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LOYOLA UNIVERSITY CHICAGO

DEPRESSION IN FRESHMEN COLLEGE STUDENTS

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

PROGRAM IN NURSING

BY

JULIE M. BRANDY

CHICAGO, ILLINOIS

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For my husband, Allan, and daughters, Emma and Nicole.
Without your love and support, I would not have been able to achieve my goals.

Learn from yesterday, live for today, hope for tomorrow.
The important thing is not to stop questioning.

—Albert Einstein

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ABSTRACT

Background: Adjustment to college life and attending a university for the first time can be a stressful experience for college students. Because of the challenges faced when adapting to these life changes, college students are at risk of developing depressive symptomology. The development of depressive symptoms can lead to negative life events in the lives of college students, the most significant of which is suicide,

Purpose: This study examined whether stress and other factors (social support and spirituality) predicted depressive symptoms and high risk behaviors in college freshmen students. In addition, the mediating role of coping on the relationship between stress and the development of depressive symptoms was explored.

Methods: The theoretical framework that guided this study was based upon Lazarus and Folkman's conceptualization of stress, appraisal and coping. A cross-sectional, descriptive correlational design was used. Freshmen students from two religiously affiliated, Midwestern private colleges participated in this study. The convenience sample consisted of 188 freshmen students able to read and write in English, both male and female, and between the ages of 18 to 20 years. This study was approved by the institutional review boards at Loyola University Chicago, as well as the institutions where the data was collected.

Measurements: Participants in this study completed questionnaire booklets with measures of the following variables: stress (Inventory of College Students' Recent Life Experiences); coping (Ways of Coping Questionnaire); depressive symptomology (Center for Epidemiological Studies of Depression Scale); risky behaviors (Adapted Youth Risk Behavior Survey); spirituality (Daily Spiritual Experiences Scale); and social support (Multidimensional Scale of Perceived Social Support).

Data Analysis: The SPSS version 17 was used to perform statistical analysis. Descriptive statistics were used to describe the levels of stress, coping and depressive symptoms among college freshmen. The relationships among stress, coping, depressive symptoms, as well as the positive influences (spirituality, family support, peer support) was explored using correlational tests. Regression analysis (simple and multiple linear) was used to determine the factors that are most predictive of depressive symptoms in college freshmen. Finally, analysis was completed to test the mediating effect of coping on the relationship between stress and the development of depression in college freshmen.

Results: Study participants consisted of males (42.6%), females (57.4%), who were mainly 18 years of age ($SD = .47$), white, Catholic, living in university provided housing. Participants were evenly divided between University A (50.5%) and University B (49.5%). A total of 84 students (44.7%) of the students were demonstrating greater than average levels of stress as measured by the ICSRLE. A total of 90 individuals (47.87%) scored greater than or equal to 16 on the CES-D, thus considered to be demonstrating significant depressive symptomology. A strong relationship existed

between stress and depressive symptoms ($r = .701, p < .01$). Significant relationships also existed between perceived social support, as measured by the MSPSS, and stress ($r = -.380, p < .01$) and depressive symptoms ($r = -.398, p < .01$). No statistically significant relationships (at the $p < .01$ level) existed between spirituality, as measured by the DSES, and stress or depression. Two emotion focused forms of coping as measured by WOC questionnaire subscales, keep to self and wishful thinking, significantly mediated the relationship between stress and depression in this study.

Implications for Nursing Practice and Research: This study provides a better understanding of factors that are predictive of depression in freshmen college students. Results suggest that targeting stress reduction in college freshman may be important in decreasing the incidence of depressive symptomatology. Interventions to assist freshmen in adjusting to their early college experience can be developed to help students become more successful in their personal as well as academic lives.

CHAPTER ONE

INTRODUCTION

The incidence of depressive symptoms has been increasing among college students. According to a study of college students receiving counseling services between the years of 1988 and 2001, a 20% increase occurred in the number of students seeking help for depressive symptoms during that time period (Benton, Robertson, Tseng, Newton, & Benton, 2003). In a survey of university counseling center directors completed in 2006, it was noted that 91.6% of the respondents reported that they had observed an increase in the number of students experiencing psychological problems in the recent years (Blanco, et. al, 2008). The development of depressive symptoms may have a significant impact on the ability of college students to successfully complete academic requirements. In a nationwide study, 43% of college students reported feeling so depressed that it was difficult for them to study (American College Health Association, 2009).

Depressive symptoms can negatively impact the lives of college students. Students experiencing depressive symptoms report greater amounts of emotional suffering. This suffering may impact life satisfaction and academic performance (Brown & Schiraldi, 2004). A large national study (n=4,092) focused upon a comparison of the mental health of college students and their non-college attending peers. A total of 2,188

students between the ages of 19 to 25 years who were currently attending college, and 2,904 of their peers who were not attending college were surveyed to determine the prevalence of psychiatric disorders and the rate of treatment received for these disorders in each of the groups. The results demonstrated that the incidence of mood disorders and anxiety disorders were high in both groups. An alarming result of this investigation was that almost 50% of all of the individuals from both groups met the criteria for at least one psychiatric disorder during the past 12 months (Blanco, et. al, 2008).

In a nationwide survey conducted by the American College Health Association in 2008, 94% of the students reported feeling overwhelmed by the demands of college life (American College Health Association, 2009). Chronic levels of high anxiety are associated with the development of depressive symptoms in college students (Reed, McLeod, Randall, & Walker, 1996). College students face unique stressors intrinsic to the academic system that differ from their peers who are not in college. These stressors include fear of failure, demands on time, loneliness, financial pressures, low self-esteem, and poor coping strategies (Hirsch & Ellis, 1996).

A consistent finding in the literature is the relationship between stress and the development of depressive symptoms in the college student (Dyson & Renk, 2006). Adjustment to college life and attending a university for the first time can be a stressful experience for college students. The stress that students face during this time of transition will require the use of previously developed coping mechanisms, as well as the development of new strategies to effectively adjust to university life. Because of the challenges faced when adapting to these life changes, as well as difficulty adjusting to the

changes, college students are at risk of developing depressive symptomatology. The incidence of depressive symptoms can lead to negative life events in the lives of college students, the most significant of which is suicide.

Depression and Depressive Symptomology

The American Psychiatric Association provides specific symptomatic criteria for the medical diagnosis of Major Depressive Episode in the book, *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (American Psychiatric Association, 2000). The symptoms indicative of a Major Depressive Episode include the following:

- (1) depressed mood for most of the day, nearly every day as indicated by either subjective report or observation made by others;
- (2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day;
- (3) significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day;
- (4) insomnia or hypersomnia nearly every day;
- (5) psychomotor agitation or retardation nearly every day;
- (6) fatigue or loss of energy nearly every day;
- (7) feelings of worthlessness or excessive or inappropriate guilt nearly every day;
- (8) diminished ability to think or concentrate, or indecisiveness, nearly every day;
- (9) recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide (356).

To meet the criteria for the medical diagnosis of Major Depressive Episode, at least five of these symptoms must be present for at least a two week period of time, and cause distress or impairment in the individual's life (American Psychiatric Association, 2000). The occurrence of any of these depressive symptoms may increase the risk of developing a major depressive episode (Peden, Hall, Rayens, & Beebe, 2000).

Depressive symptomology is defined as the behavioral manifestations of depression (Beck, et al., 1961). Individuals demonstrating depressive symptomology may or may not present with behavioral manifestations severe enough to meet the criteria for the medical diagnosis of Major Depressive Episode. Individuals demonstrating less than five of the symptoms noted above, or demonstrating five or more depressive symptoms for less than a two week period of time would not meet the criteria for Major Depressive Episode. Although the medical diagnosis of Major Depressive Episode is based upon these behavioral manifestations, they may also be evident in other psychiatric disorders, as well as considered normal when present at a lesser degree (Radloff, 1977).

Factors Impacting College Adjustment

Three factors felt to impact the adjustment to college life include the perception of social support (both from family and peers), spirituality, and coping. To begin with, perception of strong social support is important for success in school and life. It has been reported that the greater an individual's perception of family support, friendship support, and a supportive school environment, the lower incidence of depressive symptoms in college freshmen (Hall, Peden, Rayens, & Beebe, 2004; Rayle & Chung, 2007; Reed et al., 1996; Saltzman & Holahan, 2002; Way & Robinson, 2003). Secondly, studies have demonstrated an inverse relationship between spirituality and depressive symptoms in college students. Thus, higher levels of spirituality may be a protective factor against the development of depressive symptoms in college students (Maton, 1989; Muller & Dennis, 2007; Turner-Musa & Lipscomb, 2007; Young, Cashwell, & Shcherbakova, 2000). Finally, an individual's ability to cope in a stressful situation may have a direct

effect on his or her physical and emotional health. People respond differently to potential causes of psychological stress, and cope with psychological stress in different ways. (Lazarus & Folkman, 1984). The ability to adaptively cope with stressors has been shown to impact an individual's adjustment to college life (Grant, 2004; Nolan, Roberts, & Gotlib, 1998; Alfeld-Liro & Sigelman, 1998; Chaplin, 2006; Dyson & Renk, 2006; VanBoven & Espelage, 2006; Reed et al., 1996).

Study Conceptualization

The theoretical framework for this study is based upon Lazarus and Folkman's conceptualization of stress, appraisal and coping (see Figure 1). According to Lazarus and Folkman, how a person appraises a stressor influences how he or she will cope, as well as the emotional reaction that will result (1984). Stressors faced by freshmen students as they adjust to college life include academic demands, financial pressures, and separation from their usual support network. Spirituality and social support (family and friends), as well as the multiple stressors being faced by the students, are viewed as antecedents in this framework. These antecedents directly influence how students appraise the stressors their lives. Individuals may use different methods of coping in different situations, based upon their unique appraisal of the stressors. Coping serves as a mediator between the antecedents and the outcomes of depressive symptoms and high risk behaviors in college freshmen. This framework allows for the examination of multiple antecedents that may influence how freshmen students appraise and cope with the stressors in their lives. When using this framework, each of these antecedents can be assessed for the amount of impact they have on the ability to cope, both individually and

in combination. Through a comprehensive examination of multiple factors that may be predictive of coping, further information can be gained into the development of depression in college freshmen.

Research Aims and Hypotheses

The major goals of this study included:

Aim 1: to describe the levels of stress, coping and depressive symptoms among college freshmen.

Aim 2: to explore the relationships among stress, coping, depressive symptoms, as well as the positive influences (spirituality, family support, peer support) and negative influences (financial pressure, separation from family) and the impact of these variables on college freshmen.

Aim 3: to determine the factors that are most predictive of depressive symptoms in college freshmen.

Aim 4: to test the mediating effect of coping on the relationship between stress and the development of depressive symptoms in college freshmen.

The testable hypotheses included the following:

Hypothesis 1: College freshmen reporting more positive influences (spirituality, family support, peer support) will demonstrate lower levels of stress and less depressive symptoms.

Hypothesis 2: College freshmen reporting more negative influences (financial pressure, separation from family) will demonstrate higher levels of stress and more depressive symptoms.

Hypothesis 3: College freshmen demonstrating higher levels of depressive symptoms will report greater levels of high risk behaviors (eating disorders, casual sexual relationships, misuse of alcohol, and smoking).

Hypothesis 4: Higher levels of stress in the lives of college freshmen will lead to less adaptive methods of coping, which will increase the incidence of depressive symptoms.

In summary, college students face stressors unique to the academic system. High levels of anxiety may result when students feel overwhelmed by these stressors. Students facing chronic high levels of high anxiety are at risk of developing depressive symptomology. These depressive symptoms may negatively affect their quality of life as well as their academic performance. Perception of social support (both from family and peers), spirituality, and coping are important factors that may impact the adjustment to college life. Each of these factors may serve as a protective factor against the development of depressive symptomology.

CHAPTER TWO

LITERATURE REVIEW

To provide focus for the literature review, electronic database searches were conducted with the assistance of a librarian at Loyola University Medical Center Library. All database searches were restricted to articles published in the English language. Electronic databases utilized in the literature review process included: CINAHL, PsycINFO, Medline, and ERIC database. The search terms utilized in the search process included: college freshmen and depression; college freshmen and high risk behaviors; college freshmen and social support; college freshmen and vulnerability; and college freshmen and spirituality (see Table 1). The reference lists of all articles that were obtained were reviewed to allow for further expansion of possible sources of information. Overlap in articles reviewed from each of the databases was discovered, as numerous articles were cited in more than one database searched for this analysis.

Stressors Unique to College Students

The college years provide a time of academic as well as personal growth for students. College students face stressors that differ from their peers who are not in college. Some of these stressors include academic demands, financial pressures, and separation from their usual support network.

Psychosocial Development of College Freshmen

One qualitative investigation examined the social experiences of a group of freshmen (N = 34) and how social integration influences the students' choices to withdraw or continue at the university. Twenty-two of the participants had successfully completed their first year of college, and 12 of the students withdrew from the university during their first year. Three themes emerged during the qualitative interviews as the major reasons that influenced the students' decisions to withdraw from the university. These themes included: difficulty making friends; difficulty with accommodation; and finding independent study to be problematic (Wilcox, Winn, & Fyvie-Gauld, 2005). There was a 35% drop out rate for participants during their freshmen year. This would be considered an average drop out rate for freshmen students, as the nationwide average is 30% to 40% for students in their freshmen year of college (DeBerard, Spielmans, & Julka, 2004).

Often college freshmen face academic pressures and expectations that are considered greater than what they had experienced in high school (Rayle & Chung, 2007). It has been reported that as many as one-third of college freshmen are, "frequently overwhelmed by all they have to do" (Brown & Schiraldi, 2004, p. 158). In an investigation of undergraduate students (N = 2,495) it was noted that 44.3% of the subjects reported experiencing emotional difficulties that directly affected their academic performance during the past four weeks (Eisenberg, Gollust, Golberstein, & Hefner, 2007). Similar results were discovered when evaluating the results of the 2005 National College Health Assessment Survey. Analysis of this data demonstrated that 46.1% of

college students reported feeling so depressed it was difficult to function during the past academic year (Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2008). Students who feel overwhelmed may demonstrate general malaise about completing the academic work that is required, leading to poor study habits. An investigation of undergraduate students taking an introductory psychology course (N = 129) reported a significant correlation ($r = -.24, p < .01$) between poor study habits and depression (Drozd, Robinson, & Saarnio, 1994). Students who report depressive symptoms may also demonstrate “a reduction in learning opportunities, a decrease in the level of information absorbed and/or a decrease in their ability to demonstrate learning” (Hysenbegasi, Hass, & Rowland, 2005, p. 146). One study examined the relationship between depression and the academic performance of undergraduate college students (N = 330). The results of this study demonstrated that students reporting depressive symptoms missed significantly more classes (14.64 verses 2.99 for non-depressed students), and experienced on average a 0.49 drop in their grade point average than their peers that did not report depressive symptoms. It was noted, however, that students who received treatment for their depressive symptoms were able to raise their grade point averages back to a level that was similar to their peers (Hysenbegasi, Hass, & Rowland, 2005).

Separation from their well established social networks has been identified in the literature as a stressor for college freshmen. When students leave home to begin college, they leave behind the people who have been familiar and supportive as part of their transition to university life (Alfeld-Liro & Sigelman, 1998). Sociologist Nancy Schlossberg developed a theory of mattering for college students based upon her research

into the development of self-concept in college students. According to Schlossberg, mattering is defined as “the experience of others depending on us, being interested in us, and being concerned with our fate; while the experience of marginality results in opposite feelings-the feeling of not fitting in and not being needed or accepted” (Schlossberg, 1989, p. 8). Schlossberg reported that college freshmen often feel marginal, as though they do not matter in their new social environment. This feeling of not mattering to others can lead to increased stress, and thus, negatively affect the lives of college students (Schlossberg, 1989).

Financial issues may also be a significant stressor for college students. In an investigation of undergraduate students (N = 351) in the United Kingdom, the relationship between depression, anxiety, stress, and achievement of students was examined. Over 20% of the participants reported a major financial crisis, requiring them to go without food or other essential items due to a lack of money. The results demonstrated that financial difficulties had a significant effect on the development of symptoms of both depression and anxiety in the students. The results also demonstrated that students experiencing both depressive symptoms and financial pressures earned lower exam scores than students not reporting these issues (Andrews & Wilding, 2004).

In summary, there are many stressors faced by college freshmen that can be detrimental to their physical and mental wellbeing. The most common stressor reported by college students is academic demands, followed by financial pressures and separation from their usual support network. These stressors can place college students at risk of developing both acute and chronic depressive episodes.

Adolescent Development

Growth and development, as described by Erikson, Piaget and Kohlberg, has an important impact on the adolescent stage of life. To begin with, Erik Erikson described eight components of psychosocial development. According to Erikson, the development of a healthy personality involves the ability to successfully overcome a potential crisis during each of the eight developmental stages of life. Erikson describes a healthy personality as “containing elements which are most noticeably absent or defective in neurotic patients and which are most obviously present in the kind of man that the educational and cultural systems seem to be striving, each in its own way, to create, to support, and to maintain” (Erikson, 1959, p.51).

Erikson’s first four stages of development (see Table 2) occur in children before they reach the age of 12 years. According to Erikson, college students between the ages of 18 to 20 years of age would fall under one of two stages of development. The first of these stages is identity versus role confusion. Identity versus role confusion is considered the stage of adolescence, including individuals between the ages of 12 to 20 years. Erikson states the adolescent’s mind, “is essentially a mind of moratorium, a psychosocial stage between childhood and adulthood, and between the morality learned by the child and the ethics to be developed by the adult”, (Erikson, 1963, p.263). The ability to successfully overcome the crisis presented in this stage is dependent upon the extent to which earlier tasks were completed. These developmental crises result as individuals encounter “a radical change in perspective” (Erikson, 1959, p. 55) as their personality grows throughout their lifespan. The ability to successfully overcome earlier

crises influences the adolescent's ability to establish identity and develop stable principles that will be carried into adulthood (Erikson, 1963). Individuals that are not able to successfully overcome the crisis of this stage may develop feelings of alienation from others, as well as a lack of clear goals in life. Erikson uses the term, "apathetically lost," to describe these individuals (Erikson, 1963, p. 263).

The second of Erikson's stages that would include college students is intimacy versus isolation. During this stage, individuals are prepared to develop psychosocial intimacy with others. Individuals that have successfully overcome the crisis of the previous stage and emerge with a clear identity, are now able to fuse that identity with others. This fusing involves the development of relationships with others that include trust and reciprocal expression of affection. Individuals that are not able to successfully overcome the crisis of this stage may develop feelings of emotional distance from others and become overly self-absorbed (Erikson, 1963).

Jean Piaget developed a theory to describe the progression of cognitive development throughout childhood. According to Piaget, the cognitive development of children can be divided into four stages: sensorimotor; preoperational; concrete operational; and formal operations. All individuals progress through these four stages in the same order, beginning with the sensorimotor stage at birth, and ending with the formal operations period during adolescence. According to Piaget, college students would be in the stage of formal operations, the final stage of cognitive development. During this stage adolescents develop the ability to think abstractly, reason using hypotheses and reason beyond the present (Piaget, 1976). "There seems to be a capacity

or inclination to consider and examine possibilities that are not immediately present,” that is unique to individuals who have achieved this stage of cognitive development (Adelson, p. 212, 1980). This ability to think beyond the present continues throughout adulthood.

Lawrence Kohlberg developed a theory, based upon the previous work by Piaget, to describe the moral development of human beings. According to Kohlberg, the moral development of individuals can be divided into three main levels: preconventional level; the conventional level; and the postconventional level. College students would fall under the conventional level of moral development, as this is the typical level for adolescents. It is during this stage that individuals judge the morality of actions based upon their interpretation of society’s views and expectations. Following established rules and norms of behavior is very important to individuals in the conventional stage. “Morality is defined as maintaining the social order and conforming to expectations of others; adherence to established norms is the essence of moral obligation” (Adelson, 1980, p. 296).

Relationship of Depression, Stress, and Coping

A consistent finding in the literature is the relationship between stressors and the development of depressive symptoms in the college student. In addition, the coping skills of an individual significantly impacts his or her response to stress. Individuals experience stress when they are faced with demands that may exceed their ability to cope (Dyson & Renk, 2006). When faced with these stressors, students must utilize coping strategies to manage and effectively adapt to the pressures in their lives. The inability to effectively manage these stressors may lead to chronic levels of high anxiety for college

students. Chronic levels of high anxiety have been associated with the development of depressive symptoms in college students (Reed et al., 1996). In a nationwide survey conducted by the American College Health Association, 94% of the students reported feeling overwhelmed by the demands of college life (American College Health Association, 2009). This statistic suggests that the potential for the development of depressive symptoms in college students is significant.

The type of coping strategies college students utilize to manage stressors vary in their ability to promote positive adaptation. It has been noted in the literature that male and female students utilize different coping methods. Several studies have suggested that female college students have less adaptive coping skills than male students (Grant, 2004; Nolan, Roberts, & Gotlib, 1998; Alfeld-Liro & Sigelman, 1998; Chaplin, 2006; Dyson & Renk, 2006; VanBoven & Espelage, 2006; Reed et al., 1996). In one study examining gender and depressive symptoms, ruminative coping was found to be more common among female college students (Grant, 2004). Ruminative coping was defined as “focusing on negative mood, negative aspects of self, or stressors” (p. 525). In a longitudinal study of undergraduate students (N = 135) from a private institution, 67 of which who were female, higher levels of ruminative coping were found to be predictive of higher levels of depressive symptoms. Data for this investigation were collected at two time points, approximately 8 to 10 weeks apart. Path analysis was completed on the data collected. This analysis supported a path model in which ruminative response style mediated the effect of neuroticism on depression (Nolan, Roberts, & Gotlib, 1998).

In another longitudinal investigation of college students ($n = 287$), rumination, defined as a more internal method coping, was examined in both male and female college students. Data were collected at two time periods, first during the summer orientation prior to the beginning of college classes, and secondly at the end of the first semester of classes. The majority of the subjects in this investigation were Caucasian (73%), followed by Asian (14%), African American (5%), and other (8%). Ruminative coping was found to be more common in female college students. As an internal coping method, individuals who utilized ruminative coping were more likely to blame themselves for negative events in their lives, avoiding blame to external people and events. This self-blame was felt to increase the development of depressive symptoms in female college students (Alfeld-Liro & Sigelman, 1998). Internal coping methods were also noted to be more common among female students in a study of first and second year college students ($N = 100$), the majority whom were Caucasian (80%). The researcher demonstrated that feeling anger internally, but not outwardly displaying this anger may place the female students at higher risk of developing depressive symptoms (Chaplin, 2006).

In another study of the relationship between depressive symptoms, stress, and coping in college freshmen, differences were also noted in the coping skills utilized by male and female students. A total of 74 college freshmen (23 male and 51 female) participated. The majority of the participants were Caucasian (62%). The results demonstrated that male students, who utilized more problem-focused coping skills demonstrated lower levels of depressive symptoms, and female students who utilized more emotion-focused coping skills demonstrated higher levels of depressive symptoms

(Dyson & Renk, 2006). In one longitudinal study of undergraduate women from a large midwestern university (N = 322) a lack of problem-focused coping was found to be associated with an increase of depressive symptoms. The women in this investigation, were mostly sophomores (41%), and Caucasian (74%). The sample utilized in this investigation was representative of the demographic make-up at this institution (VanBoven & Espelage, 2006). The relationship between a lack of problem-focused coping methods and the tendency to avoid social support from others was examined in a study of African-American female college students (N = 78). Results demonstrated that women who used fewer problem-focused coping methods, and had less social support, demonstrated greater levels of depressive symptoms (Reed et al., 1996).

Another risk factor reported in the development of depressive symptoms in college students was low self-esteem. In a longitudinal study of college freshmen (N = 629), the relationship between external self-worth, defined as the level of one's self-esteem depending upon other's views or external events, and the development in depressive symptoms was examined. Data were collected at two time points: during the freshmen orientation prior to the beginning of classes; and during the first two weeks of the second semester. The study demonstrated that individuals who develop their self-esteem based upon events that are out of their control, reported lower levels of self-esteem and greater levels of depressive symptoms than individuals who develop their self-esteem based upon internal events that are under their control. The majority of students (N = 280) were Caucasian (45%), followed by Asian-Americans (37%), and African-Americans (18%) (Sargent, Crocker, & Luhtanen, 2006). One randomized

control study examined the relationship between depressive symptoms, negative thinking and self-esteem in women aged 18 to 24 years (N = 92) enrolled at a large public university. Women were randomly assigned to either the experimental group (N = 46) or the control group (N = 46). The experimental group received a six-week cognitive-behavioral group intervention to decrease negative thinking. Data was collected at three time points: prior to the randomization into groups; one month after the intervention; and six months after the intervention. The incidence of depressive symptoms was measured by both the Beck Depression Inventory (score > 9) and the Centers for Epidemiological Studies of Depression Scale (score > 16). There was a significant reduction in depressive symptoms in the treatment group. At baseline, 89% of the women were determined to be demonstrating significant depressive symptoms. One month following the intervention only 25% of the participants in the experimental group demonstrated significant depressive symptoms, with only a 14% incidence at six months following the intervention. In the control group depressive symptoms actually increased by 10% between baseline and the six-month follow-up. The results of this study demonstrated that less frequent negative thinking and higher self-esteem resulted in a decrease of depressive symptoms reported for the experimental group (Peden et al., 2000).

A major limitation in the literature regarding the relationship between stressors and the development of depressive symptoms in college students is the lack of diversity of the participants. For most studies, the subjects were Caucasian, with limited individuals from other racial and ethnic groups. This lack of diversity, however, is representative of the population of college students in the United States. According to

the National Center for Education Statistics, during the 2006 to 2007 academic year, 72.2% of all college students in the United States were White, followed by Black (9.6%), Hispanic (7.5%), Asian/Pacific Islander (6.9%), American Indian/Alaska Native (0.8%), and nonresident alien (3%) (United States Department of Education, 2009). Similar results were found in the American College Health Association's study involving 80,121 students from 106 college campuses across the United States in 2008. The majority of the participants in this study were reported as White (75.5%), followed by Asian or Pacific Islander (11.6%), Hispanic (6.2%), Black (5.0%), American Indian or Alaskan Native (1.6%), and other (3.8%) (American College Health Association, 2009).

A second limitation is that most studies included college students at various points. Evidence indicates that freshmen students experience the greatest number of changes as they adjust to university life. Therefore the need to examine the relationship between stressors and the development of depressive symptoms in this most vulnerable population is crucial.

Negative Outcomes of Depression in College Students

Literature demonstrates serious consequences of depression in college students. Negative outcomes may occur as a result of depressive symptoms. The most significant negative outcome associated with depressive symptoms is suicide. Suicidal ideation has been reported in as many as 44% of college students during the previous year (Abramson, et al., 1998). According to McCarthy and Salotti (2006), approximately 10% of college students have seriously thought about committing suicide. There appears to be a relationship between student attitudes toward suicide and depressive symptoms. The

greater the number and intensity of depressive symptoms experienced by college students, the greater their risk of suicide (Gibb, Andover, & Beach, 2006; Hirsch, Conner, & Duberstein, 2007; Talaiferro, et al., 2008). Stressors in the lives of college students that are not effectively managed may lead to suicidal behavior. Students may become so discouraged by unresolved stressors that they become increasingly overwhelmed and hopeless, seeing suicide as the only escape.

In a cross-sectional investigation of stressors that may place college students at greater risk of suicidal ideation, several were identified as significant. Academic stressors, social stressors, and financial stressors were found to be the three most significant factors that may place these students at risk of suicidal ideation (Hirsch & Ellis, 1996). Unfortunately, many of these students do follow through with their suicidal thoughts, represented by suicide as the second leading cause of death in college-age students (McCarthy & Salotti, 2006). According to Silverman (1993, p. 329):

There is no more painful disruption of the rhythm of campus life than that of a student suicide. Such an event brings to halt the daily pattern of teaching, research, and scholarship that define university life, as well as brings into question individual concerns about vulnerability and destiny.

In conclusion, suicide is considered the most significant negative outcome associated with depressive symptoms in college students. The research suggests that individuals that are having the most difficulty coping with academic, social, and financial stressors are at the greatest risk of suicide. Although the most significant, suicide is not the only high risk behavior related to depressive symptoms in college students.

High Risk Behaviors

High risk behaviors related to depressive symptoms in college students have been reported. These behaviors include misuse of alcohol, smoking, eating disorders, and casual sexual encounters. The misuse of alcohol has been identified as a high risk behavior in college students that is related to depressive symptoms (Beck, et al., 2008; Eshbaugh, 2008). A study of almost 900 undergraduate students reported that students who classified as depressed, reported drinking alcohol less frequently in social situations, but more frequently in a context of emotional pain. It was suggested that these students were using alcohol as a means of coping with stress, thus self-medicating to alleviate their emotional pain (Beck, et al., 2008). Similar results were revealed in another cross-sectional study of alcohol practices of college students (N = 316). Seventy-four percent of the participants in this investigation were either freshmen or sophomores, and almost all were Caucasian (98%). Significant correlations were present between depression ($r = .26, p < .001$), loneliness ($r = .12, p < .05$), stress ($r = .19, p < .001$) and problematic drinking. Twenty-nine percent of the subjects in this investigation reported that their alcohol intake had negatively affected their grades during the past academic year. There was not a statistically significant difference between gender. However, almost half (> 40%) of both women and men indicated they had at least one binge drinking episode during the past two weeks. Despite this finding, 80% of women and 77% of men indicated they did not consider their drinking problematic, which is alarming (Eshbaugh, 2008).

Smoking has been identified as a high risk behavior related to depressive symptoms (Kenney & Holahan, 2008; Ridner, 2005; Schleicher, et al., 2009). In a cross-sectional investigation of college students (N = 204; 62% Caucasian), a significant relationship was discovered between depressive symptoms and average daily cigarette smoking. Students were divided into two groups based on their results on the Beck Depression Inventory. The low depressive symptom group scored nine or below (N = 100); and the high depressive symptom group had scores greater than nine (N = 104). Results demonstrated that students with fewer depressive symptoms smoked an average of 27 fewer cigarettes per week than students who reported a greater number of depressive symptoms ($p < .05$) (Kenney & Holahan, 2008). Higher depressive symptoms significantly predicted a greater number of cigarettes being smoked during the past month ($p = .007$) in another cross-sectional investigation of undergraduate smokers (N = 315). Once again, this study had a homogeneous sample, with 94.2% of participants being White and non-Hispanic (Schleicher, et al., 2009).

In another cross-sectional study, college students (N = 788) from a large public university completed a questionnaire examining factors that predict smoking. Caucasian students comprised the majority of participants (90%). Results indicated that current smokers demonstrated a greater level of depressive symptoms than non-smokers. A study limitation was that depressive symptoms were measured utilizing the General Well-Being Scale, and not by an instrument such as the Beck Depression Inventory or the Centers for Epidemiological Studies of Depression Scale (Ridner, 2005).

The relationship between depressive symptoms and eating disorders among college women was examined in a study of undergraduate women (N = 322). Women were largely Caucasian (N = 74%), and college sophomores (41%). Depressive symptoms (Centers for Epidemiological Studies of Depression Scale) and eating disorder symptoms (Eating Disorder Inventory-2) were measured. Results demonstrated a significant positive correlational relationship between depressive symptoms and eating disorder symptoms ($r = .52, p < .001$) (VanBoven & Espelage, 2006). A significant relationship was also noted in a study examining depressive symptoms and weight concerns in college students. Undergraduate students (N = 681) with higher scores on the CES-D had significantly higher weight concerns as measured by the Stanford Weight Concerns Scale (a five-item self report scale designed to assess fear of weight gain, worry about weight and body shape, importance of weight, diet history, and perceived fatness). Participants classified as depressed (CES-D scores ≥ 16) scored an average of 51.6 on the Stanford Weight Concerns Scale, participants classified as not depressed (CES-D scores < 16) scored an average of 40.0 on the same scale ($p < .01$). The participants were largely Caucasian (95%) and female (74%) (Vickers, et al., 2003).

Casual sexual encounters are another negative outcome shown to be associated with depressive symptoms. In a cross-sectional study of undergraduate students (N = 404), female students with significant depressive symptoms were more likely to engage in casual sexual relationships. The participants were from a large public university, 71% were freshmen, and 88.2% were White/non-Hispanic ethnicity. Researchers reported that females with the greatest number of depressive symptoms had the greatest number of

sexual partners. To explain these results, it was suggested that females with depressive symptoms may seek sexual relationships to decrease their feelings of isolation and to increase their feelings of self-worth (Grello, Welsh, & Harper, 2006). In another cross-sectional investigation of students from a large public university (N = 648) the relationship between depression and risky sexual behavior was also examined. Participants were representative of the university's population, which is 70% female, 61% European American, 8% Latina, 4% Asian American, and 6% from other ethnic backgrounds. A significant positive correlation was reported between higher scores on the CES-D and reported risky sexual behavior ($r = .13, p < .001$) (Swanholm, Vosvick, & Chng, 2009).

In conclusion, several high risk factors have been shown to be related to depressive symptoms in college students. Although suicide is considered the deadliest behavior, misuse of alcohol, cigarette smoking, eating disorders, and casual sexual encounters have also been shown to be significant high risk behaviors associated with depressive symptoms in college students.

Protective Factors to Decrease the Development of Depression

Two protective factors reported to decrease the development of depressive symptoms in college students were found in the literature. These factors include the perception of social support (both from family and peers) and spirituality.

Perception of Social Support

Perception of strong social support is important for success in school and life. Several investigations have examined the relationship between social support and

depressive symptoms in college students. It has been reported that the greater an individual's perception of family support, friendship support, and a supportive school environment, the lower incidence of depressive symptoms in college freshmen ($N = 176$) ($r = -.45, p < .001$) (Way & Robinson, 2003). Similar results were found in a study of African-American female college students ($N = 78$) where those with greater levels of social support from their family reported lower levels of depressive symptoms ($r = .56, p < .001$). The results indicated that the participants who had mothers that had attended college reported fewer depressive symptoms. The researchers felt that mothers who had attended college had been better able to assist their daughters to prepare for the stressors that they may face during the college experience (Reed et al., 1996).

The relationship between college women and their mothers has also been examined relative to the development of depressive symptoms. In this cross-sectional investigation, women ($N = 246$) were recruited from a large public university. The majority were Caucasian (94%). Depressive symptoms were measured utilizing both the Beck Depression Inventory and the Centers for Epidemiological Studies of Depression Scale; and the relationship between college women and their mothers was measured utilizing the Parental Bonding Instrument. Scores greater than 10 on the Beck Depression and greater than 16 on the Centers for the Epidemiological Studies of Depression Scale were indicative of significant depressive symptomology. Low maternal care was defined as affectionless and neglectful relationships between the mother and her daughter. College women who reported less maternal care had a four-fold increase in the incidence of significant depressive symptoms (Hall, Peden, Rayens, & Beebe, 2004).

Although not a focus of this investigation, the possibility of depressive symptoms in the mothers, which may negatively impact the mother-daughter relationship, may have also been predictive of the development of depressive symptoms in the participants. Greater amounts of perceived social resources, defined as family and peer support, have been found to be related to reduced depressive symptomology in undergraduate college students from a large public university (N = 300: 118 female and 112 male) who were mostly Caucasian (71%). Results demonstrated that greater amounts of social resources increased an individual's ability to positively adapt to the stressors faced in college (Saltzman & Holahan, 2002).

Rayle and Chung (2007) utilized Schlossberg's Theory of College Students' Perceptions of Mattering to study the relationship between family support, mattering to friends and family, and academic support in college freshmen from a large public university (N = 533). Seventy-four percent of the participants were Caucasian, which was representative of the campus population. Results demonstrated that freshmen students who felt supported by friends and family and felt they mattered to friends and the college, experienced significantly less academic stress than the students who reported that they did not feel supported ($F(4, 486) = 4.89, p < .03$).

In conclusion, an inverse relationship has been reported between perceived social support and the development of depressive symptoms in college students. In other words, the more social support, the fewer depressive symptoms. Spirituality, which may reflect a different type of support, is another factor that has been examined for its role in the development of depressive symptoms in college students.

Spirituality

The college years are an important time in the spiritual growth of young adults as they begin to search for meaning in their lives. It is during this time that students may begin to examine their own religions and spiritual beliefs (Bryant, Choi, & Yasuno, 2003). Six stages of faith development have been described by Fowler. These stages represent “faith as a way of construing, interpreting, and responding to the factors of contingency, finitude, and ultimacy in our lives” (Fowler, 1984, p, 52). According to Fowler, college students would be in the third stage of faith development, known as the Synthetic-Conventional Faith. It is during this stage that the individual’s ability to develop hypothetical considerations and think using use abstract concepts, begins to provide the foundation for faith development. Individuals in the Synthetic-Conventional stage are beginning to develop their own belief systems, however, they mainly seek to conform to the beliefs of individuals they relate to, such as family and peers. Because they have not fully developed their own belief systems, “there must be a deep reflection and examination of what one believes compared to what his/her religion believes in order to move on to the next stage” (Fowler, 1984, p. 63).

It has been proposed that, for college students, “spiritual support may be expected to exert an influence on well-being independent of perceived social support” (Maton, 1989, p. 311). Studies have demonstrated a negative correlation between higher levels of spirituality and depressive symptoms in college students (Maton, 1989; Muller & Dennis, 2007; Turner-Musa & Lipscomb, 2007; Young, Cashwell, & Shcherbakova, 2000). There is a limited amount of research examining the relationship between spirituality and

college students. One possible explanation may be difficulty in developing an operational definition of spirituality (Hayman, et. al, 2007). Spirituality applies to all human beings universally (Oldnall, 1996). Spirituality is described as nondemoninational and non-institutional, applying to both believers and nonbelievers (Baldacchino & Draper, 2001). Spirituality is also viewed as an individualized experience. Spirituality can be defined as “the experience of an integration of meaning and purpose in life through connectedness with self, others, art, music, literature, nature, or a power greater than oneself” (Burkhart & Solari-Twadell, 2001, p. 49). In contrast, religion is viewed as an organized way of expressing spirituality for some individuals, often in the social setting of a faith community (Gordon & Mitchell, 2004). Religion focuses upon a shared belief system among a group of people that includes a variety of significant practices (McEvoy, 2003). Thus, religion may be utilized as an expression of individual spirituality, however, individuals who are not religious may still have strong individual spiritual beliefs (Baldacchino & Draper, 2001).

Spirituality has been associated with coping and life changes for college-age students. In a longitudinal investigation of the adjustment of freshmen (N = 68) to college life, spirituality was found to be a significant factor in the ability to cope with stress ($r = .47, p < .01$) (Maton, 1989). A large study of undergraduate students (N = 303) reported a significant negative correlation between depressive symptoms and spirituality ($r = -.14, p < .05$). The authors used this negative correlation to support their hypothesis that spirituality can serve as a moderator between negative life events and the development of depression in college students (Young, Cashwell, & Shcherbakova, 2000). Another study

(N = 180) reported those college students who reported greater levels of change in their lives also had lower levels of spirituality. Among the students reporting lower levels of spirituality, however, there was a strong interest in developing greater levels of spirituality. Thus, students may be seeking the development of deeper spiritual meaning in their lives (Muller & Dennis, 2007). In African American college students (N = 211), lower levels of spiritual well-being have been related to increased alcohol and cigarette usage (Turner-Musa & Lipscomb, 2007). However, this study did not measure depressive symptoms. Therefore it is unclear if these students are also demonstrating depressive symptoms in this study. Because high risk behaviors (e.g. alcohol) are related to depressive symptoms, this would have been an important variable for study.

In conclusion, the college years are an important time of spiritual growth for young adults. Although few in number, studies have demonstrated an inverse relationship between spirituality and depressive symptoms in this age group. Thus, higher levels of spirituality may be a protective factor against the development of depressive symptoms in college students. Although perceived social support and spirituality have been demonstrated to serve as protective factors in the development of depressive symptoms in college students, one limitation noted in the literature is the lack of concurrent evaluation of these factors. When perceived social support and spirituality are examined together they may provide a clearer picture of factors that play an important role in the development of depressive symptoms.

Theoretical Framework

The theoretical framework guiding this study is based upon Lazarus and Folkman's conceptualization of stress, appraisal and coping (see Figure 1). According to Lazarus and Folkman, psychological stress "is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (1984, p. 19). People respond differently to potential causes of psychological stress, and cope with psychological stress in different ways. Individuals possess differences in their sensitivity, vulnerability, and interpretations of psychological stress. There are two processes that are felt to mediate the relationship between the person and the stressor, these include cognitive appraisal and coping (Lazarus & Folkman, 1984).

Cognitive appraisal "reflects the unique and changing relationship taking place between a person with certain distinctive characteristics (values, commitments, styles of perceiving and thinking) and an environment whose characteristics must be predicted and interpreted" (Lazarus & Folkman, 1984, p. 24). While completing cognitive appraisal, individuals attempt to understand the psychological stress and its significance on their well-being. How a person appraises a stressor influences how he or she will cope, as well as the emotional reaction that will result. Cognitive appraisal can be divided into two steps, primary and secondary (Lazarus & Folkman, 1984).

During primary cognitive appraisal individuals determine what is at stake. Events in the environment are categorized as either irrelevant, benign-positive, and stressful. An event that is not felt to require any action is categorized as irrelevant, events that may

enhance and individual's well-being are categorized as benign-positive, and events that are viewed as harmful, threatening or challenging are categorized as stressful (Lazarus & Folkman, 1984).

During secondary cognitive appraisal, the individual evaluates all possible coping actions when faced with a stressful event. Secondary appraisal is a complex process during which the individual evaluates not only all coping options that are available, but also the potential outcomes that may result when employing particular coping options, and his or her ability to perform these coping strategies effectively. Individuals who possess limited coping resources, or the inability to employ adaptive coping options, are considered vulnerable (Lazarus & Folkman, 1984).

There are several factors that may influence how a person appraises an event. One of these factors is commitment, defined as how important the event is to the person. The greater the importance of an event to an individual, the greater the risk an individual may be more vulnerable to stress in that area. A second factor is beliefs, either personal or cultural possessed by an individual. Beliefs are preexisting notions that help determine what events are happening in the environment, and the understanding of their meaning. Other factors that influence appraisal include the novelty, predictability, ambiguity, timing of the event in relation to the individual's developmental stage, as well as temporal factors (imminence, duration, temporal uncertainty) (Lazarus & Folkman, 1984).

The second process felt to mediate the relationship between the person and the stressor is the coping process. Coping is defined as "constantly changing cognitive and

behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). Individuals may use different methods of coping in different situations, based upon continuous appraisal of the stressors. There are two main forms of coping, emotion-focused and problem-focused (Lazarus & Folkman, 1984).

Emotion-focused coping can assist the individual to change his or her perspective on a stressful situation without actually changing the situation. Some examples of emotion-focused coping skills include avoidance, minimization, hope and optimism. Problem-focused coping utilizes problem solving skills to attempt to overcome the stressful situation. Some examples of problem-focused coping skills include developing alternative solutions to the situation, weighing cost and benefits of potential solutions, followed by action to alleviate the stressor. These two types of coping strategies may be either adaptive or maladaptive depending upon the demands of the stressful situation (Lazarus & Folkman, 1984).

An individual’s ability to cope in a stressful situation may have a direct effect on his or her physical and emotional health. When faced with difficulty coping, individuals may experience increased neurochemical stress reactions, resulting in increased susceptibility to various illnesses. Secondly, coping can have a negative impact upon health when it involves the use of injurious substances, including alcohol, illicit drugs, and tobacco. Coping may have a negative effect on health when it involves the use of emotion-focused coping behaviors, such as when denial can delay seeking needed care.

Finally, coping may have an effect on an individual's morale, how he or she feels about themselves and his or her life circumstances (Lazarus & Folkman, 1984).

The theoretical framework based upon the Lazarus and Folkman's conceptualization of stress, appraisal and coping allows for the examination of multiple factors that may have an impact on depressive symptoms in college freshmen. These factors include perception of peer support, perception of family support, spirituality, and coping. The stressors students face while they are adjusting to college life, including academic demands, financial pressures, and separation from their usual support network, will require the use of previously developed coping mechanisms, as well as the development of new coping strategies. For freshmen students, these stressors may be viewed as exceeding their present coping resources, thus leading to what Lazarus would define as psychological stress. It is known that people respond differently to potential causes of psychological stress, and cope with psychological stress in different ways. When using Lazarus and Folkman's model as a framework, perception of peer support, perception of family support, and spirituality can be viewed as affecting an individual's sensitivity, vulnerability, and interpretations of psychological stress. Each of these factors can be assessed for the amount of impact they may have on the ability to cope both individually and in combination. Through a comprehensive examination of multiple factors that may be predictive of coping, further information can be gained into the development of depression in college freshmen.

CHAPTER THREE

METHODOLOGY

The overall purposes of the study were to 1) Describe the levels of stress, coping and depressive symptoms among college freshmen, 2) Explore the relationships among stress, coping, depressive symptoms, as well as the positive influences (spirituality, family support, peer support) and negative influences (financial pressure, separation from family) and the impact of these variables on college freshmen, 3) Determine the factors that are most predictive of depressive symptoms in college freshmen, and 4) Develop and test a model of the mediating effect of coping on the relationship between stress and the development of depressive symptoms in college freshmen. The design, setting, sample, instruments, ethical considerations and limitations of this study will now be considered.

Design

The research design chosen for this investigation was a cross-sectional descriptive correlational design. A cross-sectional study requires that all data be collected either at one time, or within a short period of time, and a correlational design is appropriate when the available literature on particular topics demonstrates adequate information necessary to suspect the nature of the relationship between variables (Brink and Wood, 1998). Previous research has demonstrated the relationship between the variables of interest in this investigation while examining only one or two factors at a time. This study

evaluated the relationships between multiple factors that have not previously been investigated.

Several other aspects of this investigation were appropriate for utilization of a cross-sectional descriptive correlational design. First, a correlational design examines the variables as they exist with no attempt to manipulate or change any of the variables of interest (Brink & Wood, 1998). This investigation assessed the variables of interest through the implementation of questionnaires. These questionnaires were completed by the participants based upon their current life experiences, measuring the variables as they exist in the real world. There was no attempt to initiate any manipulation of the variables. Secondly, a correlational study is completed in the participant's natural environment (Brink & Wood, 1998). The data collection procedures were completed on the college campus. Finally, a descriptive correlational design must utilize a sample that represents the population of interest (Brink & Wood, 1998). The population of interest for this investigation was freshmen students at two private, religiously affiliated four-year universities in the Midwestern United States. Through the implementation of recruitment techniques for participants, the sample was representative of the population as a whole.

Setting

Two private religiously affiliated four-year universities in the Midwestern United States were utilized as the setting for this study. University A, is located on 320 acres in Northwest Indiana, and is a private, Lutheran university that was established in 1859. It has over 70 undergraduate programs, 40 master's degree programs, and a School of Law.

The overall faculty-student ratio is 13:1, with an average class size of 22 students (University A, 2010).

The second setting is a private, Jesuit, Catholic University established in 1870. This university has five campuses. There are over 71 undergraduate majors, 85 master's degree programs, and 31 doctoral degrees. The overall faculty-student ratio is 14:1 (University B, 2010). Data collection for this study occurred on the Lake Shore Campus.

Sample

A convenience sample was utilized in this investigation. First semester freshmen college students were recruited from two private religiously affiliated universities in the Midwestern United States. The first sample was obtained from a population which includes approximately 900 freshmen students at University A, a private Lutheran University located in Northwest Indiana. University A has a total enrollment of 3,980 students (2,885 undergraduate students, 1,095 graduate students). Forty-eight percent of the students are male, and 52% are female. The majority of the students are White, non-Hispanic (74.7%), followed by Black, non-Hispanic (5.1%), Hispanic (3.7%), Asian or Pacific Islander (1.7%), American Indian or Alaska Native (0.3%), and race/ethnicity unknown (8.3%). The most commonly reported religion for all undergraduate students at University A is Lutheran (26%), followed by Catholic (20%). Sixty-six percent of the undergraduate students live in residence halls. Approximately 35 percent of the students are from Indiana, and 25 percent are from Illinois. The remaining students are from the other 48 states and over 40 international countries (University A, 2010).

University A offers counseling services to all full-time undergraduate students. The counseling center is staffed by a director, who is a licensed psychologist and health service provider in psychology, a consulting psychiatrist, and five staff therapists. During the 2008-2009 academic year, the counseling center had a total of 220 students present for first-time appointments (approximately 7.6% of undergraduate population), 47 of which were freshmen students (approximately 5.2% of freshmen population) (S. Cooper, personal communication, February 22, 2010).

The second sample was obtained from a population including approximately 2,076 freshmen at University B, a private Jesuit university. University B has a total enrollment of 15,879 students (10,077 undergraduate students, and 5,802 graduate students). The majority of the students are White, non-Hispanic (69.0%), followed by Asian or Pacific Islander (13.2%), Latin American (7.7%), African American (3.0%), Puerto Rican (1.9%), Native American (0.2%), and other race/ethnicity (3.9%). The most commonly reported religion for all undergraduate students at University B is Roman Catholic (62.4%), followed by Protestant (8.7%), Muslim (4.8%), Eastern Orthodox (2.6%), Hindu (2.6%), Jewish (1.7%), and Buddhist (0.2%). Eighty-six percent of the freshmen live in residence halls (University B, 2010).

University B offers counseling services to all full-time undergraduate students. During the 2008-2009 academic year, there were a total of 4,302 visits to the Wellness Center for mental health needs. This represents a total of 900 students (approximately 8.9% of undergraduate population) who received mental health services during that time (D. Asaro, personal communication, March 15, 2010). Information on the number of

first time appointments and the number of freshmen receiving mental health services at University B during the 2008-2009 academic year is not available (D. DeBoer, personal communication, February 22, 2010).

There was no quota established to require a specific number of individuals from specific ethnic groups, however, the sample obtained was representative of the entire population of freshmen students at University A and University B.

Inclusion

The inclusion criteria for participants in this investigation included: first semester freshmen, full-time, first year on campus, college students; able to read and write in English; both male and female students; and participants were between the ages of 18 through 20 years of age.

Exclusion

Exclusion criteria for participants in this investigation included students enrolled in graduate or doctoral programs of study.

Recruitment and Procedures

The recruitment of subjects at University A was completed in collaboration with the Freshmen Core: The Human Experience program. All first semester freshmen at University A participate in the Core program, which meets four days per week throughout the first year of college. The focus of the Core program is “what it means, what it has meant, and what it will mean in the future to be human,” (University A, 2010).

There are approximately 35 sections of Core, and each section of Core consists of approximately 20 students. Subjects for this study were recruited from 6 randomly sections of Core during the Fall 2010 semester. The investigator scheduled specific times with individual course faculty members to attend these classes during the Fall 2010 semester. During these visits, the investigator provided a brief presentation about the study to all of the students in the class (see Appendix F). Following the presentation, the course faculty members dismissed students approximately 10 minutes early, and the investigator requested students to remain in the classroom if they would like to voluntarily participate in the study. If students choose to participate, they completed a questionnaire booklet that took approximately 15-25 minutes (personal communication, J. Ruff, February 11, 2010).

After each subject completed the booklet, they were provided with an envelope containing a five-dollar coupon, which could be utilized at any of the dining locations on campus. Written materials describing mental health services available through the university counseling center, as well as in the local community, were included in the envelope as well (see Appendix G).

The recruitment of subjects at University B was completed in collaboration with the First Year Seminar Program. All freshmen at University B participate in the First Year Seminar Program, which meets one day per week. The focus of the First Year Seminar Program is “to provide a comprehensive and extended orientation that is holistic in nature, but focuses on academic success and students’ transition to college” (University B, 2010).

Each section of the First Year Seminar Program consists of 20 students. Subjects for this study were recruited from 6 sections of the First Year Seminar Program during the Fall 2010 semester. The investigator scheduled specific times to attend these classes during the Fall 2010 semester with the director of the First Year Seminar Program. During these visits, the investigator provided a brief presentation about the study to all of the students in the class (see Appendix F). Following the presentation, the course faculty member dismissed the students approximately 10 minutes early, and the investigator requested students to remain in the classroom if they would like to voluntarily participate in the study. If students choose to participate, they completed a questionnaire booklet that took approximately 15-25 minutes to complete. After completion, each student was provided with an envelope containing a Rambler Buck card with a value of five-dollars. This Rambler Buck card can be utilized for purchases at several campus locations, including copy centers, dining services, vending machines, and parking. Written materials describing mental health services available through the university counseling center, including after hours crisis care, were included in the envelope as well (see Appendix G).

Sample Size

It was determined that to complete the appropriate statistical analysis of data, a sample size of approximately 200 students will be required for this study. This sample size was estimated by using the correlation coefficient method for a cross-sectional study. For this calculation, the level of significance, or alpha, was set at 0.05. An alpha of 0.05 will allow for a 5% risk of a Type I error (Polit & Beck, 2004). The beta for this

calculation was set at 0.20. The beta of 0.20, allows for a power of 80%. Because the focus of this study is examining if relationships exist between the variables, not predicting the direction of these relationships, a two-sided hypothesis model was chosen (Hulley, Cummings, Browner, Grady & Newman, 2007).

The effect size, also an important determinant in calculation of sample size, represents the strength of the relationships between variables (Polit & Beck, 2004). Previous research examining the relationships between several of the variables in the proposed study has yielded correlations ranging from .24 to .59 (see Table 3). No previous research has examined the correlations between all of the variables in this study. Based upon review of the research that has been completed between several of the study variables, a conservative, small effect size between 0.20 and 0.25 was chosen.

When using the correlation coefficient method for this cross-sectional study with the chosen alpha of 0.05, beta of .20, and power of 80%, and an effect size between 0.20 and 0.25, it was estimated a total sample size of 160 subjects will be required for this study (Hulley, et. al, 2007, p. 89). An additional 25% was added to account for missing data, resulting in an approximate sample size of 200 students.

A total of 188 subjects participated in this study, 95 from University A, and 93 from University B. There were a total of 11 booklets found to be missing more than 20% of the data. These booklets were deleted from further data analysis. One subject reported an age of 17 years, and this booklet was deleted, as the focus of the study was on freshmen students ranging from 18-20 years of age. Therefore, a total of 188 usable booklets were utilized in the data analysis.

Instruments

There were seven instruments for data collection. The seven instruments include: Center for Epidemiologic Studies Depression Scale; Daily Spiritual Experiences Scale; Multi-Dimensional Scale of Perceived Social Support Scale; Inventory of College Students' Recent Life Experiences; Ways of Coping Questionnaire; and a modified version of the Youth Risk Behavior Surveillance System. The concepts as well as the measurement of the concepts are presented in Figure 2. In addition, a table of all measurements is included in Appendix E.

Center for Epidemiologic Studies Depression Scale

The Center for Epidemiological Studies Depression Scale (CES-D Scale) (see Appendix E) was developed in 1977 to provide a scale to measure depressive symptomology in the general population (Radloff, 1977). This was the first scale developed to measure the epidemiology of depressive symptoms in the general population, as previous scales were developed to measure depressive symptoms in the clinical setting. The CES-D Scale is a 20 question self-report scale that focused upon the current level depressive symptoms an individual may be experiencing (Radloff, 1977).

During development, this scale was tested for reliability, validity and factor structure when examining depressive symptoms in both psychiatric patients and the general population. The researchers took several steps in the testing of this new instrument. First, interviews lasting approximately one hour in length were completed by a lay interviewer in the homes of 1,173 individuals from Kansas City, Missouri, and 1,673 individuals from Washington County, Maryland. Probability samples that were felt

to be representative of the communities were chosen from each of these locations. Secondly, seventy patients from a private psychiatric facility in Washington County, Maryland, were also asked to complete the questionnaire. Immediately following the completions of the questionnaire, each of these patients was interviewed by one of the lay interviewers that completed the general population interviews in Washington County, Maryland. Next, thirty-five individuals from an outpatient treatment program for depression were also asked to complete the CES-D Scale. Clinicians working with these patients were asked to complete both the Hamilton Rating scale and the Raskin on each these individuals for data comparison (Radloff, 1977).

The scores on the CES-D Scale were different between the general population sample and the psychiatric patient model. Using the cutoff score of 16, 70% of the individuals from the psychiatric setting demonstrated significant depressive symptomology, whereas only 21% of the general population sample demonstrated significant depressive symptomology. These results were felt to demonstrate discriminate validity between the two groups. The authors felt the instrument demonstrated content validity because all of the items were developed through careful evaluation and review of the symptoms of depression (Radloff, 1977).

The results of these investigations demonstrated high reliability, with a Cronbach's Alpha of .85 in the general population, and .90 in the patient sample. The CES-D Scale measures current depressive symptomology, not the stability of depressive symptoms over time, however, test-retest correlations were completed during instrument development. The authors note that the time between test-retest data collections did vary

from several weeks to several months, and unexpected life events for the participants could have impacted their scores. However, the correlations between the test-retest scores ranged from .32 to .54 for the data collected through re-interview, and .51 to .67 for the data collected through mail-backs (Radloff, 1977).

The questions on the CES-D Scale focus upon depressive symptomology during the past week, and are rated on a scale of the following: “rarely or none of the time (0); some or a little of the time (1); occasionally or a moderate amount of time (2); and most or all of the time (3)” (Radloff, 1977). The CES-D is scored by totaling the scores for each of the items. Four items on the instrument, numbers 4,8,12, and 16 are reversed scored. Unlike other depression scales used prior to the CES-D Scale, this scale is not intended to be utilized as a clinical diagnostic tool. Individual scores should not be interpreted as diagnostic criteria, however, groups with average high scores can be identified as at risk for depression (Radloff, 1977).

Daily Spiritual Experiences Scale

The Daily Spiritual Experiences Scale (DSES) is a 16 item self-report scale developed in to measure an individual’s ordinary spiritual experiences in studies examining health, both physical and emotional (see Appendix E). The DSES was designed to be completed in less than two minutes. Because it does not measure specific beliefs or behaviors, the DSES is designed to measure spirituality, regardless of an individual’s religious beliefs. It was hoped by the individuals who developed this scale that will assist with “the establishment of a pathway by which religiousness and

spirituality might influence physical and mental health” (Underwood & Teresi, 2002, p. 23).

The DSES has demonstrated strong psychometric properties. To begin with, the scale demonstrates strong content validity. In the development of the scale, interviews were conducted both with individuals and focus groups with persons from various religious backgrounds. The qualitative data collected in these interviews were used to develop the items to be included on the scale. Then these items were then refined through further qualitative interviews, as well as review by the experts representing the World Health Organization Working Group on Spiritual Aspects of Quality-of-Life (Underwood & Teresi, 2002).

Initial evaluation of the psychometric properties took place during three separate investigations with included the DSES. The first investigation took place at Rush-Presbyterian St. Luke’s Medical Center in Chicago, where the DSES was included as an instrument in the Study of Women Across the Nation. The second investigation took place at Ohio University Medical Center in a study of the spiritual dimensions of patients with arthritis. The third investigation took place at Loyola University and focused upon individuals from the University of Chicago area (Underwood & Teresi, 2002).

The results of all three investigations demonstrated high levels of reliability and validity for the DSES. The inter-item correlations for the instrument ranged from .60 to .80, with an overall Cronbach’s alpha of .94. Exploratory factor analysis of the data collected in the initial investigations demonstrated the 14 of the items loading on one

factor (.69 to .93) with two items loading on a second factor (.77 and .78) (Underwood & Teresi, 2002).

The questions on the DSES focus upon the expression of spirituality in daily life. The instrument does not provide a specific timeframe for individuals, leaving this as open-ended for subjects. The first 14 items are rated on a scale of the following: “many times a day (1); every day (2); most days (3); some days (4); once in a while (5); and never or almost never (6)” (Underwood, 2006, p. 12). The final two items, numbers 15 and 16, are rated on a scale of the following: “not at all close (1); somewhat close (2); very close (3); and as close as possible (4)” (Underwood, 2006, p.12). Item number 16 on the instrument is reversed scored. The DSES is scored by totaling the scores for each of the items. Although there is no cutoff score for the instrument, individuals with lower scores are considered to be demonstrating a greater number of spiritual experiences (Underwood, 2006).

Multi-Dimensional Scale of Perceived Social Support

The Multidimensional Scale of Perceived Social Support (MSPSS) was developed to address an individual’s subjective perceptions of the adequacy of social support (see Appendix E) (Zimet, Dahlem, Zimet, & Farley, 1988). Prior to the development of the MSPSS, the instruments available mainly focused upon the objective measurement of social support. The need for an instrument to focus upon the subjective assessment of social support was first noted following an investigation of social support in 227 introductory psychology students at the University of Washington (Sarason, Levine, Basham, & Sarason, 1983). The results of this investigation indicated that an individual’s

perceived number of social supports and reported satisfaction with these supports were two different aspects of the concept of social support. The investigators felt these two factors should be evaluated separately in future research studies (Sarason, Levine, Basham, & Sarason, 1983). The MSPSS was the first instrument developed that could measure the individual's perception of satisfaction with their social support, not simply measure the objective measure of the number of social supports available (Zimet, Dahlem, Zimet, & Farley, 1988).

The initial investigation utilizing the MSPSS was completed using 275 students from an introductory psychology course at Duke University. The instruments utilized in this investigation were completed in a group setting as a requirement for the introductory psychology course. The subjects in this investigation included 136 women and 139 men whose ages ranged from 17 years to 22 years of age, with the mean age being 18.6 years. One hundred and eighty-five of these individuals were freshmen, 67 were sophomores, 20 were juniors and 3 were seniors at the time of the investigation. Each of the 275 subjects completed the initial version of the MSPSS, which consisted of 24 items focused upon their perceptions of social support from their families, friends, and significant others. This initial version asked subjects to rate their agreement or disagreement to each statement on a 5-point Likert scale. Subjects were also asked to complete the Hopkins Symptom Checklist. The Hopkins Symptom Checklist is a 58 item, self-report questionnaire developed to measure the severity of symptoms associated with various psychological problem areas. The five problem areas include: somatization, obsessive-compulsive behavior, interpersonal sensitivity, anxiety, and depression. The scores from

two problem dimensions of the Hopkins Symptom Checklist, depression and anxiety, were evaluated for their correlation to perceived social support scores. After evaluation of data from this initial investigation, two changes were implemented which resulted in the currently available version of the MSPSS. First, repeated factor analysis of the data from this initial investigation indicated that 12 of the items did not directly address social support. Therefore, these 12 items were removed from the instrument. The current MSPSS consists of a total of 12 items with each of the three subscales consisting of four items. These three subscales include perceived social support from family, perceived social support from friends, and perceived social support from significant others (Zimet, Dahlem, Zimet, & Farley, 1988).

The MSPSS utilizes a 7-point Likert-type scale to allow subjects to express their amount of agreement or disagreement with the statements presented on the questionnaire. Investigators can then calculate total scores for each of the subscales of the MSPSS as well as the total scale. There is no specific cut-off score for this instrument. The data can be interpreted, however, as the higher the score of an individual on each of the subscales and the total scale, the greater their perception of positive social support (Zimet, Dahlem, Zimet, & Farley, 1988). This information can assist researchers to discriminate the amount of perceived social support among subjects in their investigations. It is stated in the initial article published on this instrument that this hypothesis was supported through evaluation of the data collected. The scores from the perceived social support from family subscale were significantly and inversely related to the scores from the depression subscale of the Hopkins Symptom Checklist, $r = -.24$, $p < .01$ and anxiety, $r = -.18$, $p <$

.01. The scores from the perceived social support from friends subscale were significantly inversely related to the data from the depression subscale of the Hopkins Symptom Checklist, $r = -.24$, $p < .01$, however, the data did not demonstrate a significant relationship between the perceived social support from friends subscale and the anxiety subscale of the Hopkins Symptom Checklist. The scores from the perceived social support on the significant other subscale were significantly and negatively related to scores from the depression subscale of the Hopkins Symptom Checklist, $r = -.13$, $p < .05$. The overall MSPSS score was significantly and negatively related to the scores from the depression subscale of the Hopkins Symptom Checklist, $r = -.25$, $p < .01$ (Zimet, Dahlem, Zimet, & Farley, 1988).

The reliability of the scores obtained through use of the MSPSS in the initial investigation was addressed by the individuals who developed the instrument. The Cronbach's coefficient alpha, a measure of internal consistency, was calculated for each of the three subscales as well as the overall scale scores. The Cronbach's coefficient alpha coefficients for the perceived social support from a significant other subscale was 0.91, for the perceived social support from family subscale was 0.87, for the perceived social support from friends was 0.85, and the overall scale was 0.88. The authors felt this data indicated good internal consistency for the overall scale as well as the three subscales (Zimet, Dahlem, Zimet, & Farley, 1988).

Approximately two to three months following the initial investigation, 69 of the 275 subjects were asked to complete both the MSPSS and the Hopkins Symptom Checklist in an evaluation of test-retest reliability. The data from this second

investigation were then evaluated to determine the test-retest reliability of the data. The Cronbach's coefficient alpha coefficients for the perceived social support from a significant other subscale was 0.72, for the perceived social support from family subscale was 0.85, for the perceived social support from friends was 0.75, and the overall scale was 0.85. The authors felt this data indicated good internal reliability and adequate stability over time for the overall scale as well as the three subscales (Zimet, Dahlem, Zimet, & Farley, 1988).

Inventory of College Students' Recent Life Experiences

The Inventory of College Students' Recent Life Experiences (ICSRLE) was developed in 1990 to assist in the measurement of the effects of everyday stress on physical and mental health of college students (see Appendix E). The ICSRLE was the first instrument developed for this specific population. The ICSRLE is a 49 question self-report scale which focuses on life experiences of college students over the past month, and are rated on a scale of the following: "not at all part of my life (1); only slightly part of my life (2); distinctly part of my life (3); very much part of my life (4)" (Kohn, Lafreniere, & Gurevich, 1990, p. 628). The ICSRLE instrument is scored by totaling the scores for each of the individual items. There is no cutoff score for the ICSRLE, however, individual's with higher scores are felt to be experiencing greater effects of everyday stress (Kohn, Lafreniere, & Gurevich, 1990).

During development, this scale was tested for reliability, validity and factor structure. The initial investigation involving the ICSRLE included a total of 208 undergraduate students recruited from a psychology class at York University, located in

Canada. The mean age of the subjects was 22.99 (SD = 5.66), 50 were male, 156 female, and 2 subjects did not indicate their gender on the questionnaires. Each of the subjects completed the initial version of the instrument, which contained a total of 85 items. Subjects also completed the Perceived Stress Scale, which was felt to be a reliable and valid measure for perceived stress (Kohn, Lafreniere, & Gurevich, 1990).

The analysis of the data collected during initial investigation was completed using 100 randomly selected subjects to determine the item-selection subsample, then the remaining 108 subjects for the cross-replication sub-sample. The 49 items on the initial instrument which correlated with the Perceived Stress Scale at a one-tailed alpha of 0.5 were included in the item-selection subsample. This subsample then became items subjected to further testing (Kohn, Lafreniere, & Gurevich, 1990).

The results of the initial investigation of the ICSRLE demonstrated strong psychometric properties. First, a high reliability, with a Cronbach's Alpha of .89 was reported. Secondly, construct validity was demonstrated through analysis of the correlation with the Perceived Stress Scale, .67 ($p < .0005$). Finally, a total of seven factors were discovered through the use of principal-axis factoring. Each of the seven factors selected had a minimum eigenvalue of one. The seven factors include: developmental change; time pressure; academic alienation; romantic problems; assorted annoyances; general social mistreatment; and friendship problems (Kohn, Lafreniere, & Gurevich, 1990).

The psychometric properties of the ICSRLE were analyzed in a study of 216 American undergraduate students from a midwestern university. Subjects were recruited

from psychology courses, with a mean age of 23.05 years ($SD = 6.15$), 69 male, 147 female, and 90.7% White. The subjects in this investigation completed the ICSRLE as well as the Perceived Stress Scale, the Daily Hassles Scale-Revised, the College Maladjustment Scale and the Brief Symptom Inventory (Osman, Barrios, Longnecker, & Osman, 1994).

The results of this investigation demonstrated strong psychometric properties of the ICSRLE in a group of American College Students. The Cronbach's alpha for the total scale was .922. Correlations were also calculated for each of the seven factors, ranging from .54 to .80. A seven factor-model was found to have a goodness-of-fit index greater than the pre-established requirement of .90, and adjusted goodness-of-fit index of .80 ($GFI = .94$, $AGF I = .93$). The results also demonstrated construct validity, as the results from the ICSRLE significantly correlated ($p < .001$) with the results of the other stress measures utilized (Osman, Barrios, Longnecker, & Osman, 1994).

Ways of Coping Questionnaire

The Ways of Coping Questionnaire was developed in 1985 after revision of the Ways of Coping Checklist (see Appendix E). The Ways of Coping Checklist was developed in 1980 to assist in measuring how an individual thinks and acts to cope with the demands of a specific stressful encounter. The Ways of Coping Checklist was the first instrument felt to examine how coping mediates the relationship between stressors and an individual's well-being. The original checklist contained 68 items focused upon daily stressors, and subjects answered these items in a yes-no format (Folkman & Lazarus, 1980).

In 1985, the WOC questionnaire was developed following revision of the Ways of Coping Checklist. There are several differences between these two instruments. First, the WOC questionnaire was adapted to contain a 4-point Likert scale, not the yes-no format. Second, nine items were eliminated from the original instrument because they were felt to be unclear, and several items were reworded to provide greater clarity. Finally, several new items were added, resulting in the present 66 item instrument (Folkman & Lazarus, 1985).

During development, the WOC questionnaire was examined for reliability, validity and factor structure. The initial investigation using this instrument focused upon undergraduate students (N =108, 60% female) at the University of California, Berkley. This longitudinal study examined the changes in coping processes of the students related to an examination. Data were collected at three time points: two days prior to the examination; five days after the examination was completed, prior to the posting of grades; and five days after the examination grades were posted (Folkman & Lazarus, 1985).

Analysis of the data resulted in eight factors, which have been divided into eight individual scales on the instrument. Fifteen items that did not clearly reflect any of the factors were deleted from the instrument. These eight scales include: problem-focused coping (items 62, 46, 39, 52, 35, 26, 64, 54, 39, 2, and 48); wishful thinking (items 55, 38, 57, 59, and 11); detachment (items 21, 13, 24, 12, 4, and 53); seeking social support (items 45, 18, 28, 31, 8, 42, and 60); focusing on the positive (items 23, 38, 20, and 15); self blame (items 9, 29, and 51); tension reduction (items 32, 33, and 66); and keep to self

(items 14, 40, and 43) (see Appendix F). The results for each individual scale were analyzed, there was no analysis completed on the total scale score calculated. Analysis of the data from this investigation also demonstrated adequate reliability for each of the eight scales. The Cronbach's Alpha for the scales were reported as problem-focused coping (0.88), wishful thinking (.86), seeking social support (0.82), self blame (0.76), focusing on the positive (0.70), keep to self (0.65), and tension reduction (0.59) (Folkman & Lazarus, 1985).

An investigation was completed to compare the results from the original Ways of Coping Checklist and the revised WOC questionnaire in various populations. Participants in the study included psychiatric outpatients (N = 83), spouses of patients with Alzheimer's Disease (N = 62), and medical students 9 (N = 425). Participants in this investigation completed both instruments. The results of this investigation demonstrated the revised WOC questionnaire provided higher or equal results for the coping scales (see Table 4). Results also demonstrated strong concurrent validity, as examined in the medical student population. Medical students who were currently undergoing group therapy on coping with stress scored higher on both the original and revised instruments than the medical student who were not involved in group therapy. Finally, the data demonstrated no demographic bias in either of the instruments (Vitalino, Russo, Carr, Maiuro, & Becker, 1985).

The WOC questionnaire is scored through analysis of each of the eight subscales. This analysis is completed by summing the scores for each of the eight subscales. There is no cutoff score for the WOC questionnaire (Folkman & Lazarus, 1985).

Youth Risk Behavior Surveillance System

The Youth Risk Behavior Surveillance System (YRBSS) was developed by the United States Center for Disease Control in 1991. The YRBSS contains a total of 98 items, and is a self-administered survey. The purpose of the YRBSS is “to monitor priority health-risk behaviors that contribute substantially to the leading causes of death, disability, and social problems among youth and adults in the United States” (Brener, et al., 2004, p. 1). The YRBSS was developed to measure high risk behaviors in students in grades nine through twelve. The results of the YRBSS provide longitudinal data related Cronbach’s Alpha to high risk behaviors in this age group, as well as provide the ability to compare incidence of high risk behaviors among different geographic locations and racial groups. The Centers of Disease Control provides financial funding for educational agencies throughout the United States to complete the survey students in grades nine through twelve on a biennial basis (Brener, et al., 2004).

During the development of the YRBSS, the Centers for Disease Control completed an analysis of the leading causes of morbidity and mortality for individuals in this age group. It was determined that there were four major causes of death: motor vehicle crashes; unintentional injuries; homicide; and suicide. Unintended pregnancies, sexually transmitted infections, alcohol and drug usage were also identified as significant contributors to mortality and morbidity statistics in this age group. An initial version of the survey was developed in 1989 by a panel that was assigned by the Centers for Disease Control. After review by educational experts from throughout the United States, a revised second version was developed in 1990. After pilot testing was completed on the

second version, several changes were made leading to the final version developed in 1991. Prior to each biennial survey, the Centers for Disease Control completes an analysis which includes any necessary revisions on the survey (Brener, et al., 2004).

The Centers for Disease Control has completed two separate test-retest reliabilities studies on the YRBSS. The first was completed in 1991, with middle school and high school students (N = 1,679) completing the survey 14 days apart. The results of this study demonstrated “approximately three fourth of the items were rated as having a substantial or higher reliability, and no statistically significant differences were observed between the prevalence estimates for the first and second times that the questionnaire was administered” (Brener, et al., 2004, p. 5). The second was completed in 1999, with high school students (N = 4,619) completing the survey approximately 14 days apart. The results of this study demonstrated “approximately one in five items had significantly different prevalence estimates for the first and second times the questionnaire was administered” (Brener, et al., 2004, p. 5). Following this second study, several items on the YRBSS were revised or deleted (Brener, 2004).

The validity of the YRBSS has been analyzed by the Centers for Disease Control, although no studies have been completed to review the validity of all of the items on the survey. In 2000, an analysis of the items related to self-reported height and weight was completed. It was determined that high school students (N = 2,965) reported their height 2.7 inches over their actual height, and their weight 3.5 pounds under their actual weight. Therefore, it was concluded that the results of the YRBSS may not provide a clear representation of overweight in this population. In 2003, an extensive review of the

literature was completed to assess factors that may affect the validity of the survey. It was determined that the self-report of high risk behaviors as measured by the YRBSS may be affected by cognitive and situational factors. It was felt, however, that it would not be possible or feasible to complete objective measures for each of the behaviors. Because of the subjective nature of self-reporting, care must be utilized in interpreting the data from the YRBSS (Brener, 2004).

An adapted version of the YRBSS was utilized in this investigation into factors predictive of depression in college freshmen (see Appendix E). Only the items related to smoking, alcohol usage, sexual activity, and eating disorders will be included. Because each item on the YRBSS has been designed to stand alone, it has been deemed appropriate to use just the items of interest (personal communication, L. Kann, March 22, 2010).

Human Subjects' Concerns and Ethical Considerations

Students were informed that their participation in the research would not affect their grades at the University. The data collection method for this investigation was through the use of self-report questionnaires, therefore, there were mechanisms in place to assist participants who may encounter unpleasant personal issues when completing the questionnaires (Brink & Wood, 1998). The variables in this study, depressive symptoms, spirituality, perceived social support from friends, perceived social support from family, and coping may be sensitive issues for some individuals. Because the investigator was not familiar with the participants' personal histories prior to their participation in the investigation, and did not have the routine opportunity to interact with the participants on

a clinical basis, a mechanism was in place to provide assistance individuals experiencing emotional distress. The investigator provided information to each subject about the campus counseling center as well as the local community mental health resources.

Each of the participants in this study received financial compensation. The compensation was five-dollars provided in a method that can be used for purchases at campus locations. This amount of compensation was chosen for the time and effort required to complete the data collection packets.

All of the data collected during this investigation will remain confidential. To ensure confidentiality, the investigator assigned each data collection packet a number, and this number was used for all further data identification. The names of subjects were not collected, and thus, there is no mechanism to connect specific data to individual subjects. Secondly, all of the data was directly handled by the lead investigator, and all completed packets were stored in a locked file cabinet. Following final evaluation of the data, all data collection packets will be destroyed. Finally, the results of this investigation are reported only as aggregate data to protect the confidentiality of the individual subjects.

Although this investigation does contain some inherent risk that some individuals that may develop emotional distress related to self-discovery while completing the questionnaires, the anticipated benefits from this investigation outweigh the potential risks. All subjects were provided with information about the campus counseling center as well as the local community mental health resources to provide assistance if they were experiencing emotional distress. In order to develop appropriate nursing assessment and

interventions to assist college-age students experiencing depressive symptoms, there must be a clear understanding of factors that are predictive of depressive symptoms in college-age students.

CHAPTER FOUR

RESULTS

The overall purposes of this study were: to describe the levels of stress, coping and depressive symptoms among college freshmen; to explore the relationships among stress, coping, depressive symptoms, as well as the positive influences (spirituality, family support, peer support) and negative influences (financial pressure, separation from family) and the impact of these variables on college freshman; to determine the factors that are most predictive of depressive symptoms in college freshmen; and to test the mediating effect of coping on the relationship between stress and the development of depressive symptoms in college freshmen.

Description of the Sample

Freshmen students who participated in this study (N = 188) were evenly divided between University A (50.5%) and University B (49.5%) (see Table 5). Individuals completing the booklets had an average age of 18.28 (range 18-20; SD = .47) years, and consisted of both males (42.6%) and females (57.4%). The majority of the students (73.4%) were 18 years of age, not currently working (75.0%), white (70.2%), Catholic (42.0%), and living in university provided housing (81.4%). Only 8 participants (4.3%) were international students, with the majority (N = 4) from China. Participants were taking an average of 15.42 credit hours (range 12-21; SD = 1.59). The majority of the students were receiving financial aid (86.2%), with the most commonly reported amount

(25%) received as \$10,000 to \$15,000 in financial aid. Only 17 participants (9%) reported being under care for a current physical problem, 11 (5.9%) reported receiving care for a current emotional problem, while 42 students (22.3%) reported they were currently taking a medication. Oral contraceptives were the most commonly reported medication. Twenty-seven students (14.4%) reported a family history of mental health issues, with the most common issue reported as depression. The average number of hours of sleep per week was reported as 35.10 (SD = 8.75), and the average BMI of the participants was 24.19 (range 14-53, SD = 5.19).

Reported high risk behaviors measured in this study included cigarette smoking, alcohol usage, casual sexual behavior, and eating disorders (see Table 6). Almost 42% of the students reported ever having tried cigarette smoking, however, only 17.4% reported smoking cigarettes at least one day in the past 30 days. Almost half of the students reported having sexual intercourse with at least one partner in the past three months (40.6%), and more than half reported having at least one alcoholic beverage in the past 30 days (55.2%). In terms of weight behaviors, almost one-third (32.4%) reported they were slightly overweight, and over half (51.6%) reported they wanted to lose weight.

The participants from University A and University B differed in their reported religions (see Table 5). The majority of the students from University A (N = 30, 31.6%) reported Lutheran as their religion, because University A is a Lutheran-based institution. The majority of students from University B (N = 52, 55.9%) reported Catholic as their religion, because University B is a Catholic-based institution.

Each of the following demographic variables: age; gender; employment status; race; religion; living arrangements; financial aid status; current physical problems; current emotional problems; currently taking medications; and number of credit hours, was examined for differences between groups on each of the study variables using the independent t-test (see Appendix K). These results indicate there were only a few differences between the demographic variables on the study variables. Statistically significant differences were present between male ($M = 65.94$, $SD = 13.88$), and female ($M = 70.95$, $SD = 12.08$) participants in relation to the total MSPSS score, $t(186) = -.26$, $p = .01$), and the perceived support from friends subscale, male ($M = 21.74$, $SD = 4.84$), female ($M = 23.53$, $SD = 4.75$) $t(186) = -.254$, $p = .01$) of the MSPSS. These results indicate that female students reported significantly higher levels of perceived social support both overall as well as from friends. Participants who were working part-time ($M = 21.50$, $SD = 6.06$) reported significantly lower levels of perceived family support on the subscale of the MSPSS than students who were not working ($M = 23.51$, $SD = 4.93$) $t(185) = -2.26$, $p = .03$). A difference was also noted in the reported levels of spirituality, as measured by the total score on the DSES, between participants reporting white versus non-white as their race. These results indicate that individuals who are white ($M = 57.36$, $SD = 16.07$) reported significantly lower levels of spirituality than individuals who were not white ($M = 51.09$, $SD = 17.17$), $(t(186) = 2.40, p < .05)$.

Data Analysis: Preliminary Comments

Data Management and Cleaning

All data was entered into the statistical analysis program, PASW Statistics 17.0 for each instrument. All data was manually checked for errors and errors were corrected. The assistance of a professional statistician was enlisted to guide the analysis of the data. It was determined that the data collected met the appropriate assumptions to allow for the use of parametric analysis. These assumptions included: normally distributed data; homogeneity of variance; at least interval level data; and independence. It was determined there was no need for transformation of data prior to analysis. For the correlational data, it was determined that the significance level was greater than the Bonferonni-adjusted alpha level ($p = .006$) and hence no adjustment was needed.

Missing Data

There were a total of 11 booklets found to be missing greater than 20% of the data. These booklets were deleted from further data analysis. One subject reported an age of 17 years, and this booklet was deleted, as the focus of the study was on freshmen students ranging from 18-20 years of age. Therefore, a total of 188 usable booklets were utilized in the data analysis.

Upon examination there was no pattern noted for missing data. A total of 10 booklets contained one or two missing pieces of data. Any missing data in the key variables were replaced with the overall group mean for the missing item.

Data Analysis

Data analysis was completed in relation to the aims and testable hypotheses, and model of the study. The reliability of each instrument (MSPSS, DSES, ICSRLE, CES-D) was analyzed using Cronbach's alpha measurements, as well as the subscales for both WOC questionnaire and the MSPSS (see Table 7). The Cronbach's alpha for the total instruments ranged from .91 to .93, and from .38 to .92 for the subscales of the MSPSS and WOC questionnaire. The tension reduction subscale of the WOC questionnaire had the lowest reliability (.38), but later did not emerge as a significant predictor of depression in the stepwise regression.

Aim 1: To Describe the Levels of Stress, Coping,
and Depressive Symptoms among College Freshmen

The mean, mode, median, standard deviation and range for the scores on each of the instruments utilized to measure these variables (ICSRLE, WOC questionnaire, and CES-D), and the impact of demographic variables on each of the instrument scores was analyzed (see Table 8).

Stress

The ICSRLE was utilized to operationalize the concept of stress in college freshmen. The ICSRLE is a 49 question self-report scale which focuses on life experiences of college students over the past month, and are rated on a scale of the following: "not at all part of my life (1); only slightly part of my life (2); distinctly part of my life (3); very much part of my life (4)" (Kohn, Lafreniere, & Gurevich, 1990, p. 628). The ICSRLE instrument is scored by totaling the scores for each of the individual items.

There is no cutoff score for the ICSRLE, however, individual's with higher scores are felt to be experiencing greater effects of everyday stress (Kohn, Lafreniere, & Gurevich, 1990). The mean score of the ICSRLE across two large studies was 95.31 (SD = 17.36) (P. Kohn, personal communication, December 27, 2010). The mean score for this study was 95.79 (range = 54-153; SD = 19.03; mode = 87). There were a total of 84 students (44.7%) demonstrating scores greater than 95 in this study (see Appendix K). The students demonstrating higher levels of stress also reported a greater number of physical problems (11.8% verses 6.8%), emotional problems (9.4% verses 2.9%), and fewer hours of sleep per week (25% verses 12.5%) than students demonstrating lower levels of stress.

Coping

The WOC questionnaire was used to operationalize the concept of coping in college freshmen. The WOC questionnaire contains 66 items rated on a 4-point Likert scale: not used (0); used somewhat (1); used quite a bit (2); used a great deal (3). The WOC questionnaire contains a total of 8 subscales. One of the subscales (problem-focused) represents problem-focused coping skills; six of the subscales represent emotion-focused coping skills (wishful thinking, detachment, focusing on the positive, self-blame, tension reduction, and keep to self); and one subscale represents a combination of problem-focused and emotion-focused coping skills (seeking social support) (see Appendix F). The WOC questionnaire is scored through analysis of each of the eight subscales, and can be completed using raw scores. Raw scores provide information on the extent of usage for the eight subscales. Each subscale is calculated by

summing the specific items for that subscale (Folkman & Lazarus, 1988) (see Appendix K).

There is no cutoff score for the WOC questionnaire, however the subscales with the higher mean scores represent the most frequently utilized methods of coping (Folkman & Lazarus, 1985). The two subscales with the highest means in the overall study sample were problem-focused, representing problem-focused coping mechanisms (mean 16.18; SD = 6.84) and seeking social support, representing a combination of problem-focused and emotion-focused coping mechanisms (mean 10.27; SD = 5.30) (see Appendix K). Similar results were found when the sample was broken down by gender and level of depressive symptoms (see Appendix K).

The item from the problem-focused coping subscale used the most frequently was, “I try to analyze the problem in order to understand it better” (Item 2, Appendix K). The item from the emotion-focused coping category demonstrating the highest response was, “Wish that the situation would go away or somehow be over with” from the wishful thinking subscale (Item 58, Appendix K). Finally, the item demonstrating the highest response from the seeking social support subscale was, “Talk to someone to find out more about the situation” (Item 8, Appendix K).

Depressive Symptoms

The CES-D Scale was utilized to operationalize depressive symptoms in college freshmen. The CES-D is a 20 question self-report scale that focused upon the current level depressive symptoms an individual may be experiencing. The questions on the CES-D Scale focus upon depressive symptomology during the past week, and are rated

on a scale of the following: “rarely or none of the time (0); some or a little of the time (1); occasionally or a moderate amount of time (2); and most or all of the time (3)” (Radloff, 1977). The CES-D is scored by totaling the scores for each of the items. Higher scores on the CES-D indicate the presence of a greater number of depressive symptoms. Individual scores should not be interpreted as diagnostic criteria, however, groups with average high scores can be identified as at risk for depression. Individuals demonstrating scores greater than or equal to 16 on the CES-D are considered to be demonstrating depressive symptomology (Radloff, 1977). In this study, the mean score on the CES-D was 18.29 (range 0-57; SD = 11.58) (see Table 8). A total of 90 individuals (47.87%) demonstrated scores greater than or equal to 16 (see Appendix K). The students demonstrating higher levels of depressive symptoms also reported a greater number of emotional problems (9.9% verses 3.1%), current medications (26.7% verses 18.4%), and a family history of emotional problems (21.1% verses 8.2%) than students demonstrating lower levels of depressive symptoms.

Aim 2: To Explore the Relationships among Stress, Coping, Depressive Symptoms,
as well as Positive Influences and Negative Influences
and the Impact of these Variables on College Freshmen

The positive influences are spirituality, family support and peer support; the negative influences are financial pressure and separation from family. The relationships between the total scale scores, as well as the subscale scores, were explored using correlations (see Tables 9 and 10). Correlations provide information about the relationships that exist between variables, such as if they are positively related, inversely

related, or if no relationship exists. A positive correlation means that as one of the variables increases, the other also increases; a negative correlation means that as one of the variables increases, the other decreases; and no relationship means that there is no relationship between changes in the variables. Correlation coefficients range between negative one to positive one. The closer the correlational coefficient is to one, either positive or negative, the greater the strength of the correlation between the variables. Correlations do not provide information related to causality. The strength of the relationship between two variables can also be determined using correlations. Correlations with values of $\pm .1$ represent a low level of correlation between the variables, $\pm .3$ represents a medium correlation, and $\pm .5$ represents a large level of correlation between the variables (Field, 2006). Two-tailed tests were used in these analyses.

Relationships among Stress, Coping, and Depressive Symptoms

A strong statistically significant positive relationship existed between the emotional states of stress, as measured by the ICSRLE score, and depressive symptoms as measured by the CES-D score ($r = .701, p < .01$) (see Table 9). Thus, 49.14% of the variability in depressive symptoms could be explained by the amount of stress the students were facing. This indicates that as an individual's stress level increased, he or she also experienced an increase in depressive symptoms.

A low to medium positive correlation relationship existed between the emotional state of stress, as measured by the ICSRLE score, and four of the WOC questionnaire subscales representing emotion-focused coping. These subscales included wishful

thinking ($r = .372, p < .01$), keep to self ($r = .306, p < .01$), self-blame ($r = .251, p < .01$), and detachment ($r = .247, p < .01$) (see Table 10). Thus, as an individual's stress levels increased, he or she increased the use of these emotion-focused methods of coping.

Correlations were examined between score each of the eight WOC questionnaire subscales, and depressive symptoms, as measured by CES-D scores (see Table 10). Significant relationships were present between depressive symptoms and three emotion-focused coping subscales from the WOC questionnaire. These subscales included: keep to self ($r = .401, p < .01$); wishful thinking ($r = .380, p < .01$); and self-blame ($r = .272, p < .01$). Thus, as an individual's depressive symptoms increased, the use of these emotion-focused methods of coping increased.

Relationships among Stress, Coping, Depressive Symptoms, and the Positive Influences (Spirituality, Family Support, Peer Support)

The positive influence of perceived social support, both overall, and perceived support from friends and family, was measured with the MSPSS. The MSPSS utilizes a 7-point Likert-type scale to allow subjects to express their amount of agreement or disagreement with the statements related to perception of social support presented on the questionnaire. Investigators can then calculate total scores for each of the subscales (perceived support from family and perceived support from friends) of the MSPSS as well as the total scale. There is no specific cut-off score for this instrument (see Table 8). For this study, the mean score was 68.82 (SD = 13.08), which is consistent with previous research. The data can be interpreted, however, as the higher the score of an individual

on each of the subscales and the total scale, the greater their perception of positive social support (Zimet, Dahlem, Zimet, & Farley, 1988).

Inverse relationships were present between the positive influence of perceived social support, as measured by the total MSPSS score, and stress as measured by the ICSRLE score ($r = -.380, p < .01$) (see Table 9). Similar relationships also existed between the perceived family support subscale of the MSPSS and stress ($r = -.347, p < .01$), and the perceived friends support subscale of the MSPSS and stress ($r = -.406, p < .01$). The results indicate that either as an individual's stress levels increase, he or she perceives a decrease in social support, both overall as well as from family and friends; or as an individual perceives a decrease in social support, his or her stress levels increase. Because correlations represent the strength and direction of a relationship, not causality, it is not possible to determine which of these scenarios is correct. Inverse relationships were present between the positive influence of overall perceived social support and depressive symptoms, as measured by CES-D scores ($r = -.398, p < .01$). Similar inverse relationships also existed between the perceived family support scale of the MSPSS and depressive symptoms ($r = -.384, p < .01$), and the perceived friends support subscale of the MSPSS and depressive symptoms ($r = -.369, p < .01$). Thus, as an individual's depressive symptoms increase, he or she perceives a decrease in social support, both overall as well as from family and friends. No statistically significant relationships were present between perceived social support, both overall or from friends, and coping, as measured by each of the eight individual subscales of the WOC questionnaire.

There was a statistically significant relationship between the focus on positive subscale of the WOC questionnaire and the perceived social support from family subscale of the MSPSS ($r = .229, p < .01$), indicating that as an individual's use of this emotion-focused coping increased, he or she also perceived increased social support from family.

The influence of spirituality was measured by the DSES. The DSES is a 16 item self-report scale developed in to measure an individual's ordinary spiritual experiences. Because it does not measure specific beliefs or behaviors, the DSES is designed to measure spirituality, regardless of an individual's religious beliefs. The instrument does not provide a specific timeframe for individuals, leaving this as open-ended for subjects. The DSES is scored by totaling the scores for each of the items. Although there is no cutoff score for the instrument, individuals with lower scores are considered to be demonstrating a greater number of spiritual experiences (Underwood, 2006).

No statistically significant relationships existed between spirituality, as measured by the DSES, and stress or depression. Significant relationships did exist between spirituality and three of the WOC questionnaire subscales. These subscales included problem focused ($r = -.196, p < .01$), seeking social support ($r = -.220, p < .01$), and focus on positive ($r = -.287, p < .01$). The results indicate that as an individual's level of spirituality increased, the use of problem-focused coping mechanisms, emotional-focused coping mechanisms, and a combination of both coping mechanisms all increased.

Significant relationships did not exist between the two positive influences of social support, as measured by the MSPSS, and spirituality, as measured by the DSES. There was a trend towards significance between spirituality and perceived total social

support ($r = -.149$, $p < .05$) and perceived support from family ($r = -.196$, $p < .05$), however, when considering the Bonferroni correction level these results were considered nonsignificant.

Relationships among Stress, Coping, Depressive Symptoms, and the Negative Influences (Financial Pressure, Separation from Family)

Single items were used to measure the negative influences of financial pressure and separation from family. The concept of financial pressure was assessed as “financial burdens” (ICSRLE, item 21), and separation from family was represented by “separation from people you care about” (ICSRLE, item 9).

Significant relationships existed between the influence of separation from family and stress, as measured by the ISCRLE scores ($r = .315$, $p < .01$) and depressive symptoms, as measured by the CES-D scores ($r = .319$, $p < .01$) (see Table 11). Thus, as an individual’s perception of separation from family increased, he or she also experienced increased levels of stress and depressive symptoms. Similar relationships existed between financial pressure and stress ($r = .496$, $p < .01$) and depressive symptoms ($r = .314$, $p < .01$) (see Table 11). Thus, as an individual’s perception of financial pressure increased, he or she also experienced increased levels of stress and depressive symptoms. A significant relationship existed between financial pressure and the keep to self subscale of the WOC questionnaire ($r = .195$, $p < .01$) (see Appendix K). Thus, as an individual’s perception of financial pressure increased, he or she increased the use of this emotion-focused coping mechanism.

Finally, correlations were examined between high risk behaviors, as measured by the Adapted Youth Risk Behavior Score, and the other study variables (see Appendix J and Table 12). Significant inverse relationships were present between the item stating “During the past 3 months, with how many people did you have sexual intercourse?” (Item 9), and total perceived social support, as measured by the MPSS ($r = -.199, p < .01$). Similar relationships were present between the perceived family support subscale of the MPSS ($r = -.255, p < .01$) and the perceived friends support subscale of the MPSS ($r = -.150, p < .01$). These results indicate as an individual perceived decreased social support, both overall as well as from family and friends, her or she sought a greater number of sexual partners. In addition, an inverse relationship was present between the item stating: “Did you drink alcohol or use drugs before you had sexual intercourse the last time?” (Item 10) and perceived support from family ($r = -.240, p < .01$). Thus, individuals who perceived less support from his or her family were more likely to use drugs or alcohol prior to sexual intercourse.

Significant relationships were also present between the item stating “During the past 30 days did you go without eating for 24 hours or more?” (Item 14) and depressive symptoms as measured by the CES-D ($r = -.279, p < .01$); stress, as measured by the ICSRLE ($r = -.166, p < .05$); and perceived support from family ($r = .184, p < .05$). These results indicate that as the number of depressive symptoms and stress increased, individuals were more likely to go without eating for 24 hours or more; whereas, as perceived support from family increased, individuals were less likely to go without eating.

**Aim 3: To Determine the Factors that are Most Predictive of
Depressive Symptoms in College Freshmen**

Regression analysis was used to determine the factors that are most predictive of depressive symptoms in college freshmen. Both simple linear regression and multiple linear regression were utilized. With simple regression analysis, one independent variable is used to predict a dependent variable, and with multiple linear regression the combination of factors most predictive of depressive symptoms can be determined.

First, a simple linear regression was completed to determine the predictive power of each individual predictor (perceived social support, perceived social support from family, perceived social support from friends, spirituality, stress, and coping) using scores from the instruments (MSPSS, perceived family support subscale, perceived peer support subscale, DSES, ICRLE, and WOC questionnaire subscales) on the dependent variable of depressive symptoms (CES-D scores) (see Table 13).

Stress as an Individual Predictor of Depressive Symptoms

The results of the linear regression revealed that stress was the most significant predictor of depression $R^2 = .49$, $F(1,186) = 179.31$, $p < .001$. This means that life stressors, as measured by the ICSRLE, accounted for a total of 49% of the variance in depression scores.

Coping as an Individual Predictor of Depressive Symptoms

A total of three of the WOC questionnaire subscales, all representing emotion-focused coping, were shown to be significant predictors of depression. These include the wishful thinking subscale ($R^2 = .144$, $F(1, 187) = 31.36$, $p < .001$), the self-blame subscale

($R^2 = .074$, $F(1, 187) = 14.81$, $p < .001$), and the keep to self subscale ($R^2 = .161$, $F(1, 187) = 35.71$, $p < .001$). Out of these three subscales, the keep to self subscale had the greatest contribution to depression, accounting for a total of 16.1% of the variance in these scores, followed by wishful thinking at 14.4%, and self-blame at 7.4%.

Social Support as an Individual Predictor of Depressive Symptoms

Next, simple linear regression was completed to evaluate the predictive power of social support, as measured by the total MSPSS, and the family and friends subscales of the MSPSS on depressive symptoms. The results indicated total social support demonstrated the greatest amount of variance in depression scores (15.8%) ($R^2 = .158$, $F(1, 186) = 34.93$, $p < .001$) which would be logical. When the subscales were examined, perceived support from family (14.8%) ($R^2 = .148$, $F(1, 186) = 20.8$, $p < .001$) contributed the greatest variance followed by perceived support from friends (13.6%) ($R^2 = .136$, $F(1, 186) = 20.8$, $p < .001$).

Spirituality as an Individual Predictor of Depressive Symptoms

Finally, the results of the linear regression revealed that spirituality is not a significant predictor of depression $R^2 = .02$, $F(1, 186) = 3.766$, $p = .054$. Spirituality only explained a small percent (2%) of the variance in depression scores.

The Combination of Factors Most Predictive of Depressive Symptoms

A stepwise multiple regression analysis was completed to determine the combination of factors that are most predictive of depressive symptoms. When completing a stepwise regression, the variables are entered into the model based upon mathematical criteria. The predictor demonstrating the highest prediction criteria is

selected first, followed by the next higher predictor, and so on (Field, 2005). The results of the regression indicated that 5 variables were capable of accounting for significant increments of variance in the level of depressive symptoms (see Table 14). These five variables include stress, as measured by the ICSRLE; three subscales from the WOC questionnaire which included keep to self, focus on positive, and wishful thinking; and perceived support from family, as measured by the family subscale of the MSPSS. Three of these variables demonstrated positive beta weights, including stress ($\beta = .321$), keep to self ($\beta = 1.093$), and wishful thinking ($\beta = .341$). This means that as stress and the use of the emotion focused coping mechanisms of keep to self and wishful thinking increased, the incidence of depressive symptoms also increased. Two of these variables demonstrated negative beta weights, including focus on positive ($\beta = -.657$) and family support ($\beta = -.296$). Thus, as the usage of focus on positive coping mechanisms and perceived family support increased, the incidence of depressive symptoms decreased. The final regression model accounted for 58.7% of the variance in depressive symptom levels (57.5% adjusted) ($p < .001$).

Aim 4: To Test the Mediating Effect of Coping on the Relationship between Stress and the Development of Depressive Symptoms in College Freshmen

An analysis was completed to test the mediating effect of coping on the relationship between stress and the development of depression symptoms. A mediator is defined as a variable that directly affects the relationship between a predictor variable and the criterion. The function of mediator variables is to “explain how external physical events take on internal psychological significance” (Baron & Kenny, 1986, p. 1176). In

this study, the predictor variable is stress, as measured by the ICSRLE scores, and the criterion is depressive symptoms, as measured by the CES-D scores. Therefore, the goal of this analysis was to determine the direct effects of coping on the relationship between stress and depressive symptoms in college freshmen.

To begin the test of the mediation effect of coping on the relationship between stress and the development of depressive symptoms, an analysis was conducted to determine whether any subset of the eight WOC questionnaire subscales mediated the relationship between stress, as measured by the ICSRLE, and depressive symptoms as measured by the CES-D. The initial requirement for mediation to occur is that the independent variable (ICSRLE scores), have a significant regression coefficient in predicting the dependent variable (CES-D) scores. The results did demonstrate a significant relationship ($r = .427, p < .001$). The next step was to determine if one or more of the subscales of the WOC questionnaire qualify as a mediator using the four steps of analysis as described by Baron and Kenny (1986). These steps include: first, variations in the independent variable, stress, must significantly account for variations in the potential mediator, the subscales of the WOC questionnaire; second, the independent variable, stress, must directly affect the dependent variable, depressive symptoms; third, the mediator, subscales of the WOC questionnaire, must affect the dependent variable, depressive symptoms; and finally, the effect of the independent variable, stress, in predicting the dependent variable, depressive symptoms, must be smaller than the effect when the mediator, coping, is included. The results demonstrate that three of the WOC questionnaire subscales (keep to self, wishful thinking, and focus on positive) all passed

the initial step to qualify as a subset of potential mediators between stress and depressive symptoms (see Table 15). The next step was to perform the multiple mediation analysis with this set of potential mediators.

As recommended by Preacher and Hayes (2008), Shrout and Bolger (2002), and MacKinnon, Lockwood, and Williams (2004), a bootstrapping sampling procedure was utilized to assess for indirect effects. Bootstrapping is a nonparametric resampling procedure in which a large number of samples (5,000 for this study) were drawn with replacement from the full data set. These samples produce an approximation of the distribution of the indirect effects from which point estimates and confidence intervals are calculated. In multiple mediation models, this procedure allows the indirect effect of a mediator to be estimated while controlling for the effects of the other potential mediators. For this study, the bootstrap procedure was conducted using the SPSS macro provided by Preacher and Hayes (2004). A point estimate for an indirect effect was considered significant if zero was not included in the 95% bias-corrected and accelerated confidence interval (see Table 16). The results of the multiple mediation analysis indicate that two of the WOC questionnaire subscales, keep to self and wishful thinking, significantly mediate the relationship between stress and depression in this study. This mediation effect accounts for approximately 18% of the total amount of variance in depressive symptoms.

The following hypotheses were tested in this study.

Hypotheses

Hypothesis 1: College freshmen reporting more positive influences (spirituality, family support, peer support) will demonstrate lower levels of stress and less depressive symptoms.

This hypothesis was partially supported by the data, as depressive symptoms demonstrated a statistically significant inverse correlation with the total MSPSS social support, and both of the subscales for this tool, perceived support from friends subscales. A statistically significant relationship was not evident between spirituality and depressive symptoms.

Hypothesis 2: College freshmen reporting more negative influences (financial pressure, separation from family) will demonstrate higher levels of stress and more depressive symptoms.

This hypothesis was supported, as the negative influences of financial pressure and separation from family demonstrated significant correlations with stress and depressive symptoms.

Hypothesis 3: College freshmen demonstrating higher levels of depressive symptoms will report greater levels of high risk behaviors (eating disorders, casual sexual relationships, misuse of alcohol, and smoking).

This hypothesis was only partially supported by the data, as higher levels of depressive symptoms demonstrated a significant correlation with the maladaptive eating behavior of fasting for more than 24 hours. No significant relationships were found

between depressive symptoms and casual sexual relationships, misuse of alcohol, and smoking.

Hypothesis 4: Higher levels of stress in the lives of college freshmen will lead to less adaptive methods of coping, which will increase the incidence of depressive symptoms.

This hypothesis was supported. The less adaptive methods of coping are reflected by the following six emotion focused subscales of the WOC questionnaire: wishful thinking; tension reduction; detachment; keep to self; focus on the positive; and self-blame. Statistically significant relationships were noted between stress and four of the six emotion-focused subscales (wishful thinking, detachment, keep to self, and self-blame). The regression model indicated that these variables were significant predictors of depressive symptomology and accounted for 58.7% of the variance. In addition, the mediation analysis demonstrated two emotion focused subscales of the WOC questionnaire, keep to self and wishful thinking, significantly mediated the relationship between stress and depressive symptoms.

CHAPTER FIVE

DISCUSSION

The overall purposes of this study were: to describe the levels of stress, coping and depressive symptoms among college freshmen; to explore the relationships among stress, coping, depressive symptoms, as well as the positive influences (spirituality, family support, peer support) and negative influences (financial pressure, separation from family) and the impact of these variables on college freshman; to determine the factors that are most predictive of depressive symptoms in college freshmen; and to test the mediating effect of coping on the relationship between stress and the development of depressive symptoms in college freshmen.

Description of the Sample

A convenience sample of 188 freshmen from two private religiously affiliated four-year universities in the Midwestern United States composed the sample for this study. Freshmen students who participated in this study were evenly divided between University A (50.5%) and University B (49.5%). Participants had an average age of 18.28 (range 18-20; $SD=.472$) years, and consisted of both males (42.6%) and females (57.4%). The majority of the students (73.4%) were 18 years of age, not currently working (75%), white (70.2%), Catholic (42.0%), and living in university provided housing (81.4%).

Reported high risk behaviors measured in this study included cigarette smoking,

alcohol usage, casual sexual behavior, and eating disorders (see Table 6). Almost 42% of the students reported ever having tried cigarette smoking, however, only 17.4% reported smoking cigarettes at least one day in the past 30 days. Almost half of the students reported having sexual intercourse with at least one partner in the past three months (40.6%), and more than half reported having at least one alcoholic beverage in the past 30 days (55.2%).

In terms of weight behaviors, almost one-third (32.4%) reported they were slightly overweight, and over half (51.6%) reported they wanted to lose weight. These results are consistent with the American College Health Association's Spring 2010 Health Assessment, which measured high risk behaviors in a total of 95,712 college students across the United States (see Table 17). While this study focused upon college freshmen, the American College Health Association's Health Assessment focused upon college students at all levels in their undergraduate education (freshmen 25.2%, sophomores 21.2%, juniors 19.8%, and seniors 15.7%) (American College Health Association, 2010).

The lack of racial diversity in this study is similar to what has been noted in other studies involving college students. For example, the sample collected in the American College Health Association study involving a total of 95,712 students from 106 college campuses across the United States in 2010 included a majority of participants who were white (71.2%) (American College Health Association, 2010). This is also consistent with the National Center for Educational Statistics, who have reported 72.2% of all college students in the United States are white (United States Department of Education, 2009).

There was a difference noted in the reported religion between the subjects from the two universities, however, these differences are representative of the populations from each university. University A is a Lutheran affiliated university, and University B is a Catholic affiliated university. Overall, a total of 26% of all students at University A are Lutheran, followed by 20% Catholic; whereas 62.4% of students at University B are Catholic, and only 8.7% are Protestant. As anticipated the majority of the students from University A (N=30, 31.6%) reported Lutheran as their religion, where as only 4 students (4.4%) from University B reported Lutheran as their religion. The majority of students from University B (N=52, 55.9%) reported Catholic as their religion, whereas only 27 students (28.4%) from University B reported Catholic as their religion. During the data analysis, independent t-tests were completed to assess for statistical differences in any of the study variables between subjects reporting these two religious, and no significant results were discovered.

Major Findings

Aim 1: To Describe the Levels of Stress, Coping,
and Depressive Symptoms among College Freshmen

The first aim of this study was to describe the levels of stress, coping and depressive symptoms among college freshmen. Three instruments were utilized in this study to operationalize these concepts, the ICSRLE, WOC questionnaire, and CES-D.

Stress

To begin with, the ICSRLE was utilized to operationalize the concept of stress. The ICSRLE instrument is scored by totaling the scores for each of the individual items.

There is no cutoff score for the ICSRLE, however, individual's with higher scores are felt to be experiencing greater effects of everyday stress (Kohn, Lafreniere, & Gurevich, 1990). The ISCRLE had a strong reliability in this study, with a Cronbach's alpha of .91. The mean score of the ICSRLE across two large studies (N = 211, N = 216) focused upon college students at various points in their undergraduate careers was 95.31 (SD = 17.36) (P. Kohn, personal communication, December 27, 2010). The mean score for this study was 95.79 (SD = 19.03). There were a total of 84 students (44.7%) demonstrating scores greater than 95 in this study (see Table 10). Thus, 44.7% of the students in this study reported greater than average levels of stressors in their lives.

Similar reported high levels of stress for college students have been reported in previous studies. A consistent finding in the literature is the relationship between stress and the development of depressive symptoms in the college student (Dyson & Renk, 2006). Often college freshmen face academic pressures and expectations that are considered greater than what they had experienced in high school (Rayle & Chung, 2007). It has been reported that as many as one-third of college freshmen are "frequently overwhelmed by all they have to do" (Brown & Schiraldi, 2004, p. 158). In an investigation of undergraduate students (N = 2,495) it was noted that 44.3% of the subjects reported experiencing emotional difficulties that directly affected their academic performance during the past four weeks (Eisenberg, Gollust, Golberstein, & Hefner, 2007). The results of this study are similar as a total of 44.7% of the participants reported higher than average levels of stress. The negative impact of this stress may affect academic performance, as students who feel overwhelmed may demonstrate general

malaise about completing the academic work that is required, leading to poor study habits. In a nationwide survey conducted by the American College Health Association in 2008, 94% of the students reported feeling overwhelmed by the demands of college life (American College Health Association, 2009). Stressors in the lives of college students that are not effectively managed may lead to suicidal behavior. Students may become so discouraged by unresolved stressors that they become increasingly overwhelmed and hopeless, seeing suicide as the only escape. The results of this study demonstrate almost half of the students in this sample were suffering from high levels of stress, therefore they may be at risk of life complications related to stress.

Coping

Secondly, the WOC questionnaire was used to operationalize the concept of coping in college freshmen. It has been recommended that the WOC questionnaire be scored through individual analysis of each of the eight subscales. These eight scales include: problem-focused coping (items 62, 46, 39, 52, 35, 26, 64, 54, 39, 2, and 48); wishful thinking (items 55, 38, 57, 59, and 11); detachment (items 21, 13, 24, 12, 4, and 53); seeking social support (items 45, 18, 28, 31, 8, 42, and 60); focusing on the positive (items 23, 38, 20, and 15); self blame (items 9, 29, and 51); tension reduction (items 32, 33, and 66); and keep to self (items 14, 40, and 43) (see Appendix F). By analyzing each of the subscales independently, the method of coping used to the greatest extent by subjects can be examined. There is no cutoff score for the Ways of Coping questionnaire, however, the subscales with the higher mean scores represent the most utilized methods of coping (Folkman & Lazarus, 1985).

Analysis was completed on each of the subscales of the instrument (see Appendix K). The two subscales with the highest means were problem-focused (mean 16.18; SD = 6.84) and seeking social support (mean 10.27; SD = 5.30). Thus, problem-focused coping and seeking social support were the most utilized coping methods in this sample of college freshmen students. According to Lazarus, when using problem-focused coping an individual is trying to adapt to the stressor through a direct action on either the oneself or the environment, whereas, seeking social support, as a type of emotion-focused coping, has the goal of changing the meaning of what is happening, not directly changing the stressful conditions (1993). These two types of coping strategies may be either adaptive or maladaptive depending upon the demands of the stressful situation (Lazarus & Folkman, 1984).

One of the subscales of the WOC questionnaire, tension reduction, demonstrated a low reliability in this study (Cronbach's alpha = .38). This subscale includes three items: item 32, I got away from it for awhile; item 33, I tried to make myself better by eating, drinking, smoking, using drugs or medication; and item 66, I jogged or exercised. When reviewing these three items, it appears they do not focus upon similar methods of coping. For example, item 33 represents behaviors that may be considered more negative, self-destructive methods of coping with stress, while item 66 represents behaviors that may be considered more positive methods of coping with stress. It would be unlikely that individuals would be utilizing both of these coping methods, and would most likely demonstrate either one or the other. Therefore, the difference in focus between these items may account for the low reliability on this subscale.

There were no statistically significant differences noted between male and female participants on any of the individual subscale scores in this study. This finding is not consistent with previous studies. It has been noted in the literature that male and female students utilize different coping methods. Several studies have suggested that female college students have less adaptive coping skills than male students (Grant, 2004; Nolan, Roberts, & Gotlib, 1998; Alfeld-Liro & Sigelman, 1998; Chaplin, 2006; Dyson & Renk, 2006; VanBoven & Espelage, 2006; Reed et al., 1996). In one study examining gender and depressive symptoms, ruminative coping was found to be more common among female college students (Grant, 2004). Ruminative coping was defined as, “focusing on negative mood, negative aspects of self, or stressors” (p. 525). In a longitudinal study of undergraduate students (N = 135) from a private institution, 67 of which who were female, higher levels of ruminative coping were found to be predictive of higher levels of depressive symptoms (Nolan, Roberts, & Gotlib, 1998). In another longitudinal investigation of college students (N = 287), rumination, defined as a more internal method coping, was examined in both male and female college students. As an internal coping method, individuals who utilized ruminative coping were more likely to blame themselves for negative events in their lives, avoiding blame to external people and events. This self-blame was felt to increase the development of depressive symptoms in female college students (Alfeld-Liro & Sigelman, 1998). Internal coping methods were also noted to be more common among female students in a study of first and second year college students (N = 100). The researcher demonstrated that feeling anger internally, but not outwardly displaying this anger may place the female students at higher risk of

developing depressive symptoms (Chaplin, 2006). Although the literature has noted that male and female college students may utilize different methods of coping, the results of this study did not support that difference. Eaton and Bradley (2008) note that not all research has supported what they define as “stereotypical views of coping” (p. 97), and the results can vary depending upon the methods utilized to measure coping. In another study examining the adaptation of freshmen to college life (N = 74) no differences were found in coping strategies between male and female students. A possible explanation provided by the authors for this finding was that college students, both men and women, may be more liberal in their behaviors based upon changing sex role expectations (Dyson & Renk, 2006).

Depressive Symptoms

Finally, the CES-D was utilized to operationalize the concept of depressive symptoms in this study. The CES-D is scored by totaling the scores for each of the items. Individuals demonstrating scores greater than or equal to 16 on the CES-D are considered to be demonstrating depressive symptomology (Radloff, 1977). In this study, the mean score on the CES-D was 18.29 (SD=11.58). A total of 87 individuals (46.28%) demonstrated scores greater than or equal to 16 (see Appendix K). This was an alarming finding as almost half of the freshmen students in this study were demonstrating significant depressive symptomology.

The results from this study are similar to other studies that have been completed. In an investigation of undergraduate students (N = 2,495) it was noted that 44.3% of the subjects reported experiencing emotional difficulties that directly affected their academic

performance during the past four weeks (Eisenberg, Gollust, Golberstein, & Hefner, 2007). Similar results were discovered when evaluating the results of the 2005 National College Health Assessment Survey. Analysis of this data demonstrated that 46.1% of college students reported feeling so depressed it was difficult to function during the past academic year (Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2008). Students who feel overwhelmed may demonstrate general malaise about completing the academic work that is required, leading to poor study habits. An investigation of undergraduate students taking an introductory psychology course ($N = 129$) reported a significant correlation ($r = -.24, p < .01$) between poor study habits and depression (Drozd, Robinson, & Saarnio, 1994). Students who report depressive symptoms may also demonstrate “a reduction in learning opportunities, a decrease in the level of information absorbed and/or a decrease in their ability to demonstrate learning” (Hysenbegasi, Hass, & Rowland, 2005, p. 146). One study examined the relationship between depression and the academic performance of undergraduate college students ($N = 330$). The results demonstrated that students reporting depressive symptoms missed significantly more classes (14.64 verses 2.99 for non-depressed students), and experienced on average a 0.49 drop in their grade point average than their peers that did not report depressive symptoms. It was noted, however, that students who received treatment for their depressive symptoms were able to raise their grade point averages back to a level that was similar to their peers (Hysenbegasi, Hass, & Rowland, 2005).

The results of this study demonstrate almost half of the students in this sample were suffering from significant depressive symptoms, therefore they may be at risk for

clinical depression. Because it was anticipated prior to data collection that some students may be experiencing significant depressive symptoms, a mechanism was in place to provide assistance for individuals experiencing emotional distress. Written materials describing mental health services available through the university counseling centers, as well as in the local communities, were provided to each participant in this study.

Aim 2: To Explore the Relationships among Stress, Coping, Depressive Symptoms, as well as Positive Influences and Negative Influences and the Impact of these Variables on College Freshmen

The positive influences are spirituality, family support and peer support; the negative influences are financial pressure and separation from family.

Relationships among Stress, Coping, and Depressive Symptoms

A statistically significant positive relationship existed between the emotional states of stress, as measured by the ICSRLE score, and depressive symptoms as measured by the CES-D score. As an individual's stress level increased, he or she also experienced an increase in depressive symptoms. This relationship between stress and depressive symptoms is supported by previous research. A consistent finding in the literature is the relationship between stressors and the development of depressive symptoms in the college student. Individuals experience stress when they are faced with demands that may exceed their ability to cope (Dyson & Renk, 2006). The inability to effectively manage these stressors may lead to chronic levels of high anxiety for college students. Chronic levels of high anxiety have been associated with the development of depressive symptoms in college students (Reed et al., 1996). The most common stressor reported by

college students is academic demands, followed by financial pressures and separation from their usual support network. As noted in this study, high levels of stressors can place college students at risk of developing depressive symptoms.

Significant relationships existed between stress and four of the WOC questionnaire subscales. These subscales included wishful thinking ($r = .372, p < .01$), keep to self ($r = .306, p < .01$), self-blame ($r = .251, p < .01$), and detachment ($r = .247, p < .01$). Because these are all positive correlations, the results indicate that as an individual's stress levels increased, he or she also increased the use of these emotion-focused methods of coping. Coping strategies may be viewed as either adaptive or maladaptive depending upon the demands of the situation (Lazarus & Folkman, 1984). This increase in emotion-focused coping strategies when faced with increased stress may be considered maladaptive for these freshmen college students. Because emotion-focused coping assists the individual to change the way he or she thinks about a stressful situation, not work overcome the situation, it may be maladaptive. This is especially the case when academic demands, which are inherent to the college experience and unavoidable for success, may the source of stress.

Correlations were examined between each of the eight subscales of the WOC questionnaire and depressive symptoms, as measured by CES-D scores. Significant relationships were present between depressive symptoms and three emotion focused coping subscales. These subscales included: keep to self ($r = .401, p < .01$); wishful thinking ($r = .380, p < .01$); and self-blame ($r = .272, p < .01$). Once again, this increase in emotion-focused coping strategies when faced with increased depressive symptoms

may be considered maladaptive for these freshmen college students. According to Brougham, Zail, Mendoza, and Miller (2009), “College students’ use of problem solving strategies was associated with positive outcomes, such as better health and reduced negative affect, and the use of emotion focused strategies, particularly the use of avoidance strategies, was associated with negative outcomes such as poorer health and increased negative affect” (p. 86). The results of this study are consistent with the literature, as it appears the increased use of emotion focused coping placed students at greater risk of developing depressive symptoms.

Relationships among Stress, Coping, Depressive Symptoms, and the Positive Influences (Spirituality, Family Support, Peer Support)

The positive influence of perceived social support, both overall, and perceived support from friends and family, was measured with the MSPSS, which includes subscales of the MSPSS as well as the total scale. There is no specific cut-off score for this instrument. The data can be interpreted, however, as the higher the score of an individual on each of the subscales and the total scale, the greater their perception of positive social support (Zimet, Dahlem, Zimet, & Farley, 1988).

Inverse relationships were present between the positive influence of perceived social support, as measured by the total MSPSS score, and stress as measured by the ICSRLE score ($r = -.380, p < .01$). Similar significant inverse relationships also existed between the perceived family support subscale of the MSPSS and stress ($r = -.347, p < .01$), and the perceived friends support subscale of the MSPSS and stress ($r = -.406, p < .01$). Because all of these relationships represent inverse correlational relationships, the

results indicate that as an individual's stress levels increase, he or she perceives a decrease in social support, both overall as well as from family and friends.

Separation from their well-established social networks has been identified in the literature as a stressor for college freshmen. When students leave home to begin college, they leave behind the people who have been familiar and supportive as part of their transition to university life (Alfeld-Liro & Sigelman, 1998). Perception of strong social support is important for success in school and life. Therefore, separation from social networks, thus decreased perception of social support, may have increased the stress levels for the participants in this study.

Significant inverse relationships were also present between the positive influence of overall perceived social support and depressive symptoms, as measured by CES-D scores ($r = -.398, p < .01$). Similar inverse relationships also existed between the perceived family support scale of the MSPSS and depressive symptoms ($r = -.384, p < .01$), and the perceived friends support subscale of the MSPSS and depressive symptoms ($r = -.369, p < .01$). Because all of these represent inverse correlational relationships, the results indicate that as an individual's depressive symptoms increase, he or she perceives a decrease in social support, both overall as well as from family and friends.

Several investigations have examined the relationship between social support and depressive symptoms in college students. It has been reported that the greater an individual's perception of family support, friendship support, and a supportive school environment, the lower incidence of depressive symptoms in college freshmen ($N = 176$) ($r = -.45, p < .001$) (Way & Robinson, 2003). Similar results were found in a study of

African-American female college students ($N = 78$) where those with greater levels of social support from their family reported lower levels of depressive symptoms ($r = .56$, $p < .001$) (Reed et al., 1996). The results of this investigation are similar to previous research, reinforce the importance of social support on the emotional well-being of college students.

The positive influence of spirituality was measured by the DSES. The DSES is scored by totaling the scores for each of the items. Although there is no cutoff score for the instrument, individuals with lower scores are considered to be demonstrating a greater number of spiritual experiences (Underwood, 2006). No statistically significant relationships existed between spirituality, as measured by the DSES, and stress or depression. When examining these results in relation to Fowler's Stages of Faith Development, it is evident the students who participated in this study may not have completed the personal reflection and examination necessary to develop their own beliefs. Individuals in this age group would be in the Synthetic-Conventional stage of faith development, conforming to the faith beliefs of important individuals in their lives. Because they have not developed their own faith beliefs, the students may not have fully developed the ability to rely upon their spiritual beliefs to guide and provide themselves comfort during this time of transition. Thus, the lack of a relationship between spirituality, stress and depressive symptoms in this sample could be a normal finding.

Significant relationships did exist between spirituality and three of the WOC questionnaire subscales. These subscales included problem focused ($r = -.196$, $p < .01$), seeking social support ($r = -.220$, $p < .01$), and focus on positive ($r = -.287$, $p < .01$),

indicating that as an individual's level of spirituality increased, the use of problem-focused coping mechanisms, emotional-focused coping mechanisms, and a combination of both coping mechanisms all increased. The stress that students face during this time of transition to college requires the use of previously developed coping mechanisms, as well as the development of new strategies to effectively adjust to university life. The development of new coping mechanisms when facing increased stress may serve as a protective for these individuals, as individuals who possess limited coping resources are considered vulnerable to the negative effects of stress (Lazarus & Folkman, 1984). Although a significant relationship did not exist between spirituality and stress or depressive symptoms in this study, it does appear that individuals with higher levels of spirituality were able to increase the use of all three types of coping strategies, thus decreasing their vulnerability to stress.

Statistically significant relationships did not exist between the two positive influences of social support, as measured by the MSPSS, and spirituality, as measured by the DSES. There was a trend towards significance between spirituality and perceived total social support ($r = -.149, p < .05$) and perceived support from family ($r = -.196, p < .05$), but when considering the Bonferroni correction level, these results were considered nonsignificant. There is a limited amount of research examining the relationship between spirituality and social support in college students. Although perceived social support and spirituality have been demonstrated to serve as protective factors in the development of depressive symptoms in college students, one limitation noted in the literature is the lack of concurrent evaluation of these factors. It has been proposed that "spiritual support may

be expected to exert an influence on well-being independent of perceived social support” (Maton, 1989, p. 311). The results of this study indicate there is a relationship between perceived social support and spirituality in college students.

Finally, correlations were examined between high risk behaviors, as measured by the Adapted Youth Risk Behavior Score, and the other study variables (see Appendix K and Table 12). It is noted that the reported incidence of high risk behaviors (cigarette smoking, alcohol usage, casual sexual behaviors, and eating disorder) in this study are similar to the results of the American College Health Association’s Spring 2010 Health Assessment (see Table 17). Significant relationships were present between an item stating (“During the past 3 months, with how many people did you have sexual intercourse”) (Item 9, see Appendix F) and total perceived social support, as measured by the MPSS ($r = -.199, p < .01$). Similar relationships were present between this item and the perceived family support subscale of the MPSS ($r = -.255, p < .01$) and the perceived friends support subscale of the MPSS ($r = -.150, p < .01$). These results indicate as an individual perceived decreased social support, both overall as well as from family and friends, her or she sought a greater number of sexual partners.

In addition, an inverse relationship was present between a second item measuring risky behavior (“Did you drink alcohol or use drugs before you had sexual intercourse the last time”) (Item 10, see Appendix F) and perceived support from family ($r = -.240, p < .01$). Thus, individuals who perceived less support from his or her family were more likely to use drugs or alcohol prior to sexual intercourse.

Casual sexual encounters are a negative outcome shown in the literature to be

associated with depressive symptoms. In a cross-sectional study of undergraduate students ($N = 404$), female students with significant depressive symptoms were more likely to engage in casual sexual relationships. Researchers reported that females with the greatest number of depressive symptoms had the greatest number of sexual partners. To explain these results, it was suggested that females with depressive symptoms may seek sexual relationships to decrease their feelings of isolation and to increase their feelings of self-worth (Grello, Welsh, & Harper, 2006). In another cross-sectional investigation of students from a large public university ($N = 648$) the relationship between depression and risky sexual behavior was also examined. A significant positive correlation was reported between higher scores on the CES-D and reported risky sexual behavior ($r = .13$, $p < .001$) (Swanholm, Vosvick, & Chng, 2009). Although the results of this study did not find a significant relationship between depressive symptoms and risky sexual behaviors, there was an inverse relationship between perceived social support and these high risk behaviors. Thus, as noted above, individuals who felt less of a social connection with others may seek sexual relations to decrease their feelings of isolation.

Significant relationships were also present between an item stating: “During the past 30 days did you go without eating for 24 hours or more?” (Item 14, see Appendix F) and depressive symptoms as measured by the CES-D ($r = -.279$, $p < .01$); stress, as measured by the ICSRLE ($r = -.166$, $p < .05$); and perceived support from family ($r = .184$, $p < .05$). These results indicate that as the number of depressive symptoms and stress increased, individuals were more likely to go without eating for 24 hours or more; whereas, as perceived support from family increased, individuals were less likely to go

without eating. This finding is consistent with previous research. The relationship between depressive symptoms and eating disorders among college women was examined in a study of undergraduate women (N = 322). Women were largely Caucasian (N = 74%), and college sophomores (41%). Depressive symptoms (Centers for Epidemiological Studies of Depression Scale) and eating disorder symptoms (Eating Disorder Inventory-2) were measured. Results demonstrated a significant positive correlational relationship between depressive symptoms and eating disorder symptoms ($r = .52, p < .001$) (VanBoven & Espelage, 2006).

A significant relationship was also noted in a study examining depressive symptoms and weight concerns in college students. Undergraduate students (N = 681) with higher scores on the CES-D had significantly higher weight concerns as measured by the Stanford Weight Concerns Scale (a five-item self report scale designed to assess fear of weight gain, worry about weight and body shape, importance of weight, diet history, and perceived fatness). Thus, consistent with the literature, the results of this study indicate that as the number of depressive symptoms and stress increased, individuals were more likely to report weight concerns as well as eating disorder symptoms.

No significant relationship was present between the misuse of alcohol and the other study variables, although the misuse of alcohol has been identified in the literature as a high risk behavior in college students that is related to depressive symptoms (Beck, et al., 2008; Eshbaugh, 2008). A study of almost 900 undergraduate students reported that students who classified as depressed, reported drinking alcohol less frequently in

social situations, but more frequently in a context of emotional pain. It was suggested that these students were using alcohol as a means of coping with stress, thus self-medicating to alleviate their emotional pain (Beck, et al., 2008). Similar results were revealed in another cross-sectional study of alcohol practices of college students (n=316). Seventy-four percent of the participants in this investigation were either freshmen or sophomores, and almost all were Caucasian (98%). Significant correlations were present between depression ($r = .26, p < .001$), loneliness ($r = .12, p < .05$), stress ($r = .19, p < .001$) and problematic drinking.

No significant relationship was present between smoking and other study variables, although smoking has been identified in the literature as a high risk behavior related to depressive symptoms (Kenney & Holahan, 2008; Ridner, 2005; Schleicher, et al., 2009). In a cross-sectional investigation of college students (n=204; 62% Caucasian), a significant relationship was discovered between depressive symptoms and average daily cigarette smoking. Students were divided into two groups based on their results on the Beck Depression Inventory. The low depressive symptom group scored nine or below (N = 100); and the high depressive symptom group had scores greater than nine (N = 104). Results demonstrated that students with fewer depressive symptoms smoked an average of 27 fewer cigarettes per week than students who reported a greater number of depressive symptoms ($p < .05$) (Kenney & Holahan, 2008). Higher depressive symptoms significantly predicted a greater number of cigarettes being smoked during the past month ($p = .007$) in another cross-sectional investigation of undergraduate smokers (N = 315). In another cross-sectional study, college students (N= 788) from a large public university

completed a questionnaire examining factors that predict smoking, and results indicated that current smokers demonstrated a greater level of depressive symptoms than non-smokers.

Although the relationship between several high risk behaviors and depressive symptoms has been well documented in the literature, it was not evident in this study. A possible explanation for these findings is less than 20% (17.4%) of the students reported smoking any cigarettes during the past 30 days. Therefore, the sample size for this variable may not have been sufficient to detect a relationship with depressive symptoms (CES-D). It has also been noted in the literature that the smoking behaviors of friends and family members may be strongly predictive of smoking behaviors in college students (Ridner, 2005). Because such a small number of the participants reported smoking behaviors, it is possible the social environment on the campuses may not be supportive of this behavior. When examining reported drinking behaviors, although over half (55.8%) of the students in this study reported ingesting at least one drink in the past 30 days, less than one fifth (18.5%) reported ingesting at least five or more drinks in a row on three or more days during the past month. Problematic drinking, also known as binge drinking, in college students has been defined as five or more consecutive drinks for males, and four or more consecutive drinks for females (Eshbaugh, 2008). Research has demonstrated problematic drinking has been related to depressive symptoms, as individuals may use alcohol to alleviate emotional pain (Beck, et al, 2008). It is possible that although the students may ingest alcohol, the majority are drinking small amounts on an infrequent basis. Thus, because such a small number of the participants reported problematic

drinking behaviors, the sample size may not have been sufficient to detect a relationship with depressive symptoms.

**Aim 3: To Determine the Factors that are Most Predictive of
Depressive Symptoms in College Freshmen**

A stepwise multiple regression analysis was completed to determine the combination of factors that are most predictive of depressive symptoms. When completing a stepwise regression, the variables are entered into the model based upon mathematical criteria. The predictor demonstrating the highest prediction criteria is selected first, followed by the next higher predictor, and so on (Field, 2005).

This regression model indicated that 5 predictor variables (stress, keep to self, focus on positive, wishful thinking, and perceived family support) accounted for 58.7% of the variance in the dependent variable of depressive symptoms (57.5% adjusted) ($p < .001$). Three of the variables demonstrated positive beta weights, including stress ($\beta = .321$), keep to self ($\beta = 1.093$), and wishful thinking ($\beta = .341$). This means that as stress and the use of emotion focused coping mechanisms of keep to self and wishful thinking increased, the incidence of depressive symptoms also increased. This finding is consistent with previous research. As stress increases for college students, they must develop appropriate ways to cope with the stress to avoid negative consequences. Individuals experience stress when they are faced with demands that may exceed their ability to cope (Dyson & Renk, 2006). The increase in emotion focused coping strategies when faced with stress may be considered maladaptive, thus placing them at higher risk of developing depressive symptoms. Two of the variables demonstrated negative beta

weights, including focus on positive ($\beta = -.657$) and perceived family support ($\beta = -2.96$). Thus, as the usage of focus on positive coping mechanisms and perceived family support increased, the incidence of depressive symptoms decreased. This finding is also consistent with previous research. Studies have demonstrated that students who are able to utilize problem focused coping are better able to adapt to stress, thus decreasing the incidence of negative consequences of stress (Grant, 2004; Nolan, Roberts, & Gotlib, 1998; Alfeld-Liro & Sigelman, 1998; Chaplin, 2006; Dyson & Renk, 2006; VanBoven & Espelage, 2006; Reed et al., 1996). Studies have also demonstrated the importance of family support for college students. It has been reported that the greater an individual's perception of family support, friendship support, and a supportive school environment, the lower incidence of depressive symptoms in college freshmen ($N = 176$) ($r = -.45$, $p < .001$) (Way & Robinson, 2003). Similar results were found in a study of African-American female college students ($N = 78$) where those with greater levels of social support from their family reported lower levels of depressive symptoms ($r = .56$, $p < .001$) (Reed et al., 1996).

In this study, spirituality was not shown to be a significant predictor of depression, as it only accounted for 2% of the variance. This does not support what has been documented in the literature. Several studies have demonstrated a negative correlation between higher levels of spirituality and depressive symptoms in college students (Maton, 1989; Muller & Dennis, 2007; Turner-Musa & Lipscomb, 2007; Young, Cashwell, & Shcherbakova, 2000). Although the Daily Spiritual Experiences Scale did demonstrate a strong reliability in this study (Cronbach's alpha = .94), it may not have

measured the concept of spirituality as intended. The questions on the DSES focus upon the expression of spirituality in daily life. Because it does not measure specific beliefs or behaviors, the DSES is designed to measure spirituality, regardless of an individual's religious beliefs. In a study focused upon the effect of religiosity on depressive symptomology in college students (N = 122), the DSES did demonstrate a negative correlation to depressive symptoms (CES-D) ($-.263, p < .01$) (Berry, 2005). Other studies of spirituality in this population have used various instruments such as The Life Attitude Profile-Revised (Mueller & Dennis, 2007), the Spiritual Well-being Scale (Turner, Musa & Lipscomb, 2007), and the Human Spirituality Scale (Young, State, Cashwell, & Shcherbakova, 2000). Although the DSES has demonstrated a significant relationship to depressive symptoms in other studies, one possible explanation for the unexpected findings in this study may be the concern it did not measure spirituality accurately in this population of freshmen college students. Another possible explanation for these findings is the high degree of spirituality in the participants in this study, as all were students at religiously based institutions. Thus, there was limited variability in the concept of spirituality, leading to the lack of a significant relationship. Finally, these results may be expected according to Fowler's stages of faith development. According to Fowler, individuals in this age group have not yet developed their own personal faith beliefs, and are conforming to the faith beliefs of important individuals in their lives. Because they may not have fully developed their own faith beliefs, they may not have fully developed the ability to rely upon their spiritual beliefs to guide and provide themselves comfort during this time of transition. Thus, the lack of a relationship

between spirituality, stress and depressive symptoms in this sample may be a normal finding due to the development of their faith at this time.

Aim 4: To Test the Mediating Effect of Coping on the Relationship between Stress and the Development of Depressive Symptoms in College Freshmen

A mediator is defined as a variable that directly affects the relationship between a predictor variable and the criterion. The function of mediator variables is to, “explain how external physical events take on internal psychological significance” (Baron & Kenny, 1986, p. 1176). In this study, the predictor variable was stress, as measured by the ICSRLE scores, and the criterion was depressive symptoms, as measured by the CES-D scores. The results of the multiple mediation analysis indicated that two of the WOC questionnaire subscales, keep to self and wishful thinking, significantly mediated the relationship between stress and depression in this study. This mediation effect accounts for approximately 18% of the total amount of variance in depressive symptoms.

The theoretical framework guiding this study was based upon Lazarus and Folkman’s conceptualization of stress, appraisal and coping (see Figure 1). According to Lazarus and Folkman, psychological stress, “is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (1984, p. 19). People respond differently to potential causes of psychological stress, and cope with psychological stress in different ways. There are two processes that are felt to mediate the relationship between the person and the stressor, these include cognitive appraisal and coping (Lazarus & Folkman, 1984).

Cognitive appraisal “reflects the unique and changing relationship taking place between a person with certain distinctive characteristics (values, commitments, styles of perceiving and thinking) and an environment whose characteristics must be predicted and interpreted” (Lazarus & Folkman, 1984, p. 24). While completing cognitive appraisal, individuals attempt to understand the psychological stress and its significance on their well-being.

The second process felt to mediate the relationship between the person and the stressor is the coping process. Coping is defined as, “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). Individuals may use different methods of coping in different situations, based upon continuous appraisal of the stressors. In this study, the two methods of coping that had mediating effects on the relationship between stress and depression were wishful thinking and keep to self. Both of these represent methods of emotion-focused coping.

Emotion-focused coping are methods focused upon changing the perception of a stressor, not directly working to change the stressor itself. Different coping strategies should not be labeled either good or bad, as their usefulness varies depending upon the particular situation (Lazarus & Folkman, 1984). Emotion-focused coping strategies may be useful for college students to assist them in developing hope and optimism as they face stress, or they may prove to be harmful if they prevent students from directly attempting to overcome their stressors. According to Lazarus and Folkman, individuals who possess limited coping resources, or the inability to employ adaptive coping options,

are considered vulnerable (1984). This is especially the case when the stress of academic demands, which are inherent to the college experience, may add to the etiology of the depressive symptoms.

The findings of this study are similar to previous research. In a study examining coping resources in freshmen college students (N = 138), emotion focused coping was found to be significantly related to stress. In this study, students demonstrating higher levels of stress prior to an exam also demonstrated greater numbers of maladaptive emotion focused coping mechanisms such as denial and avoidance. Similar results were found in a study examining coping in college students from Israel (N = 283), in which academic stress was positively associated with emotion focused coping behaviors (Kariv, 2005). According to Brougham, Zail, Mendoza, and Miller (2009), "College students' use of problem solving strategies was associated with positive outcomes, such as better health and reduced negative affect, and the use of emotion focused strategies, particularly the use of avoidance strategies, was associated with negative outcomes such as poorer health and increased negative affect" (p. 86). The results of this study are consistent with the literature, as it appears the increased use of emotion focused coping placed students at greater risk of developing depressive symptoms.

Study Limitations

This investigation contains some potential limitations including threats to internal and external validity. Three main threats to internal validity exist in this investigation. First, selection bias may have affected the internal validity of this investigation. A convenience sample composed of individuals who volunteered to participate in the

investigation was utilized. In addition, the individuals were from private religiously affiliated institutions in the Midwestern United States. Hence the relationships discovered among the variables in this study may not be consistent with other college students from more diverse settings, such as public institutions or institutions outside of the Midwest. Caution must also be utilized when reviewing the results, as individuals may have had personal reasons that are not disclosed for choosing to participate. Also, the participants in this study were first semester freshmen students, who may be encountering different stressors than students in their second semester of their academic careers. Possibly, as the students adapt to their new environments, develop new social relationships, and develop more adaptive methods to cope with academic stressors, the relationships between the variables in this study could change. Secondly, instrumentation may present a threat to internal validity. A thorough review of the literature and careful thought has been completed prior to the selection of the instruments to be utilized in the data collection process. The potential does exist, however, that the instruments did not perform as expected. Therefore, reliability was established using Cronbach's alpha for each tool in the study (see Table 9). In addition, convergent validity was established by examining the relationships among the tools to each other. Finally, statistical conclusion validity may present a threat to the internal validity of this investigation. To control for this threat to the greatest degree possible, the investigator consulted with an expert in statistical procedures regarding the most appropriate analysis to be utilized in this investigation. The Bonferonni adjustment was also made during the initial data analysis to account for this possible threat.

Potential threats to the external validity have also been identified in this study. The first threat to the external validity are the settings. The settings for this investigation were private four-year religiously affiliated universities in the Midwestern United States. Thus, the ability to generalize these findings to college freshmen in public institutions where more diversity is evident is limited. However, previous research from more diverse college populations has demonstrated similar relationships between stress and depression (American College Health Association, 2009; American College Health Association, 2010; Dyson & Renk, 2006). Therefore, because of the chosen population, the results of this investigation must be limited to this particular population at this time. In the year 2008, a total of 5,131,000 (26.9%) students attended private universities, whereas a total of 19,103,000 (73.1%) attended public universities (U.S. National Center for Education Statistics, 2011). Although caution must be utilized when generalizing the results obtained to non-religiously affiliated institutions, the results may hold significant implications for over five million students attending private universities. A second potential threat to the external validity is history. Any unusual occurrences around the time of data collection could affect the ability to generalize the results to other periods in time. For example, if there was a recent suicide on campus or within their personal lives with family or friends, or if students had recently attended a campus presentation on depression, these occurrences could affect the way they answer the questions presented during the investigation. There were no known suicides on either campus where data was collected during the Fall 2010 semester, however, the potential of suicides for family members or friends is unknown.

Implications for Nursing Knowledge and Practice

Despite its limitations, the findings of this study contribute to nursing science in several ways. First, the results of this study indicate the existence of high levels of depressive symptoms in college freshmen, as almost half (47.84%) of the participants in this study met the criteria for moderate depression. Previous research has demonstrated that college students suffering from depression miss significantly more classes, and experience on average a 0.49 drop in their grade point average than their peers that did not report depressive symptoms (Hysenbegasi, Hass, & Rowland, 2005). There also appears to be a relationship between student attitudes toward suicide and depressive symptoms. The greater the number and intensity of depressive symptoms experienced by college students, the greater their risk of suicide (Gibb, Andover, & Beach, 2006; Hirsch, Conner, & Duberstein, 2007; Talaiferro, et al., 2008). Nurses working with college freshmen must be aware of the high incidence of depressive symptoms in this population, as the consequences of unrecognized and untreated depression can be significant. Outreach interventions must be developed to target depression assessments for all college students. Currently a study is being completed by Massachusetts General Hospital focused upon the usefulness of online screening instruments to identify major depressive disorder in college students. The sample for this study consists of college students 18 years and older attending Massachusetts colleges. The estimated end date for this study is January 2013 (U.S. National Institutes of Health, 2011). It is anticipated through the use of wide screening methods, more students suffering from depressive symptoms could be identified, thus increasing the number of students receiving necessary mental health

services. Assessment for depressive symptoms should also be a mandatory part of all holistic nursing interactions with freshmen students regardless of the reason they seek care. Faculty members working closely with college students should be required to participate in educational opportunities focused upon learning early methods to identify depressive symptoms in their students. For example, because a decrease in academic performance may be a sign of depression, faculty members must be educated to be sensitive to changes in the academic performance of their students. Finally, parents must be educated to recognize changes in behavior that may indicate depressive symptoms as their children adjust to college. Offering workshops for the parents of college freshmen during visit days may provide them the tools to recognize changes in their children that may indicate depressive symptoms, as well as provide them with information about the various mental health services available on campus.

The results of this study also provide a better understanding of factors that are predictive of depressive symptoms in college freshmen students. In this study stress was the major predictor of depressive symptoms in this population, thus as an individual's stress level increased, he or she also experienced an increase in depressive symptoms. Almost half (44.7%) of the students in this study were demonstrating greater than average levels of stress. The most common stressor reported by college students is academic demands, followed by financial pressures and separation from their usual support network. Nurses working with college freshmen must also be aware of the high levels of stress they may be experiencing. An assessment of stressors, and the resources the students have to cope with their stressors, must be completed during all interactions with

college students. Resources to assist with stress management must be made available to college freshmen, as stress has been shown to be an intrinsic part of the college experience. College administrators must recognize the need for these resources, and value their existence enough to make necessary funding available to support them. At both campuses where data was collected for this study, all freshmen are required to attend classes throughout the entire freshmen year to assist with the adjustment to college life. These class times would provide an opportunity to notify students about the available resources on campus as they begin their careers, as well as remind them about these resources throughout the entire academic year. These resources need to be readily available, convenient, and offered at no charge to the students.

Finally, specific nursing interventions should be implemented to assist freshmen college students in the development of adaptive methods to cope with stress. Research has demonstrated that emotion focused coping placed students at greater risk of developing depressive symptoms, whereas problem focused coping was associated with more positive outcomes. The results of this study indicated two emotion focused coping subscales of the WOC questionnaire (keep to self and wishful thinking) significantly mediated the relationship between stress and depression. Thus, interventions focused upon teaching the students how to decrease the use of emotion focused coping, and increase the use of problem focused coping, may decrease the incidence of depressive symptoms in this population. Recently a study was completed at the University of Santo Tomas, located in the Philippines, which examined the impact of a brief group intervention on depression in college students. This study was completed in May 2010,

with results to be published soon (U.S. National Institutes of Health, 2011). Through improved methods of recognition and treatment of depressive symptoms in college students, it is hoped to decrease the incidence of depressive symptoms that negatively impact the lives of college students. Upon the completion of this study, several topics can be identified as potential areas for future research. To begin with, a longitudinal study following the students throughout their undergraduate careers would provide a valuable contribution to scientific knowledge. This longitudinal study could begin during the first semester freshmen year, and continue with data collection every semester throughout the four year undergraduate experience. The data collected from a longitudinal study would allow the opportunity to follow the variables throughout the educational experience, providing further information on how they may change over time. Secondly, it would also be beneficial to complete a qualitative investigation focused upon freshmen college students with depressive symptomology. This qualitative investigation would allow the opportunity to gain information into the lived experiences of students struggling with these symptoms. The information gained from this qualitative data could be valuable in the development of nursing interventions to assist college freshmen suffering from depressive symptoms. Finally, it would be beneficial to replicate this study in a secular university that may allow a more diverse sample.

APPENDIX A

TABLES

Table 1: Literature Search Results

| Search Terms | Data Base | Number of Articles |
|--|-----------|--------------------|
| College Freshmen and Depression | CINAHL | 3 |
| | Medline | |
| | PsycINFO | 4 |
| College Freshmen and High Risk Behaviors | CINAHL | 11 |
| | Medline | 1 |
| | PsycINFO | 3 |
| College Freshmen and Social Support | CINAHL | 4 |
| | Medline | 4 |
| | PsycINFO | 50 |
| College Freshmen and Vulnerability | CINAHL | 1 |
| | Medline | 3 |
| | PsycINFO | 31 |
| College Freshmen and Spirituality | CINAHL | 0 |
| | Medline | 0 |
| | PsycINFO | 4 |

Total Number of Articles: 119

Table 2: Erik Erikson's Stages of Psychosocial Development

| Developmental Stage | Age of Individual Facing Crisis |
|--|--|
| Basic Trust verses Mistrust | Birth through 1 year of age |
| Autonomy verses Shame and Doubt | 18 months through 3 years of age |
| Initiative verses Guilt | 3 years through 5 years of age |
| Industry verses Inferiority | 6 years through 12 years of age |
| Identity verses Identity Diffusion | 12 years through 20 years of age |
| Intimacy verses Self-Absorption | 18 years through 30 years of age |
| Generativity verses Stagnation | 30 years through 65 years of age |
| Ego Integrity verses Despair and Disgust | 65 years of age and beyond |

Table 3: Correlation Coefficients from Previous Research

| Authors | Purpose of Study | Study Design | Data Analysis |
|----------------------------------|---|---------------------|--|
| Chaplin, 2006 | To examine the associations between depressive symptoms and patterns of emotional experience | Cross-sectional | Emotion variables (anger, happiness, sadness) accounted for 40% of variance in depressive symptoms $F(6,93)=10.51, p<.001$ |
| Drozd, Robinson, & Saarnio, 1994 | To investigate the relationship between study habits and depression in college students | Cross-sectional | Significant correlations between study habits and depression $r(127)= -.24, p <.01$ |
| Eshbaugh, 2005 | To examine the prevalence and correlates of depression, anxiety, and suicidality among university students | Cross-sectional | Students who were more depressed indicated more problematic drinking $r(315)=.26, p<.001$ |
| Maton, K., 1989 | To examine the relationship between spiritual support and well being | Longitudinal | Social support from parents was positively correlated with college adjustment $r=.24, p<.05$ Social support from friends was positively correlated with college adjustment $r=.30, p<.01$ |
| Saltzman & Holahan, 2002 | To investigate factors that mediate between social support and psychological adjustment in college students | Longitudinal | Time one social support significantly correlated with time two coping $r=.53, p<.01$ and time two depressive symptoms $r=-.53, p<.01$ |
| Taliaferro, et. al, 2009 | To explore the dimensions of spiritual well-being as they related to suicidal ideation | Cross-sectional | Correlations were significant at the $p<.001$ level for spiritual well being and hopelessness ($-.46$), depression ($-.48$), social support ($.59$) |

Table 4: Comparison of Cronbach's Alpha for Coping Scales of Ways of Coping Checklist and Ways of Coping Questionnaire

| Population | Medical Students | Medical Students | Spouses of Patients with Alzheimer's Disease | Spouses of Patients with Alzheimer's Disease | Psychiatric Outpatients | Psychiatric Outpatients |
|----------------------|------------------|------------------|--|--|-------------------------|-------------------------|
| | Original | Revised | Original | Revised | Original | Revised |
| Problem-Focused | .82 | .88 | .76 | .85 | .82 | .88 |
| Wishful Thinking | .86 | .85 | .86 | .86 | .86 | .87 |
| Seeks Social Support | .78 | .78 | .60 | .79 | .60 | .81 |
| Blamed Self | .78 | .78 | .80 | .80 | .76 | .76 |
| Avoidance | .74 | .74 | .73 | .73 | .81 | .81 |

(Vitaliano, Russo, Carr, Maiuro, & Becker, 1985)

Table 5: Socio-Demographics Characteristics of Study Sample

| Variable | Total Sample | University A | University B |
|---------------------------|--------------|--------------|--------------|
| University | | | |
| A | 95 (50.5%) | 95 (50.5%) | 93 (49.5%) |
| B | 93 (49.5%) | | |
| Age | | | |
| Mean | 18.28 | 18.27 | 18.28 |
| Range | 18-20 | 18-20 | 18-19 |
| Standard deviation | .47 | .49 | .45 |
| Gender | | | |
| Male | 80 (41.6%) | 44 (46.3%) | 36 (38.7%) |
| Female | 108 (57.4%) | 51 (53.7%) | 57 (61.3%) |
| Employment | | | |
| Part-time | 46 (24.5%) | 22 (23.2%) | 24 (25.85) |
| Full-time | 1 (0.5%) | 1 (1.1%) | 0 |
| Not employed | 141 (75%) | 72 (75.8%) | 69 (74.2%) |
| Race | | | |
| White | 132 (70.2%) | 71 (74.7%) | 61 (65.6%) |
| Black | 7 (3.7%) | 4 (4.2%) | 3 (3.2%) |
| Asian/Pacific Islander | 17 (9.0%) | 6 (6.3%) | 11 (11.8%) |
| Native American | 2 (1.1%) | 1 (1.1%) | 1 (1.1%) |
| Hispanic | 20 (10.6%) | 8 (8.4%) | 12 (12.9%) |
| Other | 12 (6.4%) | 6 (6.3%) | 6 (6.5%) |
| Religion | | | |
| Lutheran | 34 (18.1%) | 30 (31.6%) | 4 (4.4%) |
| Catholic | 79 (42.0%) | 27 (28.4%) | 52 (55.9%) |
| Other | 71 (37.8%) | 36 (37.9%) | 35 (37.6%) |
| Living Arrangements | | | |
| With family | 35 (18.6%) | 16 (16.8%) | 19 (20.4%) |
| University housing | 153 (81.4%) | 79 (83.2%) | 74 (79.6%) |

| | | | |
|---|-------------|------------|------------|
| Financial Aid | | | |
| Yes | 162 (86.2%) | 79 (83.2%) | 83 (89.2%) |
| Less than \$5,000 | 12 (6.4%) | 1 (1.1) | 11 (11.8%) |
| \$5,000 to \$10,000 | 22 (11.7%) | 10 (10.5%) | 12 (12.9%) |
| \$10,000 to \$15,000 | 47 (25%) | 20 (21.1%) | 27 (29%) |
| \$15,000 to \$20,000 | 25 (13.3%) | 14 (14.7%) | 11 (11.8%) |
| \$20,000 to \$25,000 | 20 (10.6%) | 9 (9.5%) | 11 (11.8%) |
| Greater than \$25,000 | 30 (16%) | 19 (20%) | 11 (11.8%) |
| No | 25 (12.8%) | 14 (14.7%) | 11 (10.8%) |
| Current Physical Problem | | | |
| Yes | 17 (9%) | 8 (8.7%) | 9 (9.7%) |
| No | 168 (84.4%) | 84 (88.4%) | 84 (90.3%) |
| Current Emotional Problem | | | |
| Yes | 11 (5.9%) | 6 (6.3%) | 5 (5.4%) |
| No | 174 (92.6%) | 86 (90.5%) | 88 (94.6%) |
| Family History of Emotional Problems | | | |
| Yes | 27 (14.4%) | 15 (15.8%) | 12 (12.9%) |
| No | 159 (84.6%) | 78 (82.1%) | 81 (87.1%) |
| Currently Taking Medications | | | |
| Yes | 42 (22.3%) | 23 (24.2%) | 19 (20.4%) |
| No | 144 (76.6%) | 70 (73.7%) | 74 (79.6%) |

| | | | |
|-------------------------------------|-------|-------|---------|
| Hours of Sleep During Academic Week | | | |
| Mean | 35.10 | 35.60 | 34.61 |
| Range | 10-60 | 10-60 | 17.5-60 |
| Standard Deviation | 8.75 | 8.96 | 8.56 |
| Body Mass Index | | | |
| Mean | 24.19 | 25.59 | 22.77 |
| Range | 14-52 | 14-53 | 15-34 |
| Standard Deviation | 5.19 | 6.19 | 3.42 |

Table 6: High Risk Behaviors as Reported on the Adapted Youth Risk Behavior Survey

| High Risk Behavior | Measure | Reported Frequency |
|--------------------|---|---|
| Cigarette Smoking | Ever tried cigarette smoking, even one or two puffs | Yes 41.5% |
| | | No 58.5% |
| | Age started to smoke | Mean 15.52 Standard deviation 3.0 |
| | Number of days smoked in past 30 days | 0 days 82.6% 1-2 days 5.8% 3-5 days 2.1% 6-9 days 1.1% 10-19 days 1.1% 20-20 days 1.1% All 30 days 4.2% |
| | How many cigarettes per day in past 30 days | 0 cigarettes 76.3% Less than 1 4.2% 1 per day 3.7% 2-5 per day 5.3% 6-10 per day 2.1% 11 to 20 per day 0.5% More than 20 0% |
| Alcohol Usage | Age started to drink alcohol | Mean 16.15 Standard deviation 1.50 |
| | | Number of days at least one drink in past 30 days |
| | Number of days at least one drink in past 30 days | 0 days 44.2% 1-2 days 19.5% 3-5 days 16.3% 6-9 days 14.7% 10-19 days 4.2% 20-29 days 0.5% All 30 days 0% |
| | Number of days at least 5 or more drinks in a row in past 30 days | 0 days 62.2% 1 day 11.2% 2 days 8.0% 3-5days 12.2% 6-9 days 5.3% 10-19 days 0.5% 20 or more days 0.5% |
| Sexual Behavior | Age became sexually active | Mean 16.19 Standard deviation 1.54 |

| | | |
|------------------|---|---|
| | Number of partners in past 3 months | 0 partners 59.4% 1 person 24.2% 2 people 4.2% 3 people 2.1% 4 people 2.1% 5 people 1.1% 6 or more 0.5% |
| | If sexually active, drink alcohol or use drugs before last sexual intercourse | Yes 6.9% No 39.9% |
| Eating Disorders | How describe weight | Very underweight 1.6% Slightly underweight 11.7% About the right 51.1% Slightly overweight 32.4% Very overweight 2.1% |
| | Which trying to do about weight | Lose weight 51.6% Gain weight 12.8% Stay the same 21.8% Not trying anything 13.3% |
| | During past 30 days go without eating for 24 hours or more to lose weight or keep from gaining weight | Yes 8.9% No 91.1% |
| | During past 30 days take diet pills, powders, liquids to lose weight or keep from gaining weight | Yes 1.1% No 98.9% |
| | During past 30 days vomit or take laxatives to lose weight or keep from gaining weight | Yes 1.6% No 98.4% |

Table 7: Reliability of Instruments

| Instrument | Cronbach's Alpha |
|--|------------------|
| Multidimensional Scale of Perceived Social Support | .93 |
| Significant Other Subscale (N=4) | .92 |
| Family Subscale (N=4) | .90 |
| Friends Subscale (N=4) | .92 |
| Daily Spiritual Experiences Scale | .94 |
| Inventory of College Students' Recent Life Experiences | .91 |
| Ways of Coping Questionnaire | |
| Problem-focused Subscale (N=11) | .79 |
| Wishful Thinking Subscale (N=5) | .64 |
| Detachment Subscale (N=6) | .75 |
| Seeking Social Support Subscale (N=7) | .79 |
| Focus on Positive Subscale (N=4) | .67 |
| Self-blame Subscale (N=3) | .65 |
| Tension Reduction Subscale (N=3) | .38* |
| Keep to Self Subscale (N=3) | .62 |
| Center for Epidemiological Studies Depression Scale | .92 |

* The Tension Reduction Subscale did not emerge as a significant predictor of depression in the stepwise regression

Table 8: Key Study Outcome Variables by Socio-Demographics

| Instrument | Inventory of College Students' Recent Life Experiences | Center for Epidemiologic Studies Depression Scale | Multidimensional Scale of Perceived Social Support | Daily Spiritual Experiences Scale |
|-----------------------------|--|---|--|---|
| Overall scale | Mean: 95.79* SD: 19.03 Range: 54-153 | Mean: 18.29* SD: 11.58 Range: 0-57 | Mean: 68.82* SD: 13.08 Range: 15-84 | Mean: 55.49* SD: 16.61 Range: 16-87 |
| Sex | | | | |
| Female N=108 | 95.85 (19.65) | 18.81 (12.18) | 70.95 (12.09) | 55.13 (15.24) |
| Males N=80 | 95.71 (18.28) | 17.59 (10.77) | 65.94 (13.89) | 55.99 (18.38) |
| Race | | | | |
| White N=132 | 93.95 (18.21) | 17.72 (11.65) | 69.36 (11.97) | 57.36 (16.07) |
| Black N=7 | 91 (17.09) | 14.57 (10.53) | 63.71 (22.18) | 39.86 (13.04) |
| Asian/Pacific Islander N=17 | 102.59 (21.97) | 21.76 (9.92) | 67.29 (16.14) | 54.12 (20.85) |
| Hispanic N=20 | 100.35 (21.20) | 18.75 (12.42) | 71 (11.89) | 51.90 (12.52) |
| Other N=12 | 100.61 (20.67) | 18.96 (12.07) | 68.86 (13.56) | 50.43 (14.32) |

| | | | | |
|-----------------------------|---------------|---------------|---------------|---------------|
| Religion | | | | |
| Lutheran N=34 | 99.21 (17.86) | 18.08 (13.04) | 69.65 (8.52) | 53.47 (14.76) |
| Catholic N=79 | 92.65 (19.63) | 17.29 (11.39) | 70.51 (12.22) | 53.85 (14.17) |
| Other N=71 | 97.08 (18.68) | 18.86 (11.10) | 67.55 (14.29) | 58.25 (19.23) |
| Credit hours | | | | |
| 12-16 credit hours N=146 | 94.92 (18.69) | 18.29 (11.36) | 68.47 (12.88) | 55.68 (15.90) |
| 17+ credit hours N=42 | 98.54 (20.27) | 18.44 (12.60) | 69.88 (13.97) | 55.15 (19.21) |
| Living Arrangements | | | | |
| With family N=35 | 95.34 (18.51) | 18.77 (11.05) | 67.34 (15) | 58.51 (18.24) |
| University housing N=153 | 95.90 (19.20) | 18.18 (11.74) | 69.16 (12.63) | 54.80 (16.20) |
| Financial aid status | | | | |
| Yes | 95.23 (18.01) | 17.65 (11.25) | 69.09 (12.69) | 55.44 (16.11) |
| No | 99.63 (25.64) | 21.5 (13.29) | 68.38 (15.07) | 54.79 (20.12) |

*Normative Mean ICSRLE = 95.31 (SD = 17.36); CES-D = 15.67 (SD = 12.10); MDPSS = 69.59 (SD = 12.20); DSES = 52.98 (SD = 14.47)

Table 9: Correlations Between the Total Scale Scores

| | Family support subscale of MSPSS | Friends support subscale of MSPSS | Total MSPSS | Total Daily Spiritual Experiences Scale Score | Total Recent Life Experiences Stress Score | CESD Depression Scale Score |
|---|----------------------------------|-----------------------------------|-------------|---|--|-----------------------------|
| Family support subscale of MSPSS | | | | | | |
| Friends support subscale of MSPSS | .550** | | | | | |
| Total MSPSS | .831** | .854** | | | | |
| Total Daily Spiritual Experiences Scale Score | -.196* | -.051 | -.149* | | | |
| Total Recent Life Experiences Stress Score | -.347** | -.406** | -.380** | .081 | | |
| CESD Depression Scale Score | -.384** | -.369** | -.398** | .141 | .701** | |

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

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

Table 10: Correlations Between the Ways of Coping Questionnaire Subscales and Total Scale Scores

| | Family support subscale of MSPSS | Friends support subscale of MSPSS | Total MSPSS | Total Daily Spiritual Experiences Scale Score | Total Recent Life Experiences Stress Score | CESD Depression Scale Score |
|------------------------|----------------------------------|-----------------------------------|-------------|---|--|-----------------------------|
| Problem focused | .087 | .062 | .079 | -.196** | .04 | -.016 |
| Wishful thinking | -.03 | -.131 | -.091 | -.073 | .372** | .380** |
| Detachment | .074 | -.035 | .017 | -.035 | .247** | .138 |
| Seeking social support | .146* | .095 | .138 | -.220** | .078 | .122 |
| Focus on positive | .229** | .057 | .168* | -.287** | .022 | -.059 |
| Self-blame | -.156* | -.168* | -.185* | -.026 | .251** | .272** |
| Tension reduction | .015 | -.064 | -.044 | -.005 | .067 | .057 |
| Keep to self | -.083 | -.134 | -.128 | -.009 | .306** | .401** |

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

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

Table 11: Correlations Between Negative Influences and Total Scale Scores for Stress and Depressive Symptoms

| | ICSRLE Item #9 (Separation from people you care about) | ISCRLE Item #21 (Financial burdens) |
|---|---|--|
| Total Recent Life Experiences Stress Score | .315** | .496** |
| Center for Epidemiologic Studies Depression Scale | .319** | .314** |

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

Table 12: Correlations Between Scale Scores and Adapted Youth Risk Behavior Survey Items

| | CES-D Scores | ICSRLE Scores | MPSS Total Scores | MPSS Family Subscale | MPSS Friends Subscale | DSES Scores |
|--------|----------------|---------------|-------------------|----------------------|-----------------------|-------------|
| YRBS1 | -.176* | -.112 | .059 | .134 | .028 | -.085 |
| YRBS2 | .023 | -.145 | -.091 | -.098 | -.113 | -.145 |
| YRBS3 | .078 | .066 | -.125 | -.149* | -.091 | .066 |
| YRBS4 | .116 | .042 | -.097 | -.121 | -.078 | .042 |
| YRBS5 | -.041 | -.085 | -.089 | .033 | -.019 | -.085 |
| YRBS6 | -.030 | -.009 | .019 | -.003 | -.009 | -.009 |
| YRBS7 | -.030 | .095 | -.035 | -.058 | -.042 | .095 |
| YRBS8 | -.001 | -.122 | .022 | -.041 | -.033 | -.069 |
| YRBS9 | .090 | .128 | -.199** | -.255** | -.150** | .111 |
| YRBS10 | .121 | .071 | -.116 | -.240** | -.072 | .009 |
| YRBS11 | .039 | .052 | .007 | .043 | -.027 | .096 |
| YRBS12 | -.166* | -.158* | .027 | .054 | .038 | .147* |
| YRBS13 | .016 | .032 | -.037 | -.022 | -.007 | .138 |
| YRBS14 | -.279** | -.166* | .119 | .184* | .054 | -.044 |
| YRBS15 | .021 | .013 | -.045 | -.050 | -.026 | .016 |
| YRBS16 | -.092 | -.004 | .112 | .079 | .081 | .088 |

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

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

Table 13: Results of Simple Linear Regression

| Predictors | Unstandardized Coefficients | | Standardized Coefficients Beta | <i>t</i> | Sig. |
|--|-----------------------------|------------|--------------------------------|----------|------|
| | B | Std. Error | | | |
| Stress | | | | | |
| Inventory of College Students' Recent Life Experiences | .427 | .032 | .701 | 13.391 | .00 |
| Coping | | | | | |
| Problem-focused Subscale | -.027 | .124 | -.016 | -.215 | .830 |
| Wishful Thinking Subscale | .859 | .153 | .380 | 5.60 | .00 |
| Detachment Subscale | .362 | .190 | .138 | 1.906 | .058 |
| Seeking Social Support Subscale | .267 | .159 | .122 | 1.676 | .096 |
| Focus on Positive Subscale | -.216 | .268 | -.059 | -.807 | .420 |
| Self-blame Subscale | 1.193 | .310 | .272 | 3.849 | .00 |
| Tension Reduction Subscale | .285 | .367 | .057 | .777 | .438 |
| Keep to Self Subscale | 1.817 | .304 | .401 | 5.975 | .00 |
| Perceived Social Support | | | | | |
| Total Multidimensional Scale of Perceived Social Support | -.352 | .060 | -.398 | -5.910 | .00 |
| Perceived Support from Family | -.838 | .148 | -.384 | -5.68 | .00 |
| Perceived Support from Friends | -.881 | .163 | -.369 | -5.910 | .00 |
| Spirituality | | | | | |
| Daily Spiritual Experiences Scale | .098 | .051 | .141 | 1.94 | .054 |

* Dependent Variable: Depressive Symptoms, SE= standard error, Sig= significance

Table 14: Results of Stepwise Multiple Regression of CESD Depression Score on Measures of Social Support, Spirituality, Incidence of Stressful Experiences, and Coping Strategies

| Category | Variable | <i>b</i> | <i>SE b</i> | β | <i>t</i> | <i>p</i> |
|----------|---|----------|-------------|---------|----------|----------|
| Included | (Constant) | -8.900 | 4.598 | | -1.936 | .054 |
| | Total Recent Life Experiences Stress Score | .321 | .034 | .527 | 9.378 | <.001 |
| | Keep to self | 1.093 | .250 | .241 | 4.364 | <.001 |
| | Focus on positive | -.657 | .202 | -.179 | -3.247 | .001 |
| | Wishful thinking | .341 | .126 | .151 | 2.719 | .007 |
| | Family support subscale | -.296 | .115 | -.136 | -2.578 | .011 |
| | Friends support subscale | | | -.028 | -.473 | .637 |
| | Total Daily Spiritual Experiences Scale Score | | | .037 | .732 | .465 |
| | Problem-focused | | | -.093 | -1.514 | .132 |
| | Detachment | | | -.103 | -1.779 | .077 |
| | Seeking social support | | | .088 | 1.591 | .113 |
| | Self-blame | | | .024 | .441 | .659 |
| | Tension reduction | | | -.010 | -.195 | .846 |

Note: $R^2 = .587$; adjusted $R^2 = .575$

Table 15: Causal Step Tests of Mediator Qualification

| Test # | Y | Predictor(s) | b | SE of b | <i>t</i> | <i>p</i> |
|-----------|--------|------------------------|--------|---------|----------|----------|
| (initial) | CESD | ICSRLE | .427 | .032 | 13.391 | <.001 |
| 1 | ICSRLE | Wishful thinking | 1.265 | .269 | 4.697 | <.001 |
| | | Keep to self | 1.873 | .550 | 3.405 | .001 |
| | | Focus on positive | -1.104 | .438 | -2.518 | .013 |
| | | Problem focused | -.301 | .257 | -1.168 | .244 |
| | | Detachment | .581 | .346 | 1.678 | .095 |
| | | Seeking social support | -.097 | .297 | -.328 | .743 |
| | | Self-blame | .731 | .547 | 1.337 | .183 |
| | | Tension reduction | -.094 | .621 | -.151 | .880 |
| 2 | CESD | Keep to self | 1.803 | .311 | 5.791 | <.001 |
| | | Wishful thinking | .769 | .153 | 5.043 | <.001 |
| | | Focus on positive | -1.169 | .248 | -4.711 | <.001 |
| 3 & 4 | CESD | Keep to self | 1.149 | .253 | 4.535 | <.001 |
| | | Wishful thinking | .327 | .127 | 2.568 | .011 |
| | | Focus on positive | -.784 | .199 | -3.934 | <.001 |
| | | ICSRLE | .349 | .033 | 10.610 | <.001 |

Table 16: Results of Multiple Mediation Analysis of Prediction of Depression from Stress

| Independent variable (IV) | Mediating variable (M) | Effect of IV on M (a) | Effect of M on DV (b) | Direct Effect (c') | Indirect Effect | | Total Effect (c) |
|------------------------------|---------------------------|--------------------------|--------------------------|-----------------------|-----------------|---------------|---------------------|
| | | | | | (a * b) | 95% CI | |
| ICSRLE (stress) | Keep to self | .0412 | 1.1487 | | .0473** | .0248, .0862 | |
| | Wishful thinking | .1001 | .3270 | | .0327* | .0042, .0719 | |
| | Focus on positive | .0037 | -.7836 | | -.0029 | -.0236, .0160 | |
| | Total | .145 | .6927 | .3494*** | .0771*** | .0400, .1193 | .4265*** |

* = $p \leq .05$ ** = $p \leq .01$ *** = $p \leq .001$

Table 17: Comparison of Adapted Youth Risk Behavior Survey Results with the American College Health Association Spring 2010 Health Assessment

| High Risk Behavior | Adapted Youth Risk Behavior Survey Results | American College Health Association Spring 2010 Health Assessment Results |
|--|--|---|
| Cigarette Smoking | | |
| How many days smoked cigarettes in past 30 days | | |
| Never smoked | 82.6% | 84.0% |
| Smoked 1-9 days | 9.0% | 8.1% |
| Smoked 10-29 days | 2.2% | 2.7% |
| Smoked all 30 days | 4.2% | 5.2% |
| Alcohol Usage | | |
| How many days ingested alcoholic beverages in the past 30 days | | |
| Never drank | 44.2% | 34.8% |
| Drank 1-9 days | 50.5% | 49.7% |
| Drank 10-29 days | 4.7% | 14.3% |
| Drank all 30 days | 0% | 1.1% |
| Sexual Behavior | | |
| Have you had sexual intercourse within past 3 months | | |
| Yes | 38.2% | 49.8% |
| No | 59.4% | 50.2% |

Table 18: Comparison of Subscale Means of the Ways of Coping Questionnaire with Lazarus and Folkman Study of College Students (1985)

| Statistics | Problem-focused (N=11) | Wishful Thinking (N=5) | Detachment (N=6) | Seeking Social Support (N=7) | Focus on Positive (N=4) | Self-blame (N=3) | Tension Reduction (N=3) | Keep to Self (N=3) |
|-----------------------------------|------------------------|------------------------|------------------|------------------------------|-------------------------|------------------|-------------------------|--------------------|
| Mean for this study | 16.18 | 8.16 | 6.86 | 10.27 | 5.10 | 4.28 | 3.17 | 3.48 |
| Mean for Lazarus & Folkman (1985) | | | | | | | | |
| Time 1 | 15.2 | 5.2 | 3.5 | 7.0 | 4.2 | 3.3 | 2.6 | 2.3 |
| Time 2 | 9.5 | 4.6 | 6.5 | 5.1 | 3.3 | 3.2 | 2.3 | 1.9 |
| Time 3 | 10.5 | 3.9 | 3.6 | 4.4 | 2.8 | 3.2 | 2.0 | 1.6 |

APPENDIX B

FIGURES

Figure 1: Study Conceptualization using Lazarus and Folkman Model

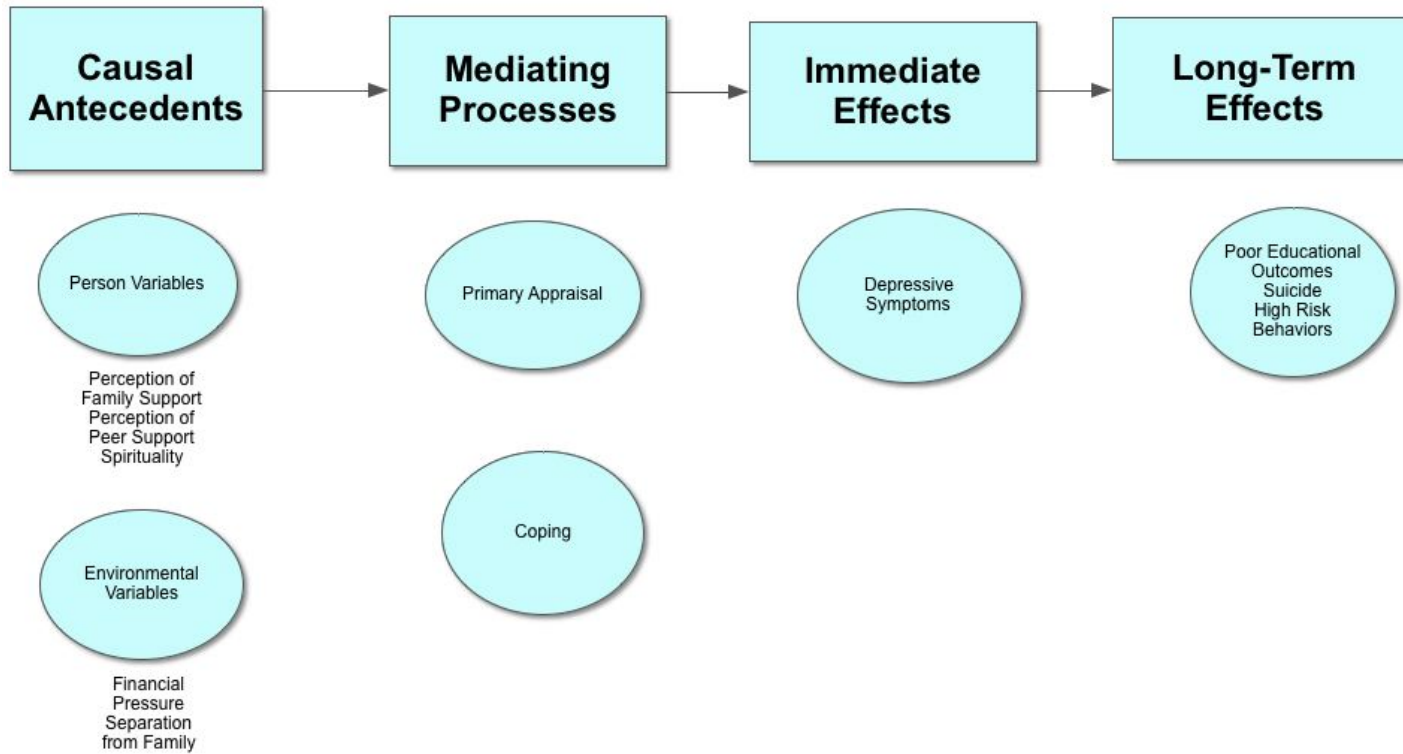


Figure 2: Substruction of Proposed Concepts

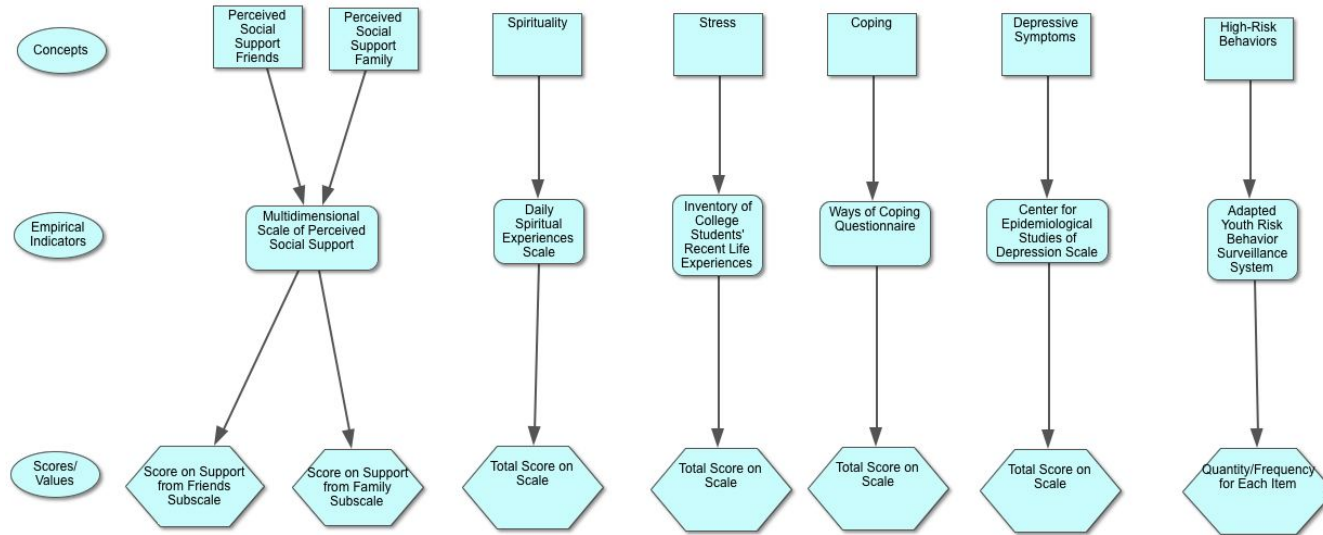
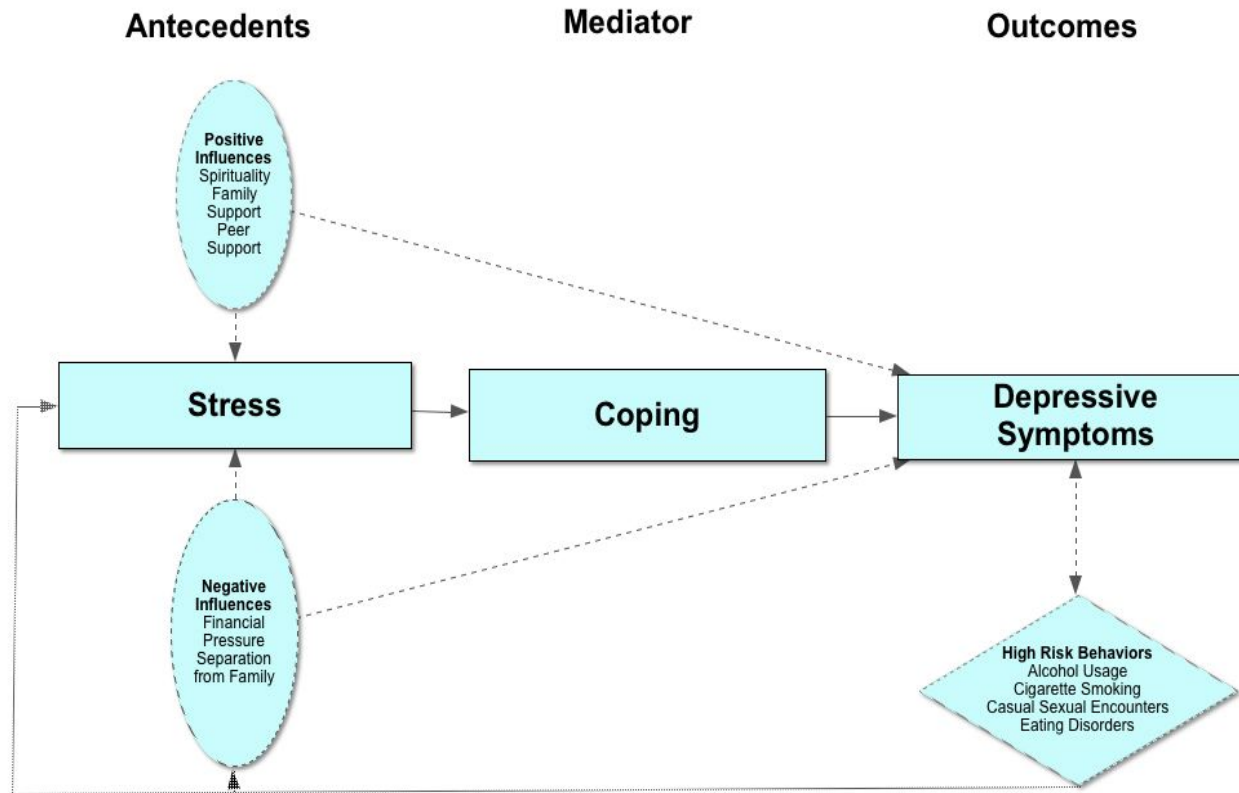


Figure 3: Study Conceptualization for Hypothesis Testing



APPENDIX C
STUDY VARIABLES AND INSTRUMENTS

Antecedents

| Variable | Instrument | Items | Reliability and Validity | Interpretation of Scores/Values |
|--------------------------------|--|--|--|---|
| Stress | Inventory of College Students' Recent Life Experiences | Total of 49 items 4-point Likert Scale | Cronbach's Alpha 0.89-0.92 Construct Validity Established | Scale is scored by totaling the scores for each of the items Higher Score = Greater Levels of Stress |
| Perceived Support from Friends | Multidimensional Scale of Perceived Social Support, Friends Subscale | Total of 4 items 7-point Likert Scale | Cronbach's Alpha 0.85 Content Validity Established | Sub-scale is scored by totaling the scores for each of the items Higher Scores = Greater Perception of Social Support from Friends |
| Perceived Support from Family | Multidimensional Scale of Perceived Social Support, Family Subscale | Total of 4 items 7-point Likert Scale | Cronbach's Alpha 0.87 Content Validity Established | Sub-scale is scored by totaling the scores for each of the items Higher Scores = Greater Perception of Social Support from Family |
| Spirituality | Daily Spiritual Experiences Scale | Total of 16 items 6-point Likert Scale Item #16 is reversed scored | Cronbach's Alpha 0.94 Content Validity Established | Scale is scored by totaling the scores for each of the items Lower Score = Greater Levels of Spirituality |

Mediators

| Variable | Instrument | Items | Reliability and Validity | Interpretation of Scores/Values |
|-----------------|------------------------------|---|---|---|
| Coping | Ways of Coping Questionnaire | Total of 66 items 4-point Likert Scale | Cronbach's Alpha 0.59-0.88 for each of the subscales Concurrent Validity Established | Scale is scored by totaling the scores for the items on each of the 8 subscales |

Primary Outcomes

| Variable | Instrument | Items | Reliability and Validity | Interpretation of Scores/Values |
|---------------------|---|--|--|--|
| Depressive Symptoms | Center for Epidemiological Studies Depression Scale | Total of 20 items 4-point Likert Scale Items # 4,8,12,16 are reversed scored Scale is scored by totaling the scores for each of the items | Cronbach's Alpha .85-.90 Content Validity Established | Higher Score = Greater Number of Depressive Symptoms |

Secondary Outcomes

| Variable | Instrument | Items | Reliability and Validity | Interpretation of Scores/Values |
|--------------------------|---|--|--|--|
| Alcohol Usage | Adapted Youth Risk Behavior Surveillance System | Total of 2 items on Adapted Instrument | Reliability established by CDC test-retest analysis on 2 Occasions * | Quantity/frequency analysis |
| Cigarette Smoking | Adapted Youth Risk Behavior Surveillance System | Total of 3 items on Adapted Instrument | Reliability established by CDC test-retest analysis on 2 Occasions * | Quantity/frequency analysis |
| Casual Sexual Encounters | Adapted Youth Risk Behavior Surveillance System | Total of 2 items on Adapted Instrument | Reliability established by CDC test-retest analysis on 2 Occasions * | Quantity/frequency analysis |
| Eating Disorders | Adapted Youth Risk Behavior Surveillance System | Total of 6 items on Adapted Instrument | Reliability established by CDC test-retest analysis on 2 Occasions * | Quantity/frequency analysis |

* Validity may be affected by cognitive and situational factors

APPENDIX D

LETTERS OF CONSENT FOR UNIVERSITY A AND B FRESHMEN STUDENTS

Thank you for volunteering to participate in this study exploring stress coping, mood and health behaviors in college freshmen. Your participation in this study is voluntary, and will have no influence on your grades. There are a total of seven instruments included in the study booklet. It should take you approximately 30 minutes to complete the booklet. There are no right or wrong answers to the questions presented, and you may skip questions if you do not wish to answer. Your answers will be confidential, there will be no way to connect your answers to you. All data collected in this study will be reported in aggregate.

After completion of the booklet, you will be provided with a \$5 coupon to use at any of the Valparaiso University dining areas. Also, after completion, you will be provided with information on the Valparaiso University Counseling Center, as well as local community mental health providers, should you feel the need to seek emotional assistance.

You may contact me via my e-mail address to request a copy of the study results when they are available: Julie.Brandy@valpo.edu.

Thank you for your time and effort!

Thank you for volunteering to participate in this study exploring stress coping, mood and health behaviors in college freshmen. Your participation in this study is voluntary, and will have no influence on your grades. There are a total of seven instruments included in the study booklet. It should take you approximately 30 minutes to complete the booklet. There are no right or wrong answers to the questions presented, and you may skip questions if you do not wish to answer. Your answers will be confidential, there will be no way to connect your answers to you. All data collected in this study will be reported in aggregate.

After completion of the booklet, you will be provided with a \$5 Rambler Bucks Card to use at any of the multiple locations at Loyola University accepting Rambler Bucks. Also, after completion, you will be provided with information on the Loyola University Counseling Center, as well as local community mental health providers, should you feel the need to seek emotional assistance.

You may contact me via my e-mail address to request a copy of the study results when they are available: Julie.Brandy@valpo.edu.

Thank you for your time and effort!

APPENDIX E
MEASUREMENT TOOLS

The Center for Epidemiologic Studies Depression Scale

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

| | Rarely or none of the time (less than one day) | Some or a little of the time (1-2 days) | Occasionally or a moderate amount of the time (3-4 days) | Most or all of the time (5-7 days) |
|--|--|---|--|------------------------------------|
| 1. I was bothered by things that usually don't bother me | | | | |
| 2. I did not feel like eating; my appetite was poor. | | | | |
| 3. I felt that I could not shake off the blues even with help from my family or friends. | | | | |
| 4. I felt I was just as good as other people. | | | | |
| 5. I had trouble keeping my mind on what I was doing. | | | | |
| 6. I felt depressed. | | | | |
| 7. I felt that everything I did was an effort. | | | | |
| 8. I felt hopeful about the future. | | | | |
| 9. I thought my life had been a failure. | | | | |
| 10. I felt fearful. | | | | |

| | | | | |
|------------------------------------|--|--|--|--|
| 11. My sleep was restless. | | | | |
| 12. I was happy. | | | | |
| 13. I talked less than usual. | | | | |
| 14. I felt lonely. | | | | |
| 15. People were unfriendly. | | | | |
| 16. I enjoyed life. | | | | |
| 17. I had crying spells. | | | | |
| 18. I felt sad. | | | | |
| 19. I felt that people dislike me. | | | | |
| 20. I could not get "going." | | | | |

The Daily Spiritual Experiences Scale

The list that follows includes items you may or may not experience. Please consider if and how often you have these experiences, and try to disregard whether you feel you should or should not have them. In addition, a number of items use the word “God.” If this word is not a comfortable one, please substitute another idea that calls to mind the divine or holy for you.

1. I feel God’s presence.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

2. I experience a connection to all life.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

3. During worship, or at other times when connecting with God, I feel joy which lifts me out of my daily concerns.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

4. I find strength in my religion or spirituality.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

5. I find comfort in my religions or spirituality.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

6. I feel deep inner peace or harmony.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

7. I ask for God's help in the midst of daily activities.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

8. I feel guided by God in the midst of daily activities.

- 1-Many times a day
- 2-Every day

- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

9. I feel God's love for me, directly.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

10. I feel God's love for me, through others.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

11. I am spiritually touched by the beauty of creation.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days
- 5-Once in a while
- 6-Never or almost never

12. I feel thankful for my blessings.

- 1-Many times a day
- 2-Every day
- 3-Most days
- 4-Some days

5-Once in a while

6-Never or almost never

13. I feel a selfless caring for others.

1-Many times a day

2-Every day

3-Most days

4-Some days

5-Once in a while

6-Never or almost never

14. I accept others even when they do things I think are wrong.

1-Many times a day

2-Every day

3-Most days

4-Some days

5-Once in a while

6-Never or almost never

15. I desire to be closer to God or in union with God.

1-Many times a day

2-Every day

3-Most days

4-Some days

5-Once in a while

6-Never or almost never

16. In general, how close do you feel to God?

1-Not at all close

2-Somewhat close

3-Very close

4-As close as possible

The Multi-Dimensional Support Scale

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree**

Circle the "2" if you **Strongly Disagree**

Circle the "3" if you **Mildly Disagree**

Circle the "4" if you are **Neutral**

Circle the "5" if you **Mildly Agree**

Circle the "6" if you **Strongly Agree**

Circle the "7" if you **Very Strongly Agree**

1. There is a special person who is around when I am in need.

1 2 3 4 5 6 7

2. There is a special person with whom I can share my joys and sorrows.

1 2 3 4 5 6 7

3. My family really tries to help me.

1 2 3 4 5 6 7

4. I get the emotional help and support I need from my family.

1 2 3 4 5 6 7

5. I have a special person who is a real source of comfort to me.

1 2 3 4 5 6 7

6. My friends really try to help me.

1 2 3 4 5 6 7

7. I can count on my friends when things go wrong.

1 2 3 4 5 6 7

8. I can talk about my problems with my family.

1 2 3 4 5 6 7

9. I have friends with whom I can share my joys
and sorrows.

1 2 3 4 5 6 7

10. There is a special person in my life who cares about my feelings.

1 2 3 4 5 6 7

11. My family is willing to help me make decisions.

1 2 3 4 5 6 7

12. I can talk about my problems with my friends.

1 2 3 4 5 6 7

The Inventory of College Students Recent Life Experiences

Following is a list of experiences which students may have experienced at some time or other. Please indicate for each experience how much it has been a part of your life over the past month.

Intensity of Experience over Past Month

1-not at all part of my life

2-only slightly part of my life

3-distinctly part of my life

4-very much a part of my life

- _____ 1. Conflicts with boyfriend/girlfriend/spouse's family
- _____ 2. Being let down or disappointed by friends
- _____ 3. Conflict with professor(s)
- _____ 4. Social rejection
- _____ 5. Too many things all at once
- _____ 6. Being taken for granted
- _____ 7. Financial conflicts with family members
- _____ 8. Having your trust betrayed by a friend
- _____ 9. Separation from people you care about
- _____ 10. Having your contributions overlooked
- _____ 11. Struggling to meet your own academic
- _____ 12. Being taken advantage of
- _____ 13. Not enough leisure time
- _____ 14. Struggling to meet the academic standards of others
- _____ 15. A lot of responsibilities
- _____ 16. Dissatisfaction with school
- _____ 17. Decisions about intimate relationship(s)
- _____ 18. Not enough time to meet your obligations
- _____ 19. Dissatisfaction with your mathematics ability
- _____ 20. Important decisions about your future

- _____ 21. Financial burdens
- _____ 22. Dissatisfaction with your reading ability
- _____ 23. Important decisions about your education
- _____ 24. Loneliness
- _____ 25. Lower grades than you hoped for
- _____ 26. Conflict with teaching assistant(s)
- _____ 27. Not enough sleep
- _____ 28. Conflicts with your family
- _____ 29. Heavy demands from extracurricular activities
- _____ 30. Finding courses too demanding
- _____ 31. Conflicts with friends
- _____ 32. Hard effort to get ahead
- _____ 33. Poor health of a friend
- _____ 34. Disliking your studies
- _____ 35. Getting “ripped off” or cheated in the purchase of services
- _____ 36. Social conflicts over smoking
- _____ 37. Difficulties with transportation
- _____ 38. Disliking fellow student(s)
- _____ 39. Conflicts with boyfriend/girlfriend/spouse
- _____ 40. Dissatisfaction with your ability at written expression
- _____ 41. Interruptions of your school work
- _____ 42. Social isolation
- _____ 43. Long waits to get service (e.g., at banks, stores, etc.)
- _____ 44. Being ignored
- _____ 45. Dissatisfaction with your personal appearance
- _____ 46. Finding course(s) uninteresting
- _____ 47. Gossip concerning someone you care about
- _____ 48. Failing to get expected job
- _____ 49. Dissatisfaction with your athletic skills

WAYS OF COPING (Revised)

Think about a stressful situation you have experienced during the past week. Briefly describe this situation: _____

Please read each item below and indicate, by using the following rating scale, to what extent you used it in the situation you have just described.

| Not Used | Used Somewhat | Used Quite A Bit | Used A Great Deal |
|-------------|------------------|---------------------|----------------------|
| 0 | 1 | 2 | 3 |

- _____ 1. Just concentrate on what I had to do next-the next step.
- _____ 2. I tried to analyze the problem in order to understand it better.
- _____ 3. Turned to work or substitute activity to take my mind off things.
- _____ 4. I felt that time would make a difference-the only thing to do was to wait.
- _____ 5. Bargained or compromised to get something positive from the situation.
- _____ 6. I did something which I didn't think would work, but at least I was doing something.
- _____ 7. Tried to get the person responsible to change his or her mind.
- _____ 8. Talked to someone to find out more about the situation.
- _____ 9. Criticized or lectured myself.
- _____ 10. Tried not to burn my bridges, but leave things open somewhat.
- _____ 11. Hoped a miracle would happen.
- _____ 12. Went along with fate; sometimes I just have bad luck.
- _____ 13. Went on as if nothing had happened.
- _____ 14. I tried to keep my feelings to myself.

- _____ 15. Looked for the silver lining, so to speak; tried to look on the bright side of things.
- _____ 16. Slept more than usual.
- _____ 17. I expressed anger to the person(s) who caused the problem.
- _____ 18. Accepted sympathy and understanding from someone.
- _____ 19. I told myself things that helped me to feel better.
- _____ 20. I was inspired to do something creative.
- _____ 21. Tried to forget the whole thing.
- _____ 22. I got professional help.
- _____ 23. Changed or grew as a person in a good way.
- _____ 24. I waited to see what would happen before doing anything.
- _____ 25. I apologized or did something to make up.
- _____ 26. I made a plan of action and followed it.
- _____ 27. I accepted the next best thing I wanted.
- _____ 28. I let my feelings out somehow
- _____ 29. Realized I brought the problem on myself.
- _____ 30. I came out of the experience better than when I went in.
- _____ 31. Talked to someone who could do something concrete about the problem.
- _____ 32. Got away from it for a while; tried to rest or take a vacation.
- _____ 33. Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.
- _____ 34. Took a big chance or did something very risky.
- _____ 35. I tried not to act too hastily or follow my first hunch.

- _____ 36. Found new faith.
- _____ 37. Maintained my pride and kept a stiff upper lip.
- _____ 38. Rediscovered what is important in life.
- _____ 39. Changed something so things would turn out all right.
- _____ 40. Avoided being with people in general.
- _____ 41. Didn't let it get to me; refused to think too much about it.
- _____ 42. I asked a relative or friend I respected for advice.
- _____ 43. Kept others from knowing how bad things were.
- _____ 44. Made light of the situation; refused to get too serious about it.
- _____ 45. Talked to someone about how I was feeling.
- _____ 46. Stood my ground and fought for what I wanted.
- _____ 47. Took it out on other people.
- _____ 48. Drew on my past experiences; I was in a similar situation before.
- _____ 49. I know what had to be done, so I doubled my efforts to make things work.
- _____ 50. Refused to believe that it had happened.
- _____ 51. I made a promise to myself that things would be different next time.
- _____ 52. Came up with a couple of different solutions to the problem.
- _____ 53. Accepted it, since nothing could be done.
- _____ 54. I tried to keep my feelings from interfering with other things too much.
- _____ 55. Wished that I could change what had happened or how I felt.
- _____ 56. I changed something about myself.
- _____ 57. I daydreamed or imagined a better time or place than the one I was in.

- _____ 58. Wished that the situation would go away or somehow be over with.
- _____ 59. Had fantasies or wishes about how things might turn out.
- _____ 60. I prayed.
- _____ 61. I prepared myself for the worst.
- _____ 62. I went over in my mind what I would say or do.
- _____ 63. I thought about how a person I admire would handle this situation and used that as a model.
- _____ 64. I tried to see things from the other person's point of view.
- _____ 65. I reminded myself how much worse things could be.
- _____ 66. I jogged or exercised.

Adapted Youth Risk Behavior Survey

1. Have you ever tried cigarette smoking, even one or two puffs?
 - a. Yes
 - b. No

2. If you smoke, at what age did you start to smoke?_____

3. During the past 30 days, on how many days did you smoke cigarettes?
 - a. 0 days
 - b. 1 or 2 days
 - c. 3 to 5 days
 - d. 6 to 9 days
 - e. 10 to 19 days
 - f. 20 to 29 days
 - g. All 30 days

4. During the past 30 days, on the days you smoked, how many cigarettes did you smoke **per day**?
 - a. I did not smoke cigarettes during the past 30 days
 - b. Less than 1 cigarette per day
 - c. 1 cigarette per day
 - d. 2 to 5 cigarettes per day
 - e. 6 to 10 cigarettes per day
 - f. 11 to 20 cigarettes per day
 - g. More than 20 cigarettes per day

5. If you drink alcohol, at what age did you start to drink alcohol?_____

6. During the past 30 days, on how many days did you have at least one drink of alcohol?
 - a. 0 days
 - b. 1 or 2 days
 - c. 3 to 5 days
 - d. 6 to 9 days
 - e. 10 to 19 days
 - f. 20 to 29 days
 - g. All 30 days

7. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is within a couple of hours?
 - a. 0 days
 - b. 1 day
 - c. 2 days

- d. 3 to 5 days
 - e. 6 to 9 days
 - f. 10 to 19 days
 - g. 20 or more days
8. If you are sexually active, at what age did you become sexually active?_____
9. During the past 3 months, with how many people did you have sexual intercourse?
- a. I have never had sexual intercourse
 - b. I have had sexual intercourse, but not during the past 3 months
 - c. 1 person
 - d. 2 people
 - e. 3 people
 - f. 4 people
 - g. 5 people
 - h. 6 or more people
10. Did you drink alcohol or use drugs before you had sexual intercourse the **last time**?
- a. I have never had sexual intercourse
 - b. Yes
 - c. No
11. How do **you** describe your weight?
- a. Very underweight
 - b. Slightly underweight
 - c. About the right weight
 - d. Slightly overweight
 - e. Very overweight
12. Which of the following are you trying to do about your weight?
- a. **Lose** weight
 - b. **Gain** weight
 - c. **Stay** the same weight
 - d. I am **not trying to do anything** about my weight
13. During the past 30 days, did you **exercise** to lose weight or to keep from gaining weight?
- a. Yes
 - b. No
14. During the past 30 days, did you **go without eating for 24 hours or more** (also called fasting) to lose weight or to keep from gaining weight?
- a. Yes
 - b. No

15. During the past 30 days, did **you take any diet pills, powders, or liquids** without a doctor's advise to lose weight or to keep from gaining weight? (Do not include meal replacement products such as Slim Fast).
 - a. Yes
 - b. No

16. During the past 30 days, did you **vomit or take laxatives** to lose weight or to keep from gaining weight?
 - a. Yes
 - b. No

DEMOGRAPHIC QUESTIONNAIRE

1. What is your gender?

Male

Female

2. What is your age?

18 yrs

19 yrs

20 yrs

3. Are you currently working?

Yes, Part-time

Yes, Full-time

No, I am not working

4. Which best describes your race?

White

Black

Asian/Pacific Islander

Native American

Hispanic

Arabic

Other:_____

5. What is your religious affiliation?

Lutheran

Catholic

Muslim

Hindu

Jewish

Eastern Orthodox

Buddhist

Other:_____

6. Are you an international student?

Yes

No

If yes, what is your country of origin?_____

7. How many credit hours are you enrolled in this semester?_____

8. Where are you currently living?

With family

University housing

Other:_____

9. Are you receiving financial aid for this academic year?

Yes

No

10. If yes, how much of your college costs are supported by financial aid?

Less than \$5,000

\$5,000 to \$10,000

\$10,000 to \$15,000

\$15,000 to \$20,000

\$20,000 to \$25,000

Greater than \$25,000

11. Are you currently under the care of a healthcare professional for a specific physical problem?

Yes

No

If yes, please list: _____

12. Are you currently under the care of a healthcare professional for a specific emotional problem?

Yes

No

If yes, please list: _____

13. Do you have a family history of mental health issues?

Yes

No

If yes, please list: _____

14. Are you currently taking any medications?

Yes

No

If yes, please list: _____

15. How many hours of sleep do you get on average during the school week? _____

16. What is your current height? _____

17. What is your current weight? _____

APPENDIX F
WAYS OF COPING QUESTIONNAIRE ITEMS
DIVIDED INTO SUBSCALES

Problem-focused Subscale

- 62. I went over in my mind what I would say or do.
- 46. Stood my ground and fought for what I wanted.
- 39. Changed something so things would turn out all right.
- 52. Came up with a couple of different solutions to the problem.
- 35. I tried not to act too hastily or follow my first hunch.
- 26. I made a plan of action and followed it.
- 64. I tried to see things from the other person's point of view.
- 54. I tried to keep my feelings from interfering with other things too much.
- 2. I tried to analyze the problem in order to understand it better.
- 48. Drew on my past experiences; I was in a similar situation before.
- 1. Just concentrate on what I had to do next-the next step.
- 49. I know what had to be done, so I doubled my efforts to make things work.

Wishful thinking Subscale

- 55. Wished that I could change what had happened or how I felt.
- 57. I daydreamed or imagined a better time or place than the one I was in.
- 59. Had fantasies or wishes about how things might turn out.
- 11. Hoped a miracle would happen.
- 58. Wished that the situation would go away or somehow be over with.

Detachment Subscale

- 21. Tried to forget the whole thing.
- 13. Went on as if nothing had happened.

- 24. I waited to see what would happen before doing anything.
- 12. Went along with fate; sometimes I just have bad luck.
- 4. I felt that time would make a difference-the only thing to do was to wait.
- 53. Accepted it, since nothing could be done.

Seeking Social Support Subscale

- 45. Talked to someone about how I was feeling.
- 18. Accepted sympathy and understanding from someone.
- 28. I let my feelings out somehow.
- 31. Talked to someone who could do something concrete about the problem.
- 8. Talked to someone to find out more about the situation.
- 42. I asked a relative or friend I respected for advice.
- 60. I prayed.

Focus on the Positive Subscale

- 23. Changed or grew as a person in a good way.
- 20. I was inspired to do something creative.
- 38. Rediscover what is important in life.
- 15. Look for the silver lining, so to speak; try to look on the bright side of things.

Self Blame Subscale

- 9. Criticized or lectured myself.
- 29. Realized I brought the problem on myself.
- 51. I made a promise to myself that things would be different next time.

Tension Reduction Subscale

- 32. Got away from it for a while; tried to rest or take a vacation.
- 33. Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc.
- 66. I jogged or exercised.

Keep to Self Subscale

- 14. I tried to keep my feelings to myself.
- 40. Avoided being with people in general.
- 43. Kept others from knowing how bad things were.

APPENDIX G

OUTLINE OF PRESENTATION TO UNIVERSITY A CORE STUDENTS
AND UNIVERSITY B FRESHMEN EXPERIENCE STUDENTS

I. Thank you for allowing me time to visit class

a. Purpose of the visit

1. To inform about my current research project and request voluntary participation
2. Choosing to voluntarily participate in the study will have no influence on grades

II. My current roles

- a. PhD in Nursing Science student at Loyola University Chicago
- b. Faculty member at the College of Nursing at Valparaiso University
- c. Staff nurse practitioner at the student health center at Valparaiso University

III. Current study

a. Exploring stress, coping, mood, and health behaviors in college freshmen

1. Spirituality

2. Perceived social support (family and friends)
3. Coping

b. Anticipated usefulness of results

1. Assist in early identification and early intervention for freshmen who may need assistance because of negative feelings

c. Request participation

1. Total of seven instruments to be completed
2. Anticipate approximately 30 minutes to complete
3. Participation is completely voluntary, may skip questions if do not wish to answer
4. There are no right or wrong answers
5. Will be completely confidential, will not be able to connect answers to the person
6. All data will be reported in aggregate
7. After completion, will be provided with a \$5 coupon to use at any of the university dining areas

8. After completion, also provided with information on the campus counseling center as well as local community mental health providers
9. May contact me via e-mail address to request copy of results when available

APPENDIX H
INFORMATION ON MENTAL HEALTH SERVICES
TO BE INCLUDED IN COMPLETION ENVELOPE AT UNIVERSITY A

If you feel you are in need of assistance for emotional issues, you may contact the following sites for assistance:

Valparaiso University Counseling Center:

464-5002
1602 LaPorte Avenue
(located on the north side of Alumni Hall)
Counseling.Center@valpo.edu

Porter Starke Services:

531-3500
601 Wall Street
Valparaiso, IN

Porter Hospital, Emergency Department

263-4600
814 LaPorte Avenue
Valparaiso, IN

APPENDIX I
INFORMATION ON MENTAL HEALTH SERVICES
TO BE INCLUDED IN COMPLETION ENVELOPE AT UNIVERSITY B

If you feel you are in need of assistance for emotional issues, you may contact the following site for assistance:

During Wellness Center Hours:

Contact the Wellness Center at **773.508.2530** or Dial-A-Nurse at **773.508.8883**.

After Wellness Center Hours:

Crisis Line: 1.800.322.8400. Available 24 hours a day, 7 days a week.
Campus Safety: On campus, dial **44.911**
Off Campus: Dial **911**

If you live on campus, you may also contact your Resident Director, who will know exactly where to obtain assistance.

(Loyola Wellness Center Website, March 2010)

APPENDIX J

ADAPTED YOUTH RISK BEHAVIOR SURVEY SCORING

Adapted Youth Risk Behavior Survey

1. Have you ever tried cigarette smoking, even one or two puffs?
 - a. Yes (2)
 - b. No (1)

2. If you smoke, at what age did you start to smoke? Actual age in years
3. During the past 30 days, on how many days did you smoke cigarettes?
 - a. 0 days (1)
 - b. 1 or 2 days (2)
 - c. 3 to 5 days (3)
 - d. 6 to 9 days (4)
 - e. 10 to 19 days (5)
 - f. 20 to 29 days (6)
 - g. All 30 days (7)

4. During the past 30 days, on the days you smoked, how many cigarettes did you smoke **per day**?
 - a. I did not smoke cigarettes during the past 30 days (1)
 - b. Less than 1 cigarette per day (2)
 - c. 1 cigarette per day (3)
 - d. 2 to 5 cigarettes per day (4)
 - e. 6 to 10 cigarettes per day (5)
 - f. 11 to 20 cigarettes per day (6)
 - g. More than 20 cigarettes per day (7)

5. If you drink alcohol, at what age did you start to drink alcohol? Actual age in years
alcohol?
 - a. 0 days (1)
 - b. 1 or 2 days (2)
 - c. 3 to 5 days (3)
 - d. 6 to 9 days (4)
 - e. 10 to 19 days (5)
 - f. 20 to 29 days (6)
 - g. All 30 days (7)

7. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is within a couple of hours?
 - a. 0 days (1)
 - b. 1 day (2)
 - c. 2 days (3)
 - d. 3 to 5 days (4)

- e. 6 to 9 days (5)
 - f. 10 to 19 days (6)
 - g. 20 or more days (7)
8. If you are sexually active, at what age did you become sexually active? Actual age in years
9. During the past 3 months, with how many people did you have sexual intercourse?
- a. I have never had sexual intercourse (1)
 - b. I have had sexual intercourse, but not during the past 3 months (2)
 - c. 1 person (3)
 - d. 2 people (4)
 - e. 3 people (5)
 - f. 4 people (6)
 - g. 5 people (7)
 - h. 6 or more people (8)
10. Did you drink alcohol or use drugs before you had sexual intercourse the **last time**?
- a. I have never had sexual intercourse (1)
 - b. Yes (2)
 - c. No (1)
11. How do **you** describe your weight?
- a. Very underweight (1)
 - b. Slightly underweight (2)
 - c. About the right weight (3)
 - d. Slightly overweight (4)
 - e. Very overweight (5)
12. Which of the following are you trying to do about your weight?
- a. **Lose** weight (4)
 - b. **Gain** weight (3)
 - c. **Stay** the same weight (2)
 - d. I am **not trying to do anything** about my weight (1)
13. During the past 30 days, did you **exercise** to lose weight or to keep from gaining weight?
- a. Yes (2)
 - b. No (1)
14. During the past 30 days, did you **go without eating for 24 hours or more** (also called fasting) to lose weight or to keep from gaining weight?
- a. Yes (2)
 - b. No (1)

15. During the past 30 days, did **you take any diet pills, powders, or liquids** without a doctor's advise to lose weight or to keep from gaining weight? (Do not include meal replacement products such as Slim Fast).
 - a. Yes (2)
 - b. No (1)

16. During the past 30 days, did you **vomit or take laxatives** to lose weight or to keep from gaining weight?
 - a. Yes (2)
 - b. No (1)

APPENDIX K
ADDITIONAL TABLES

Table 19: Significant Independent T-test Results Between Demographic Groups

| Demographic Group | Variable | Mean Results | Standard Errors | T-statistic | Degrees of Freedom | 2-tailed Significance Value |
|----------------------------------|---|--------------|-----------------|-------------|--------------------|-----------------------------|
| Male | Perceived friends support subscale of the MDPSS | 21.74 | .541 | -.254 | 186 | .01 |
| Female | | 23.53 | .457 | | | |
| Male | Total MDPSS instrument | 65.94 | 1.55 | -.264 | 186 | .01 |
| Female | | 70.95 | 1.16 | | | |
| Working Part-time | Perceived family support subscale of the MDPSS | 21.50 | .89 | -2.26 | 185 | .03 |
| Not working | | 23.51 | .42 | | | |
| White | Total daily spiritual experiences scale | 57.36 | 1.40 | 2.40 | 186 | .02 |
| Non-white | | 51.09 | 2.30 | | | |
| Receiving financial aid | Total ways of coping questionnaire score | 55.94 | 1.74 | -2.36 | 184 | .02 |
| Not receiving financial aid | | 67.17 | 3.76 | | | |
| Currently taking medications | Total daily spiritual experiences scale | 60.71 | 2.43 | 2.40 | 184 | .02 |
| Not currently taking medications | | 53.81 | 1.39 | | | |

Table 20: Stress by Health Status

| Health Status Measurement | ICSRLE Score < 95 N=104 (55.32%) | ICSRLE Score >95 N=84 (44.7%) |
|--|-------------------------------------|----------------------------------|
| Physical Problems | N= 7 (6.8%) | N= 10 (11.8%) |
| Emotional Problems | N= 3 (2.9%) | N=8 (9.4%) |
| Medications | N=23 (22.3) | N=19 (22.4%) |
| Family History | N=13 (12.6%) | N=14 (16.5%) |
| Hours of Sleep During Academic Week | | |
| < 30 Hours | N=13 (12.5%) | N=22 (25%) |
| 30-40 Hours | N=65 (62.5%) | N=49 (58.3%) |
| > 40 Hours | N=22 (21.2%) | N=13 (15.5%) |

Table 21: Means for the Total Sample Ways of Coping Questionnaire Subscales

| Type of Coping | Subscale | Number of Items | Mean (SD) |
|-------------------------------|--------------------------|-----------------|---------------|
| Problem-Focused | Problem-Focused Coping | 11 | 16.18 (6.84) |
| Emotion-Focused | Wishful Thinking | 5 | 8.16 (5.12) |
| | Detachment | 6 | 6.86 (4.42) |
| | Focusing on the Positive | 4 | 5.10 (3.15) |
| | Self-blame | 3 | 4.28 (2.64) |
| | Tension Reduction | 3 | 3.17 (2.31) |
| | Keep to Self | 3 | 3.48 (2.56) |
| Mixed Problem/Emotion-Focused | Seeking Social Support | 7 | 10.27 (5.30) |
| Total Scale Score | | 66 | 57.51 (21.94) |

Table 22: Scores for Male Vs. Female Ways of Coping Questionnaire Subscales

| Type of Coping | Subscale | Mean Female | Mean Male |
|-------------------------------|--------------------------|-------------|-----------|
| Problem-Focused | Problem-Focused Coping | 15.79 | 16.71 |
| Emotion-Focused | Wishful Thinking | 8.32 | 7.94 |
| | Detachment | 6.85 | 6.88 |
| | Focusing on the Positive | 4.76 | 9.53 |
| | Accepting Responsibility | 4.07 | 4.56 |
| | Tension Reduction | 2.81 | 3.65 |
| | Keep to Self | 3.49 | 3.46 |
| Mixed Problem/Emotion-Focused | Seeking Social Support | 10.82 | 9.53 |

Table 23: Scores Based Upon CES-D Ways of Coping Questionnaire Subscales

| Type of Coping | Subscale | Mean CES-D < 16 | Mean CES-D ≥16 |
|-------------------------------|--------------------------|-----------------|----------------|
| Problem-Focused | Problem-Focused Coping | 16.50 | 15.83 |
| Emotion-Focused | Wishful Thinking | 6.95 | 9.48 |
| | Detachment | 6.76 | 6.98 |
| | Focusing on the Positive | 5.49 | 4.68 |
| | Accepting Responsibility | 3.82 | 4.79 |
| | Tension Reduction | 3.29 | 3.04 |
| | Keep to Self | 2.96 | 4.04 |
| Mixed Problem/Emotion-Focused | Seeking Social Support | 9.81 | 10.78 |

Table 24: Frequency of Problem Focused Coping Used Based Upon Ways of Coping Questionnaire Items

| Items for Problem-Focused Coping Subscale | Not Used | Used Somewhat | Used Quite a Bit | Used a Great Deal |
|--|----------|---------------|------------------|-------------------|
| Item 2 I try to analyze the problem in order to understand it better. | 12.2% | 18.6% | 31.4% | 37.2% |
| Item 26 I'm making a plan of action and following it. | 21.8% | 20.2% | 23.4% | 34.0% |
| Item 35 I try not to act too hastily or follow my first hunch. | 45.2% | 31.4% | 16.5% | 6.9% |
| Item 39 Change something so things will turn out all right. | 26.5% | 24.5% | 32.4% | 16.5% |
| Item 46 Stand my ground and fight for what I want. | 38.8% | 19.1% | 23.4% | 17.6% |
| Item 48 Draw on my past experiences; I was in a similar situation before. | 28.7% | 20.7% | 27.7% | 22.3% |
| | 22.9% | 23.4% | 20.7% | 20.7% |
| | 23.4% | 22.9% | 32.4% | 20.7% |

| | | | | |
|---|-------|-------|-------|-------|
| Item 49 I know what has to be done, so I am doubling my efforts to make things work. | 24.5% | 26.6% | 23.4% | 23.4% |
| Item 52 Come up with a couple of different solutions to the problem. | 18.1% | 16.0% | 31.9% | 33.0% |
| Item 54 I try to keep my feelings from interfering with other things too much. | 40.4% | 18.1% | 21.3% | 20.2% |
| Item 62 I go over in my mind what I will say or do. | | | | |
| Item 64 I try to see things from the other person's point of view. | | | | |

Table 25: Frequency of Emotion Focused Coping Used Based Upon Ways of Coping Questionnaire Items

| | Not Used | Used Somewhat | Used Quite a Bit | Used a Great Deal |
|--|----------|---------------|------------------|-------------------|
| Wishful Thinking Subscale Items | | | | |
| Item #11 Hope a miracle will happen. | 31.9% | 19.1% | 17.6% | 30.3% |
| Item #55 Wish that I can change what is happening or how I feel. | 28.2% | 14.9% | 20.7% | 35.6% |
| Item #57 I daydream or imagine a better time or place than the one I am in. | 34.6% | 20.7% | 19.1% | 24.5% |
| Item #58 Wish that the situation would go away or somehow be over with. | 20.2% | 18.1% | 21.3% | 38.8% |
| Item #59 Have fantasies or wishes about how things might turn out. | 29.3% | 15.4% | 18.1% | 35.1% |
| Detachment Subscale Items | | | | |
| Item #4 I feel that time will make a difference. | 31.9% | 25.0% | 26.1% | 17.0% |

| | | | | |
|--|-------|-------|-------|-------|
| Item #12 Go along with fate. | 30.9% | 27.7% | 21.3% | 20.2% |
| Item #13 Go on as if nothing is happening. | 51.1% | 22.3% | 17.0% | 9.6% |
| Item #21 Try to forget the whole thing. | 45.7% | 22.9% | 17.0% | 13.8% |
| Item #24 I'm waiting to see what will happen before doing anything. | 48.4% | 20.2% | 16.0% | 14.9% |
| Item #53 Accept it, since nothing can be done. | 30.3% | 22.3% | 24.5% | 20.2% |
| Focusing on the Positive | | | | |
| Item #15 Look for the silver lining, so to speak. | 21.3% | 20.2% | 28.2% | 30.3% |
| Item #20 I am inspired to do something creative. | 47.3% | 23.9% | 14.9% | 13.8% |
| Item#23 I'm changing or growing in a good way. | 36.2% | 22.9% | 27.7% | 13.3% |
| | | | | 1 |
| | 36.2% | 19.7% | 23.9% | 9.1% |

| | | | | |
|--|-------|-------|-------|-------|
| Item #38 Rediscover what is important in life. | | | | |
| Self Blame Item #9 Criticize or lecture myself. | 23.9% | 22.3% | 27.7% | 26.1% |
| Item #29 Realize I brought the problem on myself. | 33.0% | 20.7% | 18.6% | 27.1% |
| Item #51 Make a promise to myself that things will be different next time. | 30.9% | 26.1% | 25.0% | 17.6% |
| Tension Reduction Item #32 Got away from it for awhile. | 40.4% | 19.7% | 25.5% | 13.3% |
| Item #33 Try to make myself feel better by eating, drinking, smoking, using drugs or medications. | 62.2% | 13.3% | 13.8% | 10.1% |
| Item #66 I jog or exercise. | 40.4% | 16.5% | 19.1% | 21.8% |
| Keep to Self Item #14 I try to keep my feelings to myself. | 28.2% | 22.9% | 23.9% | 24.5% |

| | | | | |
|--|-------|-------|-------|-------|
| Item #40 Avoid being with people in general. | 53.2% | 22.3% | 16.0% | 8.0% |
| Item #43 Keep others from knowing how bad things are. | 41.5% | 18.1% | 18.6% | 21.3% |

Table 26: Frequency of Mixed Problem/Emotion Focused Coping Used Based Upon Ways of Coping Questionnaire Items

| Items for Seeking Social Support Subscale | Not Used | Used Somewhat | Used Quite a Bit | Used a Great Deal |
|--|----------|---------------|------------------|-------------------|
| Item #8 Talk to someone to find out more about the situation. | 19.1% | 16.5% | 30.3% | 34.0% |
| Item #18 Accept sympathy and understanding from someone. | 23.4% | 26.1% | 35.1% | 15.4% |
| Item #28 I let my feelings out somehow. | 27.7% | 19.1% | 28.2% | 23.9% |
| Item #31 Talk to someone who can do something concrete about the problem. | 38.8% | 19.7% | 22.3% | 18.6% |
| Item #42 Ask a relative or friend I respect for advice. | 29.8% | 16.5% | 22.9% | 30.3% |
| Item #45 Talk to someone about how I'm feeling. | 20.2% | 21.8% | 26.6% | 30.3% |
| Item #60 I pray. | 45.7% | 20.7% | 16.0% | 17.0% |

Table 27: Depression by Health Status

| Health Status Measurement | CESD Score < 16 N= 98 (52.12%) | CESD Score >= 16 N=90 (47.87%) |
|--|-----------------------------------|-----------------------------------|
| Physical Problems | N=9 (8.6%) | N=8 (9.9%) |
| Emotional Problems | N=3 (3.1%) | N=8 (9.9%) |
| Medications | N=18 (18.4%) | N=24 (26.7%) |
| Family History | N=8 (8.2%) | N=19 (21.1%) |
| Hours of Sleep During Academic Week | | |
| < 30 Hours | N=17 (17.7%) | N=17 (19.5%) |
| 30-40 Hours | N=60 (62.5%) | N=54 (62.10%) |
| > 40 Hours | N=19 (19%) | N=16 (18.40%) |

Table 28: Correlations Between Negative Influences and Ways of Coping Questionnaire Subscales

| | ISCRLE Item #9 (Separation from Family) | ICSRLE Item #21 (Financial Pressure) |
|---------------------------|---|---|
| Problem Focused | -.059 | .049 |
| Wishful Thinking | .168 | .156 |
| Detachment | .048 | .150 |
| Seeking Social Support | -.012 | -.076 |
| Focus on Positive | -.049 | .032 |
| Self Blame | .162 | .119 |
| Tension Reduction | -.015 | -.054 |
| Keep to Self | .131 | .195** |

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

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VITA

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