out of 281 possible, 37 (13%) left this question blank. Several of these respondents wrote the comment, "I have no idea how much my parents earn."

*Student work hours during semester*. A slight majority of the subjects were not working at the time of data collection ($N$= 274; $n$ = 143; valid percent = 50.9%). In comparison, only 16% reported working greater than 21 hours per week ($N$=274; valid $n$ = 45). These numbers may have under-represented the financial need of today's college student (Kadison & DiGeronimo, 2004). Summer earnings and parental support would still likely have been available this early in the school year (and school career). Students' inflated perception of parental financial status coupled with the lack of student work hours could have been setting the stage for familial animosity when school-related expenses come to the forefront (Kadison & DiGeronimo, 2004). The 2005-Behavioral Health Survey Report indicated that nearly 60.9% of the 862 respondents polled in the spring of 2004 had weekly employment (Chen & Allery, 2005). Although the exact number of hours worked per week was not disclosed, this figure suggests at least 10% more students were employed in the spring of the school year compared to the fall of the school year.

*First generation college students and TRIO eligibility.* Out of the 281 study respondents, only 14.2% ($n = 40$) were identified as first generation college students. Of the 277 subjects that were available for this analysis, only thirteen qualified (i.e., annual family income < $25,000) for the federally funded TRIO programs (Filkins & Doyle, 2002). The PI recognized that these percentages may grossly under represent the eligibility of the student population due to the potentially inflated family incomes the students reported in this study.

According to the 2004 College Student Inventory conducted at this university, 39% of incoming freshmen were first generation students. The same survey estimated that 27% of students attending this university qualified for TRIO services (Institutional Research, 2008). According to Jorde, Assistant Director of Student Services, obtaining accurate figures for the demographic characteristics used to qualify students as first generation and/or TRIO eligible has been problematic. These 'unofficial' university figures were based on indirect measures and/or the subjectivity of student responses (J. Jorde, personal communication, July 3, 2008). The difficulty of capturing the TRIO-eligible subpopulation of college students within research projects is a major disservice to these individuals; as well as a disservice to the federal funding agencies that provide resources to these deserving students.

*Discussion of Sample Related to Identified Health Risk Behaviors*

*Sleep patterns.* According to the ACHA-NCHA Spring, 2007 Reference Group Data Report, only 7.1% of college students (valid $N = 71,860$; $n = 4,996$) reported getting enough sleep to awake feeling rested at least 5 out of the past 7 days (ACHA-NCHA, 2008). However, this national finding is greatly under-reported compared to two sources

from the campus that this study took place. A comparison was made between the (a) Chen and Allery (2005) report where 40.4% ($n = 336$) out of the 832 student responses indicated that they did not feel rested in the morning at least 5 out of the last 7 days; and (b) this study where only 22.6% (n = ) out of the 279 student responses did not feel rested in the morning at least 5 out of the last 7 days. The university report data has always been collected in the spring semester, whereas, the PI for this study finished collecting data prior to midterms in the fall semester. Therefore, it is possible that subjects in this study had not yet encountered the high stress, time-consuming, test-taking phases most students experience within each academic semester. The increased problem of sleep deprivation reported on the campus of this study, compared to the national data, may also be a function of the age of the student respondents. Freshmen and sophomores were overrepresented in these studies. It is highly likely that these first time students have not yet learned how to manage their sleep and study times appropriately.

*Discussion of Sample Related to Spirituality/Religiosity Independent Variables*

The 1960's through the 1970's was a time when developing a meaningful philosophy of life was the number one value for college students across the United States. In contrast, students today place being very well off financially as a top value. It is probably safe to say that this shift in values on college campuses is merely an expression of a societal shift in values (Chickering, Dalton, & Stamm, 2006). These authors suggest there is a spiritual awakening throughout higher education occurring at the faculty level. Academia has demonstrated growing concern with recovering a sense of meaning and authenticity in American society." They are pondering on "[h]ow [to] achieve a greater

sense of community and shared purpose in higher education" (Chickering, Dalton, & Stamm, 2006, p. ix)

Nearly 70% of the respondents (valid *N*= 281; cumulative *n* = 193; valid percent = 69.2%) considered themselves to be spiritual. Similarly, 68% of the students reported that they considered themselves to be religious (cumulative *n* = 191; valid *N*= 281; valid percent = 67.9%). An even greater percentage recognized that one could be spiritual without being religious (cumulative *n* = 213; valid *N*= 276; valid percent = 77.2%). Only 6.1% reported that they did not believe in a god or higher power.

These survey results suggest that the great majority of these students were open-minded, valued spirituality, and had a sense of personal conviction about their own spiritual beliefs. This openness on college campuses provides an excellent backdrop for wellness programs to encourage student reflection on what is needed to foster personal spiritual growth and wellness. Teasdale (1999) suggested that these contradictory findings can coexist:

> Being religious connotes belonging to and practicing a religious tradition. Being spiritual suggests a personal commitment to a process of inner development that engages us in our totality....Often, when authentic faith embodies an individual's spirituality the religious and the spiritual will coincide. Still, not every religious person is spiritual (although they ought to be) and not every spiritual person is religious. (pp. 17-18)

*Discussion of Sample Related to Academic Performance*

The baccalaureate degree is the key to upward social mobility. It signifies a crucial step in the educational attainment ladder in terms of economic benefits (Pascarella

& Terenzini, 1991; Pike & Kuh, 2005). High school grade point averages (GPAs) and undergraduate GPAs have been used by higher education as cognitive predictors of successful completion of college degrees (Astin, 1975).

The results of this study showed that 151 out of 281 (53.7%) of the respondents completed high school as 'A' students. However, at the time of the survey only 35.2% reported having a cumulative college GPA equal to an 'A' (adjusted $N$=159; n = 56). Although the GPA has been used as successful predictor of collegiate success, no research was found by the PI addressing the impact declining GPAs have on students self-identity and wellbeing when they are unable to maintain that 4.0 GPA after entering college.

Many students in high school take the job of excelling academically very seriously. Even average high school students can maintain exceptional grades. However, expectations and the intellectual capacity of peers shift after arriving at college (Kadison & DiGeronimo, 2004). Inability to maintain an A average "strik[es] a blow to [the students]... whose sense of self-worth is tied to academic achievement... Without strong coping skills to face these internal and external pressures, today's college students are walking on combustibles; and the competitive college environment is often the igniting match" (Kadison & DiGeronimo, 2004, p. 36). Further work is needed to discover the full impact declining GPAs can have on the mental health and GWB of college students.

## Implications

### *Implications Related to Aim 1: Explicate and Measure GWB in College Students*

The PI selected the health-related independent variables in this study based on the 2004 ACHA-NCHA survey results obtained on the campus that this study took place.

The PI anticipated the identification of easily measured beliefs, characteristics, and/or behaviors that could serve as part of a future, evidence-based 'wellness' tool for health care providers and higher education administrators.

Only three studies measuring young adults' perceptions about their GWB instead of their wellness behaviors were found after an extensive literature review (Adams, Bezner, & Steinhardt, 1997; Adams et al., 1998; Adams et al., 2000). To date, research and higher education wellness programming have focused primarily on quantitatively measuring traditional-age college students' risky behaviors and lifestyle choices (Allery, 2004; Chen & Allery, 2005; Nicoteri & Arnold, 2005). It is from this platform that wellness experts have made a faulty inferential leap. It has been inferred that the presence or absence of these risky behaviors and lifestyle choices are what defines college students as 'well' or 'not well' (ACHA, 2008; ACHA-NCHA, 2008; Allery, 2004; DiMonda, 2005; LaFountaine, Neisen, & Parsons, 2006).

Campus-based wellness programs have focused their efforts on promoting healthy behaviors of students with the intent to improve the wellbeing of students. These efforts include promoting smoking cessation, good nutrition, good hand washing, immunizations, and proper amounts of exercise. These efforts are commendable and most likely have a direct link to reducing morbidity and mortality of students.

However, the results of this study do not support the *direct* link between healthy behaviors and experiencing a good sense of wellbeing. For the first time, this study demonstrated evidence that risky health behaviors such as binge drinking, drinking and driving, having multiple sex partners, and/or having unprotected sex do not have a direct bearing on students' perceptions of their own wellbeing.

The PI does not suggest (in any shape or form) that these health-promoting efforts be reduced. Instead, the PI suggests that these efforts be marketed separately. The reduction of life-threatening behaviors should be linked to living a healthy lifestyle. Whereas, the promotion of personal GWB should be linked to developing oneself holistically as part of one's life-long journey toward self-actualization (Hoffman, 2008; Maslow, 1971).

Researchers still need to delve into the reasons *why* or *why not* students seek to be well versus *why* or *why not* they partake in behaviors known to potentially harm themselves. In this sense the tracking of risky life-style choices and behaviors is a valid research and clinical agenda. Early identification of *unhealthy* behaviors could facilitate early health interventions before morbidity and mortality occurs. Similarly, early detection of young people who are *not doing well* could facilitate wellness interventions before psychological or emotional crises occur.

Traditional age college students tend to define their health, wellness, and "illness in terms of the limitations it places on their daily activities" (Nicoteri & Arnold, 2005, p. 411). Therefore, *telling* young people that drinking and having unprotected sex is bad for them while they are partaking in these behaviors will not be well received until they experience a negative consequence that they in turn attach to these behaviors. Researchers and clinicians alike need to approach health promotion and wellness promotion as related but separate entities.

Further investigations are needed to see if the score ranges associated with this study's lowest, middle, and highest scoring HRB and GWB groups correspond with future samples of young adults' grouped GWB scores. The long range research goal of

the PI is to establish point thresholds within the research tool. Early detection of young people who are not doing 'well' could facilitate wellness interventions before crises occur.

Identifying students who are potentially *at-risk* within the construct of health behaviors can be beneficial to the individual as well as society at large. Early identification and intervention of people on self-destructive paths could reduce their risk of morbidity and mortality. Society may benefit by the decreased community exposure to the second-hand effects of young people partaking in risky behaviors. Identifying students who are potentially *at risk* within the construct of wellbeing can also be beneficial. Early identification and intervention of young people with low levels of wellbeing could avert rash reactions to their underlying feelings of anxiety and or depression.

The calculated *z*-scores of the four risk index scales and GWB scale allowed for comparative discussion between each of these scales. There were students in both the spirituality-religiosity riskiest group as well as the academic performance riskiest group whose scores were greater than four standard deviations from the group mean. Early identification of these students (in relative extreme risk) by college student services could facilitate early intervention opportunities. This type of proactive student mentoring could avert attrition rates and enhance the holistic development of college students.

There were a small number of students in the riskiest HRB group, the riskiest MHR group, and the lowest scoring GWB group whose scores were greater than three standard deviations from the group mean. Early identification of these 'at-risk' students by health-care professionals could save lives. This type of proactive screening throughout

students' academic careers and subsequent early intervention could save the lives of those few individuals on self-destructive paths as well as all of the members of the campus community that may come within the line of fire of these 'at-risk' students.

The reciprocal nature of GWB was the most significant implication the PI derived after evaluating all of the findings within this first research aim. This conclusion is based on the interrelationships between each of the six dimensions of wellness and with the overall construct of GWB. These findings suggest that individual students can directly influence their overall GWB score by improving any one of their six dimensions of wellness. Furthermore, directly influencing any one of their six dimensions of wellness, individual students can directly influence any (or all) of the remaining five wellness dimensions.

The clinical implication of these interrelationships is that each student can *choose* which wellness dimension he/she wishes to focus wellness-based intervention efforts regardless of how he/she scored in that dimension. Individual choice is a critical component of affecting meaningful behavioral change. If an improved sense of wellness is attained in the chosen dimension, the individual should also experience improvements in the other five wellness dimensions, as well as in overall GWB. If these identified correlations between GWB and the independent variables in this study are reciprocal, then an improvement in GWB could positively affect the frequency and/or degree in mental distress being experienced by transitioning adults on college campuses in the United States.

*Implications of Aim 2: Determine if GWB is a Strictly Positive Construct*

This study explored the utility of the PWS and the AIOS as population-based normative research and clinical tools. Both measures of perceived GWB show great promise as quick, easy, and affordable screening tools for campus-based wellness programs, student health services, and student counseling programs. Replicated studies are needed to validate the low, mid, and high normative group scores initiated in this study. Studies employing interventional, repeated measure, and longitudinal designs are needed to test the utility of these GWB tools for clinical efficacy.

Further qualitative and mixed-method research is needed to ascertain (a) how this age group actually defines GWB, (b) whether this age-group perceives their own sense of wellness as unidirectional or bidirectional, and (c) if this age group views these two measures of GWB as measures of the same perception. Only after these issues are repeatedly tested will enough data be generated to determine if Adams' assertion that GWB can only be a positively assigned value on a unidirectional continuum is an accurate theoretical assumption (T. Adams, personal communication, April 3, 2007). The preliminary findings generated by the AIOS from this study provides some credence to the notion that GWB could be perceived by traditional college students as either a positive and/or negative construct (Bell et al., 2004).

*Implications of Aim 3: Explicate and Measure Student Adjustment to College*

The inconsistencies of high school GPA and the number of days per week students felt rested when evaluated with GWB and SACQ lend support to the notion that the construct of student adjustment is different than the construct of GWB. For instance, these two constructs may share factors that impact both student adjustment and GWB.

However, these shared factors affect student adjustment and GWB differently. Furthermore, the constructs of GWB and student adjustment do not share *all* of the same factors. Replicated studies are needed to either corroborate or refute the preliminary findings established in this study.

The statistically significant correlations between the SACQ and the other independent variables in this study help extend the current knowledge about student adjustment to their college environment. These correlations can help clinicians identify areas of focus for interventional efforts to improve student adjustment. Improving adjustment to the college environment (even without regard to students' sense of wellness) is worthy of campus leaders' attention because SACQ scores have been positively correlated with college student retention (Kaase, 1994) and academic success (Baker & Siryk, 1999).

Based on the downward trending SACQ scores within the average-coping and best-coping groups of students in this study, the authors of the SACQ may need to consider establishing a new set of SACQ normative data and scale ranges. The results of this study suggest that there is a need to reconfigure the midrange and high range normative SACQ scores downward to be more representative of current (Gen Y) college students levels of perceived adjustment to their college environment.

The possible link identified in this study between students' attachment to the college they are attending and wellness (both dimensionally and globally) could be an exciting discovery for college administrators and campus-based wellness programs alike. If collegiate goals of improving student development (holistically) and improving student

retention could be attained through a collaborative campus-wide strategy, resources could be maximized and costs minimized.

Correlations are not equivocal to causations. However, if these preliminary correlational findings between student adjustment and GWB were incorporated into campus-wide programming, combined efforts could be melded into evidence-based wellness strategies designed for both campus healthcare professionals and college administrators. Wellness-based interventions could focus on specific college adjustment needs derived from student SACQ scores to identify individualized plans for students. Tracking changes in student SACQ scores and GWB scores could provide valuable feedback for students, clinicians, and college administrators.

### *Implications related to Aim 4: Describe the most parsimonious combination of factors that explain GWB*

A summary of regression coefficients obtained from the regression procedure conducted in this study depicted the contributions each of the three remaining variables provided in the final model. The first variable remaining in the final regression model was Mental Health Risk Cluster 2 (degree of anxiety) with a Beta value of –0.266 ($p$ = 0.001). The second variable in the final regression equation was Mental Health Risk Cluster 1(degree of depression) with a Beta value of -0.243 ($p$ = 0.002). The last variable in the final model was high school GPA with a Beta value of -0.124 ($p$ = 0.027).

Student advisors, counselors, faculty, residence hall staff, wellness program staff, as well as campus healthcare providers need to take heed to these results. Proactively engaging with students at the personal level will allow these leaders in higher education to really get to know their student charges. This familiarity will allow leaders to

recognize those students with increasing levels of anxiety and/or depression early enough to make a difference in the wellbeing of these students. Failure of academic professionals to advocate for students wellbeing before a mental health crisis (i.e., anxiety and depression) escalates to the point of meltdown has already been experienced on campuses across the United States. The infamous shooting spree of a previously identified mentally ill graduate student on the campus of Virginia Polytechnic Institute and State University that occurred on April 16, 2007 (Golden, 2007; Schwinn, 2007) is a grim reminder to academia's leaders what the result of reactive, non-involvement can be.

The leaders of higher education have professed that developing their students holistically, not just academically, is their mission (Chickering, Dalton, & Stamm, 2006). However, cognitive predictors such as pre-college entrance exams, high school GPAs, undergraduate GPAs, and graduate school entrance exams have been used historically by college administers to predict and/or measure academic success (Institutional Research, 2008). In this light, the order of the final three variables that remained in the regression model of this study to explain the variance in GWB is worthy of comment. If higher education is claiming holistic student development as their mission, they should consider adopting personal improvement measures within the affective domain of their prospective, current, and graduating students as adjunctive means to measure student development and student success.

## Recommendations

The results of this study expand the understanding of health and wellness knowledge for nursing. The increased clarity between the constructs of health and

wellness shows the promise of advancing (a) nursing curriculum by differentiating health promotion and wellness promotion, (b) evidence-based clinical nursing strategies, (c) nursing health-wellness research, and (d) the health and wellness of transitioning adolescents into adulthood. The following recommendations address the areas of higher education, nursing education, nursing practice, and nursing research.

### *Recommendations for Higher Education*

The leaders of higher education have professed that developing their students holistically, not just academically, is their mission (Chickering et al., 2006). However, cognitive predictors, such as pre-college entrance exams, high school GPAs, undergraduate GPAs, and graduate school entrance exams have been used historically by college administers to predict and/or measure academic success (Institutional Research, 2008). In this light, the order of the final three variables that remained in the regression model of this study to explain the variance in GWB is worthy of comment.

The placement of high school GPA after degree of anxiety and after degree of depression suggests that high school GPA should not hold the clout it currently has in higher education decision-making processes. If higher education is claiming holistic student development as their mission, they should consider adopting personal improvement measures within the affective domain of their current and graduating students as adjunctive means to measure student development and student success. An evidence-based, holistic, proactive, early identification and early intervention approach to student development is needed on campuses across the United States.

*Recommendations for Nursing Education*

Currently, the terms of *health* and *wellbeing* are commonly clumped together as the broad sweeping outcome all clients should strive for. This generality and blurring together of distinct constructs from distinct domains of learning does not serve the patient or the new nurse. The results of this study have suggested that health beliefs are derived from the cognitive domain of learning and health behaviors are derived from the psychomotor domain of learning. In comparison, perceptions of wellbeing are derived from the affective domain of learning. Each of these unique constructs need separate outcomes with uniquely separate measures of success. These distinctions will provide the tangible feedback that both the client and the nurse will experience rewards and benefits from.

Nurse educators need to provide future nurses with the critical thinking, assessment, and communication skills to adequately work with clients' health promotion/ disease prevention and wellness promotion needs. These skills need to be developed on the individual level via inclusion of appropriate material in nursing curriculum for student nurses and continuing education programs for practicing nurses. Topic areas that need to be bolstered in nursing curriculum include (a) the health promotion role of nurses, (b) How to define and assess wellness holistically, (c) how to assess vulnerability in adolescents transitioning to adulthood, (d) what health risks should be assessed in this population, and (e) how to assess health risks in this population.

Public health nurses need to conduct county-wide wellness needs assessments and then educate their constituents through community-based wellness programs. Nurse leaders in the field of wellness and health promotion need to disseminate their evidence-

based information derived from research efforts through national wellness campaigns. Three examples of successful population-based educational efforts include (a) MADD—Mothers Against Drunk Drivers campaign, (b) the pink-ribbon breast cancer awareness campaign, and (c) shaken-baby syndrome awareness campaign.

*Recommendations for Nursing Practice*

This study focused on revealing which health risk factors and behaviors related to the internal perceptions of GWB. The power of identified health risk factors and behaviors cannot be disregarded or minimized. However, individual wellness perceptions are also significant because they may actually pave the way for explicit demonstration of health and/or illness and may therefore be fruitful ground for early intervention or lasting health respectively. Clinicians should center on healthy behavior-changing, evidence-based strategies found to be effective in modifying wellness perceptions (Adams et al., 1997; 2000).

Sleep patterns used as a clinical health and wellness indicator with college students was supported by the findings of this study. Based on the analysis in this paper, sleep patterns could be a useful benchmark indicator to assess (a) GWB, (b) assumed behavioral health risks, (c) assumed mental health risk, and (d) assumed academic performance risk. Furthermore, measuring, tracking, and intervening based on the sleep patterns of college students could be a tangible, plausible, and affordable interventional strategy that would be evidence-based. The preliminary findings in this study suggest that changing the sleep patterns of students may reap significant benefits with regards to students' (a) GWB, (b) assumed behavioral health risks, (c) assumed mental health risks, and (d) assumed academic performance risks.

Only MHR group differences based on BMI categories were identified as significant in this study ($p = 0.05$). The usefulness of using BMIs as a clinical indicator for identifying groups of students who may be experiencing mental distress is very useful to college health programs. These preliminary findings suggest that nurses could affordably use BMIs as screening and interventional tools with the college student population to identify groups of students who may be experiencing high degrees of mental health risk. Further investigation is needed to find the possible mediating effect that unhealthy BMIs have on the GWB of college students through their level of assumed mental health risk.

### *Recommendations for Research*

It is recommended that researchers, clinicians, and college administrators adhere to evidence-based approaches to measure and treat health promotion, wellness promotion, and disease prevention. In order to begin to assure quality and long life to young adults, researchers must first determine what the current perceptions of this population are about health. Researchers must also determine what the current perceptions of this population are about wellbeing. Further research is needed to clarify what factors differentially influence their demonstrated health behaviors versus their perceptions of wellbeing.

Studies need to be done to delineate these factors. The work done in this current project identified factors that are associated with wellbeing. Further research is needed to tease out the fine distinctions between GWB and the independent variables found to be statistically significant in this study. For instance, designing survey questions that address how factors such as (a) distance from home, (b) perceived social support and expectations

from family, (c) perceived levels and types of stress, and (e) changes in GPA from high school to college, impact students' perceptions of GWB.

The lowest scoring group of students based on their intellectual and spiritual dimensional wellness scores demonstrated the greatest variability in this study. These PWS subscale scores ranged from 4 to 22. The lowest scoring group of students based on their physical and emotional dimensional PWS scores ranged from 7 to 21 and 7 to 20, respectively. The social dimensional scores for the relatively least well group ranged from 10 to 23. The psychological dimensional subscale had the least amount of variance within the least well group. These PWS scores ranged from 15 to 22. As mentioned earlier, this is the first study that used the PWS to generate population-based normative group values. Replication studies are going to be required before real meaning and application to these normative values can be determined.

The relationship between student adjustment to college and GWB was done to evaluate the role student adjustment had in how students perceived their overall sense of wellness. This study did reveal a statistically significant weak positive correlation between student adjustment and GWB with an $r$ of 0.165 ($p = 0.009$). Overall student adjustment was also directly correlated with each of the dimensions of GWB. These relationships provide campus wellness programs and student services a firm foundation to begin designing evidence-based research projects. Further research is needed to determine any causality between student adjustment and each of the wellness dimensions. These efforts need to include the exploration of interventional strategies. These strategies should include each of the four aspects of student adjustment and each of the six dimensions of wellness.

The information derived from this and replicated studies could then be used to design interventional studies to identify whether young people's perceptions of wellbeing can be effectively modified through college-based wellness strategies. Simultaneously, interventional studies are needed to identify whether demonstrated health behaviors can be altered through college-based health promotion/disease prevention strategies.

Future studies need to advance this knowledge toward causal relationships. Causal modeling techniques applied to a well-designed experimental study (Mertler & Vannatta, 2002) could then be employed to identify the best fitting patterns of intercorrelations among *health* and *wellness* variables to explain this researcher's premise that health and wellness are related but discrete constructs. Based on this path analysis work, researchers will be able to develop a single, comprehensive (yet brief) theory-supported, evidence-based health/wellness tool. A single tool that incorporates health behaviors and wellness perceptions will facilitate data collection from clinicians that will enhance future evidence-based research efforts. Epidemiologists, health/wellness researchers, and college administrators could utilize this tool for normative population-based data collection. Nurses, doctors, counselors, and college wellness staff could utilize the same tool for planning and evaluating the effectiveness of individualized health/wellness treatment plans.

This study explored the usefulness of the PWS as a normative population-based screening tool for campus-based wellness programs. Further investigations are needed to see if the ranges of GWB scores associated with this study's lowest, middle and highest scoring GWB groups correspond with future samples of young adults' grouped GWB scores. The long range research goal of the PI is to establish point thresholds within the

PWS. These point thresholds hold promise for research and clinical wellness interventional implications.

Funding for research and campus-based wellness programming could be increased if the links between risk factors, behaviors, and interventions can be clearly demonstrated. For this reason it is recommended that researchers, clinicians, and college administrators agree to a singular meta-theory of health and wellness with the same definitions and measurement tools.

### *Recommendations for Policy*

At this juncture, it is somewhat premature to initiate national or even state-level health promotion or wellness-oriented policy formation or reformation. Creating a body of evidence-based information to center a policy platform around is a critical first step toward this end.

Researchers, clinicians, and college administrators need to agree to (a) work with a singular meta-theory of health and wellness, (b) design wellness research projects that utilize the same variables, measurement tools and definitions, and (c) employ evidence-based strategies into existing campus-based wellness programming and research efforts. These actions will foster the acquisition of wellness-oriented knowledge development. When a substantial amount of cohesive evidence is compiled at the organizational level, a collaborative team of college researchers, administrators, wellness program directors, and college-based health care providers will be able to effectively inform legislators and policy makers. These informed decisions will in turn help to shape the individual futures of health promotion, wellness promotion, and disease prevention regionally and nationally.

One example of collaborative knowledge development and clinical translation of that information would be through the cooperation between clinicians and researchers in gathering and using normative wellness and HRB data. Clinicians could gather set survey responses from their clients. Researchers could analyze and transform the raw scores and interpret the comparative z-scores and establish normative values. Clinicians could then initiate individualized interventions (especially with identified 'at-risk' students).

Researchers, clinicians, and students could then evaluate the effectiveness of the selected interventions. On-going epidemiological studies could also be tracking the prevalence and incidence trends of identified health risk behaviors within the student population.

The results of this collaborative effort could then be used to provide evidence-based planning and evaluation information to guide resource allocation at the individual student level as well as at the programmatic level within campus communities. Extreme dimensional wellness z-scores and/or identified trends in dimensional wellness z-scores could be used to redirect the efforts of campus-based wellness programs, student development services, student health initiatives, and student counseling programs. This acquired body of wellness knowledge could then be used to inform and guide state, as well as national level policy makers in the areas of health promotion, wellness promotion and disease prevention.

## Conclusion

The basis of this research project was to explicate self-reported global wellbeing (GWB) in traditional college students. The specific purposes were to (a) describe GWB in this population, (b) discover if GWB had influencing factors, and (c) reveal the most

parsimonious combination of those factors that maximally correlate with the GWB of 18-24 year old college students.

College campuses across the United States have implemented multidimensional wellness programs and wellness centers to address the identified high risk needs of this population (Chen, 2005; DiMonda, 2005; Hettler, 1998; Nicoteri & Arnold, 2005; Sivik et al., 1992). To date these programs have offered wellness-based strategies without empirical evidence to indicate how students' behaviors and adjustment to college may influence their perceptions of wellbeing. Thus far, research has not evaluated how college-based wellness programs directly affect the wellness perceptions of young adults.

The GWB of 18-24 year olds was explored through statistical means as explained in chapter three. The quantitative analyses conducted within chapter four involved testing: (a) the utility of using the PWS as a means to describe GWB in relation to traditional college students' demographic characteristics, HRBs, MHRs, spirituality/religiosity beliefs and practices, and academic performance risks, (b) the theoretical framework of this study, as well as measuring the potential the PWS had as a population-based screening tool, (c) the influence student adjustment to the college environment has on GWB, and (d) the most parsimonious combination independent variables to explain the variance of GWB in traditional college students.

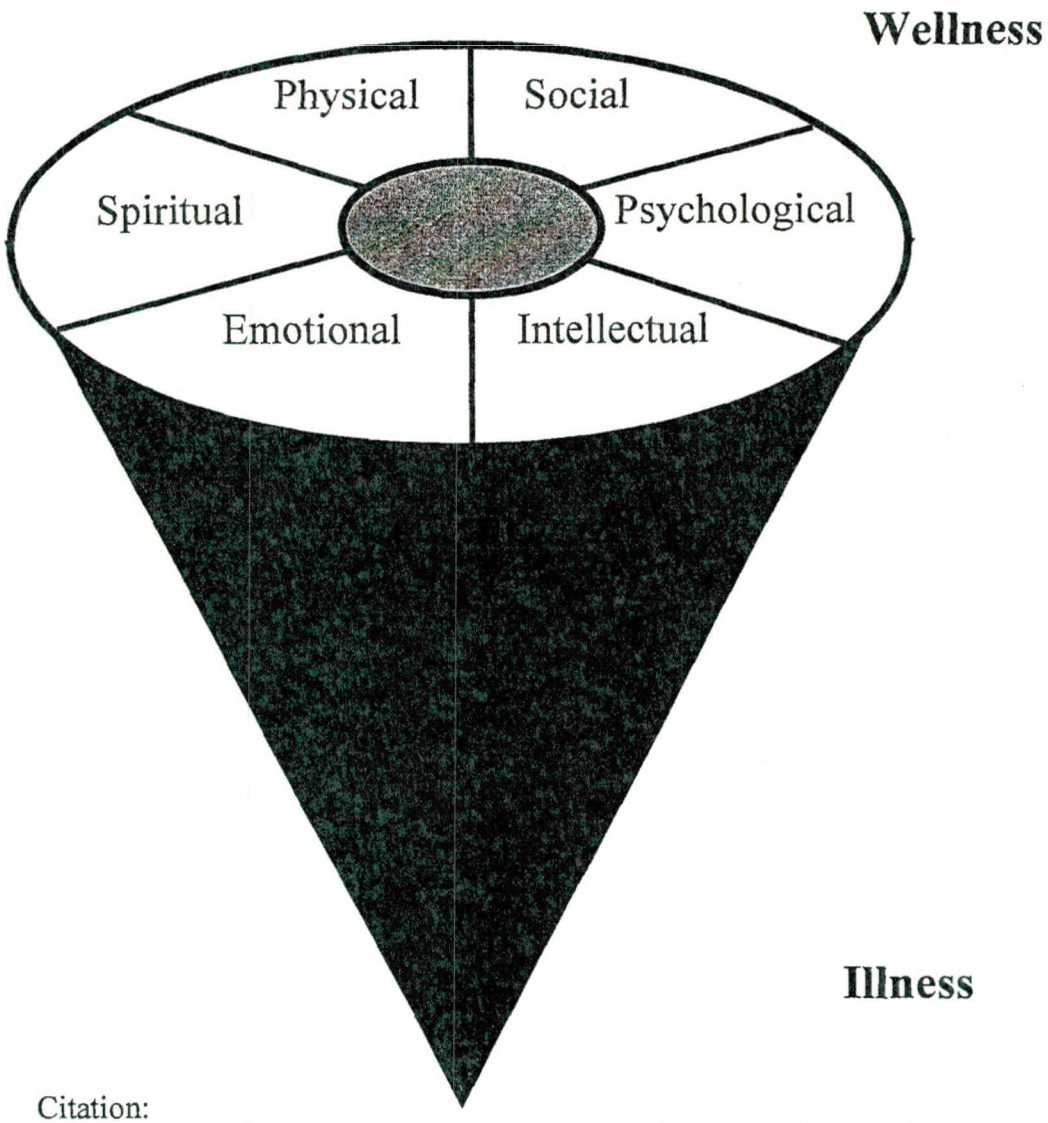
Discussion, implications, and recommendations about the findings of this study were presented in chapter five. The results of this descriptive study provides the ground work for future GWB research including (a) theory development, (b) research tool development, (c) health risk (especially mental health risk) screening strategies of

transitioning adolescents, (d) early intervention strategies for at-risk students attending higher education, and (e) evidence-based strategies for wellness program planning.

# APPENDICES

Appendix A

Adam's Multiple Dimensions of Perceived Wellness

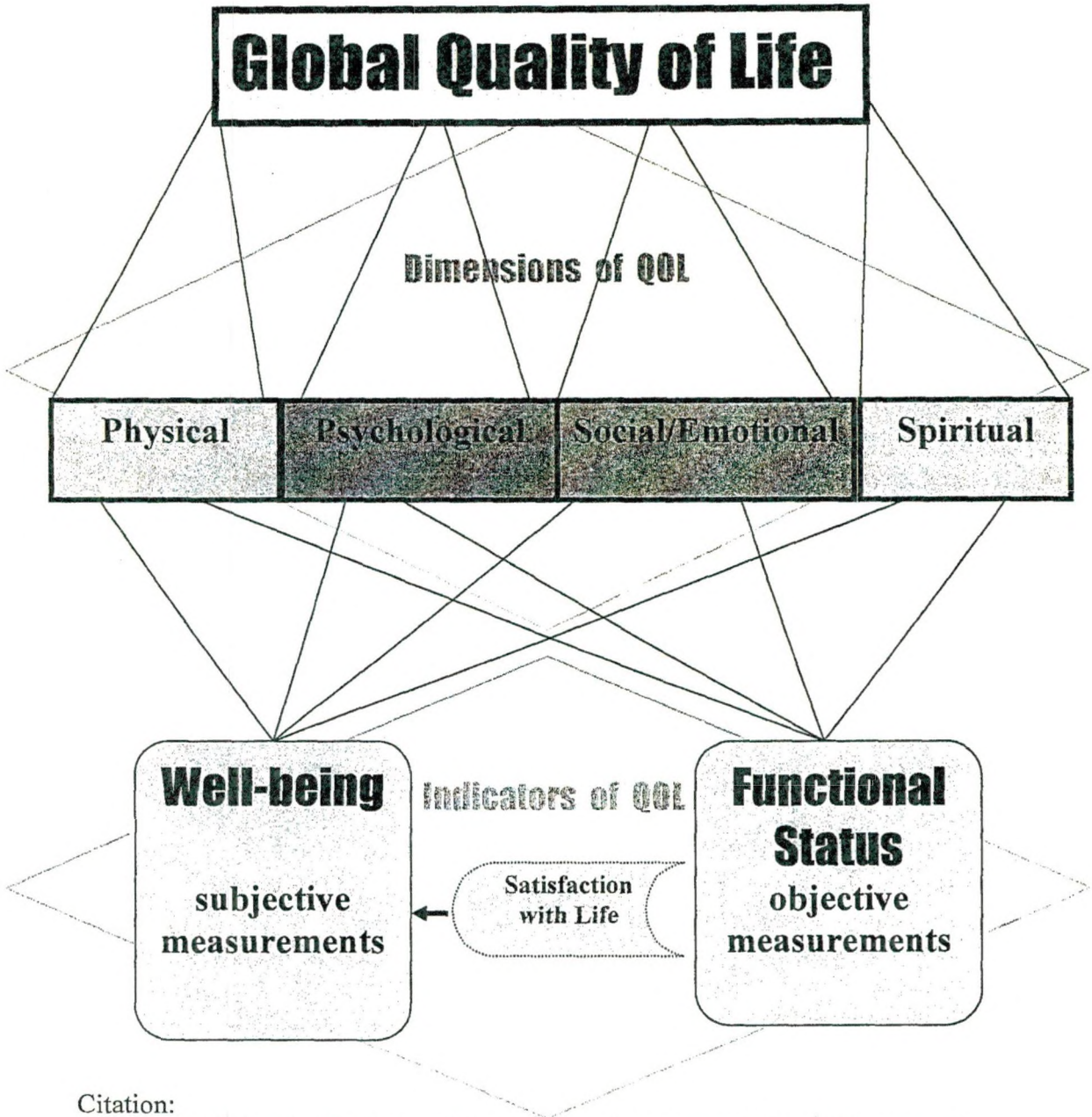



Citation:

Adams, T., Bezner, J., Drabbs, M., Zambarano, R., & Steinhardt, M. (2000). Conceptualization and measurement of the spiritual and psychological dimensions of wellness in a college population. *Journal of American College Health,* 48, 165-173.

Appendix B

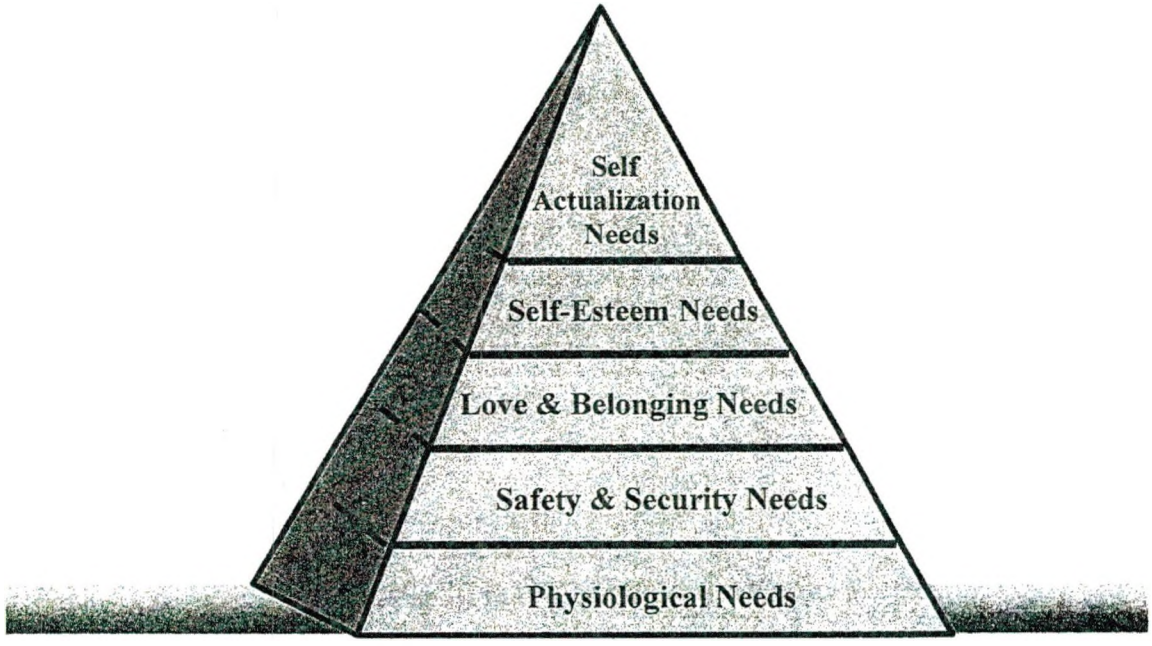
Haas Global Quality of Life Model




Citation:
Haas, B. (1999). Clarification and integration of similar quality of life concepts. *Journal of Nursing Scholarship,* 31(3), 219.

Appendix C

Maslow's Hierarchy of Needs & Human Capacities




Description of each hierarchical level:

- Physiological Needs: Needs at this level are basic fundamental needs including food, water, air, sleep, exercise, elimination, shelter and sexual expression
- Safety and Security Needs: Needs at this level are for avoiding harm, maintaining comfort, order, structure, physical safety, freedom from fear and protection
- Love and Belonging Needs: Needs at this level are for giving and receiving of affection, companionship, satisfactory interpersonal relationships and the identification with a group
- Capacity for Self-Esteem/Esteem of Others: At this level individuals seek self-respect and respect from others; works to achieve success and recognition in work; and desires prestige from accomplishments
- Capacity for Self-Actualization: At this level individuals posses a feeling of self-fulfillment and the realization of his or her highest potential

Citations:

Maslow, A. (1954). *Motivation and personality*. New York: Harper

Maslow, A. (1971). *The farther reaches of human nature*. New York: The Viking Press

# Appendix D

## Customized Survey:

## Explicating Global Wellbeing in College Students Using

## Demographic Characteristics, Health Risk Behaviors, and Adjustment to College

Appendix D-part I

Demographic Information

| For Administrative Use Only: | Class #____ Survey #:_____<br>Data Collection Month/Year:_____ |
|---|---|

Survey Packet for J. McDermott's Dissertation Research Project:

**Predicting Global Wellbeing in College Students Using Demographic Characteristics, Health Risk Behaviors and Adjustment to College**

**Directions:**

The following questions are either fill in the blank or multiple choice questions about yourself and/or your family. Read each question. Fill in only one box for each question. To change an answer, draw an "X" through the incorrect response and fill in the desired response. Be sure to use a hard tipped pencil and press very firmly. If you do not know the exact answer, please estimate. Do not erase. Do not skip any questions.

**PART ONE: Demographic Information**

Q1a. What is your month and year of when you were born? (i.e. mm/yyyy)?

_____ / _____
Month Year

Q1b. As of today, have you already had your 18th birthday?

☐ Yes

☐ No

Q1c. As of today, have you already had your 25th birthday?

☐ Yes

☐ No

Q2. What is your sex?

☐ Male

☐ Female

Q3. How do you describe yourself?

- ☐ White-not Hispanic
- ☐ Black-not Hispanic
- ☐ Hispanic or Latino
- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ East Indian
- ☐ Other: _____

Q4. Are you an international student?

- ☐ Yes; if yes, what is your country of origin? _____
- ☐ No

Q5. What is your relationship status?

- ☐ Currently married
- ☐ Separated
- ☐ Divorced
- ☐ Widowed
- ☐ Single, not committed and not currently dating
- ☐ Single, not committed and casually dating
- ☐ Single, committed to and dating a single significant other (s.o.)
- ☐ A parent or guardian: please list ages of each dependent--_____
- ☐ Other: _____ (please specify)

Q6. With whom do you currently live?

- ☐ Alone
- ☐ Spouse/domestic partner/significant other.
- ☐ Roommate(s)/friend(s) of same sex
- ☐ Roommate(s)/friend(s) of opposite sex
- ☐ Parent(s)/guardian(s)
- ☐ Other relatives
- ☐ Your children

Q7. Where do you currently live?
(Choose best answer)

- ☐ College residence hall
- ☐ College residence hall-freshmen floor
- ☐ College residence hall-spiritual community floor
- ☐ College campus apartment
- ☐ Fraternity or sorority house
- ☐ Off-campus apartment/house within 10 miles from school
- ☐ Off-campus apartment/house greater than 10 miles from school

Q8. Is this the first time you have lived independently away from your parent/guardian's home?

- ☐ Yes
- ☐ No
- ☐ n/a; "I still live with my parent/guardian"

Q9. How many miles away from UND is your family home?

- ☐ Less than 60 miles
- ☐ 61 to 120 miles
- ☐ 121 to 180 miles
- ☐ 181 to 360 miles
- ☐ 361 to 720 miles
- ☐ Greater than 720 miles

Q10a. List the relationship of every person who lived with you in your family home, along with their age (i.e. the home where you grew up or were living prior to coming to UND for college):

Relationship to you: _____ their age: _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Q10b. How would you describe the geographic location of your family home?
(Pick the one that comes the closest to describing the location of your family home;
i.e. the home where you grew up or were living prior to coming to UND for college.)

- ☐ Big city (≥ 100,000 people)
- ☐ Small city (≥ 20,000 but < 100,000 people)
- ☐ Big town (≥ 10,000 but < 20,000 people)
- ☐ Town (≥ 1,000 but < 10,000 people)
- ☐ Small Town (< 1000 people)
- ☐ Rural/Country (able to walk to more than 1 neighbor's house in less than 15 minutes)
- ☐ Rural/Isolated (unable to walk to more than 1 neighbor's house in less than 15 minutes)
- ☐ n/a; I was living on my own before I came to college
- ☐ n/a; "my family lives in Grand Forks or E. Grand Forks."

Q11a. What is your *family's household annual income* for the year 2006?
(i.e. this should be the same family you described in question 10 above. Exclude your personal earnings.)

$_____ (If you don't know, please estimate)

Q12. What did *you personally* earn in the year 2006? (If you don't know, please estimate)

$_____ (If you don't know, please estimate)

Q13. On the average, how many hours a week do you work for pay right now (including work-study)? _____hrs per week.

Q14. How much education does your mother have?

- ☐ She did not finish high school.
- ☐ She graduated from high school
- ☐ She attained a GED
- ☐ She has some education after high school/GED
- ☐ She graduated from a Community/Technical College
- ☐ She graduated from a 4-year college
- ☐ She has completed some graduate/professional school education
- ☐ She completed graduate/professional school education
- ☐ Not sure

Q15. How much education does your father have?

- ☐ He did not finish high school.
- ☐ He graduated from high school
- ☐ He attained a GED
- ☐ He has some education after high school/GED
- ☐ He graduated from a Community/Technical College
- ☐ He graduated from a 4-year college
- ☐ He has completed some graduate/professional school education
- ☐ He completed graduate/professional school education
- ☐ Not sure

Q16. Have any of your brothers or sisters earned any college degrees?

- ☐ Yes
- ☐ No
- ☐ Not sure

Q17. What Grade Point Average (GPA) did you earn when you graduated from high school?

(Based on a 4.0 scale)

- ☐ From 3.5 to 4.0 (A)
- ☐ From 3.0 to 3.49 (B)
- ☐ From 2.0 to 2.99 (C)
- ☐ From 1.5 to 1.99 (D)
- ☐ From 0.0 to 1.49 (F)
- ☐ n/a "I earned a GED."

Q18. How many semester college credits have you earned to date?

(Do not include credits enrolled in *this* semester)

_____ credits

Q19. Please list your college major (or indicate if you are still undecided):

_____

Q20. What is your earned *College Grade Point Average* (GPA) to date?
(Based on a 4.0 scale)

☐ From 3.5 to 4.0 (A)

☐ From 3.0 to 3.49 (B)

☐ From 2.0 to 2.99 (C)

☐ From 1.5 to 1.99 (D)

☐ From 0.0 to 1.49 (F)

☐ n/a "I have not completed a full semester yet."

Q21. As of today, how many semester college credits are you enrolled in *this* semester?

_____ credits

Q22. To date, what GPA do you expect to earn this semester?
(Based on a 4.0 scale—If you don't know, please estimate)

☐ From 3.5 to 4.0 (A)

☐ From 3.0 to 3.49 (B)

☐ From 2.0 to 2.99 (C)

☐ From 1.5 to 1.99 (D)

☐ From 0.0 to 1.49 (F)

Q23. What is your height in feet and inches?

_____ feet; _____ inches

Q24. What is your weight in pounds?

_____ pounds

Q25. Since entering college, are you a member of a social fraternity or sorority?

☐ Yes; if yes, please list _____

☐ No

Q26 Since entering college, are you a member of school-supported clubs or activities?

☐ Yes; if yes, please list _____

☐ No

Q27. Since entering college, do you participate in regularly scheduled sports activities?

☐ Yes; if yes, please list _____

☐ No

Q28. During the past 30 days, how many campus-based events, functions, games, activities and/or get-togethers have you attended (including campus housing, sororities, fraternities, and/or intramural sports)?

- ☐ 1 to 3 times
- ☐ 4 to 8 times
- ☐ 9 to 16 times
- ☐ More than 16 times
- ☐ n/a; I don't attend or participate in any campus-based events, functions, games activities and/or get-togethers.

(Please continue to next page...)

Appendix D

PART TWO: Health-Related Behaviors & Issues

Q29. Since entering college, how many hours of sleep do you need to get every night so that you feel rested when you wake up in the morning?

_____hours

Q30. During the past 7 days, how many times did you fail to get enough sleep so that you felt rested when you woke up in the morning?

- ☐ Zero times
- ☐ 1 time
- ☐ 2 times
- ☐ 3 times
- ☐ 4 times
- ☐ 5 times
- ☐ 6 times
- ☐ 7 times

Q31. During the past 12 months, how often do you wear a seat belt when riding in a car driven by someone else?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always

Q32. During the past 12 months, how often do you wear a seat belt when driving a car?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always
- ☐ n/a; I do not drive a car

Q33. During the past 12 months, how often did you wear a helmet and/or protective gear when using sports equipment such as (but not limited to): skateboard, bicycle, motorcycle and/or skates?

☐ Never

☐ Rarely

☐ Sometimes

☐ Most of the time

☐ Always

☐ n/a; I do not use these things

Q34. During the past 30 days, how many times did you ride in a car or other vehicle driven by someone who had been drinking beer/alcohol and/or using illegal drugs (including marijuana)?

☐ Zero times

☐ 1 time

☐ 2 or 3 times

☐ 4 or 5 times

☐ 6 or 8 times

☐ 9 or more times

☐ n/a; I don't ride with anyone who drives under the influence of alcohol or drugs

Q35. During the past 30 days, how many times did you drive a car or other vehicle when you had been drinking beer/alcohol and/or using illegal drugs (including marijuana)?

☐ Zero times

☐ 1 time

☐ 2 or 3 times

☐ 4 or 5 times

☐ 6 or 8 times

☐ 9 or more times

☐ n/a; I don't drive

☐ n/a; I don't use alcohol or drugs

Q36. During the past 30 days, how many times (if any) did you drink an alcoholic beverage and/or use illegal drugs (including marijuana), while partying or socializing?

- ☐ Zero times
- ☐ 1 time
- ☐ 2 or 3 times
- ☐ 4 or 5 times
- ☐ 6 or 8 times
- ☐ 9 or more times
- ☐ n/a; I don't use alcohol or drugs

Q37. During the past 30 days, how many times (if any) did you drink 5 or more alcoholic drinks at a sitting?

- ☐ Zero times
- ☐ 1 time
- ☐ 2 or 3 times
- ☐ 4 or 5 times
- ☐ 6 or 8 times
- ☐ 9 or more times
- ☐ n/a; I don't use alcohol or drugs

Q38. At this point in your life, how many partners have you had sexual intercourse with?

- ☐ 1 partner
- ☐ 2 or 3 partners
- ☐ 4 or 5 partners
- ☐ 6 or 8 partners
- ☐ 9 or more partners
- ☐ n/a; I have never had sexual intercourse with anyone.

Q39. How often do you and/or your partner use condoms when having sexual intercourse?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always
- ☐ n/a; I have never had sexual intercourse with anyone.

Q40. Since beginning college, has any physical disease/condition affected your academic performance? (such as allergies, cold/flu/sore throat, sinus infection, pregnancy, STD, HIV infection)

(Please indicate the most serious outcome)

- ☐ n/a; health conditions such as those mentioned above have not happened to me
- ☐ Yes; I have experienced a physical disease/condition, *but* my academics have not been affected
- ☐ Yes; I have experienced a physical disease/condition, *and* I received a lower grade on an exam or important paper
- ☐ Yes; I have experienced a physical disease/condition, *and* I received a lower grade in the course
- ☐ Yes; I have experienced a physical disease/condition, *and* I received an incomplete, a 'D' or 'F,' and/or dropped the course

Q41. Since beginning college, has any emotionally stressful situations affected your academic performance? (such as: a death of a friend or family member, chronic pain, chronic illness, sleep difficulties, loneliness, feeling sad, hopeless, depressed, feeling inadequate or full of anxiety, relationship difficulties, concern for a troubled friend or family)

(Please indicate the most serious outcome)

- ☐ n/a; this did not happen to me
- ☐ Yes; I have experienced an emotionally stressful situation, *but* my academics have not been affected
- ☐ Yes; I have experienced an emotionally stressful situation, *and* I received a lower grade on an exam or important paper
- ☐ Yes; I have experienced an emotionally stressful situation, *and* I received a lower grade in the course
- ☐ Yes; I have experienced an emotionally stressful situation, *and* I received an incomplete, a 'D' or 'F' or dropped the course

Q42. Since beginning college, has any risky lifestyle behavior or health/life threatening behavior affected your academic performance? (such as: partying, thrill-seeking activities, alcohol use, drug use, physical or sexual assault, fighting, injury; rape)

(Please indicate the most serious outcome)

- ☐ n/a; this did not happen to me
- ☐ Yes; I have experienced a risky lifestyle behavior or health/life threatening behavior, *but* my academics have not been affected
- ☐ Yes; I have experienced a risky lifestyle behavior or health/life threatening behavior, *and* I received a lower grade on an exam or important paper
- ☐ Yes; I have experienced a risky lifestyle behavior or health/life threatening behavior, *and* I received a lower grade in the course
- ☐ Yes; I have experienced a risky lifestyle behavior or health/life threatening behavior, *and* I received an incomplete, a 'D' or 'F' and/or dropped the course

Q43. During the past 30 days, how many times have you felt homesick (deeply missing your family/friends/pets back home)?

- ☐ 1 to 3 times
- ☐ 4 to 8 times
- ☐ 9 to 16 times
- ☐ More than 16 times
- ☐ n/a; I don't feel homesick. I don't really miss anything from back home.

Q44. Since starting college, how often have you felt very sad?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always

Q45. Since starting college, how often have you felt 'stressed out' about homework or money?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always

Q46. Since starting college, how often have you felt overwhelmed (stressed out/full of anxiety) by your life or by all that you had to do to the point that you couldn't even function?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always

Q47. Since starting college, how often have you felt all alone with no one to turn to for help and/or to talk to?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always

Q48. Since starting college, how often have you felt things were hopeless?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always

Q49. Since starting college, how often have you felt so depressed that it was difficult to function?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always

Q50. Have you ever been diagnosed with depression by a doctor?

- ☐ Yes
- ☐ No

Q51. Have you ever been diagnosed with an anxiety disorder by a doctor?

- ☐ Yes
- ☐ No

Q52. Have you ever been prescribed medication for depression?

- ☐ Yes
- ☐ No

Q53. Have you ever been prescribed medication for anxiety?

- ☐ Yes
- ☐ No

Q54. During the past 30 days, how many times have you accessed campus student health services for physical/medical problems?

- ☐ 1 to 3 times
- ☐ 4 to 8 times
- ☐ 9 to 16 times
- ☐ More than 16 times
- ☐ n/a; I have not used student health services

Q55. During the past 30 days, how many times have you accessed campus student counseling/mental health services?

- ☐ 1 to 3 times
- ☐ 4 to 8 times
- ☐ 9 to 16 times
- ☐ More than 16 times
- ☐ n/a; I have not used student counseling/mental health services

Q56. I consider myself to be a spiritual person.

- ☐ Very strongly disagree
- ☐ Strongly disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly agree
- ☐ Very strongly agree

Q57. I consider myself to be a religious person.

- ☐ Very strongly disagree
- ☐ Strongly disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly agree
- ☐ Very strongly agree

Q58. I feel that a person can be spiritual without being religious

- ☐ Very strongly disagree
- ☐ Strongly disagree
- ☐ Disagree
- ☐ Agree
- ☐ Strongly agree
- ☐ Very strongly agree

Q59. Which specific religious affiliation do you claim to belong to?
(Specific religions entered into original data set)

- ☐ Christian-based
- ☐ Jewish
- ☐ Other; please list _____
- ☐ n/a; I do not belong to a religion, but I do believe in a god or a higher power
- ☐ n/a; I do not belong to a religion and I do not believe in a god or a higher power

Q60. In the past 30 days, how many times have you attended or participated in an organized place of worship (i.e. church or prayer group)?

- ☐ Zero times
- ☐ 1 time
- ☐ 2 times
- ☐ 3 times
- ☐ 4 times
- ☐ 5 to 8 times
- ☐ 9 or more times
- ☐ n/a; I never go to church

Q61. In the past 30 days, how many times have you prayed or meditated?

- ☐ Zero times
- ☐ 1 time
- ☐ 2 times
- ☐ 3 times
- ☐ 4 times
- ☐ 5 to 8 times
- ☐ 9 or more times
- ☐ n/a; I never pray; I do not believe in a God or a higher power.
- ☐ n/a; I never pray; But, I do believe in a God or a higher power.

Please proceed to the next page....

## Appendix D

## PART THREE (a): Perceived Wellness Survey

**Directions:**

The following 36 statements describe beliefs or values about life. Read each one and decide how well it applies to you at the present time (within the past few days). For each statement, fill in the circle that best represents how closely the statement applies to your beliefs about your life. Fill in only one box for each statement. To change an answer, draw an "X" through the incorrect response and fill in the desired response. Be sure to use a hard tipped pencil and press very firmly. Do not erase. Do not skip any statements.

| | Value/Belief Statement | Very strongly disagree | Strongly disagree | Disagree | Agree | Strongly agree | Very strongly agree |
|---|---|---|---|---|---|---|---|
| 1 | I am always optimistic about my future. | O | O | O | O | O | O |
| 2 | There have been times when I felt inferior to most of the people I know. | O | O | O | O | O | O |
| 3 | Members of my family come to me for support. | O | O | O | O | O | O |
| 4 | My physical health has restricted me in the past. | O | O | O | O | O | O |
| 5 | I believe that there is a real purpose for my life. | O | O | O | O | O | O |
| 6 | I will always seek out activities that challenge me to think and reason. | O | O | O | O | O | O |
| 7 | I rarely count on good things happening to me. | O | O | O | O | O | O |
| 8 | In general, I feel confident about my abilities. | O | O | O | O | O | O |
| 9 | Sometimes I wonder if my family will really be there for me when I am in need. | O | O | O | O | O | O |
| 10 | My body seems to resist physical illness very well. | O | O | O | O | O | O |
| | | Very strongly disagree | Strongly disagree | Disagree | Agree | Strongly agree | Very strongly agree |

| | Value/Belief Statement | Very strongly disagree | Strongly disagree | Disagree | Agree | Strongly agree | Very strongly agree |
|---|---|---|---|---|---|---|---|
| 11 | Life does not hold much future promise for me. | O | O | O | O | O | O |
| 12 | I avoid activities which require me to concentrate. | O | O | O | O | O | O |
| 13 | I always look on the bright side of things. | O | O | O | O | O | O |
| 14 | I sometimes think I am a worthless individual. | O | O | O | O | O | O |
| 15 | My friends know they can always confide in me and ask me for advice. | O | O | O | O | O | O |
| 16 | My physical health is excellent. | O | O | O | O | O | O |
| 17 | Sometimes I don't understand what life is all about. | O | O | O | O | O | O |
| 18 | Generally, I feel pleased with the amount of intellectual stimulation I receive in my daily life. | O | O | O | O | O | O |
| 19 | In the past, I have expected the best. | O | O | O | O | O | O |
| 20 | I am uncertain about my ability to do things well in the future. | O | O | O | O | O | O |
| 21 | My family has been available to support me in the past. | O | O | O | O | O | O |
| 22 | Compared to people I know, my past physical health has been excellent. | O | O | O | O | O | O |
| 23 | I feel a sense of mission about my future. | O | O | O | O | O | O |
| 24 | The amount of information that I process in a typical day is just about right for me (i.e. not too much, not too little). | O | O | O | O | O | O |
| 25 | In the past, I hardly ever expected things to go my way. | O | O | O | O | O | O |
| | | Very strongly disagree | Strongly disagree | Disagree | Agree | Strongly agree | Very strongly agree |

| | Value/Belief Statement | Very strongly disagree | Strongly disagree | Disagree | Agree | Strongly agree | Very strongly agree |
|---|---|---|---|---|---|---|---|
| 26 | I will always be secure with who I am. | O | O | O | O | O | O |
| 27 | In the past, I have not always had friends with whom I could share my joys and sorrows. | O | O | O | O | O | O |
| 28 | I expect to always be physically healthy. | O | O | O | O | O | O |
| 29 | I have felt in the past that my life was meaningless. | O | O | O | O | O | O |
| 30 | In the past, I have generally found intellectual challenges to be vital to my overall wellbeing. | O | O | O | O | O | O |
| 31 | Things will not work out the way I want them to in the future. | O | O | O | O | O | O |
| 32 | In the past, I have felt sure of myself among strangers. | O | O | O | O | O | O |
| 33 | My friends will be there for me when I need help. | O | O | O | O | O | O |
| 34 | I expect my physical health to get worse. | O | O | O | O | O | O |
| 35 | It seems that my life has always had purpose. | O | O | O | O | O | O |
| 36 | My life has often seemed devoid (i.e. empty) of positive mental stimulation. | O | O | O | O | O | O |
| | | Very strongly disagree | Strongly disagree | Disagree | Agree | Strongly agree | Very strongly agree |

37. Please reflect a moment on your sense of wellbeing, taking into account your physical, social, emotional, psychological, intellectual, and spiritual condition over the past month.

**Instructions:** Mark the line below with an **X** at the point that summarizes your overall sense of wellbeing for the past 30 days.

Worst you have ever been — Best you have ever been

Appendix D

PART FOUR: Student Adaptation to College Questionnaire*



*Note: The SACQ is a copyrighted survey. Therefore, only every sixth question is displayed in this appendix to provide the reader with an idea of the type of questions the subjects responded to.

**Directions:**

The following statements describe college experiences. Read each one and decide how well it applies to you at the present time (within the past few days). For each statement, fill in the circle at the point in the continuum that best represents how closely the statement applies to you. Fill in only one circle for each statement. To change an answer, draw an "X" through the incorrect response and fill in the circle of your desired response. Be sure to use a hard tipped pencil and press very firmly. Do not erase.

| | Statements Describing College Experiences | Applies Very Closely to Me ←========== | | | | | | ==========→ Doesn't Apply to Me at All | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | I feel that I fit in well as part of the college environment. | O | O | O | O | O | O | O | O | O |
| 6 | I am finding academic work at college difficult. | O | O | O | O | O | O | O | O | O |
| 12 | Being on my own, taking responsibility for myself, has not been easy | O | O | O | O | O | O | O | O | O |
| 18 | I have several close social peers at college. | O | O | O | O | O | O | O | O | O |
| 24 | My appetite has been good lately. | O | O | O | O | O | O | O | O | O |
| 30 | I am satisfied with the extracurricular activities. | O | O | O | O | O | O | O | O | O |
| 36 | I am satisfied with the number and variety of courses available at college. | O | O | O | O | O | O | O | O | O |

| | Statements Describing College Experiences | Applies Very Closely to Me ←========== | | | | | | Doesn't Apply to Me at All ==========→ | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 42 | I am having difficulty feeling at ease with other people at college. | O | O | O | O | O | O | O | O | O |
| 48 | I haven't been mixing too well with the opposite sex lately. | O | O | O | O | O | O | O | O | O |
| 54 | I am satisfied with my program of courses for this semester/quarter | O | O | O | O | O | O | O | O | O |
| 60 | Lately I have been giving a lot of thought to dropping out of college altogether and for good. | O | O | O | O | O | O | O | O | O |
| 66 | I'm quite satisfied with my academic situation at college. | O | O | O | O | O | O | O | O | O |

You have completed this survey.

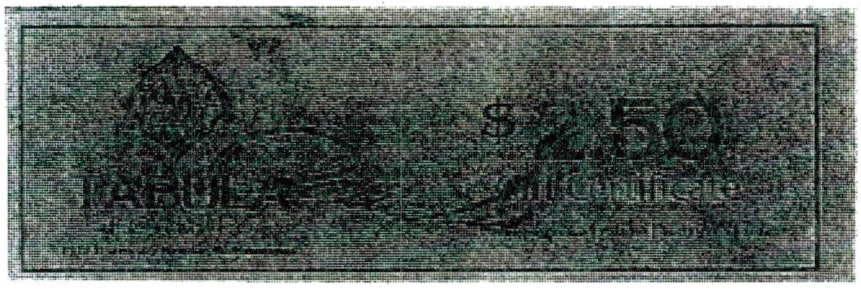
Please make sure you did not write your name anywhere on this survey.

Thank you for participating.

Please bring your completed survey packet to the survey monitor and pick up your coupon for a free beverage at [*name of coffee shop inserted here*].....

APPENDIX E

Scanned Image of Participation Gift Certificate



# Appendix F

## Institutional Review Board Approval

UNIVERSITY OF UND NORTH DAKOTA

INSTITUTIONAL REVIEW BOARD
c/o RESEARCH DEVELOPMENT AND COMPLIANCE
DIVISION OF RESEARCH
TWAMLEY HALL ROOM 105
264 CENTENNIAL DRIVE STOP 7134
GRAND FORKS ND 58202-7134
(701) 777-4279
FAX (701) 777-6708
www.und.edu/dept/rdc/regucomm/IRB

June 18, 2007

Jeanine McDermott
19157-210th Ave SW
Crookston, MN 56716

Dear Ms. McDermott:

We are pleased to inform you that your project entitled "Predicting Global Wellbeing in College Students Using Demographic Characteristics, Health Risk Behaviors and Adjustment to College" (IRB-200706-371) has been reviewed and approved by the University of North Dakota Institutional Review Board (IRB). The expiration date of this approval December 31, 2008. You have a completion date of May 1, 2008. If this is incorrect please fill out a Protocol Change Form and submit it to our office so that we can adjust your termination date appropriately.

As principal investigator for a study involving human participants, you assume certain responsibilities to the University of North Dakota and the UND IRB. Specifically, any adverse events or departures from the protocol that occur must be reported to the IRB immediately. It is your obligation to inform the IRB in writing if you would like to change aspects of your approved project, prior to implementing such changes.

When your research, including data analysis, is completed, you must submit a Research Project Termination form to the Research Development and Compliance office so your file can be closed. The required forms are available on the IRB website.

If you have any questions or concerns, please feel free to call me at (701) 777-4279 or e-mail at jodieverett@mail.und.nodak.edu.

Sincerely,

Jodi Everett
IRB Administrative Secretary

Enclosure

Appendix G

## INFORMED CONSENT

**Do not fill out this survey if you are under the age of 18 or have turned 25 years old.**

| | |
|---|---|
| TITLE: | Predicting Global Wellbeing in College Students Using Demographic Characteristics, Health Risk Behaviors and Adjustment to College |
| PROJECT DIRECTOR & STUDENT RESEARCHER: | Jeanine McDermott, PhD Student, RN |
| STUDENT'S ADVISOR: | Dr. Julie Anderson, PhD, RN, CCRC; Associate Professor |
| ADVISOR'S PHONE NUMBER: | 701-777-4541 |
| UNIVERSITY/ COLLEGE: | University of North Dakota; College of Nursing |

A person who participates in research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please ask. Do not place your name anywhere on this form or on the survey.

### WHAT IS THE PUPOSE OF THIS STUDY?

You are invited to be in a research study designed to learn how young adults define their overall sense of wellness. The purpose of this study is to describe global wellbeing (GWB) in 18-24 year old college students. Explaining young adults' GWB will include the predictive influence of demographic characteristics, health risk behaviors and adjustment to college affects overall sense of wellness.

### HOW MANY PEOPLE WILL PARTICIPATE?

Approximately 300 people between the ages of 18 and 24 years old who are attending campus-based classes at the University of North Dakota will be included in this study. You have been randomly selected to participate and I hope that you will be willing to help.

## HOW LONG WILL IT TAKE TO PARTICIPATE?

The survey including these instructions should take about 45-60 minutes to complete. Please read the instructions and complete the survey using an ink pen. You are free to skip any questions that you would prefer not to answer.

## WHAT ARE THE RISKS OF THE STUDY?

There are no foreseeable risks to completing this survey. However, there is no such thing as a 'risk free' study. Some questions may be of a sensitive and/or intimate nature (i.e. sexual activities and/or rating your level of anxiety and depression). Thinking about these things may make you feel uncomfortable. Some of the questions involve legal issues (i.e. under-age drinking and driving while intoxicated). Protecting the confidentiality and anonymity of all participants is very important to the researcher. Therefore, no names or other identifiable information (besides your month and year you were born) are being collected on the survey or on this informed consent form. Identification numbers contained on the survey will only be to track response rate and date of data collection.

If you experience any ill effects from filling out this survey, contact the University of North Dakota Counseling Center located in Room 200 of McCannel Hall. Walk-in appointments are available between 10am to 12pm and 1pm to 3pm weekdays by calling 701-777-2127. Crisis services are available after 4:30pm by calling the UND Crisis Response Team at 701-777-3491. These services are free and confidential to all enrolled UND students. When you complete and/or turn in your survey, you will be given a list of campus-based health and wellness resources that are available to all students to access for no or little fee.

## WHAT ARE THE COSTS AND BENEFITS OF THIS STUDY?

You will not have any costs for being in this research study. You will not benefit personally from completing this survey beyond the opportunity to reflect on your personal level of wellbeing. Other students and young adults may benefit in the future based on what is learned about 18-24 year olds' beliefs about their wellbeing and coping behaviors. The survey will help to prioritize student needs, identify protective and risk factors, allocate resources and design programs or strategies for interventions.

## WILL I BE PAID FOR PARTICIPATING?

You will not be paid any money for being in this research study. However, when you turn in a completed survey, you will receive a "FREE BEVERAGE" gift certificate redeemable at Tabula's Coffee shop on University Avenue. This coupon is good for one beverage (not to exceed $2.50). The coupon will expire by December 31, 2007.

## WHO IS FUNDING THE STUDY?

The University of North Dakota and the student researcher (Jeanine McDermott) are receiving no payment from other agencies, organizations, or companies to conduct this research study.

Application has been made to the Minnesota Nurses Association Foundation to defray costs of this study. The student researcher, the university nor anyone on her dissertation committee will receive a direct payment or an increase in salary from the Minnesota Nurses Association Foundation for conducting this study.

## CONFIDENTIALITY

The records of this study will be kept private to the extent permitted by law. The survey is confidential and anonymous. No names will be collected. At no time will results of individual surveys be released. Your name, student number or other identifying marks should not be made on the survey. Persons who have access to the data collected from the surveys will only include the student researcher, her dissertation committee and research assistants who have received special human subjects' protection education from the University of North Dakota. Persons who conduct IRB audits for UND will also have access to this information. The anonymous surveys will be collected and stored in secure and locked files. The surveys will be stored for three years and then destroyed. The aggregate data may be used in future analyses after receiving appropriate IRB approval. If a report or article about this study is written, the researcher will describe the study results in a summarized manner so that you cannot be identified.

## IS THIS STUDY VOLUNTARY?

Your participation is voluntary. You may choose not to participate or you may discontinue your participation at any time without penalty beyond not receiving the free beverage coupon. Your decision whether or not to participate will not affect your current or future relations with the University of North Dakota or with this class's instructor.

Each randomly selected classroom's instructor that has agreed to let the student researcher into his/her class may or may not offer extra credit. If an instructor chooses to offer extra credit for your participation in research, he/she will decide on and explain the details. Each instructor that offers extra credit for your participation in this research study will explain if/how alternative extra credit assignments will occur.

If you have any questions about the research, please call Jeanine McDermott's advisor and research committee chair, Dr. Julie Anderson, PhD, RN, CCRC, Associate Professor in the College of Nursing at (701) 777-4541.

## I UNDERSTAND AND AGREE...

that by completing the anonymous survey I have read and understood the informed consent form the researcher gave to me and explained to me.

that I am choosing to voluntarily participate in this research project without giving my name and/or signature to the researcher.

that by completing the anonymous survey I am giving my informed consent to do so.

that it is in my best interest to maintain my confidentiality by not supplying the researcher with my name and/or signature.

that I can keep this informed consent form and/or contact the researcher (and/or her advisor) at any time if I have any questions or concerns.

REMINDER–REMINDER–REMINDER–REMINDER

STUDENTS: (1) DO NOT PLACE YOU NAME ANYWHERE ON THE SURVEY

(2) DO NOT SIGN THIS INFORMED CONSENT FORM; AND

(3) KEEP THIS INFORMED CONSENT FORM IF YOU WANT TO/ NEED TO CONTACT THE STUDENT RESEARCHER OR HER ADVISOR

# Appendix H

## Kolmogorov-Smirnov values for all statistically significant independent variables loaded into regression analysis

| ? | | Kolmogorov-Smirnov(a) | | |
|---|---|---|---|---|
| | Q9-Distance family home from campus | K-S Statistic | df | Sig. |
| GWB Score | < 60 miles | .103 | 30 | .200(*) |
| | 61 to 120 miles | .071 | 26 | .200(*) |
| | 121 to 180 miles | .194 | 13 | .196 |
| | 181 to 360 miles | .063 | 73 | .200(*) |
| | 361 to 720 miles | .152 | 44 | .012 |
| | > 720 miles | .082 | 62 | .200(*) |
| | Q17-High School GPA | K-S Statistic | df | Sig. |
| GWB Score | (C) 2.0 to 2.99 | .123 | 29 | .200(*) |
| | (B)3.0 to 3.49 | .060 | 83 | .200(*) |
| | (A) 3.5 to 4.0 | .056 | 134 | .200(*) |
| | Q40-Have Physical Problems affected academic performance? | K-S Statistic | df | Sig. |
| GWB Score | n/a; these HAVE NOT happened | .048 | 169 | .200(*) |
| | Yes; BUT grades were not affected | .095 | 57 | .200(*) |
| | Yes; received lower grade on a paper/exam | .143 | 14 | .200(*) |
| | Yes; received a lower grade in a course | .210 | 5 | .200(*) |
| | Yes; received an incomplete, D, F, &/ or dropped course | .288 | 3 | . |
| | Q41-Have stressful situations affected your academic performance? | K-S Statistic | df | Sig. |
| GWB Score | n/a; these HAVE NOT happened beginning college | .082 | 109 | .071 |
| | Yes; BUT my grades were not affected | .058 | 82 | .200(*) |
| | Yes; received lower grade on a paper/exam | .105 | 37 | .200(*) |
| | Yes; received lower grade in course | .179 | 10 | .200(*) |
| | Yes; received an incomplete, D, F, &/or dropped course | .219 | 10 | .193 |

| | | Kolmogorov-Smirnov(a) | | |
|---|---|---|---|---|
| | Q42-Have health risk behaviors affected academic performance? | K-S Statistic | df | Sig. |
| GWB Score | n/a; these HAVE NOT happened | .062 | 153 | .200(*) |
| | Yes; BUT grades were not affected | .112 | 65 | .041 |
| | Yes; received lower grade on a paper/exam | .163 | 18 | .200(*) |
| | Yes; received lower grade in course | .171 | 6 | .200(*) |
| | Yes; received incomplete, D, F, &/or dropped course | .180 | 6 | .200(*) |
| | Q43-Frequency felt homesick past 30 days | K-S Statistic | df | Sig. |
| GWB Score | n/a; not homesick | .139 | 63 | .004 |
| | 1-3 times | .054 | 139 | .200(*) |
| | 4-8 times | .110 | 30 | .200(*) |
| | 9-16 times | .173 | 7 | .200(*) |
| | > 16 times | .156 | 9 | .200(*) |
| | Q44-Frequency felt very sad since starting college | K-S Statistic | df | Sig. |
| GWB Score | Never | .085 | 69 | .200(*) |
| | Rarely | .059 | 108 | .200(*) |
| | Sometimes | .070 | 67 | .200(*) |
| | Most of the time | .370 | 3 | -- |
| | Always | -- | -- | -- |
| | Q45Frequency felt 'stressed out' about homework/money? | K-S Statistic | df | Sig. |
| GWB Score | Never | .196 | 16 | .102 |
| | Rarely | .100 | 45 | .200(*) |
| | Sometimes | .053 | 132 | .200(*) |
| | Most of the time | .068 | 50 | .200(*) |
| | Always | .201 | 5 | .200(*) |
| | Q46-Frequency felt so overwhelmed couldn't function | K-S Statistic | df | Sig. |
| GWB Score | Never | .070 | 93 | .200(*) |
| | Rarely | .088 | 84 | .160 |
| | Sometimes | .057 | 61 | .200(*) |
| | Most of the time | .131 | 9 | .200(*) |
| | Always | -- | -- | -- |

* This is a lower bound of the true significance.

a Lilliefors Significance Correction

## Appendix H (continued)
## Kolmogorov-Smirnov values for all statistically significant independent variables included in regression analysis

| | ? | Kolmogorov-Smirnov(a) | | |
|---|---|---|---|---|
| | Q47-Frequency felt 'all alone' with no one to turn to or talk to | K-S Statistic | df | Sig. |
| GWB Score | Never | .069 | 131 | .200(*) |
| | Rarely | .054 | 78 | .200(*) |
| | Sometimes | .115 | 30 | .200(*) |
| | Most of the time | .185 | 9 | .200(*) |
| | Always | -- | -- | -- |
| | Q48-Frequency felt things were hopeless since starting college | K-S Statistic | df | Sig. |
| GWB Score | Never | .052 | 167 | .200(*) |
| | Rarely | .115 | 54 | .071 |
| | Sometimes | .107 | 24 | .200(*) |
| | Most of the time | .244 | 3 | -- |
| | Always | -- | -- | -- |
| | MHcluster1 Degree of Depression | K-S Statistic | df | Sig. |
| GWB Score | 0 | .153 | 36 | .032 |
| | 1 | .116 | 41 | .188 |
| | 2 | .078 | 39 | .200(*) |
| | 3 | .103 | 32 | .200(*) |
| | 4 | .153 | 17 | .200(*) |
| | 5 | .111 | 29 | .200(*) |
| | 6 | .210 | 14 | .094 |
| | 7 | .175 | 12 | .200(*) |
| | 8 | .237 | 7 | .200(*) |
| | 9 | .210 | 7 | .200(*) |
| | 10 | .259 | 4 | . |
| | 12 | .342 | 3 | . |
| | 13 | .260 | 2 | . |
| | 15 | .256 | 3 | . |
| | MHcluster2 Degree of Anxiety | K-S Statistic | df | Sig. |
| GWB Score | 0 | .205 | 11 | .200(*) |
| | 2 | .181 | 21 | .070 |
| | 4 | .127 | 38 | .128 |
| | 6 | .104 | 50 | .200(*) |
| | 8 | .063 | 46 | .200(*) |
| | 10 | .071 | 32 | .200(*) |
| | 12 | .081 | 19 | .200(*) |
| | 14 | .132 | 14 | .200(*) |
| | 16 | .210 | 9 | .200(*) |
| | 18 | .260 | 2 | -- |
| | 20 | .206 | 4 | -- |

| | | Kolmogorov-Smirnov(a) | | |
|---|---|---|---|---|
| | MHcluster3 Degree of Social Connectedness | K-S Statistic | df | Sig. |
| GWB Score | 1 | .217 | 9 | .200(*) |
| | 2 | .202 | 21 | .025 |
| | 3 | .151 | 35 | .041 |
| | 4 | .092 | 35 | .200(*) |
| | 5 | .125 | 42 | .099 |
| | 6 | .119 | 24 | .200(*) |
| | 7 | .119 | 20 | .200(*) |
| | 8 | .156 | 23 | .153 |
| | 9 | .194 | 15 | .132 |
| | 10 | .226 | 11 | .122 |
| | 11 | .222 | 5 | .200(*) |
| | 12 | .260 | 2 | . |
| | 13 | .260 | 2 | . |
| | 14 | .260 | 2 | . |
| | Academic Performance Risk Scale | K-S Statistic | df | Sig. |
| GWB Score | 0 | .087 | 59 | .200(*) |
| | 1 | .062 | 36 | .200(*) |
| | 2 | .095 | 46 | .200(*) |
| | 3 | .131 | 39 | .088 |
| | 4 | .102 | 24 | .200(*) |
| | 5 | .174 | 12 | .200(*) |
| | 6 | .111 | 13 | .200(*) |
| | 7 | .260 | 2 | . |
| | 8 | .280 | 6 | .152 |
| | 9 | .382 | 4 | . |
| | 10 | .364 | 3 | . |
| | 13 | .260 | 2 | . |
| | Social SACQ Subscale | K-S Statistic | df | Sig. |
| GWB Score | 76.00 | .217 | 4 | . |
| | 80.00 | .310 | 3 | . |
| | 81.00 | .270 | 4 | . |
| | 82.00 | .260 | 2 | . |
| | 83.00 | .264 | 3 | . |
| | 84.00 | .260 | 2 | . |
| | 85.00 | .211 | 5 | .200(*) |
| | 86.00 | .312 | 3 | . |
| | 87.00 | .240 | 4 | . |
| | 88.00 | .190 | 11 | .200(*) |
| | 89.00 | .243 | 7 | .200(*) |
| | 90.00 | .199 | 9 | .200(*) |
| | 91.00 | .144 | 5 | .200(*) |
| | 92.00 | .150 | 14 | .200(*) |
| | 93.00 | .147 | 11 | .200(*) |

* This is a lower bound of the true significance
a Lilliefors Significance Correction

## Appendix H (continued)
## Kolmogorov-Smirnov values for all statistically significant independent variables included in regression analysis

| | | Kolmogorov-Smirnov(a) | | |
|---|---|---|---|---|
| | Social SACQ Subscale | K-S Statistic | df | Sig. |
| GWB Score | 94.00 | .108 | 18 | .200(*) |
| | 95.00 | .188 | 16 | .135 |
| | 96.00 | .207 | 8 | .200(*) |
| | 97.00 | .227 | 8 | .200(*) |
| | 98.00 | .196 | 14 | .152 |
| | 99.00 | .207 | 14 | .106 |
| | 100.00 | .206 | 13 | .135 |
| | 101.00 | .204 | 11 | .200(*) |
| | 102.00 | .224 | 6 | .200(*) |
| | 103.00 | .161 | 7 | .200(*) |
| | 104.00 | .291 | 4 | . |
| | 105.00 | .194 | 6 | .200(*) |
| | 106.00 | .260 | 2 | . |
| | 107.00 | .226 | 4 | . |
| | 108.00 | .215 | 4 | . |
| | 109.00 | .237 | 3 | . |
| | 110.00 | .260 | 2 | . |
| | 111.00 | .260 | 2 | . |
| | 112.00 | .260 | 2 | . |
| | 113.00 | .260 | 2 | . |
| | 114.00 | .260 | 2 | . |
| | 115.00 | .260 | 2 | . |
| | 116.00 | .260 | 2 | . |
| | 76.00 | .217 | 4 | . |
| | 80.00 | .310 | 3 | . |
| | 81.00 | .270 | 4 | . |
| | 82.00 | .260 | 2 | . |
| | 83.00 | .264 | 3 | . |
| | 84.00 | .260 | 2 | . |
| | 85.00 | .211 | 5 | .200(*) |
| | 86.00 | .312 | 3 | . |
| | 87.00 | .240 | 4 | . |
| | 88.00 | .190 | 11 | .200(*) |
| | 89.00 | .243 | 7 | .200(*) |
| | 90.00 | .199 | 9 | .200(*) |
| | 91.00 | .144 | 5 | .200(*) |
| | 92.00 | .150 | 14 | .200(*) |
| | 93.00 | .147 | 11 | .200(*) |
| | 94.00 | .108 | 18 | .200(*) |
| | 95.00 | .188 | 16 | .135 |
| | 96.00 | .207 | 8 | .200(*) |
| | 97.00 | .227 | 8 | .200(*) |
| | 98.00 | .196 | 14 | .152 |
| | 99.00 | .207 | 14 | .106 |
| | 100.00 | .206 | 13 | .135 |
| | 101.00 | .204 | 11 | .200(*) |
| | 102.00 | .224 | 6 | .200(*) |
| | 103.00 | .161 | 7 | .200(*) |
| | 104.00 | .291 | 4 | . |
| | 105.00 | .194 | 6 | .200(*) |
| | 106.00 | .260 | 2 | . |

| | | Kolmogorov-Smirnov(a) | | |
|---|---|---|---|---|
| | Social SACQ Subscale (cont.) | K-S Statistic | df | Sig. |
| GWB Score | 107.00 | .226 | 4 | . |
| | 108.00 | .215 | 4 | . |
| | 109.00 | .237 | 3 | . |
| | 110.00 | .260 | 2 | . |
| | 111.00 | .260 | 2 | . |
| | 112.00 | .260 | 2 | . |
| | 113.00 | .260 | 2 | . |
| | 114.00 | .260 | 2 | . |
| | 115.00 | .260 | 2 | . |
| | 116.00 | .260 | 2 | . |
| | Attachment Commitment SACQ Subscale | K-S Statistic | df | Sig. |
| GWB Score | 60.00 | .260 | 2 | . |
| | 61.00 | .252 | 3 | . |
| | 65.00 | .235 | 3 | . |
| | 68.00 | .379 | 3 | . |
| | 69.00 | .260 | 2 | . |
| | 70.00 | .260 | 2 | . |
| | 71.00 | .154 | 7 | .200(*) |
| | 72.00 | .237 | 4 | . |
| | 73.00 | .282 | 4 | . |
| | 74.00 | .260 | 2 | . |
| | 75.00 | .390 | 4 | . |
| | 76.00 | .147 | 8 | .200(*) |
| | 77.00 | .211 | 5 | .200(*) |
| | 78.00 | .173 | 6 | .200(*) |
| | 79.00 | .205 | 5 | .200(*) |
| | 80.00 | .209 | 7 | .200(*) |
| | 81.00 | .144 | 6 | .200(*) |
| | 82.00 | .388 | 4 | . |
| | 83.00 | .310 | 6 | .074 |
| | 84.00 | .174 | 13 | .200(*) |
| | 85.00 | .239 | 6 | .200(*) |
| | 86.00 | .181 | 16 | .167 |
| | 87.00 | .230 | 10 | .141 |
| | 88.00 | .183 | 11 | .200(*) |
| | 89.00 | .262 | 10 | .051 |
| | 90.00 | .151 | 14 | .200(*) |
| | 91.00 | .138 | 11 | .200(*) |
| | 92.00 | .107 | 16 | .200(*) |
| | 93.00 | .306 | 7 | .046 |
| | 94.00 | .215 | 9 | .200(*) |
| | 95.00 | .135 | 8 | .200(*) |
| | 96.00 | .258 | 3 | . |
| | 97.00 | .248 | 5 | .200(*) |
| | 98.00 | .384 | 3 | . |
| | 99.00 | .195 | 5 | .200(*) |
| | 100.00 | .310 | 5 | .132 |
| | 102.00 | .282 | 3 | . |

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

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