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Relationship Between Stress and Young Adults' Complementary and Alternative Medicine Use

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Walden University

College of Health Sciences

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Anupama Kizhakkeveetil

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Walden University

2016

Abstract

Relationship Between Stress and Young Adults' Complementary and Alternative

Medicine Use

by

Anupama Kizhakkeveetil

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

June 2016

Abstract

Complementary and alternative medicine (CAM) refers to a group of diverse medical and healthcare systems, practices, and products not treated as conventional medicine. The body of literature on stress and stress management among young adults has not addressed the use of CAM modalities for stress management among this population. The theoretical foundation of the study was based upon the transactional model of stress and coping, which describes stress as an interaction between an external stressor and the resources available to eliminate the stressor. The purpose of this quantitative study was to examine whether variables such as exposure to CAM, stress level, dispositional coping style, sociodemographic variables, and social support influence young adults' use of CAM modalities for stress management. This study sought to determine to what extent dispositional coping, exposure to and knowledge of CAM, and sociodemographic variables affect young adults' use of CAM modalities for stress management. This study also sought to answer whether there is a difference in the perceived stress of participants who use CAM modalities and those who do not. A quantitative cross-sectional correlational study was employed, using a survey methodology, to identify whether the factors identified in the study influence young adults' use of CAM modalities. Results showed that knowledge of CAM and dispositional coping style significantly influence the use of CAM modalities; sociodemographic variables do not influence the use of these modalities. Furthermore, the use of CAM modalities was found to have a significant relationship to stress level. The findings of the current study suggest the CAM techniques can be adapted and introduced into college settings so that students can better manage their stress levels.

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DEDICATION

I dedicate this dissertation to my father, Venugopalan; my mother, Janaki; my father-in-law, Srinivasulu; my mother-in-law, Susheela; my husband, Jayagopal Parla and my son, Athrey Krishna Parla.

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Chapter 1: Introduction

This study was designed to determine whether young adults aged 18-30 years use complementary and alternative medicine (CAM) modalities in their stress management practices. Although CAM modalities have become increasingly popular for variety of purposes, especially in the context of adult users, few researchers have sought the perspective of young adults. In particular, there is a lack of research on how CAM is used among young adults, a generation facing high levels of stress (Sifferlin, 2013).

This chapter includes the background of the study; the problem that encouraged this study; the purpose of the study; the research questions and hypotheses; the theoretical foundation of the study; the definitions of key terms; the nature of the study; the assumptions, limitations, scope, and delimitations; as well as the significance of the study.

Background of the Study

According to the National Center for Complementary and Alternative Medicine (2008), CAM refers to a group of diverse medical and healthcare systems, practices, and products not treated as conventional medicine. Complementary and alternative medicine modalities involve complementary medicine used together alongside conventional medicine, as well as alternative medicine used in lieu of traditional medicines. In the United States, around 38% of adults are using CAM modalities (NCCAM, 2008). Around one of every nine children, or 12%, utilizes CAM (NCCAM, 2008). People from different backgrounds use CAM, but statistics have shown that these methods are mostly

used by adults, women, and those with higher income and education levels (NCCAM, 2008). Among the different CAM modalities, non-mineral natural products and non-vitamins are most frequently used for enhancing therapies such as deep breathing exercises and meditation (NCCAM, 2008).

People may use CAM for different reasons, and these modalities are used to respond to an array of diseases and conditions. American adults in particular are likely to turn to CAM modalities in order to treat musculoskeletal problems such as back, neck, or joint pain. The use of CAM therapies for head and chest colds increased from 2002 to 2007. Researchers have also noted several trends regarding CAM use among young people and children (NCCAM, 2008). The 2007 NHIS surveyed adult respondents regarding CAM use by children within their families or households. The survey found that 12% of young people use some form of CAM modalities. In particular, young people whose parents also use CAM use CAM the most frequently. Among the surveyed, 23.9% parents said that their children also use CAM in a similar manner. Adolescents from ages 12 to 17 years use CAM more than children younger than this range (NCCAM, 2008).

In terms of ethnic background, White children use CAM modalities more than Hispanic or Black children. There are 5% more White children using CAM modalities compared to Hispanic children (7.9%) and 7% more compared to Black children (5.9%). Children whose parents also earned a higher education are also more likely to use CAM modalities. Regarding health conditions, children with six or more health conditions, as well as those who were not given conventional care immediately by their families, tend to use CAM more (NCCAM, 2008).

Problem Statement

Stress and its effects have been widely studied. However, only recently have researchers focused on the effects of stress on young adults aged 18-30. Researchers have shown that cognitive and emotional attributes are critical in determining what coping strategies these young adults would choose in combatting and managing their stress levels. Researchers have defined the concept of stress in varying ways across literature. Delahaij, Dam, Gaillard, and Soeters (2011) defined stress through a biopsychosocial approach, claiming that it is a form of reaction to the emotional, physiological, and cognitive state of the individual. Caltabiano, Sarfino, and Byrne (2008) described stress as a form of discrepancy. According to these researchers, stress is the effect from a perceived discrepancy between the demands of a situation and the available resources that an individual can use to cater to these demands. According to this theory, a wider gap between the demands and the resources creates a higher stress level.

Delahaij et al. (2011) defined coping as the relationship between cognitive and behavioral processes in trying to close the gap between the demands of a situation and the resources available to the individual. Coping strategies in general come in two major types: emotion-focused and problem-focused. Emotion-focused strategies include regulating an individual's emotional response to a stressor as well as lessening psychological discomfort. On the other hand, problem-focused strategies include changing the situation so that the stressors could be removed or lessened (Delahaij et al., 2011).

The effects of daily stressors can be particularly detrimental to the psychological and physiological health of young people (Yahav & Cohen, 2008). Persike and Seiffge-Krenke (2012) examined stressors among young people and found that academic achievement as well as parental control tops the list. The researchers suggested that most young people are worried about their future education and employment.

Stress and coping researchers have demonstrated that young adults use a wide range of coping strategies (Moskowitz, Stein, & Lightfoot, 2013). According to Visconti, Sechler, and Kochen-Ladd (2013), emotional attributes such as self-esteem can affect the coping strategies or stress management strategies that young people choose. Visconti et al. claimed that those with low self-esteem would not be able to deal with life stressors independently, because they do not have the confidence. As a result, these young people might be more inclined to choose emotion-focused coping. Despite the literature on stress and stress management of young adults, there is a dearth in the literature regarding using CAM modalities as stress management strategies among young adults. This is the gap that the current study was designed to close.

Complementary and alternative medicine has been studied among young adults, but not in the context of stress management. Seburg et al. (2012) examined the self-reported use and correlates of CAM among adolescents with juvenile arthritis (JA). The researchers gathered 134 adolescents with JA and asked them to complete an online survey regarding their use of CAM, or their interest in using it. The researchers then used the PedsQL 4.0 SF15 to measure the participants' quality of life. They found that around 72% of the participants reported using one CAM modality. The participant CAM usage

was not affected by factors such as sex, age, race, or geographic location. Among the CAM modalities available, the participants claimed that they use yoga and meditation the most frequently, as well as relaxation and guided imagery. The researchers also found that young adults who engaged in massage, meditation, relaxation, or guided imagery use have higher psychosocial quality of life.

Among the participants who used these CAM modalities, nearly half (46%) reported that they discuss using these modalities with their healthcare providers. Those who are not using CAM yet claimed they are interested in doing so, and in particular are interested in massage (Suberg et al., 2012). The researchers found that youth with JA reported high use of CAM—however, few are open about it, and they are unwilling to talk about these modalities with their healthcare providers. The researchers recommended practitioners engage adolescents in discussions about this form of treatment.

Upchurch and Dawn (2012) examined the racial and ethnic profiles of complementary and alternative medicine use among young adults in the United States. The researchers included variation across subgroups of Hispanics in their research. Gathering young adults from ages 18 to 27 belonging to Wave III of the National Longitudinal Study of Adolescent Health, the researchers examined use of 15 specific CAM modalities, including herbs, massage, chiropractic, relaxation, and vitamins. The researchers found that around 29% of the participants recently used these CAM modalities. Among the participants using these modalities, the majority are Cuban Americans. Black Americans used these modalities the least.

The use of CAM among young people has also been studied in the context of cancer survivors. Ndao et al. (2013) investigated the prevalence of CAM use, types and reasons for use, as well as determinants of use among young people who survived cancer in their childhood. The researchers asked 197 survivors to complete an interview-based survey of CAM. The survey specifically measured demographic data of those who used CAM, the types of CAM used, the purposes behind the CAM use, and whether the participants who used CAM discussed their use with their healthcare providers. The majority of the cancer survivors (58%) claimed that they have used CAM in their survivorship. Among those who used CAM, 72% claimed they utilized biologically-based therapies. Their reasons for use were reported as to relax and manage their stress levels. Some said they used CAM methods because their parents wanted them to try the treatment. The majority of those who used CAM (62%) reported the therapies as effective. Those who used CAM were split in their responses regarding disclosing or discussing the use of these treatments with their healthcare providers. Around 51% of the young adult CAM users claimed that they disclosed their therapies to their physicians.

Complementary and alternative modalities have been used for stress management. Studies have been devoted to studying the effects of CAM on stress management; however, there are limited studies looking at which populations use these modalities, and how they are used among young adults. Most of the studies devoted to the topic have been focused on adult CAM users. An example of such study would be that conducted by Tsang et al. (2013). Tsang et al. designed a study to explore the efficacy of implementing a stress management program based on a combined approach utilizing

cognitive behavioral therapy and CAM modalities for elementary school teachers in Hong Kong. These teachers were experiencing mild forms of stress and anxiety symptoms. The researchers found that those who underwent the combined approach of CBT and CAM experienced positive results. The teachers experienced a significant reduction in their depression, anxiety, as well as stress levels. The researchers concluded the positive effects of CAM in terms of stress management practices and treatments.

Bazzan, Zabrecky, Monti, and Newberg (2014) looked at the possible uses of CAM approaches for the management of mood and anxiety disorders. The researchers found that CAM interventions used for coping with stress, anxiety, and mood disorders include taking supplements, botanical remedies, spiritual practices, and acupuncture. Meditation and some dietary practices are also used to cope with stress. The researchers found growing evidence of the effectiveness of CAM modalities in stress management practices.

Purpose of the Study

The purpose of this quantitative study was to examine whether variables such as exposure to CAM, stress level, dispositional coping style, sociodemographic variables, and social support influence the use of CAM modalities for stress management among young adults. I used a quantitative cross-sectional correlational study to identify whether the factors identified in the study influence the dependent variable of the use of CAM modalities for stress management. I used a survey methodology to gather primary data for analyses of potential relationships.

Research Questions and Hypotheses

Research Question 1: To what extent is exposure and knowledge of CAM associated with the use of CAM modalities for stress management among young adults participating in the study?

H₀₁: Exposure and knowledge of CAM is not associated with the use of CAM modalities for stress management among young adults participating in the study.

H₁₁: Exposure and knowledge of CAM is associated with the use of CAM modalities for stress management among young adults participating in the study.

Research Question 2: To what extent does dispositional coping style influence the use of CAM modalities for stress management among young adults participating in the study?

H₀₂: Dispositional coping style does not influence the use of CAM modalities for stress management among young adults participating in the study.

H₁₂: Dispositional coping style influences the use of CAM modalities for stress management among young adults participating in the study.

Research Question 3: To what extent do sociodemographic variables influence the use of CAM modalities for stress management among young adults participating in the study?

H₀₃: Sociodemographic variables do not influence the use of CAM modalities for stress management (coping) among young adults participating in the study

H₁₃: Sociodemographic variables influence the use of CAM modalities for stress management among young adults participating in the study.

Research Question 4: To what extent does a difference exist in level of perceived stress among study participants who use CAM modalities for stress management and study participants who do not use CAM modalities for the stress management?

H₀₄: There is no difference in the level of perceived stress among the study participants who use CAM modalities for stress management and study participants who do not use CAM for the stress management.

H₁₄: There is a difference in the level of perceived stress among the study participants who use CAM modalities for stress management and study participants who do not use CAM modalities for the stress management.

Theoretical Foundation

To understand the variables determining CAM use for stress management and the effects of CAM use on stress levels of young adults, I deemed that the transactional model of stress and coping would be the most appropriate theoretical framework. The model presents an integrated framework in which the stress and coping process is conceived as a person-environment transaction. The theory posits that when a person is faced with an external demand or stressor, the first action that the person would take is to evaluate the extent of threat inherent in the stressor. The person would then take stock of the material, psychological, or social resources that are available to either eliminate the stressor, or to manage the physical and emotional response to the stressor (Glanz, Rimer, & Viswanath, 2008). This model will guide the exploration of whether variables such as exposure to CAM, stress level, dispositional working style, sociodemographic variables, and social support could impact the use of CAM modalities for stress management

among young adults. I will also use this model to examine whether CAM reduces the stress levels of young adults.

Nature of the Study

I employed a quantitative cross-sectional correlational research design using primary data collected via validated survey instruments to identify potential relationships between the study variables and the use of CAM modalities for stress management among young adults. The dependent variable in this study is the use of CAM modalities for stress management. Independent variables will include exposure to CAM, stress level, dispositional working style, sociodemographic variables, and social support.

Researchers may use quantitative methods when the researcher's goal is to determine the relationship between variables or to predict outcomes (Babbie, 2012). Quantitative research methods focus on providing an objective measure, considering replicable methodologies and generalizable findings (Bryman, 2012). Quantitative studies consider the use of survey instruments to provide an objective measure of constructs such as the variables considered in this study in order to collect data and test the hypotheses posed in this study. As opposed to a qualitative study, a quantitative study is able to identify relationships between variables considering statistical tests as evidence (Babbie, 2012). I designed this research to evaluate the extent to which the variables of interest are related, using numeric measures and statistical tests of significance.

A quantitative design is appropriate when the goal of the research is to determine the extent to which the defined input variables influence the defined outcome variables. The researcher, therefore, assumes a positivist perspective where empirical investigation

leads to evidence reflective of the truth. In contrast, qualitative research methods focus on identifying influential factors and understanding relationships and dynamics that have not yet been fully explored (Cozby, 2009). Qualitative research is appropriate for constructing conceptual realities and developing theories, as well as identifying factors that may be numerically measured and tested in future research. Qualitative research relies on reasoning around observational or perceptual data that is not numerically measured. It serves as both a precursor to, and a complement of, quantitative research (Merriam, 2009). Qualitative studies are inductive by nature and may provide a richer understanding of the phenomenon under study (Lindlof & Taylor, 2002). A qualitative design assumes a post positivism perspective, where truth is found in the experiences of individuals rather than objectively measuring each component of the construct (Babbie, 2012). A qualitative design is not appropriate for this study, because the variables under review are well-studied and have been numerically supported by prior research. The relationships to be tested are deductive in nature and are reasonable extensions of the current body of knowledge.

I used a nonexperimental quantitative cross-sectional correlational research design. The purpose of this study was to examine the relationship of variables such as exposure to CAM, stress level, dispositional working style, sociodemographic variables, and social support to the use of CAM modalities for stress management among young adults. The target population was young adults 18-30 years old. I utilized a purposive sampling technique for the study. All potential participants were invited to participate in the study. I aimed to collect at least 84 participants in order to ensure at least 80% power

for the results of the statistical analyses. In order to analyze the data collected in this study, I conducted correlational analysis and linear regression analysis. The results of the analyses determined which of the variables relate to the dependent variable of the use of CAM modalities for stress management. A significance level of .05 was utilized for all statistical analyses.

In this study, I considered the use of CAM modalities for stress management as a dependent variable. In this study I sought to identify which of the factors identified as independent variables are significantly related to the dependent variable. Other study designs are concerned with comparing groups or predicting the dependent variable. However, because the purpose of this study was to identify potential relationships between identified variables, I deemed that a correlational design was the most appropriate.

Definitions of Terms

Complementary and alternative medicine (CAM): According to the National Center for Complementary and Alternative Medicine (2008), CAM refers to a group of diverse medical and healthcare systems, practices, and products not treated as conventional medicine

Stress: Stress is a reaction to the emotional, physiological, and cognitive state of the individual (Delahajj et al., 2011)

Stress management: Stress management refers to closing the gap between the demands of a situation and the available resources to the individual. Coping strategies in general are divided into two major types: emotion-focused and problem-focused.

Emotion-focused strategies include regulating an individual's emotional response to a stressor as well as lessening psychological discomfort. Problem-focused strategies include changing the situation so that the stressors could be removed or lessened (Delahaij et al., 2011).

Assumptions

The study was based on two assumptions. First, it was assumed that the sample of the study is representative of the greater population of young adults. I targeted young adults aged 18-30 currently enrolled in a small university in southern California that offers degree programs in the biological and health sciences and in CAM practice. University students were selected for this investigation because research has demonstrated that young adults pursuing university degrees are exposed to multiple stress factors including academic concerns, financial demands, employment considerations, romantic encounters, and the increasing burden of adult responsibilities (Barbist, Renn, Noisternig, Rumpold, & Hofer, 2008). Although the focus was on university students, it was assumed that their responses would be representative of the greater young adult population. In addition, it was assumed that stress management of young adults deals with daily stress, and not traumatic stress. It was also assumed that a quantitative study could capture the relationships studied.

Limitations

The study was limited by the population and sample for the study. I targeted young adults aged 18-30 currently enrolled in a small university in southern California that offers degree programs in the biological and health sciences and in CAM practice.

Because of this focus, it was expected that the study findings cannot be generalized. In addition, the study was limited by the quantitative design, making it impossible to determine the in-depth perceptions and feelings of the students in question regarding the use of CAM in their stress management practices.

Scope and Delimitations

The study was limited to the specific university's students. Because CAM programs and modalities are major components of this small university's degree offering, students, regardless of major, are expected to be exposed to CAM tenets and practices. However, the findings would not be able to account for the possible variances in responses due to the students' field of study. It was reasonable to assume that the students majoring in the biological and health sciences were potentially less exposed to CAM than those students who are actively pursuing a degree in a CAM-related field. Although field of study is not an absolute indicator of CAM exposure—as students not pursuing CAM careers may have had extensive exposure to CAM outside the university setting—it did limit the sample to a pool of candidates likely to exhibit variation on this key variable. The study was also delimited to young adults who are aware of what CAM is. Young adults who are completely ignorant of the nature and function of CAM were not suitable participants for this study, in that they would lack the key variable of exposure.

Significance

The study is significant because of the detrimental effects of stress on young people. Increased stress levels in young people's lives are linked to higher risk of engaging in dangerous behavior such as alcohol use and drug use (Rose & Bond, 2008).

Caltabiano et al. (2008) supported this finding, claiming that older adolescents are likely to practice maladaptive emotion-focused coping strategies to deal with increased stress. Rose and Bond (2008) claimed that those who are unaware of how to cope with their increased stress in the healthy fashion may have a higher risk of substance abuse.

Young adult stress is also linked to long-term consequences. According to Sifferlin (2013), young adults of today's generation are the most stressed-out subset of the population, and if the problem is left unaddressed, the consequences would be severe. Citing a national survey by the Harris Interactive for the American Psychological Association, Sifferlin claimed that young adults aged 18 to 33 have the highest average level of stress of 5.4, which means they may bear the brunt of long-term stress effects over their whole lives. Among the young adults surveyed, 39% claimed that their stress levels are continuously increasing. Only 29% of the younger generation or 67 and older population said the same. Alarming, the survey showed that young adults are also the least-equipped to handle the stress that they are feeling.

According to Hais (as cited in Jayson, 2013), "Millennials [those ages 18 to 33] are growing up at a tough time" (para. 6). Additionally, Hais stated:

They were sheltered in many ways, with a lot of high expectations for what they should achieve. Individual failure is difficult to accept when confronted with a sense you're an important person and expected to achieve. Even though, in most instances, it's not their fault—the economy collapsed just as many of them were getting out of college and coming of age—that does lead to a greater sense of stress. (para. 6)

Researchers have also asserted that if stress is left unaddressed, it can lead to chronic illness and ultimately escalate healthcare costs. Stress is said to be unavoidable among young adults, but managing it is possible.

Summary

In the first chapter, I discussed the need to examine whether variables such as exposure to CAM, stress level, dispositional working style, sociodemographic variables, and social support impact the use of CAM modalities for stress management among young adults. Aside from discussing the research questions and hypotheses, the theoretical framework, the definition of terms, and the assumptions, limitations, and the delimitations, I also provided a brief discussion of what approach was taken to achieve the purpose of the study. I used a quantitative cross-sectional correlational study to identify whether the factors identified in the study influence the dependent variable of the use of CAM modalities for stress management considered. I used a survey methodology to gather primary data for analyses of potential relationships. The second chapter will include the review of relevant literature.

Chapter 2: Review of the Literature

Introduction

The American Psychological Association's (APA, 2012) survey *Stress in America* provided recent data on perceived stress in the United States. According to the report, survey respondents ($n = 2,020$) across all age groups indicated that they routinely experienced significantly more stress than they perceived to be healthy. In addition, 20% of the sample rated their stress as extreme, 37% of the sample reported feeling overwhelmed, and 63% of the sample indicated they were doing an average or poor job of managing their stress load. Given that perceived stress is a more sensitive measure of the impact of stress on the individual than objectively determined stress (Antonovsky, 1980; Lazarus & Cohen, 1977; Scheier & Bridges, 1995), these perceptions presented a compelling depiction of a nation at risk for a growing burden of stress-related physical and mental illness.

Of particular concern are the study findings that younger adults, ages 18 to 33, experience the highest average levels of stress and report the lowest capacity to effectively cope with that stress of any participating age group. This age group is uniquely disadvantaged with respect to stress, and they have the highest potential for stress-related illness as they transition to independent adulthood, establish themselves in a career, and launch a family during a period of rapid social change. Researchers have demonstrated that the pressures associated with a constantly-shifting social milieu strike hardest at the segment of society most invested in attaining workforce and family stability (Coreil, Bryant, & Henderson, 2001; Krieger, 2001). Further, the rapid pace of

technological advancements, coupled with the ongoing restructuring of the American workforce, suggests that this age group will continue to experience the effects of social turbulence throughout their young adult years, and take the residual effects of that stress forward into middle age (Massimini & Peterson, 2009).

The physical and mental health risks associated with this scenario are three-fold (Gerr et al., 2002; Thomée, Eklöf, Gustafsson, Nilsson, & Hagberg, 2007). First, lifespan investigations have demonstrated that the negative impacts of stress accumulate over time (Contrada & Baum, 2011; Turner & Schieman, 2008; Weiten, 2009). The field of psychoneuroimmunology has further demonstrated that such long-term exposure to chronic stress results in a prolonged physiological response, termed *general adaptation syndrome*, which depletes the body's resistance to disease and sets the stage for the onset of illness states; these illnesses are called diseases of adaptation (Craighead & Nemeroff, 2004; Selye, 1936). More recent investigations have identified prolonged stress as an etiologic agent in cardiovascular disease, cancer, and a host of other ailments most likely to present in middle age (Antonucci & Jackson, 2010; Kemeny & Schedlowski, 2007; van der Kolk, McFarlane, & Weisaeth, 1996; Ziegelstein, 2007). These findings suggested that young adults may be at even higher risk for incurring these illnesses in midlife than the aging Baby Boomer generation.

The second critical issue is the overwhelming evidence that young adults are more likely to adopt risky health behaviors as a means of coping with stress. Stress levels in young adults have been implicated in smoking (Bricker, Schiff, & Comstock, 2011; Lapointe, 2008; Olpin & Hesson, 2012), alcohol use (Hussong & Chassin, 2004),

substance abuse (Cooper, Wood, Orcutt, & Albino, 2003; Grant, Potenza, Weinstein, & Gorelick, 2010; McNamara, 2000) and other high-risk behaviors that offer immediate short-term solace. These findings were reconfirmed in the *Stress in America* survey, where young adult respondents ($n = 340$) indicated that they were more likely to eat, smoke, and drink alcohol in response to stress than adults aged 48 and older (APA, 2012). High-risk behaviors carry their own negative health impacts into middle age, and may also establish addictive or habit-forming behaviors that may impact both short-term and long-term quality of life (Edelman & Mandle, 2002; Hoeger & Hoeger, 2009; Potts & Walsh, 2003).

Finally, stress has been consistently negatively associated with mental health (Bovier, Chamot, & Perneger, 2004; Ensel & Lin, 1991). Among young adults, stress has been associated with such negative mental health outcomes as depression, somatic illness, and suicidal ideation (Kail & Cavanaugh, 2010; Stecker, 2004; Turner, Perkins, & Bauerle, 2008). Consistent with the biopsychosocial model of illness (Engel, 1978), mental reactions and physical reactions interact to form a potentially toxic brew for young adults in the United States. Just as perceived stress pushes this age group to embrace risky health behaviors, the debilitating aspects of the mental response to stress reduce the likelihood that young adults will select more salubrious coping techniques to deal with high stress levels. Survey results have indicated that not only are young adults more likely to engage in high-risk health behaviors as a response to stress, they are less likely to engage in more positive and health-promoting behaviors to cope with stress (e.g., exercising or engaging in quiet pastimes) than older age groups (APA, 2012).

The existing information on the impact of stress on the nation's young adults has suggested a collaborative call to action among those engaged in public health, medical care, and mental health services is necessary. In addition to assessing perceived stress, sources of stress, and responses to stress, *Stress in America* gathered information on the perceptions of Americans on how to address the stress crisis in the United States. According to the survey section entitled "Missing the Healthcare Connection," survey respondents indicated that they favored more input from their healthcare providers to help manage stress and improve lifestyle behaviors (APA, 2012). This finding led to the following declaration from APA CEO Norman B. Anderson:

Unfortunately, our country's healthcare system often neglects psychological and behavioral factors that are essential to managing stress and chronic diseases. In order for our nation to get healthier, lower rates of chronic illness, and lower healthcare costs, we need to improve how we view and treat stress and unhealthy behaviors that are contributing to the high incidence of disease in the U.S. (APA, 2013)

In actuality, there has been a growing movement to embed effective stress reduction services in the United States healthcare sector. CAM offers a variety of prevention and treatment modalities that have proven successful in stress reduction, including yoga, breathing exercises, meditation, guided imagery, aromatherapy, acupuncture, massage, progressive relaxation, and Tai Chi. In addition, CAM therapies are advocated within a holistic wellness viewpoint, rooted in ancient philosophies of mind-body balance and integration; such an approach has implications for positive

lifestyle choices (Krebs, 2001; Sanghani et al., 2010; Smeeding, Bradshaw, Kumpfer, Trevithick, & Stoddard, 2010).

CAM practitioners frequently operate independent practices and accept referrals from conventional medical care providers (Ehrlich, Callender, & Gaster, 2013). Various academic medicine health centers across the United States offer a broad array of services that unite traditional medical services and CAM techniques, using a novel approach to practice termed *integrative medicine* (Edwards, 2012; Ehrlich et al., 2013). Examples of successful public health interventions include the development of a CAM-based employee wellness clinic for military hospital personnel (Duncan, Liechty, Miller, Chinoy, & Ricciardi, 2011), and a quick low-cost health promotion stress reduction program (Sanghani, Deavenport, Herring, Anderson, & Medina, 2008). CAM represents a stress reduction option with the potential to augment conventional public health, medical care, and mental health service to address the concern that Americans receive minimal assistance in their stress management efforts.

The Problem

Although the above scenario has significant appeal, research into the maturation of the human mind has suggested that the greater inclusion of stress-directed CAM techniques into the current healthcare system may or may not offer significant improvements to stress management in young adults. The brain of the adolescent and young adult is a work in progress, and is not fully developed until the individual reaches their late 20s (National Institute of Mental Health, 2011; Weinberger, Elvevag, & Giedd, 2005). In addition, the frontal cortex, the seat of decision-making and emotional

regulation, is the last component of the brain to reach maturity (Caspi, Moffitt, Newman, & Silva, 1996; Huffman, 2012; Steinberg, Vandell, & Bornstein, 2010). Consequently, young adults are less capable of making sound decisions and choices than are older adults.

Additionally, young adults are more likely to be influenced by their emotional reaction to a situation or by the prompting of their peer group, and are more likely to allow emotion to bias judgment. Further, young adults have less life experience than older adults, and are therefore less able to draw on lessons learned under parallel circumstances to improve response choices. These findings have suggested that high levels of stress may make it difficult for young adults to select and apply new and effortful stress reduction strategies into their daily routines. As a counterpoint to this reasoning, researchers have established that young adults are more open than older adults to unconventional and holistic therapies (Zimmerman & Kandiah, 2012).

These findings have suggested that alternative healthcare strategies may hold an emotional appeal for young adults that may facilitate the adoption and maintenance of CAM techniques, even under conditions of high stress. It is also possible that the emotional appeal of the CAM philosophy may resonate with young adults and lead to healthier coping strategies overall. This assessment of human cognition raises the question of whether or not exposure to CAM techniques and tenets is sufficient to stimulate the adoption and maintenance of CAM therapies, and to encourage a substitution of those therapies for potentially-harmful coping behaviors in young adults.

The Purpose

The purpose of the current investigation was to examine whether stress levels moderate the relationship between exposure and commitment to CAM therapies, and the adoption of a pattern of healthier coping strategies among young adults. I targeted young adults aged 18 to 30 currently enrolled in a local university that offers degree programs in CAM. Researchers have demonstrated that young adults pursuing university degrees are exposed to multiple stressors, including: academic concerns, financial demands, employment considerations, romantic encounters, and the increasing burden of adult responsibilities (Barbist et al., 2008; Goldin, Ziv, Jazaieri, Hahn, & Gross, 2012). To ensure variation in the independent variable of exposure, I culled study participants from students who have had extensive, moderate, and no exposure to CAM or CAM coursework. I assessed stress levels for all study participants, and measured the dependent variable as the extent to which students either intend to, or have incorporated, CAM techniques into their stress management routines.

In this chapter, I detail the literature search strategy and the origins, applications, and appropriateness of the transactional model of stress and coping to the investigation. I follow the theoretical framework with an evaluation of the applicability of CAM techniques to stress management in young adults. Next, I will present the literature on stress and coping in young adults, including an examination of the determinants of stress in young adulthood, coping and coping dispositions in young adults, an assessment of college students as representative of the young adult population relative to stress and coping, and stress management in young adults.

Literature Search

To access the literature related to stress and coping among younger adults, I designed a search strategy. Initially, I located articles using Google Scholar and the Walden Library, using the same key terms. I accessed the *Sage Premier*, *PubMed*, and *ProQuest* databases through the Walden University Library. I conducted searches using Walden's search service that allows the user to search by topic. This topical search supported access to databases including *Academic Search Premier*, *CINAHL*, and *MEDLINE* simultaneously, with "full text," "written in English," and "peer-reviewed" as filtering criteria.

I then reviewed article references to identify relevant articles. When full text articles were not available through the search engine, I requested these articles through the document delivery system of the Walden Library system. When multiple studies by the same researcher were identified, I selected the most recent articles for inclusion. I also used several textbooks in psychology as research sources. The search terms used were *stress theories*, *primary appraisal*, *secondary appraisal*, *perceived stress*, *problem management*, *emotional regulation*, *meaning based coping*, *social support*, *dispositional coping styles*, *stress management*, *complementary and alternative medicine* and *stress management*, and *younger adults*.

Theoretical Foundations

In this study, I adopted the transactional model of stress and coping. The theoretical model of stress and coping is a psychosocial perspective derived from social epidemiology. Social epidemiology investigates the causal role of social factors in the

development of disease and chronic illness (Kisch & Reeder, 1969). Research using the psychosocial perspective is a multi-disciplinary blend of sociology, psychology, and medicine that examines the cognitive and physical impact of socially-derived stressors on the incidence and distribution of disease (Krieger, 2001).

Cassel (1974) established the psychosocial perspective as the recognition that a significant exposure to psychosocial stressors, in the absence of a corresponding set of psychosocial supports, increases an individual's susceptibility to disease and chronic health conditions. Krieger (2001) acknowledged the dynamic nature of the psychosocial perspective, observing that it "directs attention from endogenous biological responses to human interactions. Its focus is on responses to 'stress' and stressed people in need of psychosocial resources" (p. 670). This perspective originated from research into the physical impacts of stress on the body (Cannon, 1932; McEwen, 1998; Selye, 1978; Sterling & Eyer, 1988); the research focusing on the psychosocial perspective emerged from the Freudian tradition, and matured into an examination of the strategies and social resources people employ to cope with conditions of stress (Antonovsky, 1980; Lazarus, 1993; Lazarus & Folkman, 1984).

Origins of Stress Theories

Cannon's (1932) work into physiologic homeostasis clarified the *fight-or-flight response* in humans and other animals, and was an early examination of the stress response. Cannon characterized fight or flight as the body's rapid preparation to either flee from a dangerous situation or confront the peril if escape is not feasible. Selye (1936) examined the impact of stress on health by building on Cannon's insights and extending

them to characterize the body's generalized physiologic response to internal and external demands. Selye used the term *stress* as a label for this physiologic dynamic, and recognized stress as an omnipresent stimulus that flows from multiple sources or stressors. Selye further recognized that short-term stress, leading to positive accomplishments, could be beneficial, but that stress that is not positively resolved is threatening and potentially harmful to the organism.

Selye (1978) later argued that the physiological changes caused by stressful stimuli constituted a systemic response that the author labeled the General Adaptation Syndrome (GAS). Selye proposed that stress has differential impacts on the body over time, and these impacts occur in three stages. In the first stage, the alarm reaction is triggered by an initial shock that stimulates adrenaline production in preparation for fight or flight. The resistance stage that follows increases the immune response and extends the chemical outpouring associated with resisting the threat. If the threat or stress is resolved at this stage, the body returns to a resting state; if not, the physiological response to stress ultimately leads to adaptive physical changes that presage the physical and cognitive illnesses associated with long-term stress, such as hypertension and memory impairment. In the final stage, exhaustion, the body reserves are depleted and the body becomes vulnerable to serious illness and death.

Sterling and Eyer (1988) and McEwen (1998, 2005) further clarified the harmful effects of chronic exposure to stress through their work in allostatic overload. This model emphasized the relationship of stress and disease, and underscored the need to manage stress levels. In the absence of a successful adaptive response to stressful stimuli, the

body fails to successfully terminate the neural and endocrine cascade triggered by the emotional and physical response to extreme or chronic stress, even after the stressful stimuli have been removed. These findings were supported by the work of lifespan investigators, who demonstrated that the negative impacts of stress accumulate across the years (Contrada & Baum, 2011; Turner & Schieman, 2008; Weiten, 2009). Further, recent investigations by psycho-neuro-immunologists have identified prolonged stress as an etiologic agent in cardiovascular disease, cancer, and a host of other ailments (Antonucci & Jackson, 2010; Kemeny & Schedlowski, 2007; van der Kolk et al., 1996; Ziegelstein, 2007).

Just as physiologists have been key researchers into the physical impact of stress and have linked its impact to acute illness and chronic disease, psychologists have been key researchers into the impact of stress on mental health and emotional well-being and have linked that impact to anxiety disorders and cognitive dysfunction (Bard, 1934; Horney, 1945; James, 1890). James (1890) first conceived of connections between cognition, emotion, physical sensations, and behavior by postulating that when an individual perceives an event, he or she reacts physiologically—a sensation the mind reinterprets as a corresponding emotion that, in turn, arouses the individual and drives behavior.

Bard (1934), a contemporary of Cannon (1932), provided the first convincing evidence of emotional arousal in the face of danger, supporting James' (1890) postulated link to emotions in the overall response inherent in the fight or flight reaction. Horney (1945) linked a perceived lack of parental nurturing to feelings of powerlessness and

uncertainty that the author termed basic anxiety, thereby linking stress emotions to circumstances that are not readily construed as dangerous.

Arnold (1960) introduced the idea of cognitive appraisal into emotion research by suggesting that cognitive assessment influences emotional states. Schachter and Singer's (1962) experiments expanded on Arnold's work by demonstrating that cognitive assessment is influenced by subtle external cues and complex emotions such as grief, love, or stress, while simpler emotions such as fear are generated through internal cues that trigger more immediate behaviors without the need for cognitive processing.

Lazarus (1966) applied these concepts to stress processes by suggesting that a cognitive assessment of danger actually posed by a given stressor moderates the emotional and physiologic reaction to that stressor. If the threat is appraised as inconsequential, the stress response is reduced or suppressed; if the threat is appraised as consequential, the stress response is heightened. In later work, Lazarus linked appraisal to situational and environmental variables, suggesting that cognitive appraisal is activated when personal utility is endangered in the form of circumstances that threaten goals, motivators, or outcome expectations (Lazarus & Folkman, 1984; Lazarus & Launier, 1978). More recently, Lazarus (1991) differentiated between two forms of appraisal, defining primary appraisal as the cognitive assessment of the personal relevance of the threat associated with a given stressor, and secondary appraisal as the cognitive review of those resources available to control the stress-related outcomes or deflect the emotional strain associated with the threat. This conceptualization ultimately linked stress theory to

the concept of coping, and formed a core set of constructs in Lazarus' transactional model of stress and coping (Glanz et al., 2002).

Origins of Coping

Coping has been characterized as a multifaceted response to stress that is connected to internal and external demands, the environmental context, available resources, and personality dispositions or traits (Freud, 1936; Haan, 1978; Lazarus, 1966; Lazarus & Folkman, 1984). The origins of coping are rooted both in Freud's (1936) school of psychoanalytic therapy and in the cognitive-psychological paradigm (Folkman, 1991; Somerfield & McCrae, 2000; Suls, David, & Harvey, 1996). The concept of coping originated with Freud (1895), who concluded that humans employed defense mechanisms to deal with tensions arising among the rational self (known as the ego), the pleasure-seeking self (known as the id), and the conscience, (the superego). Freud further hypothesized that defense mechanisms, including humor, displacement, rationalization, projection, repression, sublimation, and denial reduce anxiety by distorting reality to prevent people from becoming emotionally overwrought (Moos & Schaefer, 1986).

Freud's (1936) major concepts were extended and expanded by a series of psychoanalytic scholars. Anna Freud augmented her father's work by noting that individuals used preferred defensive styles to reduce internal conflict (Freud, 1936). Haan (1978) and others broadened the concept of defensive conflict management to include external demands (Menninger, 1967; Vaillant, 1995). Goldstein (1993) was instrumental in expanding the Freudian defense mechanisms to include personality traits and behavioral responses. Researchers have observed that coping strategies are very helpful,

and at the same time portray defensiveness that contributes to the maturity of an individual's moral behavior (Haan, 1978).

The psychoanalytic ego defense paradigm remained the major conceptual model of coping until the late 1960s, when it was supplanted by Lazarus' cognitive approach. Lazarus (1984) conceived of coping as part of a decision-making model that included elements of information processing interwoven with many of the concepts that had been proffered by Freud's followers (Folkman & Moskowitz, 2004; Lazarus, 1966, 1993; Lazarus & Folkman, 1984; Suls et al., 1996). By emphasizing cognition, Lazarus moved coping out of the realm of the subconscious, and showcased the concept as a considered response to a stressful situation (Leventhal, Meyer, & Nerenz, 1980).

According to Lazarus, coping is linked to stress both cognitively and emotionally—a relationship that mirrors the conceptual physiologic outcomes of stress as conceived by the stress theorists (Holmes & Rahe, 1967; Lazarus & Launier, 1978; Scheier, Weintraub, & Carver, 1986). Lazarus provided a context for the stress-coping dynamic by suggesting that stress is evaluated or appraised by the individual to determine the extent of personal threat posed by the stressful situation, and the extent to which resources are available to either deal effectively with the stressful circumstances or to restore a sense of well-being within the stressful context (Zeidner & Saklofske, 1996). Coping is then viewed as a mobilization of internal or external resources to manage the stressful demands (Leventhal et al., 1980).

Lazarus (1977) further married concepts from the psychoanalytic perspective of coping to the cognitive paradigm by acknowledging that coping manifests in an

emotional environment, and that coping choices may be roughly divided into two modes: the problem-focused mode, consistent with the cognitive school of thought, and the emotion-focused mode, directed toward emotional relief and consistent with the defensive mechanisms originally explored by Freudian scholars (Aldwin & Revenson, 1987). In addition, Lazarus acknowledged the predispositional trait theories espoused by Anna Freud and Byrne (1936) by indicating that the choice among potential coping behaviors is a function of individual predisposition style (Brandstädter, 1992).

Since Lazarus (1966) first introduced the basic elements of the cognitive model, coping research has burgeoned with researchers examining each element of the model, as well as the model as a whole, to better understand the complexity, structure, and interrelatedness of the constructs (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). The model, consequently, has continued to evolve; however, the transactional premise remains the major conceptual framework through which stress management efforts continue to be evaluated (Hobfoll, 2001; Piko, 2011; Scheier et al., 1986). The most current adaptation of the model is presented below.

The Theory

The transactional model of stress and coping is the culmination of Lazarus's (1984) examination of the cognitive and emotional relationship between stress and coping. The model presents an integrated framework in which the stress and coping process is conceived as a person-environment transaction. According to this conceptualization, when a person is faced with an external demand or stressor, the person responds by first evaluating the extent of threat inherent in the stressor, and second by taking stock of the material, psychological, or social resources that are available to either eliminate the stressor, or to manage the physical and emotional response to a significant threat (Antonovsky & Kats, 1967; Cohen & Wills, 1985; Lazarus & Cohen, 1977). The most current version of the model, the Lazarus and Folkman rendition (1984), is presented in Figure 1 (Glanz, Rimer, & Viswanath, 2008).

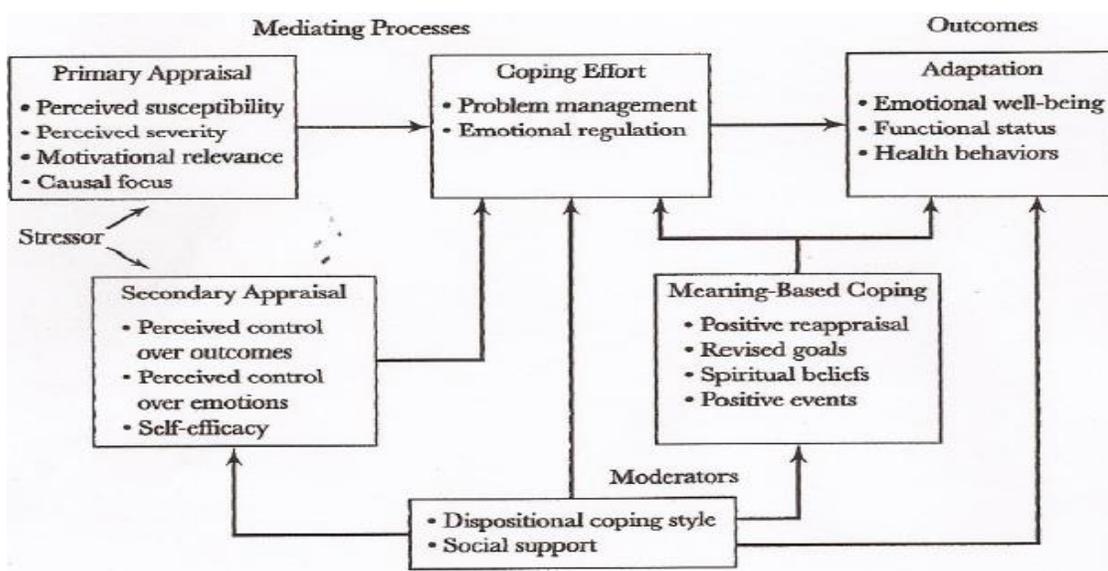


Figure 1. Transactional model of coping stress. From *Health behavior and health education: Theory, research, and practice* (4th ed.), by Glanz et al., 2008.

Key Concepts of the Model

The transactional model of stress is comprised of three primary elements: (a) primary appraisal, (b) secondary appraisal, and (c) coping efforts. Coping efforts are directed toward problem management, emotional regulation, or meaning-based interpretations. The model also includes the outcomes of coping and the role of dispositional coping in supporting optimism and promoting information seeking behaviors. Table 1 depicts the key components of the transactional model. Each of these elements is explored in detail in the subsequent sections.

Stress appraisal. The stress appraisal process is the component of the model that evaluates the level of the threat posed by a given stressor or set of stressors (Glanz et al., 2008). The appraisal process is divided into two parts: the assessment of the personal significance of stressors, termed the primary appraisal, and the personal resource review, termed the secondary appraisal. Together, these two appraisals constitute the magnitude and controllability of the perceived threat (Bandura, Cioffi, Taylor, & Brouillard, 1988). Researchers have frequently measured the magnitude of the physical and emotional reaction to this threat as the perceived stress level (Cohen & Williamson, 1991). Most researchers have examined these two variables in conjunction with each other; however, a few studies have highlighted the individual contributions of each appraisal component.

Table 1

Key Concepts of the Model

Concept	Definition	Application
Primary appraisal	Evaluation of the significance of a stressor or threatening event	Perception of an event as threatening can cause distress. If an event is perceived as positive, benign, or irrelevant, little negative threat is felt
Secondary appraisal	Evaluation of the controllability of the stressor and a person's coping resources	Perception of one's ability to change the situation, manage one's emotional reactions, or cope effectively can lead to successful coping and adaptation
Coping efforts	Actual strategies used to mediate primary and secondary appraisals	
Problem management	Strategies directed at changing a stressful situation	Active coping, problem-solving and information seeking can be used
Emotional regulation	Strategies aimed at changing the way an individual thinks or feels about a stressful situation	Venting feelings, avoidance, denial, and seeking social support may be used
Meaning-based coping	Coping process that induces positive emotions, which in turn sustains the coping process by allowing reenactment of problem or emotions focused coping	Positive reappraisal, revised goals and spiritual beliefs are experiences and positive events occur
Outcomes of coping	Emotional well-being , functional status, health behaviors	Coping strategies may results in short and long-term positive or negative adaptations

(Table continues)

Concept	Definition	Application
	Generalized ways of behaving that can affect a person's emotional or functional reaction to a stressors relatively stable across time and situations	
	Tendency to have generalized positive expectancies for outcomes	Optimists may experience fewer symptoms or faster recovery from illness
	Attentional styles that are vigilant versus those that involve avoidance	Monitoring may increase distress and arousal, it may also increase active coping. Blunting may mute excessive worry but may reduce adherence

Note. From *Health behavior and health education: Theory, research, and practice* (4th ed.), by Glanz et al., 2008.

Key Dimensions of the Transactional Model of Stress

Primary appraisal. Primary appraisal is a person's conscious judgment about the stressful situation (Glanz et al., 2008). Croyle and Sande (1988) examined the influence of primary appraisal in threat assessment by conducting an experiment in which intervention subjects were told that they had demonstrated abnormalities in a test for a fictitious enzyme disorder, while control subjects were told their test results were normal. Intervention and control subjects were then asked to assess both the seriousness of the disorder and the accuracy of the test results.

Intervention subjects rated the disorder as significantly less serious, and the enzyme test as significantly less valid, than did control subjects. Croyle and Sande (1998) concluded that individuals may discount a threat during primary appraisal as a

mechanism for blunting the impact of threatening information (Croyle & Sande, 1988; Ditto, 1995). This indicated that threats may be initially discounted by individuals during their primary appraisal as a coping mechanism.

Smith and Lazarus (1993) examined the impact of primary appraisal on an individual's stress level. The investigators demonstrated that stressors appraised as significant threats to personally important goal attainment resulted in significantly higher levels of anxiety than stressors that did not threaten personally-important goals. The researchers concluded that goal attainment is a major consideration in the threat-appraisal process, and that threats to goal attainment are likely to be perceived as more stressful than those threats that are not associated with goals (Smith & Lazarus, 1993).

Devonport and Lane (2006) noted that the perception of threat may be exaggerated or mitigated, depending upon whether the individual perceives the threat to be under their control. The researchers examined gender differences in the primary appraisal process among students about to submit their dissertation. Study results demonstrated that males considered the dissertation itself to be less challenging than did female students; however, the male students considered the dissertation review process to be significantly more threatening than did the female students. The researchers concluded that male students sought to reduce their situational stress by positively evaluating personal goal attainment, defined as the completion of the dissertation document. Male students engaged in further emotional stress-protection by depersonalizing the source of the stress and shifting the blame for a potentially negative outcome to the vagaries of the review process. This strategy resulted in lower scores on the self-blame measure, and

higher scores on the personal disengagement variable, than those exhibited by the female students (Devonport & Lane, 2006). Thus, the appraisal that resulted in the belief that the threat was not under the students' control blunted the emotional impact that might have otherwise been felt as they experienced a threat to their goal attainment.

Primary appraisals have been associated with coping strategies and how threats are framed can influence an individual's coping strategy (Folkman et al., 1986). Franks and Roesch (2006) examined the association between primary appraisal and coping strategies among cancer patients. The study results showed that individuals who appraised cancer as a threat used problem-focused coping strategies, and those who appraised cancer as an impairment or deficiency used emotion-based avoidance coping strategies (Franks & Roesch, 2006). The differences in primary appraisal in this study highlighted the subjectivity associated with the appraisal, and how the appraisal itself may then have implications for coping.

Dewe, O'Driscoll, and Cooper (2012) highlighted the role of primary appraisal in the workplace. The researchers demonstrated that employees engage in primary threat appraisal after most management-directed meetings. Another key trigger is performance evaluation. Employees engage in a primary threat assessment both prior to, and as a consequence of, performance review. These researchers highlighted the extent to which individuals are primed to scan for personal threats, even within the context of routine communication and evaluation processes (Dewe et al., 2012). Primary appraisals, then, appear to be ongoing internal process, and people are primed to continually scan the environment for threats and evaluate them.

Mohammad et al. (2013) posited that the primary appraisal process triggers the selection of coping mechanism and the coping behaviors that an individual will exhibit. Mohammad et al. evaluated the elements of the transactional model in a school setting by observing stress and coping strategies with regard to teacher and student learning. The researchers demonstrated that stress and tiredness can directly affect the efficiency of teachers, which in turn affects student learning. The study results showed an inverse relationship between model constructs (secondary appraisal, problem management, emotional regulation, meaning-based coping, adaptations, and moderators) and the level of perceived stress, except for the construct of primary appraisal. The authors concluded that the primary appraisal serves as the catalyst for the coping behaviors that follow, and the intensity of the coping response is a reflection of the perceived threat level established through the primary appraisal process (Mohammad et al., 2013).

Secondary appraisal. The secondary appraisal includes both the assessment of the coping resources perceived as available to an individual to help deflect the threat identified through the primary appraisal process, and the options the individual considers to actually address the resulting stress (Cohen & Wills, 1985; Glanz et al., 2008). The secondary appraisal is often operationalized as an attempt to control stress, as in Marks, Richardson, Graham, and Levine's (1986) investigation of the relationship between perceived control over the risk of cancer and the adoption of healthy behaviors. This investigation demonstrated that individuals adopt health behaviors as both a risk- and stress-controlling behavior in the wake of the perceived threat of illness (Marks et al., 1986); having multiple resources available to help address the threat was found to

dampen both the intensity of the perceived threat and the associated stress. This association has also been demonstrated relative to heart disease (Taylor, Helgeson, Reed, & Skokan, 1991) and HIV/AIDS (Taylor et al., 1992). In each of these investigations, perceived control over disease through the adoption of healthy behaviors improved the overall wellbeing of the study subjects (Thompson & Spacapan, 1991).

Walinga (2008) examined the relationship between the types of resources identified as available through the secondary appraisal and the actual ability of the individual to affect change and deal successfully with stressful changes to a high-performing soccer team. Walinga found that individuals who only identified resources capable of reducing anxiety remained focused on emotional coping strategies and were unable to effectively transform their circumstances to actually reduce the threat itself. Individuals who identified cognitive resources during the secondary appraisal phase used these resources to problem-solve and ultimately eliminate the source of the stress. This study highlighted the importance of identifying the resources best suited to dealing with the identified threat (Walinga, 2008).

Perceived stress. Perceived stress is the level of stress that is felt by an individual. It is a function of not only objective stressors, but the extent to which the threat contained in those stressors is of personal significance, and the extent to which the individual can identify resources to help offset or eliminate the threat (Stawski, Sliwinski, Almeida, & Smyth, 2008). Consequently, perceived stress encompasses Lazarus' constructs of primary and secondary appraisal. Much research has been conducted using perceived stress as a measure of the psychic and physical discomfort that remains after a

stressor has been adequately appraised (Stawski et al., 2008). Perceived stress, as such, is measured as an indicator of the total anxiety that drives stress management and coping behaviors.

Recent studies examining the validity of using perceived stress include Feizi, Aliyari, and Roohafza's (2012) examination of the extent to which family conflicts and social problems were correlated with measures of perceived stress. This study determined a high correlation between the variables, and further found that adding financial, social, and physical resources significantly reduced perceived stress levels. The researchers concluded that perceived stress functioned in a manner consistent with predictions using both the primary and secondary appraisal variables from the stress and coping model (Feizi et al., 2012). Matheny et al. (2002) evaluated the relationship between perceived stress, coping resources, and life satisfaction for young adults from America and Turkey. Matheny et al. determined that, as in the investigation of Feizi et al. (2012), stress perception differed based on the assessment of available coping resources.

Bovier et al. (2004) conducted a study of perceived stress and its relationship to health outcomes in university students. The researchers found that higher levels of perceived stress were associated with lower mental health, and perceived stress mediated the positive impact of social support on mental health (Bovier et al., 2004). Kaplan, Madden, Mijanovich, and Purcaro (2013) conducted a study to evaluate the relationship between perceived stress and health and health behaviors. Kaplan et al. concluded that higher levels of perceived stress were related to poorer health levels and unhealthy behaviors in people of lower socioeconomic standing.

Stress management. The stress management component of the transactional model of stress is comprised of two major elements: the coping strategies selected to obviate the threat and any ensuing physical or emotional discomfort, and the moderating factors that influence both the perceived threat level inherent in the stress appraisal process and the preferred choice of coping strategy (Glanz et al., 2008). Understanding the common coping strategies that are used, as well as the moderating factors that influence perceptions of stress, can lend important insights into how stress can be effectively managed.

Coping strategies. In the transactional model, Lazarus (1978) designated *coping strategies* as those activities an individual engages in to manage the emotional or functional consequences stemming from the threat appraisal (Lazarus, 1991; Lazarus & Folkman, 1984). Lazarus divided coping strategies into three primary response categories: problem management, emotional regulation, and meaning-based coping. Problem management and emotional regulation are deemed coping efforts, and are umbrella terms for a wide range of behavioral responses or coping strategies. Problem management, or problem-focused coping, is designed to either alter the stressful circumstances, or to modify the anticipated outcomes. Emotional regulation, or emotion-focused coping, is directed toward reducing the anxiety level or emotional distress generated by the threat appraisal process (Glanz et al., 2008; Lazarus & Folkman, 1984).

Meaning-based coping encompasses a set of coping behaviors designed to reinterpret the threat as spiritually significant, personally significant, or otherwise beneficial (Glanz et al., 2008). Lazarus (1984) originally conceived of meaning-based

coping as impacting the two primary coping efforts and fueling the will to sustain coping activity; however, more recent investigations have also cast meaning-based coping as a primary coping effort on par with problem-focused and emotion-focused efforts (Folkman & Moskowitz, 2004; Lazarus, 1991; Lazarus & Folkman, 1984). Each of these three coping efforts overarches specific coping strategies, which are the actual behaviors an individual utilizes to deal with the threat (Glanz et al., 2002).

Problem management and emotional regulation. The literature on problem management is dominated by examinations into the influence of cognitive problem-focused coping strategies on stress level and problem resolution (Glanz et al., 2002). Coping strategies associated with problem management efforts include information-seeking and problem-solving approaches. A recurring finding from the problem-focused coping literature is that cognitive problem-solving is an effective coping strategy when the stressful circumstances are amenable to change (Glanz et al., 2002).

Emotional regulation is the ability to attenuate negative emotions, enrich positive emotions, or otherwise maintain emotional balance (Neshat-Doost, Dalgleish, & Golden, 2008). The cognitive and behavioral processes that influence the occurrence, intensity, duration, and the expression of emotions under stressful circumstances can be considered emotion-focused coping activities. The ability to adopt effective strategies to control emotion is considered a fundamental aspect of social and subjective well-being, because it dampens the psychic pain associated with stress and restores a feeling of calm (Neshat-Doost et al., 2008).

Recent studies have examined the complex interrelationships among problem-solving, emotional regulation, and a sense of control over the stressful situations. This is highlighted in the investigation that Mohammad et al. (2013) performed into the effect of stress on teachers and teaching outcomes; the investigators found a significant and opposite relationship between problem management, emotional regulation, and perceived stress level. The researchers found that emotional coping strategies were used to lower the level of stress felt by the teachers, and problem management strategies were employed to effectively eliminate the source of stress. Mohammad et al. suggested that emotion-focused and problem-focused coping work together to enhance stress management.

The authors interpreted these findings as evidence that different coping strategies serve different purposes in successful stress management. Emotion-focused strategies were viewed as essential antecedents to problem-focused strategies, as intense emotional and mental distress interferes with effective problem-solving. The investigators concluded that multifaceted and well-honed evaluative capabilities are advantageous in managing stress. Establishing a strong capacity to evaluate a range of coping options is therefore linked to more effective stress management.

Grebner, Semmer, and Elfering (2005) examined the relationship between chronic job stress, job control, and coping success. The researchers found that high job control supported the use of problem-solving management strategies, which were associated with increased levels of well-being. The researchers also found that emotional coping was not related to job control, nor was it related to an increased sense of wellbeing. The authors

interpreted these findings to suggest that when stress levels are low, as in chronic job stressors, emotional coping is not a necessary antecedent to effective problem-solving coping activities.

Bell and D'Zurilla (2009) examined the capacity of high-quality problem-solving abilities to influence the relationship between routine daily stress and anxiety levels and cognitive impairments. The researchers found that participants with a positive problem-solving orientation were less likely to exhibit either negative emotional or cognitive reactions to the stress. The authors interpreted these findings to suggest that problem-solving resources have a calming effect in low-stress situations, even without emotional regulation activities.

Grover et al. (2009) determined that high-quality problem-solving strategies significantly predicted suicidal ideation, but not suicidal attempts, in adolescents suffering from high levels of stress from either an acute life event or from chronic life stressors. Further, highly stressed adolescents with poor problem-solving capacity were more likely to both consider and attempt suicide. The authors determined that good problem-solving skills were able to buffer either episodic or chronic stress in the study participants.

Creswell, Dutcher, Klein, Harris, and Levine (2013) found that among students in chronic stress situations, high chronic stress levels were associated with impaired problem-solving and creativity. When self-affirmation was introduced as an emotional regulation strategy, the effects of the stress were buffered and problem-solving and

creativity improved. As in the study by Mohammad et al. (2013), emotional regulation was interpreted as an antecedent to effective problem-solving in high-stress conditions.

While active problem-solving behaviors have been found effective in supporting stress management without emotional regulation in conditions of low stress and in conjunction with positive emotional regulation strategies in conditions of high stress, other researchers have determined that the effectiveness of problem-centered strategies is reduced when negative emotions predominate or negative emotional regulation strategies are used. Anger has been linked with both avoidance behaviors and with a lack of positive influence on stress management (Arslan, 2010).

Arslan (2010) examined the relationship between anger, anger expression, stress, and interpersonal problem-solving among young adults. The results showed a negative correlation between problem-focused coping and anger, and a positive correlation between avoidance behavior and anger. Arslan concluded that anger is a particularly disadvantageous reaction to stress. Anger was viewed as directing coping away from potentially productive problem-solving techniques and anchoring it in a stagnant cycle of emotional escape that allowed the stressful situation to either persist unabated or intensify (Arslan, 2010).

Appelhans and Schmeck (2002) conducted a study of the motivational predictors of coping strategy choices. This study evaluated the relationships between students' self-reported learning styles and self-reported coping style. The researchers indicated that the level of motivation to perform well in a course was associated with the choice of coping strategy. High levels of motivation were correlated with the selection of problem-focused

coping strategies. The authors interpreted these findings to mean that students who coped with stress using problem-focused strategies had more confidence in their ability to think critically and were positively motivated to persist in their studies, even when the work was challenging.

Hesselink et al. (2004) examined the relationship between psychosocial coping resources and coping style with Health Related Quality of Life (HRQoL) among patients with asthma and chronic obstructive pulmonary disease (COPD). The researchers found that an emotional coping was associated with poor HRQoL ratings. In addition, asthma patients with lower self-efficacy, lower mastery feelings, and an avoidant coping style were found to have the lowest HRQoL. In COPD patients, a rational coping style was associated with lower HRQoL. Consistent with other interpretations from the literature Hesselink concluded that the less-severe pulmonary disease, asthma, lent itself better to strategic control, and was therefore not well served by emotional coping techniques. COPD, however, is severe, progressive, and irreversible, leaving little room for effective control using problem-solving techniques. Study results suggested a significant association between coping resources and coping style and HRQoL, indicating that psychosocial coping resources and coping style are independently associated with health related quality of life in asthma patients (Hesselink et al., 2004).

Nordin, Andersson, and Nordin (2010) evaluated coping strategies, social support, and responsibility for improvement in individuals who experienced chemical intolerance (CI). Chemical intolerance was measured by either self-report or a clinical diagnosis of hypersensitivity to odorous or pungent substances. Individuals suffering

from CI often experience significant quality of life impairments due to limitations placed on working, living, and social environments. Nordin et al. found that the most effective coping strategies were avoiding irritants, which often involved confronting others and asking them reduce or eliminate perfume or other offending substances, as well as advanced problem-solving strategies among those with high levels of CI. Emotion-focused strategies were most effective for those with lower CI.

These results uphold ongoing findings that effective coping is control and situation specific. In this situation, all levels of CI can be controlled through effective problem-solving and action-based techniques. Study findings supported the interpretation that only severe CI is limiting enough to motivate more effortful and confrontational problem-management coping, while less-severe CI reactivity was less stressful than imposing on others. Less-severe CI sufferers turned to positive emotional strategies, including family support, to cope with frustrating symptoms (Nordin et al., 2010).

Yamasaki and Uchida (2006) conducted a study of undergraduates to evaluate the correlations between adverse effects, positive affect, and negative affect, and reported use of emotion-focused coping or problem-focused strategies. Yamasaki and Uchida revealed a positive relationship between positive affect and both cognitive reinterpretation and problem-solving skills among male students, while a positive relationship between positive affect and emotional expression was revealed for female students. Women favored more expressive coping strategies, while men focused on problem-solving strategies.

Meaning-based coping. Frankl (1986) observed that ascribing meaning to misfortune is a universal human need. Placing misery in a significant context promotes strength, dignity, and hope in the face of tragedy, and often serves as a motivating perspective to support the ongoing struggle to survive (Frankl, 1986). Antonovsky (1990) posited that a sense of coherence, whereby individuals experience the world as comprehensible, manageable, and meaningful, is a core variable in shaping coping responses and is positively related to health status. Meaning-based coping strategies include reframing or reinterpreting the problem, accepting the inevitable, or employing spiritual guidance or philosophy (Carver et al., 1993).

Folkman (1997) suggested that reexamining a stressful problem through the lens of a positive attitude increases the capacity to perceive positive outcomes for others who have experienced a similar situation. This phenomenon has recently been used to examine meaning-based coping strategies in chronic and life-threatening circumstances (Glanz et al., 2008). Bulman and Wortman's (1977) evaluation of individuals suffering from spinal cord injuries revealed a common need to attach meaning to the situation. (Bulman & Wortman, 1977). Dunbar, Mueller, Medina, and Wolf's (1998) qualitative study of women suffering from HIV similarly uncovered meaning-based coping themes relative to personal relationships, self-affirmation, life-affirmation, and death. Study participants cited these interpretive frames as important to their psychological and spiritual well-being, suggesting the importance of reframing in meaning-based strategies.

Rinaldis, Pakenham, and Lynch (2012) used the transactional model of stress and coping to examine the influence of meaning-based coping within a larger context of

coping with a life threatening illness. The investigators sought to explore the effect of benefit finding (BF) among colorectal cancer patients on measures of wellbeing. Benefit finding is the process by which individuals who have experienced a significant health event find value in the illness to provide comfort and opportunities to improve the quality of their lives. Rinaldis et al. classified and measured the influence of the meaning-based BF coping strategies as personal growth and interpersonal growth and acceptance. The authors denoted cognitive and problem-solving coping strategies as perceptual change or reframing, acceptance-related cognitive change, palliative activities, and life reorganization. The researchers also measured emotion-focused coping strategies as the practice of religion, humor, rumination, and seeking out social support. The wellbeing outcome variables were positive affect, psychological distress, cancer-related quality of life, and general satisfaction with life.

Rinaldis et al. (2012) measured the variables at two points in time, immediately after the initial diagnosis, and 12 months after the initial diagnosis. The researchers found that all three coping strategies were most effective immediately after diagnosis with BF strategies, cognitive problem-solving strategies, and social support seeking most strongly positively associated with positive affect. The cognitive strategy of perceptual change also reduced psychological distress and positively influenced cancer-related quality of life, while BF strategies were strongly positively related to general life satisfaction. The protective influence of all coping strategy variables faded over all outcome variables 12 months after diagnosis.

The researchers concluded that the effective coping response to a life-threatening stressor changes over time, and that both meaning-based coping in the form of BF and the cognitive strategy of reframing the problem are the strongest initial effective coping responses. Over time, the effectiveness of all coping strategies faded, but positive outcomes across all outcome variables at both time periods were associated with the presence of the stress and coping model moderator variable of optimistic dispositional coping and the resource variable of ongoing social support for the illness. The researchers interpreted this finding to mean that successful long-term coping with a life threatening disease is a function of personality and the resources available to address the lack of personal control over outcomes.

Interestingly, Rinaldis et al. (2012) failed to note the compelling role that BF played in the early stages of the coping process. In addition, the researchers defined meaning-based coping more narrowly than other recent investigations into illness coping, with some of the larger connotations of meaning-based coping being represented by the cognitive reframing strategies that also proved useful in the early stages of the illness (Rinaldis et al., 2012). A study by Guo, Gan, and Tong (2013) provided one potential explanation of these findings.

Guo et al. (2013) examined the effectiveness of problem-focused coping, meaning-based coping, and emotion-focused coping on the mental health of earthquake victims following the 2008 Sichuan Earthquake. As in the Rinaldis et al. (2012) study, the investigators found that meaning-based coping was a significantly better predictor of positive affect and well-being than either problem-focused or emotion-focused coping

behaviors. The investigators interpreted these findings as consistent with Lazarus' (1984) initial view of meaning-based coping as a source of acceptance and strength to fuel either problem-focused or emotion-focused stress management strategies. These results raised the possibility that meaning-based coping precedes other coping measures in the wake of tragedy. The researchers viewed meaning-based coping as a calming influence that paved the way for more considered actions, including the assessment of the resources available to exert control or otherwise successfully manage the situation. This interpretation is also consistent with the findings in Rinaldis et al. (2012).

Hashim, Soliman, and Mansour (2012) examining coping in couples who experienced a failure to conceive using reproduction-enhancing technologies, and provided evidence that not all meaning-based coping is positive. Participants employed both meaning-based and emotion-focused coping to deal with the stress of failure to conceive, but meaning-based coping was not found to be an effective strategy. Heavy dependence on meaning-based coping was strongly positively related to high fertility-related stress in the female partner, and this stress negatively impacted the women's personal, marital, and social life (Hashim et al., 2012). The authors concluded that the utility of meaning-based coping may be limited at times when a potentially effective problem-focused solution to a stressful situation fails to produce the desired results. It is possible that failure of the problem-focused strategy is interpreted to mean personal failure where others have succeeded, thereby enhancing rather than reducing stress.

Moderators. The final two components of the transactional model of stress and coping are viewed as moderating the assessment of coping resources available, the

selection of specific strategies within all three coping components, and ultimately impacting the adaptive outcomes to stress. The two moderator variables are social support and dispositional coping style. Each is examined below.

Social support. Social support is included in the transactional model as a multifaceted external resource with the potential to vary the options available for either altering or controlling the threat (Lazarus & Folkman, 1984). Social support entails assistance from outsiders that facilitates any of the three major coping efforts and is, consequently, a coping mechanism moderator in the larger scheme of stress management (Folkman & Moskowitz, 2004). Individuals include social support in stress management activities in a variety of ways. A person's social network may be useful in providing factual knowledge, experiential knowledge, material resources, empathy, and camaraderie, as well as in serving as a sounding board for the individual's perceived plight and offering outside perspectives on the usefulness of potential strategies to deal with that plight (Heaney & Israel, 2002).

Consequently, social support may be used to bolster cognitive, emotional, and meaning-based strategies directed toward the threat or the psychological repercussions of that threat (DeLongis & Holtzman, 2005). Studies examining the impact of social support and have demonstrated a significant positive association with personal wellbeing across diverse populations (Coyne & DeLongis, 1986; Masten, Tusak, Zalar, & Zihlerl, 2009; Russell & Cutrona, 1991; Uchino, Uno, & Holt-Lunstad, 1999).

Chao (2011) highlighted the value of social support in enhancing stress management. Chao's study of 459 college students evaluated whether social support

moderated the relationship between perceived stress and well-being. Results from the study showed that students with higher social support had higher levels of self-reported well-being. When the students were under stress, using problem-focused management reduced the stress level, and having family and friends' support on solving the problems further improved overall well-being. The researcher interpreted these findings as consistent with the transactional model (Chao, 2011).

Classen et al. (2011) evaluated social support among women diagnosed with metastatic breast cancer. Study participants were offered 1 year of weekly supportive-expressive group therapy and educational materials. The researchers found that social support reduced distress and eased the feeling of social isolation. Classen et al. concluded that social support reduced traumatic stress symptoms (Classen et al., 2001).

Emmelkamp, Komproe, Van Ommeren, and Schagen (2002) examined the influence of social support on anxiety, depression, and somatic symptoms for 315 torture victims. Researchers found a direct positive relationship between social support and effective coping, also noting that the use of multiple coping strategies was associated with lower levels of anxiety and depression. The authors also noted that actual social support had a greater impact on the abatement of symptoms than did perceived social support that was not mobilized. These findings confirmed the importance of using multiple coping strategies and importance social support to and support services for individuals who have experienced trauma (Emmelkamp et al., 2002).

DeLongis and Holtzman (2005) examined the relationship between social support and personality traits on stressful life events. Study results demonstrated that although the

stress level associated with stressful life events was related to personality type, adequate social support reduced the severity of negative stress-related health outcomes, regardless of personality. The researchers concluded that social support is effective across individuals in reducing the impact of stressful life events on physical wellbeing (DeLongis & Holtzman, 2005).

Chao (2011) conducted a study to evaluate the relationship between social support, problem-focused coping, and well-being under stress among 459 graduate students in counseling psychology. Chao found that social support buffered the relationship between perceived stress and psychological well-being, and this effect was mediated by problem-focused coping. The results also showed that students who used high avoidant coping strategies in a low social support environment had the lowest levels of well-being under stress. Chao interpreted these findings to mean that social support offers greater stress relief when accompanied by effective strategies to confront and deal with the stress, and that a lack of social support contributes to the deleterious effects of ineffective coping strategies (Chao, 2011).

Dispositional coping style. Coping styles have been regarded as stable characteristics inherent in individuals (Gillespie & Gates, 2013). Lazarus (1993) provided a clear distinction between coping effort and coping style, noting that coping efforts are situation-specific behaviors, while a coping style is a general attribute that an individual employs across situations. Coping style is a lens through which an individual generally perceives and responds to situations and circumstances (Lowe, Norman, & Bennett, 2000). Lazarus indicated that coping style inclined the individual to rely on dispositional

compatible coping behaviors by biasing selection among competing behavioral options within coping effort categories. Researchers have also determined that coping style modifies the effectiveness of a given coping strategy among individuals (Lazarus, 1993).

Coping style has been operationalized in a variety of ways across the literature. Early conceptualizations and research focused on determining why a certain segment of the population remained physically and psychologically healthy, even in the face of stressful life events (Guo et al., 2013). Researchers determined that these individuals share a common attitude toward life in which they view situations as a controllable challenge they are committed to overcoming (Punamaki et al., 2008). This coping style has been termed *resilience*, and is closely related to another often cited the predisposition: optimism. Optimism has been defined as the tendency to view situations from a positive perspective, and is frequently examined in relation to the Lazarus transactional model (Rinaldis et al., 2012; Taylor et al., 1992).

Another commonly-investigated predispositional style is the rational or problem-focused style, which is characterized by a tendency toward active information-seeking and cognitive assessment. Individuals with this tendency are inclined to evaluate situations using logic and cognitive effort to make sense of circumstances and plan a course of action (Shikai, Uji, Shono, Nagata, & Kitamura, 2008). A third often-investigated predisposition is emotional style. Antonovsky (1990) posited that the emotional style is considered a passive reaction to a stressor, and may include using humor to deflect the pain, seeking comfort in social support and using escapist strategies

such as denial, procrastination, avoidance, and substance abuse. Rational coping is less well used by individuals with this inclination (Antonovsky, 1990).

Recent research into dispositional styles has focused on differentiating situational coping, which is the application of stress management strategies to a specific stressor or set of stressors, and dispositional coping as a trait that drives situational coping choices in times of stress. Shikai et al. (2008) examined the relationship between dispositional coping style in adulthood and childhood experiences in Japanese undergraduates. Shikai et al. found that an emotion-oriented coping style was found more frequently among adults who were neglected or emotionally abused during childhood. The researchers suggested that this finding indicates that childhood experiences shape adult coping and that the dispositional coping style can be learned in addition to being inborn (Shikai et al., 2008).

Punamaki et al. (2008) examined the difference between dispositional and situational coping and psychological distress between former political prisoners in Palestine and a matched control group. Dispositional coping was evaluated as a generic response style to hypothetical stressors, and situational coping was assessed through the responses of participants to their personal traumatic experiences. Ex-political prisoners used fewer avoidant, emotion-focused, and denying strategies to both the personal and the hypothetical scenarios. Main effects showed that low dependence on emotion-focused strategies coping and high levels of active and constructive coping were linked with low levels of psychiatric symptoms and psychological distress, but neither the overarching categories of dispositional style nor situational coping buffered distress. The researchers

suggest that the overall approach is less predictive of stress reduction than the specific strategies employed in each instance of stress, and that both dispositional and situational approaches can be shaped by experience (Punamaki et al., 2008).

Steinhardt and Dolbier (2008) examined the origin of dispositional resilience in stress management by providing resilience training to university students to reduce symptomatology during periods of increased academic stress. The intervention group demonstrated higher post-intervention resilience scores, greater situational adoption of effective higher problem-solving strategies, and lower use of ineffective avoidance strategies than the control group. In addition, the intervention group was more likely to demonstrate higher levels of the protective personal traits of self-leadership, positive affect, and self-esteem. In addition, the intervention group experienced lower levels of perceived stress and fewer symptoms of depression than the control group. The researchers suggested that these findings are consistent with the interpretation that a resilient predisposition can be learned, and that improved situational stress-related strategies are more likely to be adopted by those who have mastered this coping style (Steinhardt & Dolbier, 2008).

Sasaki and Yamasaki (2007) conducted a study among 229 university freshman to identify causal relationships between dispositional and situational coping and health status. The results of this study showed that dispositional coping style could predict situational coping practices, and that increases in predispositional emotional focused coping are negatively linked to health status. The predispositional coping strategies of cognitive reinterpretation and problem-solving are better predictors of health status. The

researchers noted that these results contrasted with their earlier findings (Sasaki & Yamasaki, 2005) that a predisposition to use cognitive reinterpretation and problem-solving leads to greater distress. The researchers also found in this more current study that when investigating specific stressful events, the effect of predispositional style was mediated by the specific strategies chosen within the specific context (Sasaki & Yamasaki, 2007).

Sasaki and Yamasaki (2007) interpreted the totality of their 2005 and 2007 findings to suggest that predisposition does, indeed, bias the choice of specific coping strategies for specific stressful events among the study population. However, the effectiveness of the specific strategies selected is dependent on the specific stressor to which they are applied. These findings are consistent with findings from the coping literature that have suggested that problem-solving strategies are most useful when circumstances are controllable (Mohammad et al., 2013), emotional coping strategies are more effective in protecting wellbeing in situations that cannot be controlled (Grebner et al., 2005), and meaning-based coping such as reframing is a useful antecedent to purposeful problem-solving (Rinaldis et al., 2012). Table 2 presents the key findings from this theoretical literature review.

In the current investigation, I will assess the extent to which young adults adopt applicable CAM therapies to manage stress within the context of daily stressors. I will further determine if CAM use is related to perceived stress levels, levels of exposure to CAM philosophies and therapies, and to individual coping styles. The literature review has demonstrated that the transactional model of stress and coping has been specifically

conceived to address the context of stress management. It provides additional evidence that the model is a robust framework for evaluating the effectiveness of coping strategies in reducing perceived stress and its physical ramifications under diverse circumstances for diverse populations. Finally, the literature has established that the model has been successfully applied in research targeting young adults. For these reasons, I will employ the transactional model of stress and coping as an appropriate theoretical framework for the study.

Table 2

Key Findings of the Theoretical Literature Review

Key component of the transactional model of stress and coping	Major findings from the recent literature	Researchers
Stress appraisal: Primary appraisal	<ul style="list-style-type: none"> • The level of stress experienced: 1) Depends on the perceived level of control over the stressor and 2) drives the intensity of the corresponding coping response • The perception of a given threat as being either under an individual's control or not under an individual's control: 1) may differ by individual and 2) drives the choice of coping strategy • Individuals are primed to search for threats to personal utility and goal achievement 	Devonport et al. (2006) Dewe et al. (2012) Folkman et al. (1986) Mohammad et al. (2013) Smith et al. (1993)
Stress appraisal: Secondary appraisal	<ul style="list-style-type: none"> • The resources identified in the appraisal process are the resources used to cope with the stress • Increases in available resources reduces stress while a lack of available resources is associated with negative health outcomes and high stress 	Bovier et al. (2004) Feizi et al. (2012) Taylor et al. (1991) <i>(table continues)</i>

Key component of the transactional model of stress and coping	Major findings from the recent literature	Researchers
Stress appraisal: Perceived stress	<ul style="list-style-type: none"> • A valid indicator of anxiety that remains after the threat and the available resources have been appraised 	Bovier et al. 2004 Stawaski et al. 2008
Stress management: Problem management	<ul style="list-style-type: none"> • Cognitive problem-solving is an effective coping strategy when stressful situations are amenable to change • Good problem-solving skills buffer both episodic or chronic stress • Using problem-solving coping in situations not under the individual's control leads to poorer quality of life outcomes • Problem-focused strategies were associated with positive critical thinking and the motivation to overcome challenges to goal attainment 	Appelhans & Schmeck. (2002) Mohammad et al. (2013) Hesselink et al. (2004)
Stress management: Emotional regulation	<ul style="list-style-type: none"> • Emotional coping strategies were used to lower the level of stress, to facilitate the use of problem management strategies especially in high stress situations to eliminate the source of stress. • When stress levels are low, emotional coping is not a necessary antecedent to effective problem-solving coping activities. • Anger, avoidance and other negative emotional strategies do not lower stress and are associated with lower levels of well being 	Bell et al. (2009) Cresswell et al. (2013) Elfering et al. (2005) Grover et al. (2009) Mohammad et al. (2013) Appelhans & Schmeck (2002) Hesselink et al. (2004) <i>(table continues)</i>

Key component of
the transactional
model of stress
and coping

	Major findings from the recent literature	Researchers
Stress management: Meaning-based coping	<ul style="list-style-type: none"> • Meaning-based coping strategies produce a sense of calm in the early stages of a catastrophic or life threatening situation that may be antecedent to problem-focused or emotion-focused responses. This benefit fades overtime • Meaning-based coping strategies are effective in situations that cannot be altered by problem management, however, their effectiveness may be limited when a problem-focused solution fails to produce the desired results 	Carver et al., (1993) Glanz et al., (2008) Guo et al. (2013) Hashim et al. (2012) Rinaldis et al. (2012)
Outcomes of coping: Moderators – Social support	<ul style="list-style-type: none"> • Social support bolsters cognitive, emotional, and meaning-based strategies • Social support moderates the relationship between perceived stress and well-being • Social support offers greater stress relief when accompanied by effective strategies to confront and deal with the stress, and a lack of social support contributes to the delirious effects of ineffective coping strategies 	Chao et al. (2011) Chao et al. (2011) Classen et al. (2001) Delongis et al. (2005)
Outcomes of coping: Moderators - Dispositional coping	<ul style="list-style-type: none"> • Coping style inclines the individual to rely on dispositional compatible coping behaviors by biasing selection among competing behavioral options within coping effort categories • Emotion oriented coping style was found more frequently among adults who experienced severe physical or emotional stress during childhood • Dispositional coping was evaluated as a generic response style to hypothetical stressors 	Lazarus (1993) Punamaki et al. (2008) Sasakai and Yamasakai (2007) Shikai et al. (2008) Steinhardt & Dolbier (2008)

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- Both dispositional and situational approaches can be shaped by experience and a resilient predisposition can be learned
 - Specific coping skills are more appropriate to supporting higher levels of general health than pre-dispositional style
- Steinhardt & Dolbier (2008)

Stress and Young Adults

Young adult college students are among the most consistently-stressed segment of the young adult population (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005).

Traditional young adult college students experience stress based on separation from their parental family, changed living conditions, academic workload, romantic entanglements, and concerns about future employment opportunities (Dusselier et al., 2005).

Nontraditional young adult students potentially have additional stressors including balancing employment with college classes, raising a family, and bearing the financial responsibilities associated with these additional demands. Young adult college students, like all young adults, must face these stresses while their brain is still maturing (Rebbeck, Weber, Spangler, & Zeigler-Johnson, 2013). The lack of a well-developed cognitive executive function leaves young adults vulnerable to impulsivity and maladaptive coping choices, including anger, avoidance, blame-shifting, smoking, drinking, and time management issues that lead to skipped meals, sleep deprivation, and lack of exercise (Nelson, 2008; Ohayon, 2007).

Younger adults are considered emerging adults, a transitional stage between late adolescence and adulthood (Arnett, 2004). Evidence suggests that this transition stage is stress-provoking, because failure to accomplish developmental tasks may impact the

transition to a fully-adult lifestyle, and thereby thwart personal goals (Newman & Newman, 2008). Epidemiologists have reported high rates of major depressive disorders in younger adults than in the general population or among older students (Blanco et al., 2008; Kessler et al., 2003). Living arrangements, occupational activities, and the social environment may further influence depressive disorders in younger adults. (Kessler et al., 2003; Ohayon, 2007).

Pierceall and Keim (2007) conducted a study to understand how college students cope with stress. They gathered data from 212 students enrolled in southern Illinois community colleges. Of the students surveyed, 75% perceived their stress level as high, and female students reported higher stress levels than males. The researchers found that the most-common activities used to cope with stress were talking to family and friends, engaging in leisure activities, and exercise. The maladaptive practices reported were alcohol consumption, smoking, and drug use. The students who reported less social support from family and friends also reported higher amounts of alcohol abuse (Pierceall & Keim, 2007).

Welle and Graf (2011) identified effective lifestyle habits and coping strategies for stress tolerance among college students. The researchers collected data via a survey of 459 students. The survey included an inventory of stressors, stress related symptoms, and coping strategies. The researchers found that having a sense of control over life, feeling supported, being satisfied with the environment, having adequate social interaction, and effectively handling academic demands were associated with high stress tolerance (Welle & Graf, 2011). The researchers also found that stress tolerance varied along racial lines,

with White students demonstrating a higher correlation between lifestyle-related factors and high stress tolerance than did Black students. The results also varied by gender, with males reporting more coping behaviors than females (Welle & Graf, 2011). The researchers concluded that students of different racial and gender groups cope differently, and that stress management among college students must account for different sub-populations.

Mahmoud, Staten, Hall and Lennie (2012) surveyed 508 fulltime undergraduate students to understand the relationships among students' depression, anxiety, stress, demographics, life satisfaction, and coping styles. The researchers used the Brief COPE Inventory and an adapted version of the Brief Students Multidimensional Life Satisfaction Scale to measure life satisfaction. They also used the Depression, Anxiety, and Stress Scale-21 (DASS-21). The authors found that maladaptive coping was the main predictor of depression anxiety and stress (Mahmoud, Staten, Hall, & Lennie, 2012). The researchers concluded that reducing maladaptive coping behaviors may have the greatest positive impact on reducing depression anxiety and stress in the young adult population.

LaBrie, Ehret, Hummer, & Prenovost (2012) conducted a study to evaluate the relationship between the motives behind drinking behavior and alcohol-related outcomes among college students. An online survey of 253 college students assessed student alcohol consumption, alcohol-related consequences, positive and negative college adjustments, and drinking motivation. Findings demonstrated that the relationship between the motive of drinking to cope and alcohol consequence (negative alcohol-related problem) is mediated by negative college adjustment. Positive college adjustment

is not directly related to alcohol related outcomes. A gender difference was also observed, as coping motives were directly predictive of negative alcohol related consequences among females but not males. The researchers concluded that reducing negative college adjustment-related stress is a potentially important strategy to decrease alcohol-related risk among college students (LaBrie et al., 2012).

Mahmoud et al. (2012) studied the relationship of mental health factors to life satisfaction and coping strategies among young adult college students. The researchers surveyed a total of 1,700 fulltime undergraduate students using the Depression Anxiety Stress scale, the Brief COPE inventory, and the Brief Students Multidimensional Life Satisfaction scale. Researchers found that students who used maladaptive coping strategies reported higher levels of depression and anxiety. Students with greater life dissatisfaction also reported higher levels of depression. Students who used maladaptive coping reported higher levels of depression and anxiety. Students with greater dissatisfaction with life indicated higher levels of depression, anxiety, and stress. Students with lower GPA were more depressed and female students were more anxious and stressed than male students. These study results demonstrated that maladaptive coping, life satisfaction, gender, and GPA are significant predictors of stress (Mahmoud et al., 2012).

Younger adults perceive time constraints on healthy dietary behaviors, which may contribute to stress. Pelletier and Laska (2012) conducted a study to identify the association between perceived time constraints for healthy eating and responsibility for work, school, and family among young adults. This cross-sectional survey evaluated 598

students enrolled in community college and 603 students from a public university. The researchers used perceived time constraints; work, school, and family responsibilities; and socioeconomic demographic characteristics as the variables for this study. Women of lower socioeconomic status perceived more time constraints and were less likely to have healthy balance than women of higher socioeconomic status. Women in a committed relationship had higher time constraints in general. Heavy course load and working long hours were important predictors of time constraints among men while living situation (living at home) and being in a relationship were more predictive of time constraints for women (Pelletier & Laska, 2012).

Emotion dysregulation and impulsivity have been independently considered as risk factors for addictive behavior (Granö, Virtanen, Vahtera, Elovainio, & Kivimäki, 2004). Schreiber, Grant, and Odlaug (2012) conducted a study to evaluate the relationship between emotional dysregulation and impulsivity among younger adults. The researchers used the emotion dysregulation scale, MINI international neuropsychiatric interview, self-reported assessments (Eysenck Impulsivity Questionnaire, Barrat Impulsivity Scale, Tridimensional Personality Inventory and Pauda Inventory) and cognitive assessments as measures in this study of 194 participants. High emotional dysregulation was associated with higher measures of impulsivity and increased risk of engaging in harmful behaviors, and a reduced ability to reason clearly relative to behavioral risk and potential negative outcomes. The researchers concluded that emotional regulation is an important factor to consider in addiction risk (Schreiber et al., 2012).

Daily stress and fatigue affect learning and cognitive function in younger adults (Beckner, Tucker, Delville, & Mohr, 2006). Palmer (2013) evaluated the association between fatigue and stress on learning and cognitive functions among 60 college students. Fatigue was measured using saliva samples and the Iowa Fatigue scale. Stress was measured using the Perceived Stress Scale. Cognitive functioning was measured using neurocognitive executive functioning tests. Working memory was also tested using a standardized scale. The study results showed that physiological fatigue and stress were both predictive of learning challenges and poor cognitive performance among college students (Palmer, 2013).

Ohayon and Roberts (2014) conducted a two-sample investigation of 19,136 subjects from the general population and 2,196 students living on a university campus to compare major depressive disorder in young adults living in a community versus those living on a university campus. The researchers conducted telephone interviews using a standardized questionnaire. Analysis showed that stress and social isolation were predictive of depression among younger adults. The prevalence of depressed mood and depressive disorders were similar between community and campus students group. This study also noted the importance of prevention, early identification, and mental healthcare access for young people (Ohayon & Roberts, 2014).

Complementary and Alternative Medicine

According to the National Center for Complementary and Alternative Medicine (NCCAM), nearly 40% of Americans use healthcare approaches which deviate from conventional medicine (NCCAM, 2013). These types of treatments and practices have

been labeled *complementary* when used in combination with conventional medicine, and *alternative* when used in place of conventional medicine. Together, these practices are referred to as CAM. Most of the people practicing CAM use it in conjunction with traditional treatments. When woven into the fabric of Western medicine, CAM is called integrative medicine (NCCAM, 2013).

Table 3

Key Findings from This Theoretical Literature Review

Key component of the stress and younger adults	Major findings from the recent literature	Researchers
Coping used for stress management among younger adults	<ul style="list-style-type: none"> • Most common coping practices among the younger adults are talking to family and friends, engaging leisure activities and participating in exercise. • Maladaptive practices are alcohol consumption, smoking, and drug use 	Perceall & Keim, 2007
Stress tolerance	<ul style="list-style-type: none"> • Having sense of control over one's life, feeling well supported, satisfaction with one's environment, having adequate social interactions, effective handling of academic demands associated with high stress tolerance • Stress tolerance varies with race and gender 	Well & Graf, 2011

(table continues)

Key components of the stress and younger adults	Major findings from the recent literature	Researchers
Predictor for the stress	<ul style="list-style-type: none"> • Maladaptive coping was the main predictor of depression anxiety and stress • Students used maladaptive coping reported higher levels of depression and anxiety 	Mahmoud, Staten, Hall & Lennie, 2012
Alcohol consumption	<ul style="list-style-type: none"> • Negative college adjustments associated with alcohol consumptions and alcohol-related consequence 	LaBrie, Ehret, Hummer, & Prenovost, 2012
Time constraints	<ul style="list-style-type: none"> • Women with lower Socioeconomic status perceived more time constraints and less likely to have healthy balance in life • Women with relationship had higher time constraints • Heavy course load and working long hrs. are predictors of time constraints among men • Living at home and being in relationship were more predictors of time constraints for women 	Pelletier & Laska, 2012
Emotional regulation	<ul style="list-style-type: none"> • High emotional dysregulation was associated with higher measures of impulsivity and increased risk of engaging in harmful behaviors • Emotional regulation is associated with addiction risk 	Schreiber et al., 2012
Learning challenges and cognitive performance	<ul style="list-style-type: none"> • Physiological fatigue and stress were predictive of learning challenges and poor cognitive performance among college students 	Palmer, 2013
Predictor for depression	<ul style="list-style-type: none"> • Stress and social isolation were predictive of depression among younger adults. 	Ohayon & Roberts, 2014

Integrative medicine is a growing health trend, and research into the efficacy of CAM practices is a promising emerging field (White House Commission on Complementary and Alternative Medicine Policy, 2002). Lifestyle-related illnesses are the leading cause of death in the United States, and holistic approaches to health are rapidly gaining popularity. The boundaries between CAM and mainstream medicine are often blurred, with mainstream doctors often recommending non-traditional practices in a clinical setting (WHC, 2002). CAM is defined as a group of diverse medical and healthcare systems, practices, and products not present in the conventional dominant healthcare system of a particular society or culture. (Giordano, Boatwright, Stapleton, & Huff, 2002; NCCAM, 2008b). According to NCCAM, CAM treatment approaches are classified in to five main groups or domains (NCCAM, 2013).

The first category is that of alternative therapeutic systems informed by practice and theory. This category includes naturopathic, homeopathic, Ayurvedic, and Chinese medicine. Naturopathic medicine is a Western medical system based on diet and lifestyle change combined with other CAM modalities such as massage, herbs, and joint manipulation to support the individual's ability to heal without the application of conventional medicine (NCCAM, 2013). Homeopathic medicine is a holistic system originating in Europe that seeks to stimulate the body's innate healing capacity by giving small doses of highly-diluted substances that, in large quantities, would aggravate the symptoms (an approach based on "like cures like").

Ayurveda is a holistic medical system that originated in India which integrates mind, body, and spirit to prevent and treat disease. Ayurvedic therapies employ the use of

herbs, massage, and yoga (NCCAM, 2013). Chinese medicine is also a mind-body-spirit medicine similar to Ayurveda. Chinese medicine (as well as other Eastern medicine systems) seeks to determine the underlying or root cause of the issue and act on the energy that creates disease. In this sense, a root problem on the spiritual plane may cause a physical manifestation or suffering. By treating the spirit, oftentimes the physical complaint disappears (Cushman & Hoffman, 2004).

The second domain encompasses the mind-body systems of interventions that have the capacity to affect body function. Such practices include: hypnosis, guided imagery, mental healing, yoga, and meditation. Meditation includes many different practices and disciplines, including mindfulness meditation and transcendental meditation. Meditation is a mind practice in which individuals focus their attention and become more in touch with their body and mind interconnectivity (NCCAM, 2013). Yoga can be practiced in many different styles and is used to promote health. Most practices combine movement, breathing techniques, and meditation (NCCAM, 2013). Prayer medicine varies greatly among religions and individuals, but may include an individual prayer for the self, or asking another to pray on their behalf (Ayers & Kronenfeld, 2010).

The third domain encompasses biological systems, such as herbs and dietary supplements. Manipulative body-based interventions such as osteopathic, chiropractic, and massage also fall under this category. The chiropractic professions focus on the relationship between the spine and body structure functioning. This practice is based on

the theory that manipulation of the spine and other parts of the body will help to improve and support the body's natural ability to heal (NCCAM, 2013)

Herbal medicine is considered one of the oldest healing practices; it can be found in almost every tribe and culture. *Materia medica* and documentation of the healing properties of plant substances have been recorded in ancient China, Babylon, Egypt, India, and later Greece, Rome, and the Arabian Empire (Griggs & Van der Zee, 1997). Known as botanical healing or herbalism in America, this method is the practice of collecting, preparing, and using herbs. Western herbalists also incorporate the use of pulse diagnosis, as well as examining and skin, tongue, facial markings, voice, speech, and body movements (Cushman & Hoffman, 2004).

The last of the domains includes the energy therapies and bio-electromagnetic and bio-field therapies such as pulse fields and therapeutic touch. Reiki is an ancient form of therapy in which touch from the hands is believed to transmit healing energy (Cushman & Hoffman, 2004). The Reiki practitioner acts as a conduit for life force energy to remove energy blockages or transmit new energy to the receiver or patient. This practice is popular as a complementary modality, as it can be used for any condition (Cushman & Hoffman, 2004).

Although researchers have shown specific modalities to be effective in certain conditions, most of the domains are used widely for a variety of health concerns and to promote general wellbeing, including stress reduction. More research is needed to specifically understand the benefits of each practice and its best applications in the

medical field (NCCAM, 2013). Table 4 summarizes the CAM domains and the therapies associated with those domains.

Table 4

Major CAM Domains with Examples

Major Domain of CAM	Examples
Alternative healthcare systems	Ayurvedic medicine Chiropractic Homeopathic medicine Native American medicine (e.g., sweat lodge, medicine wheel) Naturopathic medicine Traditional Chinese medicine (e.g., acupuncture, Chinese herbal medicine)
Mind-body interventions	Meditation Hypnosis Guided imagery Music therapy Prayer and mental healing
Biological-based therapies	Herbal therapies Special diets (e.g. macrobiotics, extremely low-fat or high-carbohydrate diets) Orthomolecular medicine (e.g., megavitamin therapy) Individual biological therapies (e.g., shark cartilage, bee pollen)
Therapeutic massage and somatic movement therapies	Massage Body work therapies
Energy therapies	Qigong Reiki Therapeutic touch
Bioelectromagnetics	Magnet therapy

CAM Use

Kessler et al. (2001) conducted a survey of 2,055 participants to identify the current use, lifetime use, and age at first use of 20 CAM therapies in the United States. The researchers also examined the use of CAM therapies to treat anxiety and depression. The researchers reported that a total of 9.4% of the respondents had suffered from anxiety attacks in the past 12 months, and 7.2% reported severe depression. A total of 56.7% of those with anxiety, and 53.6% of those with depression, reported using some form of CAM to treat these conditions. The NCCAM and National Center for Health Statistics conducted a survey to identify Americans' use of CAM (NCCAM, 2008a). Results of data from 23,393 adults aged 18 year or older and 9,417 children in the United States showed that approximately 38% adults and 12% of children had used some form of CAM in the last 30 days.

CAM as a stress management technique. The effectiveness of CAM techniques in reducing stress has been an important area of research (Collinge, Wentworth, & Sabo, 2005). CAM holds significant potential for enhancing the management of stress, mental disorders, and other traumatic diseases (Pemberton & Turpin, 2008). CAM methods such as yoga, meditation, exercise, energy-based therapies, and body-centered psychotherapies are used to treat symptoms of anxiety, stress, and stress-related disorders (Lehrer, Woolfolk, & Sime, 2007). Some examples of CAM used to enhance coping include prayer, mental healing, meditation, and psychotherapy, as well as inventive outlets like dance, art, or music (Cummings, 1998). According to Collinge et al. (2005), CAM has

been shown to be safe and effective for the management for depression, anxiety, and stress (Collinge et al., 2005).

CAM is used for stress management by 40% of the women in United States (Su & Li, 2011). When vitamins and praying for health are included, the proportion of the female population that uses CAM treatments increases to 69% (Barnes, Bloom, & Nahin, 2008). People who frequently use CAM treatments and therapies are of three types: (a) educated people (mostly younger adults), (b) women, and (c) people who live in or near urban areas (Barnes et al., 2008).

The use of relaxation techniques for health is widely practiced. Researchers have supported the use of relaxation techniques for a variety of conditions including anxiety, asthma, depression, fibromyalgia, headache, heart disease, high blood pressure, hot flashes, insomnia, irritable bowel syndrome, nausea, nightmares, overactive bladder, and pain (NCCAM, 2013).

Strauss and Lang (2012) conducted a review to explore the use of CAM in addressing stress levels for patients with post-traumatic stress disorder (PTSD). The authors found that CAM interventions such as relaxation, exercise, and meditation often addressed mental and emotional problems that exacerbate stress. The findings suggested that meditation techniques are associated with moderate improvements in PTSD severity and health-related quality of life compared to individual psychotherapy.

Jacobs (2001) evaluated the clinical application of relaxation response and mind body intervention. According to this review, mind-body intervention helps to restore homeostasis by balancing the sympathetic and parasympathetic nervous system; this is

likely to be the reason why CAM is effective in easing the symptoms of PTSD. Jacobs also concluded that mind-body interventions are cost effective and should be used in conjunction with standard medical care.

A global survey of CAM use indicated that military personnel reported using prayers, massage therapy, and relaxation techniques for stress reductions at 2.5-7 times the rate of civilians (Goertz et al., 2013). A total of 16,146 active-duty military personnel participated in this study. Another survey conducted among 342 North American nurses showed that 99% of participants reported using one or more mind-body practice to reduce stress. Prayers, breath-focused meditation, healing or therapeutic touch, yoga, and mindfulness-based meditations are commonly-practiced CAM modalities. The reported benefits of these modalities were spiritual well-being, serenity, calm, better mood, compassion, and better sleep.

Yadav, Magan, Mehta, Sharma, and Mahapatra (2012) conducted a study at an integrated health clinic to evaluate the efficacy of a yoga-based lifestyle intervention program for the prevention and management of chronic diseases. The program used yoga postures, breathing exercise, stress management, and group discussion as interventions for participants who were overweight or had chronic inflammatory disease. The researchers performed laboratory assessments of biochemical markers of stress and inflammation at baseline and at the end of the intervention (10 days). Results from this study showed that yoga-based lifestyle practices reduced stress markers and inflammatory changes (Yadav et al., 2012).

Recent studies have showed that CAM use has been increasing among cancer patients (Ernst, 2003). Several studies of cancer patients have showed the effect of meditation and yoga on quality of life, fatigue, and sleep (Banasik, Williams, Haberman, Blank, & Bendel, 2011; Carlson, Speca, Faris, & Patel, 2007; Carson, Carson, Porter, Keefe, & Seewaldt, 2009). Mind-body techniques of meditation, yoga, Tai Chi, acupuncture, manipulative technique massage, energy-based polarity therapy, and Reiki are some of the CAM interventions commonly used by cancer patients (Chandwani et al., 2012). Results from the review study of Chandwani et al. showed that mindfulness-based stress reduction programs with components similar to yoga and acupuncture showed reduction of stress levels, anxiety, fatigue, and distress associated with advanced cancer.

Li and Goldsmith (2012) conducted a review to evaluate the effectiveness of yoga on anxiety and stress. The researchers identified a total of 35 studies assessing effects of yoga on anxiety and stress for this review, 25 of which showed a significant decrease in stress/anxiety symptoms among participants after starting yoga practices. The researchers suggested that yoga as supplement to pharmacologic therapy may improve stress and anxiety levels (Li & Goldsmith, 2012).

Penman, Cohen, Stevens and Jackson (2012) conducted a national survey of yoga practitioners in Australia to evaluate practice of yoga. Survey respondents indicated that they commonly practiced yoga for health and fitness as well as stress management. Regular practice of yoga was associated with a direct healthy lifestyle effect including vegetarianism, non-smoking, reduced alcohol consumption, increased exercise, and reduced stress (Penman et al., 2012).

Hollifield, Sinclair-Lian, Warner, and Hammerschlag (2007) conducted a study to evaluate the potential efficacy and acceptability of acupuncture for PTSD. The researchers used self-reported PTSD symptoms as the outcome measure for this study. The researchers compared acupuncture therapy to cognitive behavioral therapy. The results showed reduction in the symptoms of PTSD at the end of the treatment, as well as after 3-month follow up for the group that received acupuncture treatment (Hollifield et al., 2007). This finding suggested that acupuncture may be an efficacious and acceptable treatment option for PTSD. Hollifield (2011) also conducted a review study to evaluate the role of acupuncture for PTSD. Hollifield explained that acupuncture has biological effects that are relevant to PTSD pathology.

CAM as stress management intervention in young adults. Among the most recent literature on the use of CAM as a stress management approach for young adults is a randomized controlled study of 288 medical students conducted by de Vibe et al. (2013) to examine the effectiveness of mindfulness-based stress reduction (MBSR) in reducing stress and improving subjective well-being. The intervention group received a 7-week MBSR program in addition to their regular coursework, while the control group continued with their standard classes. The MBSR program included physical and mental exercises to increase the mindfulness experience; mindfulness communication and reflection; and didactic teaching on mindfulness, stress, and stress management. Study results showed that students experienced significant improvements in mental distress, study stress, subjective well-being, and mindfulness after participating in this program (de Vibe et al., 2013). Similarly, Simard and Henry (2009) conducted a study of first-year

medical students to evaluate the effect of a 16-week yoga intervention. Yoga practices consisted of asana, pranayama, and meditations. Study results demonstrated improvements in overall health, a reduction in perceived stress, and reduced levels of depression (Simard & Henry, 2009).

A study conducted by Ratanasiripong, Sverduk, Prince, and Hayashino (2012) analyzed the effectiveness of biofeedback and counseling for stress and anxiety among college students. The results indicated that participants who received biofeedback training and counseling had a greater reduction in anxiety symptoms than did the participants who received counseling alone. The program used a portable, user-friendly biofeedback program to help students learn to take control of their stress and anxiety, by generating automated feedback about the stress levels exhibited by their bodies (Ratanasiripong et al., 2012). The results from this study suggested that combining modalities may be beneficial in addressing the broad range of challenges students face.

Exercise has been shown to help alleviate stress in college students (Baghurst, 2011). In a study to determine whether different stress reduction interventions could alter the perceived stress levels of college students, 531 students participated in a 16-week program that focused on cognitive-behavior stress management and cardiovascular fitness. A control group received no intervention (Baghurst, 2011). Measurements were taken at the beginning and end of the semester. Perceived stress was measured by the Perceived Stress Scale. Both the stress management and physical activity groups had significantly lower levels of perceived stress at the end of the semester than the control group (Baghurst, 2011). These findings indicated that it is helpful for students to have

some type of outlet or structure to manage stress. Although physical activity and cognitive-behavior stress management are very different, both were effective in reducing the students' perceived stress versus no program or activity at all.

A study by Gard et al. (2012) examined the effects of a yoga-based intervention on young adults' on quality of life, perceived stress level, mindfulness, and self-comparison. The variables were measured in 33 self-selected participants in a 4-month residential yoga intervention. Assessment was conducted before and after the program via questionnaire. A demographically-matched control group also completed the same questionnaires. Program participants exhibited increased quality of life scores and decreased levels of perceived stress both from baseline and relative to study controls. The researchers concluded that yoga-based interventions may be of value in reducing stress and improving quality of life in young adults. The practices may also improve coping mechanisms in young adults (Gard et al., 2012).

A study conducted by Zhang, Ren, and Zhang (2010) observed the clinical therapeutic effects of acupuncture plus cupping for treating insomnia in college students. The researchers randomly divided 92 college students suffering from insomnia into a treatment group (52 cases) and a control group (40 cases). Acupuncture plus cupping was used to enhance brain function and reduce stress in the treatment group. Therapeutic effects were measured by a self-rating sleeping scaling (SRSS), and evaluated after 1 month of treatment. Results showed a significant difference between the two groups. The therapeutic effects shown in the treatment group was significantly better than that in the control group (Zhang et al., 2010). These results suggested that acupuncture and cupping

treatments may be effective in helping college students manage stress and improve quality of sleep.

Psychological distress such as anxiety and depression have been linked to the development of hypertension (Rozanski, Blumenthal, Davidson, Saab, & Kubzansky, 2005). College students are more prone to psychological distress (D’Zurilla & Sheedy, 1991). A study by Nidich et al. (2009) evaluated the effectiveness of a Transcendental Meditation (TM) program on blood pressure and psychological factors in young adults. In this randomized controlled trial, the researchers allocated 298 university students into the TM program or to the control group. At baseline and after 3 months, blood pressure, psychological distress, and coping ability were assessed. The study results showed that this mind-body intervention program decreased BP, decreased psychological distress, and increased coping capacity (Nidich et al., 2009).

Researchers in this review of the most recent literature have provided evidence that a range of complementary and alternative treatment options have proven beneficial among young adults. Further to this, CAM techniques have been seen to improve both young adults’ general well-being and specific stress-related symptomology. Although many of these practices come from ancient traditions, they can be easily adapted and implemented into college settings, providing students with more skill and knowledge to better manage their stress levels.

Conceptual Model

Although researchers have examined the effectiveness of CAM as a specific stress reduction intervention among this study’s target population, no studies currently exist that

assessed the extent to which young adults choose to use CAM interventions as supplements to other adaptive coping mechanisms, or as substitutes for maladaptive coping efforts. In addition, no literature has examined the extent to which young adults adopt CAM practices under stressful circumstance when they are not specifically enrolled in an intervention trial. Two recent studies have evaluated the adoption of stress reduction interventions in a more natural student context.

Conley, Travers, and Bryant (2013) investigated the outcomes of promoting psychosocial adjustment and stress management in first-year college students engaged in a psychosocial wellness seminar. The researchers collected data from 2009 to 2011 using an 8-month prospective quasi-experimental design. Intervention and control participants showed no differences at baseline, but the intervention group reported significantly greater perceived improvements in stress management and psychosocial adjustment over the course of the seminar. (Conley et al., 2013). The researchers interpreted the results as supporting the use of educational programmatic approaches embedded in the academic curriculum, in order to promote psychosocial adjustment and stress management in college students and to counter the potential development of maladaptive coping strategies.

MyStudentBody-Stress is an online stress management program intended to enhance stress management and promote healthy behaviors. Chiauzzi et al. (2008) implemented and evaluated this program at six U.S. colleges. Groups were randomized to one of three conditions: the MyStudentBody-Stress program, a control health information website, or no intervention. The researchers compared group data at baseline and again at

1, 3 and 6 months. The primary outcome measure was perceived stress within the past month. Secondary outcome measures were the Health Promoting Lifestyle Profile II, a 52-item frequency scale measuring self-reported health-promoting behaviors such as physical activity, nutrition, spiritual growth, interpersonal relations, and stress management, and the College Adjustment Scales that screen for developmental and psychological problems. Although there were no between =0group differences on the primary outcome variables, analysis between secondary outcome variables indicated that the MyStudentBody-Stress participants were more likely to increase weekly physical activity, use specific stress management methods, and exhibit decreased anxiety and family problems (Chiauzzi et al., 2008). The researchers not only found support for the potential benefit of the MyStudentBody-Stress program, but their findings may also be interpreted as evidence that stressed young adults are capable of adopting and practicing stress management techniques presented through an objective and impersonal medium.

These studies provided preliminary evidence that stressed students can and will choose effective stress management techniques that are presented within the context of daily educational requirements, or are presented as available noncompulsory stress reduction resources. This educational and noncompulsory context corresponds to the circumstances under which young adults seek and obtain stress management assistance from their healthcare providers. Healthcare providers refer clients to CAM for education, skill building, and therapy sessions that compete for priority among the other stressors and demands clients face and attend to in their daily lives.

I designed the current study to determine if young adults will indeed adopt CAM techniques in a non-compulsory setting, by framing the question in terms of the transactional model of stress and coping, accounting for factors that are known to influence stress and coping in young adults. Based on these possible influences, the conceptual model guiding this investigation is presented in Figure 2.

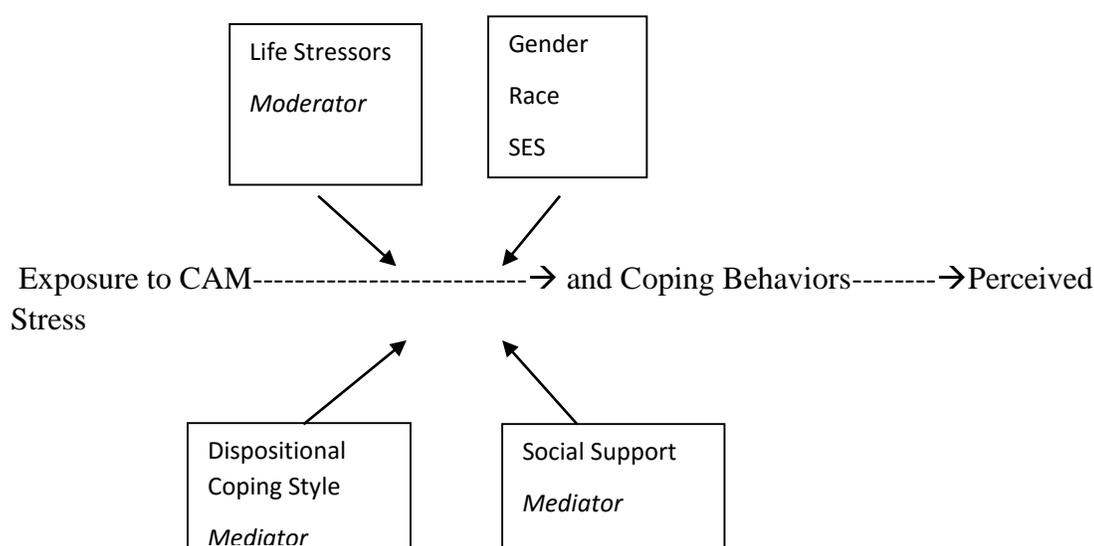


Figure 2. The relationship between stress and young adults' complementary and alternative medicine use.

Researchers have demonstrated the effectiveness of CAM techniques as stress management tools for young adults (Baghurst, 2011; de Vibe et al., 2013; Gard et al., 2012; Nidich et al., 2009; Ratanasiripong et al., 2012; Simard & Henry, 2009; Zhang et al., 2010), but researchers have also demonstrated that overwhelming stress can interfere with cognition, making it difficult to comprehend or execute novel or complex functions (LaBrie et al., 2012; Palmer, 2013; Pelletier & Laska, 2012; Pierceall & Keim, 2007; Schreiber et al., 2012; Welle & Graf, 2011). Individuals laboring under a heavy stress

load may, consequently, find it difficult to learn or practice CAM modalities when they are not participating in a structured intervention. In addition, even those CAM modalities that are guided or delivered by CAM practitioners require a time commitment, and the literature has demonstrated that time management is a major concern among stressed young adults (Nelson, 2008; Ohayon, 2007).

Both of these considerations raise a concern as to whether heavily-stressed individuals would embrace or pursue recommended CAM modalities, even if those modalities were known to them and readily available. This concern is buttressed by a study that found that fewer than 25% of psychology students were willing to seek professional help, or use readily-available campus resources to treat mental distress (Thomas, Caputi, & Wilson, 2014). Brimstone, Thistlethwaite, and Quirk (2007) comparing the willingness of medical students to seek conventional care for physical illness or mental distress, to the willingness of psychology students to seek such care, found that neither group was willing to avail themselves of the resources they knew to be beneficial from their own disciplines. Both groups preferred to self-treat by engaging their social support system for advice and solace (Brimstone et al., 2007). These findings are consistent with the understanding that the executive decision-making component of the young adult is still developing (Caspi et al., 1996; Huffman, 2012; Steinberg et al., 2010), and underscore the potential for stressed young adults to choose a coping mechanism with which they have had long-term familiarity.

The conceptual model, then, derives from this understanding, framed within the transactional model of stress and coping. To determine whether exposure to CAM is

salient and appealing enough to be incorporated into stressed young adults' coping behaviors requires a measure of the magnitude life stressors, an accounting of the resources available to cope with those stressors, and a measure of the coping strategies actually implemented by the target population. According to this conceptualization, life stressors are operative throughout exposure to, and training in, CAM stress management techniques, and have the potential to moderate the extent to which CAM techniques are internalized (Zimmerman & Kandiah, 2012).

The extent to which life stressors do, in fact, moderate CAM internalization is also influenced by the presence or absence of other coping resources that can blunt the impact of existing stressors. The stress literature has provided evidence that objective stressors are less likely to cause an individual physical and emotional distress when there are social and monetary supports available to counter external demands (Chao, 2011; Classen et al., 2001; DeLongis & Holtzman, 2005). Socioeconomic status is a reasonable measure of monetary support, and social support is both self-explanatory and an acknowledged mediator variable in the transactional model of stress and coping (Lazarus & Folkman, 1984).

The findings in the literature reviewed for this study also demonstrated gender and racial differences in both the manner in which stressors are experienced, and the coping mechanisms chosen to address stress (Welle & Graf, 2011). Gender or race could, consequently, play a role in the internalization and use of CAM stress management techniques and have been factored into the conceptual model. Dispositional coping style is an acknowledged mediator in the transactional model of stress and coping, as it biases

the individual to favor one type of coping behavior over other available options (Lazarus, 1993). Nothing in the literature reviewed to date has suggested that any given dispositional coping style would influence an individual to be more or less inclined to internalize or utilize CAM; however, this lack of information poses the question as to whether or not dispositional coping style does have an impact remains open. This variable has, consequently, also been included in the model.

The outcome of the interaction among stressful demands, coping resources, coping predisposition, and exposure to CAM stress management techniques is the actual coping behavior used to address the existing stressors. The final coping behaviors may or may not include CAM techniques, and determining this is the main goal of this investigation. The final outcome of the conceptual model is the level of stress felt by the individual once coping is operationalized. The literature has offered evidence that avoidance-oriented coping behaviors such as procrastination or substance abuse are associated with in higher levels of perceived stress than are positive coping behaviors such as seeking social support (Chao, 2011; Rinaldis et al., 2012). As the literature has supported CAM as a positive stress management technique, it is reasonable to hypothesize individuals who do operationalize their CAM training will have lower perceived stress than individuals who engage in negative coping behaviors. No evidence was found in the literature, however, that would allow speculation as how CAM might contribute to perceived stress in conjunction with, or compared to, other patterns of positive or negative coping behaviors. Examining this contribution is a second goal of this investigation and is, therefore, represented in the model.

Summary

In this chapter, I reviewed the literature in four areas relevant to the current investigation. The first literature set developed the research problem pertaining to young adults' elevated risk for incurring high levels of stress as they pursue an education and compete to enter the workforce and establish a family. Specifically, the literature supported the proposition that young adults in the United States could benefit from stress-management techniques that are compatible with their still-maturing cognitive sensibilities, but researchers have questioned the capability of young adults to actively internalize and use novel techniques under conditions of elevated stress.

The second set of literature established the form, function, and applicability of the transactional model of stress and coping to investigating the relevant dimensions of the research problem. The third literature set presented information on complementary and alternative medicine modalities as documented stress-reduction techniques with the potential to appeal to young adults. The final literature set examined the outcomes of stress management interventions among young adults and documented the current knowledge gap regarding how, or if, young adults' demanding lives interfere with their ability to embed CAM stress management techniques into their routine coping behaviors. I concluded the chapter with a conceptual model drawn from the literature reviewed to guide the proposed research.

In Chapter 3, I will develop and justify the study methodology including the study design, the study sample, the data collection instruments, the study hypotheses, and the

data analyses. Each of these elements will be presented as aligned with the conceptual model developed in Chapter 2.

Chapter 3: Methodology

Introduction

The purpose of this quantitative study was to examine whether exposure to CAM, stress level, dispositional working style, sociodemographic variables, and social support impact the use of CAM modalities for stress management among young adults. This study also looked at the difference in the levels of perceived stress among the younger adults who do and do not use the CAM modalities for stress management. I performed a quantitative cross-sectional correlational study to identify whether the factors identified in the study influence the dependent variable of the use of CAM modalities for stress management. I used a survey methodology to gather primary data for the analysis of potential relationships. In this chapter, I will provide a discussion and the justification of the research design chosen for this study. I will also discuss the research methodology, including the target population, sampling design, sample size, and recruitment procedures. I will then provide explanations of the appropriateness, validity, and reliability of the study measurement instruments, followed by an explanation of the study variables and how those variables are operationalized. In the subsequent sections, I will present the data collection procedures and data analysis plan, as well as the appropriateness of each analysis to testing the null hypotheses in this study. Finally, I will discuss of the potential threats to the study's validity and how the threats were addressed in this study, as well as ethical considerations. I will then provide a summary to emphasize the main points of this chapter.

Research Design and Rationale

I employed a quantitative cross-sectional correlational research design using primary data collected via validated survey instruments to identify potential relationships between variables such as exposure to CAM, stress level, dispositional working style, sociodemographic variables, and social support impact the use of CAM modalities for stress management among young adults. The dependent variable in this study was the use of CAM modalities for stress management, such as meditation, yoga, talking to friends, special diets, seeking family support, and similar techniques. The 30 modalities considered in this study are presented in Appendix A. Independent variables included the participants' exposure to CAM, stress level, dispositional working style, sociodemographic variables, and social support.

Researchers may use quantitative methods when the researcher's goal is to determine the relationship between variables or to predict outcomes (Babbie, 2012). Quantitative research methods focus on providing an objective measure, considering replicable methodologies and generalizable findings (Bryman, 2012). Quantitative studies consider the use of survey instruments to provide an objective measure of constructs such as the variables considered in this study in order to collect data and test the hypotheses posed in this study. As opposed to a qualitative study, a quantitative study is able to identify relationships between variables considering statistical tests as evidence (Babbie, 2012). I directed this research toward evaluating the extent to which the variables of interest are related, using numeric measures and statistical tests of significance.

A quantitative design is appropriate when the goal of the research is to determine the extent to which the defined input variables influence the defined outcome variables. The researcher, therefore, assumes a positivist perspective where empirical investigation leads to evidence reflective of the truth. In contrast, qualitative research methods focus on identifying influential factors and understanding relationships and dynamics that have not yet been fully explored (Cozby, 2009). Qualitative research is appropriate for constructing conceptual realities and developing theories, as well as identifying factors that may be numerically measured and tested in future research. Qualitative research relies on reasoning around observational or perceptual data that is not numerically measured. It serves as both a precursor to, and a complement of, quantitative research (Merriam, 2009).

Qualitative studies are inductive by nature and may provide a richer understanding of the phenomenon under study (Lindlof & Taylor, 2002). A qualitative design assumes a post-positivism perspective, where truth is found in the experiences of individuals rather than objectively measuring each component of the construct (Babbie, 2012). A qualitative design is not appropriate for this study, because the variables under review are well-studied and have been numerically supported by prior research. The relationships to be tested are deductive in nature and are reasonable extensions of the current body of knowledge.

This investigation was cross-sectional, as data were gathered from participants at a particular point in time without manipulation or without being exposed to an intervention. An experimental design was not appropriate for this research, because the

intent was not to examine the effects of a given stress management intervention randomly assigned to intervention and control groups (Bryman, 2012). Because this investigation was directed toward investigating exposure levels in a natural setting, I considered but ultimately rejected a quasi-experimental design, because of the inability to isolate a natural control group or naturally-occurring exposure levels a priori. Instead, the intention was to correlate all available exposure levels within the study sample, an approach which is a hallmark of a cross-sectional correlational design (Cozby, 2009).

I also considered and rejected longitudinal designs including retrospective, prospective, and time series, because nothing in the literature supported the conjecture that the dynamic of interest is cumulative. The degree of stress experienced by any given individual is episodic, and hence the effects of fluctuating levels of stress are best captured by time spans reflective of the transient nature of variable intensity. This supported the use of a cross-sectional design, where variable levels are measured at a given point and variation is examined by analyzing the range of variation across the study sample (Babbie, 2012).

I employed correlational study, as opposed to other research designs, because the purpose was to explore potential relationships between variables (Babbie, 2012). A correlational study seeks to identify whether a positive or a negative association exists between variables. In this study, the use of CAM modalities for stress management was considered as the dependent variable. This study sought to identify which of the factors identified as independent variables are significantly related to the dependent variable. Other study designs are concerned with comparing groups or predicting the dependent

variable. However, because the purpose of this study was to identify potential relationships between identified variables, then a correlational study was the most appropriate.

Population

The study target population is young adults. According to United States census data, there were 56,050,605 young adults between the ages of 18 and 30 in 2010. Census data also indicated that 18% of the U.S. population identified as a younger adult. The number of young adults living in California, the state where this study was conducted, was reported as 7,222,769.

Sample and Sampling Methodology

Sample

I targeted young adults aged 18-30 currently enrolled in small university in southern California that offers degree programs in the biological and health sciences and in CAM practice. I chose to examine university students for this investigation, because researchers have demonstrated that young adults pursuing university degrees are exposed to multiple stress factors including academic concerns, financial demands, employment considerations, romantic encounters, and the increasing burden of adult responsibilities (Goldin et al, 2007; Barbist et al., 2008). In addition, as with all young adults, younger university students are cognitively immature and, therefore, at high risk for adopting unhealthy or ineffective risk management behaviors that may compete with CAM techniques as the coping behaviors of choice when dealing with a high stress load (Barbist et al., 2008). Although the traditional age of university students is considered to

be 18 to 22 years of age (Barbist et al., 2008), the university from which the sample will be drawn attracts a large number of older young adults to its advanced degree programs, as well as a reasonable percentage of older young adults who are attending university for the first time. This ensured that the study sample was culled from potential participants across the age range of interest; it also allowed comparisons by age group to determine if study outcomes differed between younger young adults and older young adults who are more experienced and closer to cognitive maturity.

My focus on examining varying levels of exposure to CAM in a naturally-occurring setting required that the study sample be recruited from a pool of participants likely to exhibit the required variation. Because CAM programs and modalities are major components of this small university's degree offerings, students, regardless of major, have some potential for being exposed to CAM tenets and practices. It was reasonable to assume that students who have chosen to major in the biologic and health sciences were potentially less-exposed than those students who are actively pursuing a degree in a CAM related field. Although field of study is not an absolute indicator of CAM exposure, as students not pursuing CAM careers may have had extensive exposure to CAM outside the university setting, it did limit the sample to a pool of candidates likely to exhibit variation on this key variable. Given the CAM orientation of a significant portion of the university curriculum, it was unlikely that a large number of students are completely ignorant of, or have remained entirely unexposed to CAM in one or more of its myriad forms; however, that circumstance is favorable for the study sample. The research questions of interest center on determining how much exposure to CAM is necessary to stimulate using CAM

techniques to manage daily stress. Young adults who are completely naïve regarding the nature and function of CAM would not suitable participants for this study, in that they would lack the key variable of exposure.

Sampling Strategy

I employed a purposive sampling technique to recruit volunteers from a local health sciences university that offers CAM professional programs in Ayurveda, Acupuncture, and oriental Medicine and Doctor of Chiropractic programs, as well as non-CAM-related career tracts such as science programs. The participant pool, consequently, was non-random and purposive, as the recruitment included participants with no academic exposure to CAM and participants with varying levels of academic exposure to CAM. A cohort group was selected from each year of the above-mentioned CAM programs to give the sample varying levels of academic exposure to CAM. I recruited the study sample using nonrandom purposive sampling based on age and enrollment status in the target university, such that the resulting sample was derived from the study target population.

Inclusion criteria. For purpose of this study, younger adults are defined as ranging in age from 18-30 years. The upper age limit is based on literature indicating that brain maturity is completed only after the third decade of life (Gottesman & Hanson, 2005). The lower age limit is based on the traditional age for an individual to transition from high school to university in the United States. Although individuals under the age of 18 may attend university, those individuals will be excluded from this study to ensure consistency of cognitive development at the lower boundary of the sample, and to

eliminate any ethical concerns associated with including minors in the study. Study participants had to be enrolled in health Science University in certificate programs in Ayurvedic medicine or Masters in Acupuncture & Oriental Medicine or Doctor of Chiropractic or Institute of Science programs.

Sample Size

I conducted a priori power analysis to identify the minimum number of samples necessary to provide statistically-valid and generalizable results. In calculating for the minimum sample size, a number of factors were considered. These factors included the effect size, significance level, power of the test, statistical test, and whether the analysis is two-tailed or one-tailed. For the purpose of this study, I considered a medium effect size to ensure that the analyses were not too lenient or too strict in examining the strength of relationships between variables (Cohen, 1988). A power of 80% was also used because this was deemed as the acceptable standard over the years (Cozby, 2009). A significance level of .05 was used to have 95% confidence on the results of this study.

Moreover, I considered two-tailed regression analysis considering five independent factors as well as correlation analysis as the statistical tests used in this study. The sample size calculation was conducted with the aid of a software called G*Power v3.1.0. According to the factors considered in this study, it was necessary to gather at least 84 participants to achieve 80% power of the statistical analyses (Faul, Erdfelder, Buchner, & Lang, 2009). To ensure that minimum sample size of 84 was achieved, at least 420 participants were invited to participate in the study, considering a

20% response rate (Merriam, 2009). Data collection was only closed once at least 84 participants completed the survey questionnaire considered in this study.

Recruitment and Consent

This study was conducted within a university setting in southern California. Recruitment targeted the students from a small university in southern California. The recruitment process began by identifying the cohort students from each year of the CAM (Ayurvedic Medicine or Masters in Acupuncture & Oriental Medicine or Doctor of Chiropractic) and non CAM programs (Institute of Science programs). This recruited participants with varying levels of academic exposure to CAM as well as non-CAM. I sought permission from the dean of each college to distribute survey questionnaires to the students. I contacted faculty from Ayurvedic Medicine, Acupuncture and Oriental Medicine, and Doctor of Chiropractic and Science programs to use the end of their classroom time to administer the questionnaire. I visited the identified classes to distribute the questionnaire.

Before distributing the questionnaire to the students, I presented a general statement about the purpose of the study and information about withdrawal from the study. I operationalized the sampling strategy using initial screening questions. Students who fell under the inclusion criteria were given an informed consent form. The informed consent form advised each participant about the purpose of the study and their role as participants in the study. Additionally, it assured participants that no identifying information would be used or collected at any point during the process and all that results would remain anonymous and confidential. If a participant refused to sign the informed

consent form, they would be automatically removed from the study. Upon signing the informed consent form, each participant completed the demographic survey and the four additional surveys at their leisure. I gave my contact information to the participants. After the completion of the questionnaire, participants were thanked for participating in the study. The goal was to complete the survey collection within 1 month. At the end of 1 month, the data collection was closed to begin the data preparation for statistical analyses.

Instruments

I used five instruments in the study to collect data from students who passed the inclusion criteria. The survey instruments were only given to participants once the informed consent form was signed. Specifically, the five instruments were: (a) Demographic survey, (b) Use of Coping Behaviors, (c) Knowledge and Exposure to CAM, (d) Hassles Scale, and (e) Coping Resources Inventory.

Demographic Survey

I used a demographic survey to gather data that describes the participants in the study, as well as data that considered as the independent variables. Demographic information considered in the study included age, race, socioeconomic status as measured by income levels, employment status, housing status, and marital status. The social support received by the student participant was also part of the demographic questionnaire. The items in the demographic survey were multiple choice, wherein the participant selected the most appropriate response that match their status.

Use of Coping Behavior Scale

The UCMS was developed from resourced literature defining CAM methods used by individuals. The Use of CAM Modalities survey uses a frequency scale to measure propensity of modality use. The survey lists 30 modalities. Response options are coded numerically but anchored semantically, where 1 = *Never*, 2 = *Rarely*, 3 = *Sometimes*, 4 = *Often*, and 5 = *Always*. The survey takes about 5 minutes to complete and is scaled at the ratio level, meaning that there is an assumed relationship between response options and there is a meaningful zero value. Scores are totaled by adding up responses for each question. Higher responses mean greater use, while lower response means less use (Appendix A).

Reliability and Validity of the Coping Behavior Scale

The survey collects frequency responses to measure use of various modalities for the management of stress. The idea of the survey is to observe the frequency of CAM use by participant. The instrument was monitored for internal consistency. A pre-test was conducted for this instrument by doing expert review to make sure that the instrument has face validity. This also ensured that the questions are consistent with expectations and make sense (Colton & Covert, 2007).

Knowledge and Exposure to CAM Use Survey

The knowledge and exposure to CAM use survey will be used to measure the participants' knowledge of and exposure to CAM. In this survey, exposure was defined as the degree to which an individual has gained knowledge about, or been influenced to use one or more complementary or alternative medicine modalities. The items in the survey include the 30 modalities in the use of coping behavior scale. The participants

were asked to rate each of the modalities using a five-point Likert-type scale to assess their exposure to CAM. Response options are coded numerically but anchored semantically, where: 1 = *Not at all*, 2 = *To a slight degree*, 3 = *To some degree*, 4 = *To a moderate degree*, and 5 = *To a great degree*. The survey can be completed at about 5 minutes and is scaled at the ratio level. This means that there is an assumed relationship between response options and there is a meaningful zero value. Scores are totaled by adding up responses for each question. Higher responses mean higher knowledge and exposure, while lower response means lesser knowledge and exposure to the CAM modalities (Appendix A).

Reliability and Validity of the Coping Behavior Scale

The survey collects knowledge and exposure to various modalities for the management of the stress. The focus of the survey is to measure knowledge and exposure to CAM by participant. The instrument was monitored for internal consistency. A pre-test was conducted for this instrument by doing expert review to make sure that the instrument has face validity. This will ensure that the questions are consistent with expectations and make sense (Colton & Covert, 2007).

Hassles Scale

The Hassles Scale (HS) will be used to measure the respondents' level of stress. The HS is a 117-item scale that uses a four-point Likert-type scale to obtain level of stress that an individual is currently experiencing. The 117 items describe situations that a person encounters in everyday living. Respondents are directed to select a numerical value that reflects the hassle level of that experience. The four-point Likert-type scale is

as follows: 0 = *none or did not occur*, 1 = *somewhat severe*, 2 = *moderately severe*, and 3 = *extremely severe*.

The Hassles Scale was based on a theoretical system most recently described by Lazarus and Folkman (1987). This system presumes that how persons construe or appraise the personal significance of their encounters with the environment determine what is psychologically stressful to them. Such appraisals need not be accurate reflections of what has actually occurred. A person's appraisals reflect environmental circumstances as well as personality characteristics, such as goal hierarchies and beliefs about self and world, and other factors that may result in special sources of vulnerability to stress. The phenomenological aspect of appraisals helps to explain why a given event may be stressful for one person and irrelevant for another.

Reliability and Validity of the Hassles Scale

The Hassles Scale was constructed by consulting individuals about positive daily experiences and subsequently fielding hundreds of questions to assess psychometric properties. The creator then obtained pilot data from college students, and rated the frequency of each uplift on a four-point scale.

According to the author, hassles scores reflect states that are changeable psychological stress responses; the item *stability* may be more applicable than the more traditional psychometric term *reliability*. To determine the stability of the hassles scores, scores from successive pairs of time periods in the study conducted by Kanner, Feldman, Weinberger, and Ford (1987) were correlated and then averaged over a 9-month period. Results indicated that hassles frequency scores were quite stable over this time period (r

= .79), suggesting that hassles scores have both trait and state characteristics—each reflecting, empirically and theoretically, a different side of the same coin. The average of the correlations between monthly frequency scores ($r = .79$) was significantly higher than the average between monthly severity scores ($r = .48$).

Researchers such as DeLongis et al. (1988) assessed the validity of this measure. DeLongis et al. inferred validity by examining the relationship between self-esteem and supportive social relationships. Individuals low on these variables are more likely to experience increases in psychological and somatic difficulties. This finding provides insight into the mechanisms that lie behind positive and negative relationships between stress level and illness symptoms or mood. Young (1987) reported dimensional stability of the HS from a study conducted on 432 college students. Young reported eigenvalues greater than one on 13 dimensions related to stress. Based on these aforementioned findings, the survey is assumed to be valid.

The Coping Resources Inventory

I will use the Coping Resource Inventory (CRI) to assess the level of coping in individuals. The inventory is owned by Mind Garden and created by Marting and Hammer (2004). Mind Garden granted me permission to use the inventory in this study. The scale is a 60-item instrument that asks frequency of behavior to different situations. Coping resources are those resources inherent in individuals that enable them to handle stressors more effectively, experience fewer or less intense symptoms upon exposure to a stressor, or recover faster from exposure to a stressor. This definition is consistent with current conceptions of resources that emphasize the mediating role resources play in the

coping process. For example, Baum and Singer (1982) defined resources as adaptive capacities that provide immunity against damage from stress, where resources are viewed as predispositions derived from genetic factors, environmental influences, and learned relationships. Baum and Singer (1982) considered a resource to be a “social and psychological prophylaxis” that can reduce the likelihood of stress-induced disease (p. 344). In a similar vein, individuals with low resources have been described as vulnerable and constitutionally fragile (Kessler, 1979), while those with high resources have been characterized as resilient (Kessler & Essex, 1982) and hardy (Kobasa, 1979).

Reliability and Validity of the Coping Resource Inventory

According to Mind Garden, the coping resource inventory is a valid and reliable instrument. Based on extensive testing using a variety of samples, reliability was found to be greater than .70. Further, based on construct and criterion validation studies, the survey was found to support dimensional integrity and relate positively to other known coping structures. Thus, the survey is assumed to be a valid and reliable measure of coping.

Operationalized Independent Variables

The independent variables considered in this study include the following: exposure to CAM, sociodemographic variables, levels of life stress, dispositional coping style, and social support

Exposure to CAM. Exposure was defined as the degree to which an individual has gained knowledge about, or has been influenced to use one or more complementary or alternative medicine modalities. The exposure to CAM was measured based on the

responses of participants on the knowledge and exposure to CAM survey, wherein respondents were asked to rate their knowledge and exposure to the 30 modalities identified.

Socio-demographic variables.

Age. Age was a ratio-scaled variable. Only individuals between the ages of 18-30 were included in the study.

Race. Students from all races were included in the study.

Socio economic status. Socioeconomic status was measured based on income level. Income levels were ordinal-scaled discrete measurements with the following categories: Less than \$10,000; \$10,000-\$20,000; \$20,001-\$30,000; \$30,001-\$40,000; and more than \$40,000.

Employment. Employment was a nominal-scaled discrete measurement with the following categories: Full-time, part-time, unemployed, retired, and disabled.

Housing. Housing was a nominal-scaled discrete measurement with the following categories: own, rent, and staying with family.

Marital status. Marital status was a nominal-scaled discrete measurement with the following categories: single, never married, committed relationship, not married, married, separated, divorced, and widowed.

Levels of life stress. The levels of life stress was measured based on the responses of participants on the Hassles survey. The total scores of participants on the Hassles survey were used to represent the level of life stress that the participants experience. This variable was operationalized as a continuous variable.

Dispositional coping style. The dispositional coping style was measured based on the responses of participants on the coping resource inventory. The total scores of participants were used represent the variable for dispositional coping style. This variable was operationalized as a continuous variable.

Social support. Social support was measured as a continuous variable. This was included in the demographic survey, wherein participants were asked to determine the social support level they receive from people and the community around them.

Operationalized Dependent Variables

The dependent variables in this investigation are the use of CAM and other coping behaviors and perceived stress.

Use of CAM and other coping behaviors. The use of CAM and other coping behaviors was measured based on the total score of participants to the use of CAM for stress management survey. The ratings of participants to each of the modalities were totaled to determine the overall score. A continuous variable was used to measure the variable.

The research questions and hypotheses are consistent with study conceptual model presented in Figure 3.

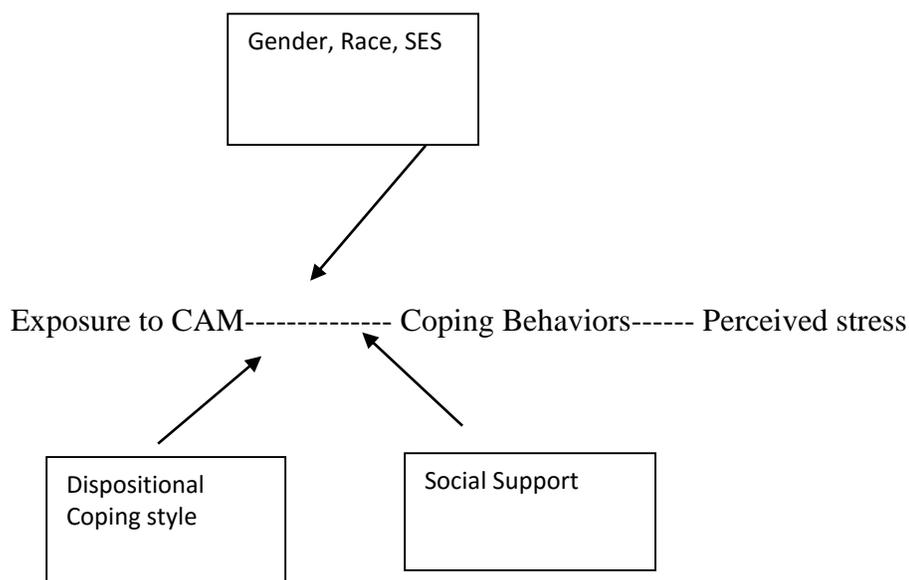


Figure 3. Study conceptual model.

Research Questions and Hypotheses

Research Question 1: To what extent is exposure and knowledge of CAM associated with the use of CAM modalities for stress management among young adults participating in the study?

*H*₀1: Exposure and knowledge of CAM is not associated with the use of CAM modalities for stress management among young adults participating in the study.

*H*₁1: Exposure and knowledge of CAM is associated with the use of CAM modalities for stress management among young adults participating in the study.

Research Question 2: To what extent does dispositional coping style influence the use of CAM modalities for stress management among young adults participating in the study?

H₀₂: Dispositional coping style does not influence the use of CAM modalities for stress management among young adults participating in the study.

H₁₂: Dispositional coping style influences the use of CAM modalities for stress management among young adults participating in the study.

Research Question 3: To what extent do sociodemographic variables influence the use of CAM modalities for stress management among young adults participating in the study?

H₀₃: Sociodemographic variables do not influence the use of CAM modalities for stress management (coping) among young adults participating in the study

H₁₃: Sociodemographic variables influence the use of CAM modalities for stress management among young adults participating in the study.

Research Question 4: To what extent does a difference exists in level of perceived stress among study participants who use CAM modalities for stress management and study participants who do not use CAM modalities for the stress management?

H₀₄: There is no difference in the level of perceived stress among the study participants who use CAM modalities for stress management and study participants who do not use CAM for the stress management.

H₁₄: There is a difference the level of perceived stress among the study participants who use CAM modalities for stress management and study participants who do not use CAM modalities for the stress management.

Data Organization Techniques

I entered the collected data into SPSS 22.0. I then coded and analyzed all data using the Statistical Package for the Social Sciences (SPSS) software program.

Once data is entered, I will apply a security key to applicable folders to prevent access without permission. Data will be organized by variable and case, meaning that responses to questions will be structured so that columns run across or horizontally in the SPSS file and rows run vertically down the SPSS file. This structure allowed for quick evaluation and analysis of data, given the type of statistical test performed.

Data Analysis Technique

Profile of sample. I used demographic data to profile the participants responding to the survey. Each variable was discussed using descriptive statistics in text and displayed using a table. The information reported included frequency count by group level (if appropriate), mean, standard deviation, skewness, kurtosis, and total number of respondents (*N*). I used SPSS/EXPLORE and SPSS/DESCRIPTIVE to derive the aforementioned information.

Outliers. I conducted a test for univariate outliers to determine if any cases would not statistically be part of the sample collected. To detect outliers, case scores were converted into *z*-scores and compared to the critical value of ± 3.29 , $p < .001$ (Tabachnick & Fidell, 2007). Cases that exceed this value were removed provided that they warranted removal.

Missing data. I detected cases with missing data by running frequency counts in SPSS 17.0. Those cases with missing data on more than 5% of the items were summarily

removed from further analysis. Those cases with missing data in less than 5% of the items were kept by imputing field means into empty cell.

Parametric assumptions. I evaluated assumptions of normality, linearity, and homoscedasticity to detect any violation of parametric assumptions. However, a graphical device aided me in determining degree of normality. Specifically, a histogram of residuals was presented to provide visual evidence of degree of normality. I detected non-normality by creating z-scores for skewness and kurtosis. If the distribution was found to be non-normal, variable transformation was attempted to improve distribution parameters if possible.

Order of analyses. Demographic data were presented first to construct a profile of the sample population tested. Next, missing data and outliers were evaluated and dealt with according to the prescription presented. Further, normality was evaluated to ensure parametric assumptions are met. And finally, regression and moderated multiple regression was used to test the four hypotheses.

Data Analysis

To test each of the hypothesis posed in this study, I conducted a series of correlation and regression analyses. For the first research question, the independent variable was exposure to CAM. The score of participants in the exposure to CAM survey was used to determine whether there is a relationship with the use of CAM modalities for stress management. Because both the independent and the dependent variables are continuous in nature, a correlation analysis was conducted. If a significant relationship

exists, as evidenced by a p -value of less than .05, then there would be sufficient evidence to reject the first null hypothesis.

The second research question considered the dispositional coping style as the independent variable. The score of the participants in the Coping Resource Inventory was used to determine whether there is a relationship with the use of CAM modalities for stress management. Because both the independent and the dependent variables are continuous in nature, a correlation analysis was conducted. If a significant relationship exists, as evidenced by a p -value of less than .05, then there would be sufficient evidence to reject the third null hypothesis.

The third research question considered the sociodemographic variables as the independent variables. Because there are several sociodemographic variables, a regression analysis was conducted considering each of the variables as the predictor variable. If the sociodemographic variable was determined to be significant, as evidenced by a p -value of less than .05, then would be sufficient evidence to reject the fourth null hypothesis.

Finally, in exploring all the impact of the variables on the dependent variable considered in this study, I conducted a regression analysis to test the fourth null hypothesis. The independent variables were considered as the predictor variables. If the predictor variable was determined to be significant, as evidenced by a p -value of less than .05, then there would be sufficient evidence to reject the sixth null hypothesis.

Internal Validity

I assumed that the described statistics are the most accurate statistical tests available given the nature of the data. It may be possible that some other type of statistics could have yielded more accurate results, but they are unknown at this time. This fact could have affected the internal validity of the study. Additionally, I assumed that the quantitative design was the best approach, given the theoretical bases that this study relied on. However, it may be possible that other approaches may have yielded more valuable data. This fact could also have affected internal validity.

External Validity

External validity refers to the condition of generalizability. Generalizability can be affected by many factors including (a) representativeness of the sample, (b) timing, and (c) researcher bias. For example, the sample may not be a good representation of the population. For many reasons, the university selected to collect participants' data may be slightly different than the student population as a whole.

Depending on the time of administration of survey, perceived stress may vary. For example, students perceive more stress during preparation for an exam. Therefore, students were asked to answer the survey questionnaires in their own convenient time and location. Students were also reminded that their responses would not affect their academic performance in any way. Moreover, researcher bias was set aside through the use of quantitative survey questionnaires to provide an objective measure of the constructs considered in this study. My perceptions were not considered at any point in time within this research study.

Ethical Research

The use of human participants warranted the need to consider ethical assurances in this study. The participation in this study was completely voluntary. Students could decide not to participate without any penalty. Completion of the questionnaire would not result in any emotional harm to participants. Participants' anonymity was preserved by not identifying any personal information. All prospective participants were asked to sign an informed consent form prior to receiving the survey questionnaire. Therefore, only participants who agreed to participate in the study through the informed consent form were able to participate in the study. Participants were also informed that they can withdraw from the study at any point in time. All the collected data will be secured under password-protected files for 5 years. After the period of 5 years, all data and information gained from this study will be properly disposed of and deleted.

Summary

This study used a non-experimental, quantitative cross-sectional correlational research design. The purpose of this study was to examine the relationship of variables such as exposure to CAM, stress level, dispositional working style, sociodemographic variables, and social support to the use of CAM modalities for stress management among young adults. The target population was young adults. A purposive sampling technique was utilized for the study. All potential participants were invited to participate in the study.

I was required to obtain at least 84 participants to ensure at least 80% power for the results of the statistical analyses. In order to analyze the data collected in this study, I

considered correlational analysis and linear regression analysis. The results of the analyses would determine which of the variables relate to the dependent variable of the use of CAM modalities for stress management. A significance level of .05 was utilized for all statistical analyses.

In Chapter 4, I will provide a discussion on the description of participants gathered for the study. I will also provide a presentation of the data collected and the results of the data analysis. An analysis of the results based on statistical terms will also be provided in Chapter 4. Chapter 5 will include a discussion of conclusions and recommendations drawn from the study. Also in Chapter 5, I will expound on the results and the implications of the results for practice and for future studies.

Chapter 4: Results and Analysis

Introduction

The purpose of this quantitative study was to examine whether exposure to CAM, stress level, dispositional working style, socio-demographic variables, and social support influence the use of CAM modalities for stress management among younger adults. In addition, I examined the differences in the levels of perceived stress among younger adults who use CAM modalities for stress management and those who do not. I used a quantitative cross-sectional study to address the research questions and their respective hypotheses, utilizing several survey instruments to collect data. The formulated research questions and their respective hypotheses are the following:

Research Question 1: To what extent is exposure and knowledge of CAM associated with the use of CAM modalities for stress management among young adults participating in the study?

H_01 : Exposure and knowledge of CAM is not associated with the use of CAM modalities for stress management among young adults participating in the study.

H_11 : Exposure and knowledge of CAM is associated with the use of CAM modalities for stress management among young adults participating in the study.

Research Question 2: To what extent does dispositional coping style influence the use of CAM modalities for stress management among young adults participating in the study?

H_02 : Dispositional coping style does not influence the use of CAM modalities for stress management among young adults participating in the study.

H₁₂: Dispositional coping style influences the use of CAM modalities for stress management among young adults participating in the study.

Research Question 3: To what extent do sociodemographic variables influence the use of CAM modalities for stress management among young adults participating in the study?

H₀₃: Sociodemographic variables do not influence the use of CAM modalities for stress management (coping) among young adults participating in the study

H₁₃: Sociodemographic variables influence the use of CAM modalities for stress management among young adults participating in the study.

Research Question 4: To what extent does a difference exists in level of perceived stress among study participants who use CAM modalities for stress management and study participants who do not use CAM modalities for the stress management?

H₀₄: There is no difference in the level of perceived stress among the study participants who use CAM modalities for stress management and study participants who do not use CAM for the stress management.

H₁₄: There is a difference the level of perceived stress among the study participants who use CAM modalities for stress management and study participants who do not use CAM modalities for the stress management.

The subsequent sections present and discuss the data collection, statistical test results and analysis, and summarize the chapter.

Data Collection

In this study I used a survey methodology utilizing validated survey instruments to gather primary data for analyses of potential relationships to test the hypotheses and address the research questions. From the surveys conducted, I collected data on the following variables: exposure to CAM, stress level, dispositional working style, and the use of CAM and non-CAM modalities for stress management among younger adults. The dependent variable was the use of CAM modalities for stress management, which was measured with the Use of Coping Behavior Scale (UCMS). The independent variables were exposure to CAM (measured using the Knowledge and Exposure to CAM use survey), stress level (measured using the Hassles Scale; HS), dispositional working style (measured using the Coping Resource Inventory; CRI), and sociodemographic variables (gender, race, socio-economic status, and marital status).

I utilized a purposive sampling technique targeted at younger adults aged 18-30 who were enrolled in a small university in southern California that offers degree programs in the biological and health sciences and in CAM practice. Face-to-face survey was conducted among the students. To achieve a power of at least 80%, the minimum required sample size was 84 participants. The number of participants invited to participate in the study was 420 students, and the collected completed responses totaled 200 participants, meeting the requirement of at least 84 participants to achieve a power of 80%.

Results

This section includes the descriptive statistics of the study variables, testing of assumptions, and statistical test results and analysis in the following sections. There were no cases with missing data.

Test for Outliers

To detect for univariate outliers in the dataset, the data for the variables were converted to z -scores and compared to the critical value of ± 3.29 , with $p < 0.001$. Cases with z -scores lower than -3.29 or higher than 3.29 were removed from the analysis. Following the screening for outliers, seven cases were removed, leaving a total of 193 cases, which still exceeds the minimum required sample size of 84 to achieve a power of at least 80%.

Demographic Characteristics

The demographic characteristics of the sample are reported in this section. The demographic characteristics of the sample consisted of gender, ethnicity, race, marital status, and socioeconomic status. The demographic characteristics are presented through frequency tables in Tables 5 to 9. All participants from the sample were 18-30 years of age.

Table 5 presents the frequency table for the gender of the participants. As observed, 44.6% ($n = 86$) of the participants were male, and 55.4% ($n = 107$) of the participants were female.

Table 5

Frequency Table of Gender

	Frequency	Percent
Male	86	44.6
Female	107	55.4
Total	193	100.0

Table 6 presents the frequency table for ethnicity of the participants. Ethnicity was categorized into: Hispanic or Latino, and Not Hispanic or Latino. The majority of the samples, ($n = 154$, 79.8%) were Not Hispanic or Latino, while the remaining 20.2% ($n = 39$) were Hispanic or Latino.

Table 6

Frequency Table of Ethnicity

	Frequency	Percent
Hispanic or Latino	39	20.2
Not Hispanic or Latino	154	79.8
Total	193	100.0

Table 7 presents the frequency table for race of the participants. Race was categorized into: American Indian or Alaska Native, Asian, African-American, Native Hawaiian or Pacific Islander, Caucasian, and Other. The participants were made up of 46.1% ($n = 89$) Caucasian, 19.7% ($n = 38$) Asian, 5.7% ($n = 11$) American Indian or Alaska Native, 5.7% ($n = 11$) African-American, 4.7% ($n = 9$) Native Hawaiian or Pacific Islander, and 18.1% ($n = 35$) other races.

Table 7

Frequency Table of Race

	Frequency	Percent
American Indian or Alaska Native	11	5.7
Asian	38	19.7
African-American	11	5.7
Native Hawaiian or Pacific Islander	9	4.7
Caucasian	89	46.1
Other	35	18.1
Total	193	100.0

Table 8 presents the frequency table for the marital status of the participants.

Marital status was categorized as: single, married, unmarried but living with partner, divorced, and separated. The majority of the sample were single ($n = 139$, 72%), 16.1% ($n = 31$) were married, 8.3% ($n = 16$) were unmarried but living with a partner, 2.6% ($n = 5$) were divorced, and 1% ($n = 2$) were separated.

Table 8

Frequency Table of Marital Status

	Frequency	Percent
Single	139	72.0
Married	31	16.1
Unmarried but living with partner	16	8.3
Divorced	5	2.6
Separated	2	1.0
Total	193	100.0

Table 9 presents the frequency table for the socio-economic status of the participants as measured through income level. The income level categories were: less than \$10,000; \$10,000–\$20,000; \$20,001–\$30,000; \$30,001–\$40,000; and more than \$40,000. The majority of the sample ($n = 130$, 67.4%) had income lower than \$10,000; 13% ($n = 25$) had income from approximately \$10,000 to \$20,000; 4.7% ($n = 9$) had income between \$20,001 to \$30,000; 5.7% ($n = 11$) had income between \$30,001 to \$40,000, and 9.3% ($n = 18$) had income more than \$40,000.

Table 9

Frequency Table of Socio-Economic Status Measured Through Income Level

	Frequency	Percent
Less than \$10000	130	67.4
\$10000 - \$20000	25	13.0
\$20001 - \$30000	9	4.7
\$30001 - \$40000	11	5.7
More than \$40000	18	9.3
Total	193	100.0

Descriptive Statistics

The descriptive statistics of the independent and dependent variables of the study are presented in this section. The independent variables, in addition to the demographic variables presented in the previous section, were exposure to CAM, stress level, and dispositional working style, while the dependent variable was the use of CAM modalities for stress management. The descriptive statistics of the study variables are presented in Table 10. Knowledge and exposure to CAM was measured using the Knowledge and

Exposure to CAM use survey, which had responses ranging from 1 to 5, with 1 being the lowest degree and 5 being the highest degree. To obtain the data to be used for statistical analyses, the average was taken for the responses from the Knowledge and Exposure to CAM use instrument. For knowledge and exposure to CAM, the mean value was 2.06 ($SD = 0.57$), with a skewness of 0.58 and kurtosis of 0.07.

Stress level was measured with the HS, which used a four-point Likert-type scale ranging from 0 to 3, with 0 being the least (or none) severe, and 3 being the most severe in terms of stress level. To obtain the data to be used for statistical analyses, the average of the responses from the HS were taken. For stress level, the mean value was 0.60 ($SD = 0.48$), with a skewness of 0.81 and kurtosis of 0.11. Dispositional working style was measured using the CRI, which used a four-point Likert-type scale ranging from 1 to 4, with 1 being the least resilient and 4 being the most resilient in terms of dispositional working style.

To obtain the data to be used for statistical analyses, I took an average of the responses from the CRI. For dispositional working style, the mean value was 2.96 ($SD = 0.47$), with a skewness of 0.01 and kurtosis of 0.17. There were three variables for the use of coping behavior for stress management: CAM, non-CAM, and exercise. These were measured using the UCMS, which used a five-point Likert-type scale ranging from 1 to 5, with 1 being the least use and 5 being the greatest use in terms of coping behavior use for stress management. Use of CAM was obtained by taking the average of the CAM-related items; use of non-CAM was obtained by taking the average of items related to

prescription drugs, alcohol, smoking, sex, and sleep; and use of exercise was obtained by taking the average of workout and run/walk.

For the use of CAM for stress management, the mean value was 1.98 ($SD = 0.69$), with a skewness of 1.38 and kurtosis of 2.11. For the use of non-CAM for stress management, the mean value was 2.39 ($SD = 0.79$), with a skewness of 0.48 and kurtosis of 0.61. For the use of exercise for stress management, the mean value was 3.19 ($SD = 1.27$), with a skewness of -0.14 and kurtosis of -0.93.

Table 10

Descriptive Statistics of Study Variables (n = 193)

	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Knowledge and exposure to CAM	2.0630	.57374	.577	.175	.074	.348
Levels of life stress	.6025	.47544	.806	.175	.111	.348
Dispositional working style	2.9599	.47214	.011	.175	.173	.348
Use of coping behavior for stress management – CAM	1.9818	.68976	1.380	.175	2.112	.348
Use of coping behavior for stress management - non CAM	2.3948	.78963	.483	.175	.605	.348
Use of coping behavior for stress management – exercise	3.1917	1.26945	-.142	.175	-.928	.348

Test for Normality of Data

To test for normality of data, I conducted a Shapiro-Wilk's test for normality. Results of the test for normality are presented in Table 11 and supplemented by histograms with normal curves in Figures 4 to 9. For the study variables, only dispositional working style was found to be normally distributed ($p = 0.147$). Knowledge and exposure to CAM data were not normally distributed ($p = 0.001$), with Figure 4 showing slight skewness towards the left. Stress level data were not normally distributed ($p < 0.001$), with Figure 5 showing skewness to the left. Dispositional working style was normally distributed ($p = 0.147$), with Figure 6 showing data spread under the normal curve. Use of CAM for stress management data was not normally distributed ($p < 0.001$), with Figure 7 showing skewness towards the left. Use of non-CAM modalities for stress management data were not normally distributed ($p < 0.001$), with Figure 8 showing skewness towards the left. Use of exercise for stress management data were not normally distributed ($p < 0.001$), with data spread unevenly over and under the normal curve as seen in Figure 9.

Table 11

Shapiro-Wilk's Test for Normality of Study Variables

	Statistic	Df	Sig.
Knowledge and exposure to CAM	.974	193	.001
Levels of life stress	.932	193	.000
Dispositional working style	.989	193	.147
Use of coping behavior for stress management – CAM	.892	193	.000
Use of coping behavior for stress management - non CAM	.971	193	.000
Use of coping behavior for stress management – exercise	.927	193	.000

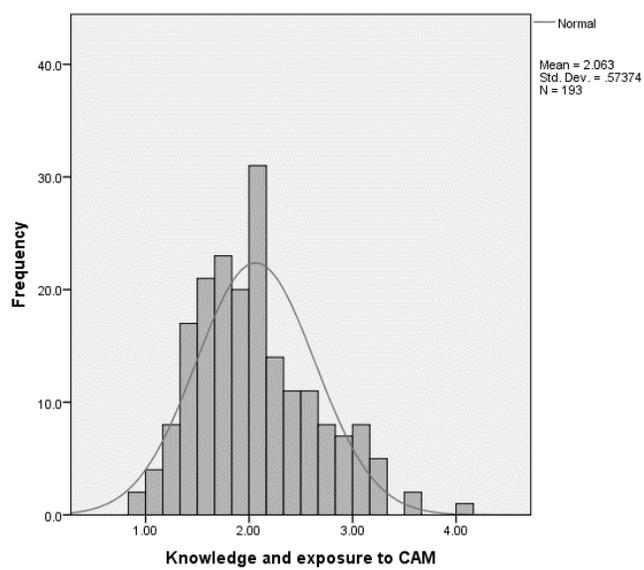


Figure 4. Histogram of knowledge and exposure to CAM with normal curve.

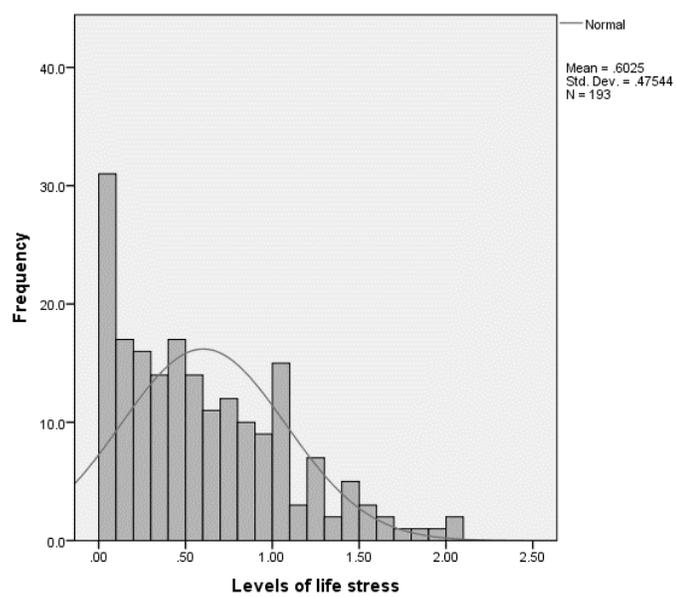


Figure 5. Histogram of stress level with normal curve.

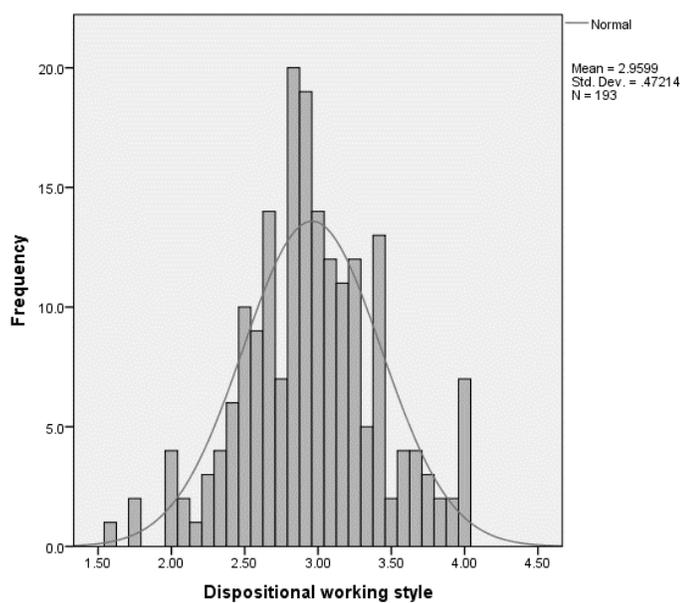


Figure 6. Histogram of dispositional working style with normal curve.

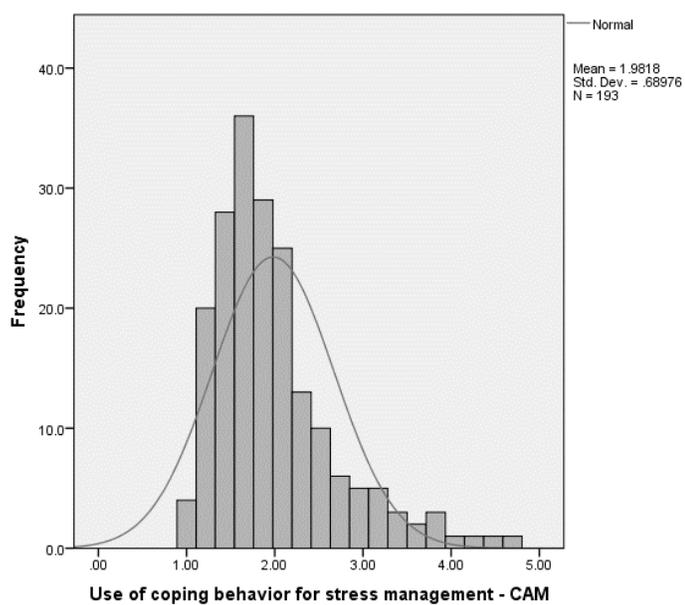


Figure 7. Histogram of use of coping behavior for stress management - CAM with normal curve.

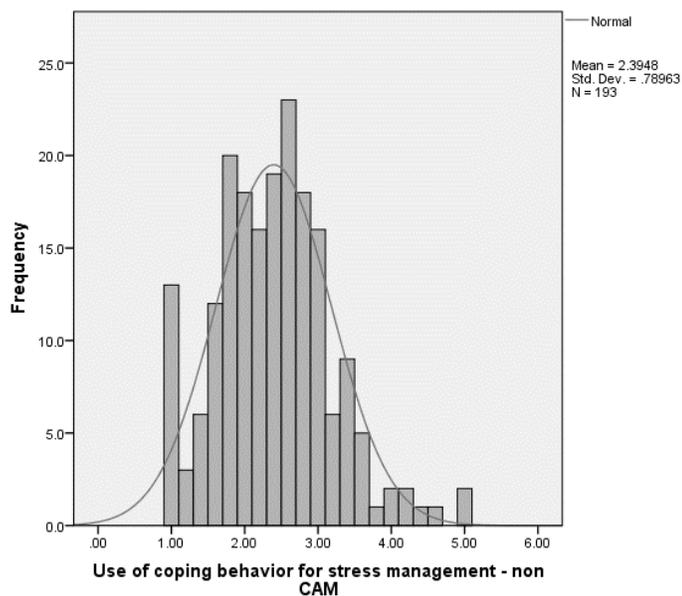


Figure 8. Histogram of use of coping behavior for stress management – non-CAM with normal curve.

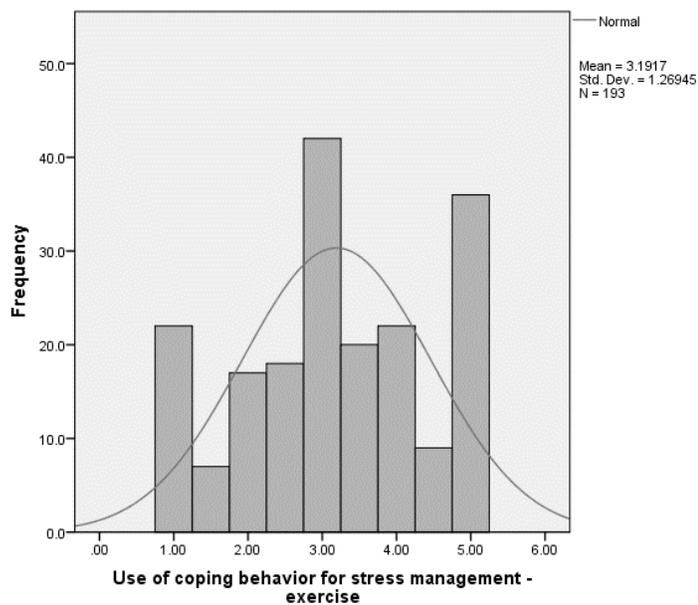


Figure 9. Histogram of use of coping behavior for stress management – exercise with normal curve.

Hypothesis 1

The first hypothesis examined the relationship of exposure to and knowledge of CAM with the use of CAM modalities for stress management. The independent variable for this test was the knowledge and exposure to CAM, while the dependent variable was the use of CAM modalities for stress management. Because both variables are continuous, a correlation test was appropriate. Because at least one of the variables was not normally distributed, I instead performed the non-parametric alternative, the Spearman's correlation test. Results of the Spearman's correlation test are presented in Table 12. As observed, there was a statistically-significant, strong positive correlation between knowledge of and exposure to CAM and use of CAM modalities for stress management ($r_s(191) = 0.88, p < 0.001$). As such, there was enough evidence to reject the first null hypothesis.

Table 12

Spearman's Correlation between Knowledge and Exposure of CAM and Use of CAM

Modalities for Stress Management

			Knowledge and exposure to CAM	Use of coping behavior for stress management - CAM
Spearman's rho	Knowledge and exposure to CAM	Correlation Coefficient	1.000	.880**
		Sig. (2-tailed)		.000
		N	193	193
	Use of coping behavior for stress management – CAM	Correlation Coefficient	.880**	1.000
		Sig. (2-tailed)	.000	
		N	193	193

Hypothesis 2

The second hypothesis examined the relationship of dispositional coping style with the use of CAM modalities for stress management. The independent variable for this test was the dispositional working style, while the dependent variable was the use of CAM modalities for stress management. Because both variables are continuous in nature, a correlation test was appropriate. Because at least one of the variables was not normally distributed, I instead performed the non-parametric alternative, the Spearman's correlation test. Results of the Spearman's correlation test are presented in Table 13. I

observed a statistically-significant, very weak positive correlation between dispositional working style and use of CAM modalities for stress management ($r_s(191) = 0.143, p = 0.048$). As such, there was enough evidence to reject the second null hypothesis.

Table 13

Spearman's Correlation between Dispositional Working Style and Use of CAM

Modalities for Stress Management

			Dispositional working style	Use of coping behavior for stress management - CAM
Spearman's rho	Dispositional working style	Correlation Coefficient	1.000	.143*
		Sig. (2- tailed)		.048
		N	193	193
	Use of coping behavior for stress management – CAM	Correlation Coefficient	.143*	1.000
Sig. (2- tailed)		.048		
N		193	193	

Hypothesis 3

The third hypothesis examined the relationship between the sociodemographic variables and the use of CAM modalities for stress management. The independent variables were gender, ethnicity, race, marital status, and socio-economic status, while the dependent variable was the use of CAM modalities for stress management. Because the independent variables are categorical in nature, while the dependent variable is

continuous, I conducted analysis of variance for each demographic variable and the dependent variable. As such, I conducted a series of ANOVAs to test the third hypothesis.

The first demographic variable that I tested was gender. Tables 14 and 15 present the results of the ANOVA test between gender and use of CAM modalities for stress management. The Levene's test results in Table 14 show that the assumption of homogeneity in variance is met ($p = 0.976$), and while the dependent variable is not normally distributed, ANOVA is robust to violations in normality. As such, I conducted ANOVA to test the relationship between gender and the use of CAM modalities for stress management. The results of the ANOVA test are presented in Table 15. As observed, there was no statistically-significant difference on the use of CAM modalities for stress management between genders ($F(1,191) = 2.941, p = 0.088$).

Table 14

Levene's Test of Homogeneity for Gender and Use of CAM Modalities for Stress Management

Levene statistic	df1	df2	Sig.
.001	1	191	.976

Table 15

ANOVA Test for Gender and Use of CAM Modalities for Stress Management

	Sum of squares	df	Mean square	<i>F</i>	Sig.
Between groups	1.385	1	1.385	2.941	.088
Within groups	89.963	191	.471		
Total	91.348	192			

The second demographic variable tested was ethnicity. Tables 16 and 17 present the results of the ANOVA test between ethnicity and use of CAM modalities for stress management. The Levene's test results in Table 16 show that the assumption of homogeneity in variance is met ($p = 0.633$), and while the dependent variable is not normally distributed, ANOVA is robust to violations in normality. As such, I conducted ANOVA to test the relationship between ethnicity and the use of CAM modalities for stress management. The results of the ANOVA test are presented in Table 17. I observed no statistically-significant difference in the use of CAM modalities for stress management between ethnicity ($F(1,191) = 0.127, p = 0.722$).

Table 16

Levene's Test of Homogeneity for Ethnicity and Use of CAM Modalities for Stress Management

Levene statistic	df1	df2	Sig.
.228	1	191	.633

Table 17

ANOVA Test for Ethnicity and Use of CAM Modalities for Stress Management

	Sum of squares	Df	Mean square	<i>F</i>	Sig.
Between groups	.061	1	.061	.127	.722
Within groups	91.287	191	.478		
Total	91.348	192			

The third demographic variable tested was race. Tables 18 and 19 present the results of the ANOVA test between race and use of CAM modalities for stress management. The Levene's test results in Table 18 show that the assumption of homogeneity in variance is met ($p = 0.458$), and while the dependent variable is not normally distributed, ANOVA is robust to violations in normality. As such, I conducted ANOVA to test the relationship between race and the use of CAM modalities for stress management. The results of the ANOVA test are presented in Table 19. As observed, there was no statistically-significant difference in the use of CAM modalities for stress management between race ($F(5,187) = 0.91, p = 0.476$).

Table 18

*Levene's Test of Homogeneity for Race and Use of CAM Modalities for Stress**Management*

Levene statistic	df1	df2	Sig.
.937	5	187	.458

Table 19

ANOVA Test for Race and Use of CAM Modalities for Stress Management

	Sum of squares	Df	Mean square	<i>F</i>	Sig.
Between groups	2.169	5	.434	.910	.476
Within groups	89.179	187	.477		
Total	91.348	192			

The fourth demographic variable tested was marital status. Tables 20 and 21 present the results of the ANOVA test between marital status and use of CAM modalities for stress management. The Levene's test results in Table 20 show that the assumption of homogeneity in variance is met ($p = 0.969$), and while the dependent variable is not normally distributed, ANOVA is robust to violations in normality. As such, I conducted ANOVA to test the relationship between marital status and the use of CAM modalities for stress management. The results of the ANOVA test are presented in Table 21. As observed, there was no statistically-significant difference on the use of CAM modalities for stress management between marital status ($F(4,188) = 0.203$, $p = 0.937$).

Table 20

Levene's Test of Homogeneity for Marital Status and Use of CAM Modalities for Stress Management

Levene statistic	df1	df2	Sig.
.136	4	188	.969

Table 21

ANOVA Test for Marital Status and Use of CAM Modalities for Stress Management

	Sum of squares	Df	Mean square	<i>F</i>	Sig.
Between groups	.392	4	.098	.203	.937
Within groups	90.955	188	.484		
Total	91.348	192			

The fifth demographic variable tested was socio-economic status. Tables 22 and 23 present the results of the ANOVA test between socio-economic status and use of CAM modalities for stress management. The Levene's test results in Table 22 show that the assumption of homogeneity in variance is met ($p = 0.366$), and while the dependent variable is not normally distributed, ANOVA is robust to violations in normality. As such, I conducted ANOVA to test the relationship between socio-economic status and the use of CAM modalities for stress management. The results of the ANOVA test are presented in Table 23. As observed, there was no statistically-significant difference on the use of CAM modalities for stress management between socio-economic status ($F(4,188) = 0.978, p = 0.421$).

Table 22

Levene's Test of Homogeneity for Socio-economic Status and Use of CAM Modalities for Stress Management

Levene statistic	df1	df2	Sig.
1.083	4	188	.366

Table 23

*ANOVA Test for Socio-economic Status and Use of CAM Modalities for Stress**Management*

	Sum of squares	df	Mean square	<i>F</i>	Sig.
Between groups	1.862	4	.465	.978	.421
Within groups	89.486	188	.476		
Total	91.348	192			

With the results of the tests presented above, there was not enough evidence to reject the third null hypothesis. As such, I concluded that sociodemographic variables do not influence the use of CAM modalities for stress management among younger adults participating in the study.

Hypothesis 4

The fourth hypothesis examines the relationship between the use of CAM modalities, non-CAM modalities, exercise modalities for stress management, and the level of perceived stress among younger people. As the independent and dependent variables are continuous in nature, multiple linear regression was appropriate. Results of the multiple linear regression test are presented in Tables 24 to 26. The model summary is presented in Table 24. As observed, there is a very low to negligible degree of correlation between the independent variables and the dependent variable of stress level (R square = 0.021). The ANOVA table in Table 25 indicates that, overall, the regression model does not statistically significantly predict stress level ($p = 0.254$).

Finally, the coefficients table in Table 26 show that one of the variables, the use of CAM modalities for stress management, has a statistically-significant positive correlation with stress level ($B = 0.11$, $p = 0.049$). This indicates that the young adults who experience the higher stress seems to use various CAM modalities for stress management. The use of non-CAM and exercise modalities did not have statistically-significant correlations with stress level ($p = 0.598$; $p = 0.855$, respectively). Given the results of the multiple linear regression, the fourth null hypothesis was rejected; the use of CAM modalities for stress management have statistically-significant correlations with stress level, while the use of non-CAM and exercise modalities do not.

Table 24

Model Summary Table for Hypothesis 4

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.146a	.021	.006	.47408

Table 25

ANOVA Table for Hypothesis 4

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	.922	3	.307	1.368	.254
	Residual	42.478	189	.225		
	Total	43.400	192			

Table 26

Coefficients Table for Hypothesis 4

Model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	Sig.
	<i>B</i>	Std. Error	Beta		
1 (Constant)	.461	.134		3.435	.001
Use of coping behavior for stress management - CAM	.110	.055	.159	1.984	.049
Use of coping behavior for stress management - non CAM	-.025	.047	-.042	-.528	.598
Use of coping behavior for stress management - exercise	-.005	.029	-.014	-.183	.855

Summary

This quantitative correlational study was conducted to determine the relationship between stress and younger adults' complementary and alternative medicine (CAM) use. The first null hypothesis was tested using Spearman's correlation test and was rejected; exposure and knowledge of CAM is associated with the use of CAM modalities for stress management among younger adults participating in the study. The second null hypothesis was tested using Spearman's correlation test and was rejected; dispositional coping style influences the use of CAM modalities for stress management among younger adults participating in the study. The third null hypothesis was tested using a series of ANOVAs, but there was not enough evidence to reject the null hypothesis; sociodemographic variables do not influence the use of CAM modalities for stress management (coping) among young adults participating in the study. The fourth null

hypothesis was tested through multiple linear regression and was rejected; use of CAM modalities for stress management is a statistically significant correlated with stress level.

In the next chapter, I will interpret the findings, after which, I will discuss the study limitations, implications for social change, and recommendations for future research.

Chapter 5: Discussion of the Findings

Introduction and Summary of the Findings

The use of CAM has been studied among younger adults; however, the use of complementary and alternative medicine has not been studied in the context of stress management among young adults (Seburg et al., 2012). Complementary and alternative medicine modalities have been used for stress management. Studies have been devoted to studying these techniques' effects on stress management; however, there are few studies that have examined who the individuals using these are and how they are used among young adults. Most of the studies devoted to the topic have been focused on adult CAM users (Tsang et al., 2013).

The purpose of this quantitative study was to examine whether exposure to CAM, stress level, dispositional working style, socio-demographic variables, and social support influence the use of CAM modalities for stress management among younger adults. In addition, I examined differences in the levels of perceived stress among the younger adults who use CAM modalities and those who do not use CAM modalities for stress management. I used a quantitative cross-sectional study to address the research questions and their respective hypotheses, utilizing several survey instruments to collect data. The sampling procedure utilized was a purposive sampling technique and was targeted to young adults aged 18-30 who were enrolled in a small university in southern California that offers degree programs in the biological and health sciences and in CAM practice.

The first null hypothesis was rejected. This means that exposure to and knowledge of CAM is associated with the use of CAM modalities for stress management among the young adults. The second null hypothesis was also rejected. This means that dispositional coping style influences the use of CAM modalities for stress management among younger adults participating in the study. In testing the third hypothesis, there was not enough evidence to reject the null hypothesis. This means that sociodemographic variables did not influence the use of CAM modalities for stress management (coping) among younger adults participating in the study. The fourth null hypothesis was rejected. This means that use of CAM modalities for stress management is statistically-significantly correlated with stress level.

In this chapter, I will present the interpretation and discussion of the findings. Then, I will present the implication of the findings, followed by limitations of the findings and recommendations for future research and practice. Lastly, I will present a summary and the conclusions of the dissertation.

Interpretation of the Findings

The interpretation of the findings will be presented in this part. This section will also address the relevance of the findings to the literature. I will analyze and interpret the findings in the context of the theoretical framework as appropriate.

Research Question 1: To what extent is exposure and knowledge of CAM associated with the use of CAM modalities for stress management among young adults participating in the study?

The first hypothesis examined the relationship of exposure to and knowledge of CAM with the use of CAM modalities for stress management. The independent variable for this test was the knowledge and exposure to CAM, while the dependent variable was the use of CAM modalities for stress management. The results revealed that there is a statistically-significant, strong positive correlation between knowledge of and exposure to CAM and use of CAM modalities for stress management. The first null hypothesis was rejected.

This finding extends the knowledge about CAM and its effectiveness as a tool for stress management among younger adults. There is no study identified in the literature that specifically explored the relationship between exposure to and knowledge of CAM with the use of CAM modalities for stress management. Two studies were identified about the use of CAM modalities by students as a tool for stress management. The first, by Conley et al. (2013), investigated the outcomes of promoting psychosocial adjustment and stress management in first-year college students engaged in a psychosocial wellness seminar. The intervention and control participants showed no differences at baseline, but the intervention group reported significantly greater perceived improvements in stress management and psychosocial adjustment over the course of the seminar. As such, the findings supported the use of educational programmatic approaches embedded in the academic curriculum to promote psychosocial adjustment and stress management in college students and to counter the potential development of maladaptive coping strategies.

The second study, by Chiauzzi et al. (2008), implemented “MyStudentBody-Stress,” an online stress management program, at six U.S. colleges. The participating students were randomized into three groups: those in the MyStudentBody-Stress program, those given access to a control health information website, or no intervention. There were no group differences among the three groups, but analysis revealed that MyStudentBody-Stress participants were more likely to increase weekly physical activity, use specific stress management methods, and exhibit decreased anxiety and family problems (Chiauzzi et al., 2008). The finding provided evidence that stressed younger adults are capable of adopting and practicing stress management techniques presented through an objective and impersonal medium.

These two studies provided evidence that students can and will choose effective stress management techniques presented within the context of daily educational requirements, or presented as available non-compulsory stress reduction resources. With the finding of the current study, it would seem that when students have knowledge and have been exposed to CAM, then they are more likely to seek and obtain stress management assistance from their healthcare providers.

However, studies have found that some heavily-stressed students do not embrace or pursue recommended CAM modalities, even if those modalities are known to them and readily available. Thomas et al. (2014) found that fewer than 25% of psychology students were willing to seek professional help or use readily-available campus resources to treat mental distress. Brimstone et al. (2007) found that students preferred to self-treat by engaging their social support system for advice and solace.

The conceptual model derives from the understanding that executive decision-making in younger adults is still developing (Caspi et al., 1996; Huffman, 2012; Steinberg et al., 2010), and underscores the potential for stressed young adults to choose a coping mechanism with which they have had long-term familiarity—rather than to implement new knowledge and skills learned in their respective field. This understanding is framed within the transactional model of stress and coping. The coping behaviors of stressed younger adults are effective only when stress is strong, available resources are well known, and coping strategies are actually implemented. According to this conceptualization, life stressors are operative through exposure to and training in CAM stress management techniques, and have the potential to moderate the extent to which CAM techniques are internalized (Zimmerman & Kandiah, 2012).

Research Question 2: To what extent does dispositional coping style relate to the use of CAM modalities for stress management among young adults participating in the study?

The second hypothesis examined the relationship of dispositional coping style with the use of CAM modalities for stress management. The independent variable for this test is the dispositional working style, while the dependent variable is the use of CAM modalities for stress management. The results revealed a statistically-significant, very weak positive correlation between dispositional working style and use of CAM modalities for stress management ($r_s(191) = 0.143, p = 0.048$). As such, there was enough evidence to reject the second null hypothesis.

This finding extends knowledge in the CAM literature. Nothing in the literature reviewed to date has suggested that any given dispositional coping style would influence an individual to be more or less inclined to internalize or utilize CAM.

Coping styles are considered as stable characteristics inherent in individuals (Gillespie & Gates, 2013). Lazarus (1993) proposed that a coping style is a general attribute that an individual employs across situations. Moreover, this coping style relies on dispositional-compatible coping behaviors by biasing selection among competing behavioral options within coping effort categories. Researchers have also determined that coping styles modify the effectiveness of a given coping strategy among individuals (Lazarus, 1993).

Predispositional coping styles have been found to be effective when individuals face stressful life events (Guo et al., 2013). One such coping style is resilience, which is an individual's capacity to successfully adapt to adverse challenges (Punamaki et al., 2008). Another coping style is optimism, which is the tendency to view situations from a positive perspective (Rinaldis et al., 2012).

The optimism coping style is the most investigated aspect of the Lazarus model (Rinaldis et al., 2012). The rational or problem-focused style is also another commonly investigated predispositional style (Shikai et al., 2008). A third often-investigated predisposition is emotional style (Antonovsky, 1990).

Recent studies into dispositional styles have focused on differentiating situational coping. Shikai et al. (2008) examined the relationship between dispositional coping style in adulthood and childhood experiences in Japanese undergraduates. Results revealed that

an emotion-oriented coping style was found more frequently among adults who were neglected or emotionally abused during childhood. Punamaki et al. (2008) concluded that low dependence on emotion-focused strategies of coping and high levels of active and constructive coping were linked with low levels of psychiatric symptoms and psychological distress, but were linked neither with the overarching categories of dispositional style, nor situational coping buffered distress.

The results of Sasaki and Yamasaki's (2007) study showed that dispositional coping style predicted situational coping practices and that increases in pre-dispositional emotion-focused coping (disposition before the outcomes of coping) were negatively linked to health status. The researchers noted that these results contrasted with their earlier findings (Sasaki & Yamasaki, 2005) that a predisposition to use cognitive reinterpretation and problem-solving led to greater distress. Sasaki and Yamasaki (2007) interpreted the findings of their two studies (2005; 2007) and stated that predisposition does, indeed, bias the choice of specific coping strategies for specific stressful events among the study population, but the effectiveness of the specific strategies selected is dependent on the specific stressor to which they are applied. This is consistent with findings from the coping literature that suggest that problem-solving strategies are most useful when circumstances are controllable (Mohammad et al., 2013), that emotional coping strategies are more effective in protecting wellbeing in situations that cannot be controlled (Grebner et al., 2005), and that meaning-based coping is a useful antecedent to purposeful problem-solving (Rinaldis et al., 2012).

Dispositional coping style is a recognized mediator in the transactional model of stress and coping, as it biases the individual to favor one type of coping behavior over other available options (Lazarus, 1993). The model includes the outcomes of coping and the role of dispositional coping in supporting optimism and promoting information-seeking behaviors. There is no study in the literature that has suggested that any given dispositional coping style would influence an individual to be more or less inclined to internalize or utilize CAM. With the current finding, it was revealed that dispositional coping style does have an impact.

Research Question 3: To what extent do sociodemographic variables influence the use of CAM modalities for stress management among young adults participating in the study?

The third hypothesis examined the relationship between the sociodemographic variables and the use of CAM modalities for stress management. The independent variables here were gender, ethnicity, race, marital status, and socio-economic status, while the dependent variable was the use of CAM modalities for stress management. Each demographic variable was tested, and there was enough evidence to reject the third null hypothesis.

The first demographic variable tested was gender. The result revealed that there is no statistically-significant difference in the use of CAM modalities for stress management between genders. Another demographic variable tested was race. The result

revealed that there is no statistically-significant difference on the use of CAM modalities for stress management between races.

The finding that there is no statistically-significant difference in the use of CAM modalities for stress management between gender and race disconfirms the findings of previous studies. The findings in the literature reviewed for this study also demonstrated gender and racial differences in both the manner in which stressors are experienced and the coping mechanisms chosen to address stress (Welle & Graf, 2011). It was expected that gender and/or race have a role in the internalization and use of CAM stress management techniques (Welle & Graf, 2011). The role of gender and race in the internalization and use of CAM stress management techniques have been factored into the conceptual model. Given the current finding, it could mean that gender and race should not be included in the conceptual model.

Another demographic variable tested was ethnicity. The result revealed that there is no statistically -significant difference in the use of CAM modalities for stress management between ethnicity. There was no identified study in the literature that focused on the impact of ethnicity on the use of CAM modalities for stress management. The role of ethnicity in the internalization and use of CAM stress management techniques have been factored into the conceptual model. Given the current finding, it could mean that ethnicity should not be included in the conceptual model, but this would depend on the definition of ethnicity.

The fourth demographic variable tested was marital status. The result revealed that there is no statistically-significant difference in the use of CAM modalities for stress management between marital statuses. There was no identified study in the literature that focused on the impact of marital status on the use of CAM modalities for stress management. The role of marital status in the internalization and use of CAM stress management techniques has been factored into the conceptual model. Given the current finding, it could mean that marital status should not be included in the conceptual model.

The fifth demographic variable tested was socio-economic status. Socioeconomic status was measured based on income levels. The result revealed that there is no statistically-significant difference on the use of CAM modalities for stress management between socio-economic statuses. The finding disconfirms the findings of previous studies. According to the stress literature, the extent to which life stressors do, in fact, moderate CAM internalization is also influenced by the presence or absence of other coping resources that can blunt the impact of existing stressors. Moreover, the stress literature has provided evidence that objective stressors are less likely to cause an individual physical and emotional distress when there are social and monetary supports available to the counter external demands (Chao, 2011; Classen et al., 2001; DeLongis & Holtzman, 2005). The role of socio-economic status in the internalization and use of CAM stress management techniques has been factored into the conceptual model. Given the current finding, it could mean that socio-economic status should not be included in the conceptual model.

Research Question 4: Is there a difference in the level of perceived stress among young people who use CAM for stress management and young people who do not use CAM modalities for stress management?

The fourth hypothesis examined the relationship between the use of CAM modalities, non-CAM modalities, and exercise modalities for stress management, and the level of perceived stress among young people. The use of CAM modalities for stress management has a statistically-significant positive correlation with stress level, while the use of non-CAM and exercise modalities does not.

This finding also extends the knowledge in the literature. In the literature, several studies were identified regarding the benefits of CAM in addressing individuals' stress levels. No study in the literature had compared the use of CAM modalities, non-CAM modalities, and exercise modalities for stress management, and the level of perceived stress among young people.

In a global survey of CAM use, military personnel reported using prayers, massage therapy, and relaxation techniques for stress reductions at 2.5-7 times the rate of civilians (Goertz et al., 2013). Prayers, breath-focused meditation, healing or therapeutic touch, yoga, and mindfulness-based meditations were the most-commonly practiced CAM modalities. The reported benefits of these modalities were spiritual wellbeing, serenity, calm, better mood, compassion, and better sleep. Several studies of cancer patients have shown the effect of meditation and yoga on quality of life, fatigue, and sleep (Banasik et al., 2011; Carlson et al., 2007). Mind-body techniques of meditation,

yoga, Tai Chi, acupuncture, manipulative technique massage, energy-based polarity therapy, and Reiki are some of the commonly-used CAM interventions by cancer patients (Chandwani et al., 2012).

Simard and Henry (2009) concluded that the 16-week yoga intervention they conducted resulted in improvements in overall health, a reduction in perceived stress, and reduced levels of depression among first year medical students. Vibe et al. (2013) showed that students experience significantly decreased mental distress, study stress, and improved subjective well-being and mindfulness after participating in the mindfulness-based stress reduction (MBSR) program. Baghurst (2011) concluded that although physical activity and cognitive-behavior stress management are very different, both were effective in reducing the students' perceived stress versus no program or activity at all. A range of complementary and alternative treatment options have proven beneficial among younger adults. Moreover, CAM techniques have improved both younger adults' general well-being and specific stress related symptomology.

Researchers have demonstrated the effectiveness of CAM stress management tools for younger adults (Baghurst, 2011; de Vibe et al., 2013; Gard et al., 2012; Nidich et al., 2009; Ratanasiripong et al., 2012; Simard & Henry, 2009; Zhang et al., 2010). However, researchers have also demonstrated that overwhelming stress can interfere with cognition, making it difficult to comprehend or execute novel or complex functions (LaBrie et al., 2012; Palmer, 2013; Pelletier & Laska, 2012; Pierceall & Keim, 2007; Schreiber et al., 2012; Welle & Graf, 2011). The findings of the current study show that there was a statistically-significant, strong positive correlation between knowledge of and

exposure to CAM and use of CAM modalities for stress and the use of CAM modalities for stress management.

Implications of the Findings

The major findings of this study were consistent with the current theories in the field. The Transactional Model of Stress posited that when a person is faced with an external demand or stressor, the first action that the person takes is to evaluate the extent of threat inherent in the stressor. The second action is to take stock of the material, psychological, or social resources that are available to either eliminate the stressor, or to manage the physical and emotional response to it (Glanz et al., 2008).

The present findings conclude that exposure and knowledge of CAM is associated with the use of CAM modalities for stress management among younger adults, that dispositional style influences the use of CAM modalities for stress management among younger adults, and that the use of CAM modalities for stress management has a statistically-significant positive correlation with stress level. However, the results also revealed that sociodemographic variables such as gender, race, ethnicity, marital status, and socio-economic status were not associated with the use of CAM modalities for stress management among younger adults.

The major findings of the study will advance the understanding about stress and stress management. Before the current study, no researchers had compared the use of CAM modalities, non-CAM modalities, exercise modalities for stress management, and the level of perceived stress among young people. No literature had suggested that any

given dispositional coping style would influence an individual to be more or less inclined to internalize or utilize CAM. No prior study had shown that exposure to CAM will influence younger adults to use CAM modalities. As such, the findings of the current study extend the literature about stress management and the use of CAM modalities.

Most young people are worried about their education and employment (Persike & Seiffge-Krenke, 2012). The findings of the study can improve the understanding of the importance of stress management for young people. Stress has detrimental effects on most people but when young people are under significant stress, there is a higher risk of engaging in dangerous behavior such as alcohol use and drug use (Rose & Bond, 2008). Though studies of CAM use for stress management among younger adults are limited (Seburg et al., 2012), researchers have demonstrated that CAM techniques can improve younger adults' general well-being and specific stress-related symptomology.

The findings of the current study suggest that CAM techniques can be adapted and introduced into college settings to provide students with more skill and knowledge to better manage their stress levels. The findings of the current study are also beneficial to school administrators and counselors. School administrators and counselors could use the information in this study to determine how to approach students who might not be willing to seek help, even if they are heavily stressed. School administrators and counselors could develop programs to help younger adults could manage their stress better. Younger adults could benefit from greater awareness of this and seeking out help in order to manage their stress levels. The findings of the current study could change how individuals look at CAM modalities and their relationship with stress.

Limitations of the Study

I accept that several limitations could make the internal and external validity of this study vulnerable. I will discuss several limitations in this section.

The population and sample for the study limited the study. I recruited only a small purposeful sample of younger adults between the ages of 18 and 30 currently enrolled in small university in southern California that offers degree programs in the biological and health sciences and in CAM practice as participants in the study. As such, the results of the study might not be generalizable, because the sample size was small and homogenous.

The varying perceived stresses of the students also limited the study. The perceived stress of the students may vary depending on the time of administration of survey. The students were asked to answer the survey questionnaires in their own convenient time and location. There is a chance that the students' perceived stress at the time they answered the test would vary. Moreover, other factors that could have influenced the decisions of the students to use CAM modalities were not identified in this study.

The study was also limited by the quantitative design, making it impossible to determine the in-depth perceptions and feelings of the students in question regarding the use of CAM in their stress management practices. The use of qualitative data can help to contextualize any problem. Face-to-face interviews could have provided rich and detailed information about the factors that influence younger adults to use CAM modalities.

The lack of recent studies that specifically address the research problem also represented a limitation. The studies identified in the literature only focused on the benefits of using CAM in order to manage stress. There were no studies about the impact of exposure to CAM, dispositional style, and socio-demographic variables on the use of CAM modalities for stress management among young adults.

Recommendations for Future Research

Based on the findings of the study and the limitations of the current study, several recommendations for future studies are presented.

First, future researchers could expand the sample size of the study. The increase of sample size could determine stronger significant relationships between the variables. Moreover, it could also determine the relationship between socio-demographic variables and the use of CAM modalities. Moreover, future researchers could also expand the study to other populations with different characteristics than the sample chosen. As such, the effectiveness of CAM modalities in stress management could also be examined in another population.

Second, future researchers could also expand the geographic location of the study. This could increase the external validity of the study. It could also make the results generalizable to more students across different states in the country.

Third, future researchers could also use a qualitative methodology in addition to a quantitative methodology. A qualitative methodology would provide rich descriptions of how the variables influence the use of CAM modalities among younger adults. The use of

interviews could provide contextual information about how these variables are associated with the CAM use for stress management.

Lastly, future researchers could also add other variables that could also be examined in the context of the current study. For example, other than the factors that would make individuals use CAM modalities, future researchers could also examine the factors that influence individuals to not use CAM modalities for stress management. This would lead to a better understanding of using CAM modalities for stress management.

Summary and Conclusions

The purpose of this quantitative cross-sectional study was to examine whether variables such as exposure to CAM, dispositional coping style, sociodemographic variables such as gender, race, marital status, income, and social support influence the use of CAM modalities for stress management among young adults. I used a survey to gather primary data for the analyses of potential relationships. I expected that exposure to CAM, dispositional working style, sociodemographic variables, and social support are associated with, and could influence, the use of CAM modalities for stress management among younger adults, in accordance with the Transactional Model of Stress and Coping. Only the sociodemographic variables were not found to be associated with the use of CAM modalities for stress management among younger adults.

The findings in the literature reviewed for this study also demonstrated that gender and racial differences could play a role in the internalization and use of CAM stress management techniques. Dispositional coping style is an acknowledged mediator

in the transactional model of stress and coping, as it biases the individual to favor one type of coping behavior over other available options (Lazarus, 1993).

The results of the study revealed that exposure to and knowledge of CAM is associated with the use of CAM modalities for stress management among younger adults participating in the study. Dispositional style was also found to have an influence in the use of CAM modalities for stress management among younger adults participating in the study. Moreover, use of CAM modalities for stress management has a statistically-significant correlation with stress level.

Future researchers could expand the sample size of the study, expand the geographic location of the study, and use a mixed methodology. The findings of the current study extend the literature about stress management and the use of CAM modalities.

References

- Aldwin, C. M., & Revenson, T. A. (1987). Does coping help? A reexamination of the relation between coping and mental health. *Journal of Personality and Social Psychology, 53*(2), 337–348.
- American Psychological Association. (2012). *Stress in America*. Retrieved from <https://www.apa.org/news/press/releases/stress/2012/full-report.pdf>
- American Psychological Association. (2013, February 7). *Healthcare system falls short on stress management*. Retrieved from <http://www.apa.org/news/press/releases/2013/02/stress-management.aspx>
- Antonovsky, A. (1980). *Health, stress, and coping*. San Francisco, CA: Jossey-Bass.
- Antonovsky, A. (1990). A somewhat personal odyssey in studying the stress process. *Stress Medicine, 6*(2), 71–80.
- Antonovsky, A., & Kats, R. (1967). The life crisis history as a tool in epidemiological research. *Journal of Health and Social Behavior, 8*(1), 15–21.
- Antonucci, T. C., & Jackson, J. S. (2010). *Life-course perspectives on late-life health inequalities*. New York, NY: Springer. Retrieved from <http://public.eblib.com/EBLPublic/PublicView.do?ptiID=475125>
- Appelhans, B. M., & Schmeck, R. R. (2002). Learning styles and approach versus avoidant coping during academic exam preparation. *College Student Journal, 36*(1), 157.
- Arnett, J. J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties*. New York, NY: Oxford University Press.

- Arnold, M. (1960). *Emotion and personality*. New York, NY: Columbia University Press.
- Arslan, C. (2010). An investigation of anger and anger expression in terms of coping with stress and interpersonal problem-solving. *Educational Sciences: Theory and Practice, 10*(1), 25–43.
- Ayers, S. L., & Kronenfeld, J. J. (2010). Using factor analysis to create complementary and alternative medicine domains: an examination of patterns of use. *Health, 14*(3), 234–252. doi:10.1177/1363459309347491
- Babbie, E. R. (2012). *The practice of social research*. Belmont, CA: Wadsworth.
- Baghurst, T. (2011, April). *An examination of stress in college students*. Poster presented at the American Alliance for Health, Physical Education, Recreation and Dance Annual Conference. San Diego, CA.
- Banasik, J., Williams, H., Haberman, M., Blank, S. E., & Bendel, R. (2011). Effect of Iyengar yoga practice on fatigue and diurnal salivary cortisol concentration in breast cancer survivors. *Journal of the American Academy of Nurse Practitioners, 23*(3), 135–142. doi:10.1111/j.1745-7599.2010.00573.x
- Bandura, A., Cioffi, D., Taylor, C. B., & Brouillard, M. E. (1988). Perceived self-efficacy in coping with cognitive stressors and opioid activation. *Journal of Personality and Social Psychology, 55*(3), 479–488.
- Barbist, M.-T., Renn, D., Noisternig, B., Rumpold, G., & Höfer, S. (2008). How do medical students value health on the EQ-5D? Evaluation of hypothetical health states compared to the general population. *Health and Quality of Life Outcomes,*

6(1), 111. doi:10.1186/1477-7525-6-111

Bard, P. (1934). On emotional expression after decortication with some remarks on certain theoretical views: Part I. *Psychological Review*, 41(4), 309–329.

doi:10.1037/h0070765

Barnes, P. M., Bloom, B., & Nahin, R. L. (2008). Complementary and alternative medicine use among adults and children: United States, 2007. *National Health Statistics Reports*, 12, 1–23.

Bazzan, A. J., Zabrecky, G., Monti, D. A., & Newberg, A. B. (2014). Current evidence regarding the management of mood and anxiety disorders using complementary and alternative medicine. *Expert Review of Neurotherapeutics*, 14(4), 411–423.

Beckner, V. E., Tucker, D. M., Delville, Y., & Mohr, D. C. (2006). Stress facilitates consolidation of verbal memory for a film but does not affect retrieval.

Behavioral Neuroscience, 120(3), 518–527. doi:10.1037/0735-7044.120.3.518

Bell, A. C., & D’Zurilla, T. J. (2009). Problem-solving therapy for depression: a meta-analysis. *Clinical Psychology Review*, 29(4), 348–353.

doi:10.1016/j.cpr.2009.02.003

Blanco, C., Okuda, M., Wright, C., Hasin, D. S., Grant, B. F., Liu, S.-M., & Olfson, M. (2008). Mental health of college students and their non-college-attending peers: Results from the National Epidemiologic Study on Alcohol and Related Conditions. *Archives of General Psychiatry*, 65(12), 1429–1437.

doi:10.1001/archpsyc.65.12.1429

Bovier, P. A., Chamot, E., & Perneger, T. V. (2004). Perceived stress, internal resources,

and social support as determinants of mental health among young adults. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, 13(1), 161–170.

- Brandtstädter, J. (1992). Personal control over development: Implications of self-efficacy. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 127–145). Washington, DC: Hemisphere.
- Bricker, J. B., Schiff, L., & Comstock, B. A. (2011). Does avoidant coping influence young adults' smoking? A ten-year longitudinal study. *Nicotine & Tobacco Research: Official Journal of the Society for Research on Nicotine and Tobacco*, 13(10), 998–1002. doi:10.1093/ntr/ntr074
- Brimstone, R., Thistlethwaite, J. E., & Quirk, F. (2007). Behavior of medical students in seeking mental and physical healthcare: exploration and comparison with psychology students. *Medical Education*, 41(1), 74–83. doi:10.1111/j.1365-2929.2006.02649.x
- Bryman, A. (2012). *Social research methods* (4th ed.). Oxford, England: Oxford University Press.
- Bulman, R. J., & Wortman, C. B. (1977). Attributions of blame and coping in the “real world”: Severe accident victims react to their lot. *Journal of Personality and Social Psychology*, 35(5), 351–363.
- Caltabiano, M., Sarafino, E., & Byrne, D. (2008). *Health psychology* (2nd Australasian Ed.). Milton, Australia.
- Cannon, W. B. (1932). *The wisdom of the body*. New York, NY: Norton.

- Carlson, L. E., Speca, M., Farris, P., & Patel, K. D. (2007). One year pre-post intervention follow-up of psychological, immune, endocrine and blood pressure outcomes of mindfulness-based stress reduction (MBSR) in breast and prostate cancer outpatients. *Brain, Behavior, and Immunity*, *21*(8), 1038–1049.
doi:10.1016/j.bbi.2007.04.002
- Carson, J. W., Carson, K. M., Porter, L. S., Keefe, F. J., & Seewaldt, V. L. (2009). Yoga of Awareness program for menopausal symptoms in breast cancer survivors: results from a randomized trial. *Supportive Care in Cancer: Official Journal of the Multinational Association of Supportive Care in Cancer*, *17*(10), 1301–1309.
doi:10.1007/s00520-009-0587-5
- Carver, C. S., Pozo, C., Harris, S. D., Noriega, V., Scheier, M. F., Robinson, D. S., & Clark, K. C. (1993). How coping mediates the effect of optimism on distress: a study of women with early stage breast cancer. *Journal of Personality and Social Psychology*, *65*(2), 375–390.
- Caspi, A., Moffitt, T. E., Newman, D. L., & Silva, P. A. (1996). Behavioral observations at age 3 years predict adult psychiatric disorders: Longitudinal evidence from a birth cohort. *Archives of General Psychiatry*, *53*(11), 1033–1039.
- Cassel, J. (1974). An epidemiological perspective of psychosocial factors in disease etiology. *American Journal of Public Health*, *64*(11), 1040–1043.
- Chandwani, K. D., Ryan, J. L., Peppone, L. J., Janelins, M. M., Sprod, L. K., Devine, K., & Mustian, K. M. (2012). Cancer-related stress and complementary and alternative medicine: A review. *Evidence-Based Complementary and Alternative*

Medicine: eCAM, 2012, 1–15. doi:10.1155/2012/979213

Chao, R. C.-L. (2011). Managing stress and maintaining well-being: Social support, problem-focused coping, and avoidant coping. *Journal of Counseling & Development*, 89(3), 338–348.

Chiauszi, E., Brevard, J., Thum, C., Thurn, C., Decembrele, S., & Lord, S. (2008). MyStudentBody-Stress: An online stress management intervention for college students. *Journal of Health Communication*, 13(6), 555–572.
doi:10.1080/10810730802281668

Classen, C., Butler, L. D., Koopman, C., Miller, E., DiMiceli, S., Giese-Davis, J., ... Spiegel, D. (2001). Supportive-expressive group therapy and distress in patients with metastatic breast cancer: A randomized clinical intervention trial. *Archives of General Psychiatry*, 58(5), 494–501.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, S., & Williamson, G. M. (1991). Stress and infectious disease in humans. *Psychological Bulletin*, 109(1), 5–24.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357.

Collinge, W., Wentworth, R., & Sabo, S. (2005). Integrating complementary therapies into community mental health practice: an exploration. *Journal of Alternative and Complementary Medicine*, 11(3), 569–574. doi:10.1089/acm.2005.11.569

- Conley, C. S., Travers, L. V., & Bryant, F. B. (2013). Promoting psychosocial adjustment and stress management in first-year college students: the benefits of engagement in a psychosocial wellness seminar. *Journal of American College Health, 61*(2), 75–86. doi:10.1080/07448481.2012.754757
- Contrada, R. J., & Baum, A. (Eds.). (2011). *The handbook of stress science: Biology, psychology, and health*. New York, NY: Springer.
- Cooper, M. L., Wood, P. K., Orcutt, H. K., & Albino, A. (2003). Personality and the predisposition to engage in risky or problem behaviors during adolescence. *Journal of Personality and Social Psychology, 84*(2), 390–410.
- Coreil, J., Bryant, C., & Henderson, J. N. (2001). *Social and behavioral foundations of public health*. Thousand Oaks, CA: Sage.
- Coyne, J. C., & DeLongis, A. (1986). Going beyond social support: the role of social relationships in adaptation. *Journal of Consulting and Clinical Psychology, 54*(4), 454–460.
- Cozby, P. C. (2009). *Methods in behavioral research*. (10th ed.). New York, NY: McGraw Hill.
- Craighead, W. E., & Nemeroff, C. B. (2004). *The concise Corsini encyclopedia of psychology and behavioral science*. Hoboken, NJ: Wiley.
- Creswell, J. D., Dutcher, J. M., Klein, W. M. P., Harris, P. R., & Levine, J. M. (2013). Self-affirmation improves problem-solving under stress. *PloS One, 8*(5), e62593. doi:10.1371/journal.pone.0062593

- Croyle, R. T., & Sande, G. N. (1988). Denial and confirmatory search: Paradoxical consequences of medical diagnosis. *Journal of Applied Social Psychology, 18*(6), 473–490. doi:10.1111/j.1559-1816.1988.tb00030.x
- Cummings, T. G. (1998). A cybernetic theory of organizational stress. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 101–121). New York, NY: Oxford University Press.
- Cushman, M. J., & Hoffman, M. J. (2004). Complementary and alternative healthcare and the home care population. *Home Healthcare Management & Practice, 16*(5), 360–373. doi:10.1177/1084822304264608
- D’Zurilla, T. J., & Sheedy, C. F. (1991). Relation between social problem-solving ability and subsequent level of psychological stress in college students. *Journal of Personality and Social Psychology, 61*(5), 841–846.
- De Vibe, M., Solhaug, I., Tyssen, R., Friberg, O., Rosenvinge, J. H., Sørli, T., & Bjørndal, A. (2013). Mindfulness training for stress management: a randomized controlled study of medical and psychology students. *BMC Medical Education, 13*(1), 107. doi:10.1186/1472-6920-13-107
- Delahaij, R., van Dam, K., Gaillard, A. W., & Soeters, J. (2011). Predicting performance under acute stress: The role of individual characteristics. *International Journal of Stress Management, 18*(1), 49.
- DeLongis, A., & Holtzman, S. (2005). Coping in context: The role of stress, social

support, and personality in coping. *Journal of Personality*, 73(6), 1633–1656.

doi:10.1111/j.1467-6494.2005.00361.x

Devonport, T. J., & Lane, A. M. (2006). Cognitive appraisal of dissertation stress among undergraduate students. *Psychological Record*, 56(2), 259.

Dewe, P. J., O'Driscoll, M., & Cooper, C. L. (2012). Theories of psychological stress at work. In R. J. Gatchel & I. Z. Schultz (Eds.), *Handbook of occupational health and wellness* (pp. 23–25). New York, NY: Springer.

Ditto, P. H. (1995). Understanding the impact of risk factor test results: Insights from a basic research program. In R. T. Croyle (Ed.), *Psychosocial effects of screening for disease prevention and detection* (pp. 144–181). New York, NY: Oxford University Press.

Dunbar, H. T., Mueller, C. W., Medina, C., & Wolf, T. (1998). Psychological and spiritual growth in women living with HIV. *Social Work*, 43(2), 144–154.

Duncan, A. D., Liechty, J. M., Miller, C., Chinoy, G., & Ricciardi, R. (2011). Employee use and perceived benefit of a complementary and alternative medicine wellness clinic at a major military hospital: Evaluation of a pilot program. *The Journal of Alternative and Complementary Medicine*, 17(9), 809–815.

doi:10.1089/acm.2010.0563

Dusselier, L., Dunn, B., Wang, Y., Shelley, M. C., & Whalen, D. F. (2005). Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health*, 54(1), 15–24.

doi:10.3200/JACH.54.1.15-24

- Edelman, C., & Mandle, C. L. (2002). *Health promotion: Throughout the lifespan*. St. Louis, MO: Mosby.
- Edwards, S. P. (2012). Prevention: Nipped in the bud. *Nature*, *485*(7398), S18–S19.
doi:10.1038/485S18a
- Ehrlich, G., Callender, T., & Gaster, B. (2013). Integrative medicine at academic health centers: A survey of clinicians' educational backgrounds and practices. *Family Medicine*, *45*(5), 330–334.
- Emmelkamp, J., Komproe, I. H., Van Ommeren, M., & Schagen, S. (2002). The relation between coping, social support and psychological and somatic symptoms among torture survivors in Nepal. *Psychological Medicine*, *32*(8), 1465–1470.
- Engel, G. L. (1978). The biopsychosocial model and the education of health professionals. *Annals of the New York Academy of Sciences*, *310*(1), 169–181.
doi:10.1111/j.1749-6632.1978.tb22070.x
- Ensel, W. M., & Lin, N. (1991). The life stress paradigm and psychological distress. *Journal of Health and Social Behavior*, *32*(4), 321–341.
- Ernst, E. (2003). The current position of complementary/alternative medicine in cancer. *European Journal of Cancer*, *39*(16), 2273–2277.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160.
- Feizi, A., Aliyari, R., & Roohafza, H. (2012). Association of perceived stress with stressful life events, lifestyle and sociodemographic factors: A large-scale

community-based study using logistic quantile regression. *Computational and Mathematical Methods in Medicine*, 2012, Article ID151865.

doi:10.1155/2012/151865

Folkman, S. (1991). Coping and emotion. In A. Monat & R. S. Lazarus (Eds.), *Stress and coping: An anthology* (3rd ed., pp. 208–227). New York, NY: Columbia University Press.

Folkman, S. (1997). Positive psychological states and coping with severe stress. *Social Science & Medicine*, 45(8), 1207–1221.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50(5), 992–1003.

Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55, 745–774. doi:10.1146/annurev.psych.55.090902.141456

Frankl, V. E. (1986). *The doctor and the soul: From psychotherapy to logotherapy* (3rd ed.). New York, NY: Vintage Books.

Franks, H. M., & Roesch, S. C. (2006). Appraisals and coping in people living with cancer: A meta-analysis. *Psycho-Oncology*, 15(12), 1027–1037.

doi:10.1002/pon.1043

Freud, A. (1936). *The ego and the mechanisms of defense*. London, England: Karnac Books.

Gard, T., Brach, N., Hölzel, B. K., Noggle, J. J., Conboy, L. A., & Lazar, S. W. (2012). Effects of a yoga-based intervention for young adults on quality of life and

perceived stress: The potential mediating roles of mindfulness and self-compassion. *The Journal of Positive Psychology*, 7(3), 165–175.

doi:10.1080/17439760.2012.667144

Gerr, F., Marcus, M., Ensor, C., Kleinbaum, D., Cohen, S., Edwards, A., Monteilh, C.

(2002). A prospective study of computer users: I. Study design and incidence of musculoskeletal symptoms and disorders. *American Journal of Industrial Medicine*, 41(4), 221–235.

Gillespie, G. L., & Gates, D. M. (2013). Using proactive coping to manage the stress of trauma patient care. *Journal of Trauma Nursing*, 20(1), 44–50.

doi:10.1097/JTN.0b013e318286608e

Giordano, J., Boatwright, D., Stapleton, S., & Huff, L. (2002). Blending the boundaries:

Steps toward an integration of complementary and alternative medicine into mainstream practice. *Journal of Alternative and Complementary Medicine*, 8(6), 897–906. doi:10.1089/10755530260511892

Glanz, K., Rimer, B. K., & Lewis, F. M. (Eds.). (2002). *Health behavior and health education: Theory, research, and practice* (3rd ed.). San Francisco, CA: Jossey-Bass.

Goertz, C., Marriott, B. P., Finch, M. D., Bray, R. M., Williams, T. V., Hourani, L. L., ...

Jonas, W. B. (2013). Military report more complementary and alternative medicine use than civilians. *Journal of Alternative and Complementary Medicine*, 19(6), 509–517. doi:10.1089/acm.2012.0108

Goldin, P., Ziv, M., Jazaieri, H., Hahn, K., & Gross, J. J. (2012). MBSR vs aerobic

exercise in social anxiety: fMRI of emotion regulation of negative self-beliefs.

Social Cognitive and Affective Neuroscience, 8(1): 65-72.

doi:10.1093/scan/nss054

Goldstein, E. B. (1993). *Psychology*. Pacific Grove, CA: Brooks/Cole.

Granö, N., Virtanen, M., Vahtera, J., Elovainio, M., & Kivimäki, M. (2004). Impulsivity

as a predictor of smoking and alcohol consumption. *Personality and Individual*

Differences, 37(8), 1693–1700. doi:10.1016/j.paid.2004.03.004

Grant, J. E., Potenza, M. N., Weinstein, A., & Gorelick, D. A. (2010). Introduction to behavioral addictions. *The American Journal of Drug and Alcohol Abuse*, 36(5),

233–241. doi:10.3109/00952990.2010.491884

Grebner, S., Semmer, N. K., & Elfering, A. (2005). Working conditions and three types of well-being: A longitudinal study with self-report and rating data. *Journal of*

Occupational Health Psychology, 10(1), 31–43. doi:10.1037/1076-8998.10.1.31

Griggs, B., & Van der Zee, B. (1997). *Green pharmacy: The history and evolution of Western herbal medicine*. Rochester, VT: Inner Traditions.

Grover, K. E., Green, K. L., Pettit, J. W., Monteith, L. L., Garza, M. J., & Venta, A.

(2009). Problem-solving moderates the effects of life event stress and chronic stress on suicidal behaviors in adolescence. *Journal of Clinical Psychology*,

65(12), 1281–1290. doi:10.1002/jclp.20632

Guo, M., Gan, Y., & Tong, J. (2013). The role of meaning-focused coping in significant loss. *Anxiety, Stress, and Coping*, 26(1), 87–102.

doi:10.1080/10615806.2011.627507

- Haan, N. (1978). Two moralities in action contexts: Relationships to thought, ego regulation, and development. *Journal of Personality and Social Psychology*, *36*(3), 286-305
- Hashim, S. A., Soliman, S. M., & Mansour, S. E. (2012). Couples adjustment to failed assisted reproductive technology after counseling. *Nature and Science*, *10*(6), 61–74.
- Heaney, C. A., & Israel, B. A. (2002). Social networks and social support. In K. Glanz, B. K. Rimer, & F. M. Lewis (Eds.), *Health behavior and health education: Theory, research, and practice* (3rd ed., pp. 185–209). San Francisco, CA: Jossey-Bass.
- Hesselink, A. E., Penninx, B. W. J. H., Schlösser, M. A. G., Wijnhoven, H. A. H., van der Windt, D. A. W. M., Kriegsman, D. M. W., & van Eijk, J. T. M. (2004). The role of coping resources and coping style in quality of life of patients with asthma or COPD. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, *13*(2), 509–518.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review*, *50*(3), 337.
- Hoeger, W. W. K., & Hoeger, S. A. (2009). *Principles and labs for fitness and wellness* (10th edition.). Belmont, CA: Brooks Cole.
- Hollifield, M. (2011). Acupuncture for posttraumatic stress disorder: conceptual, clinical, and biological data support further research. *CNS Neuroscience & Therapeutics*,

17(6), 769–779. doi:10.1111/j.1755-5949.2011.00241.x

Hollifield, M., Sinclair-Lian, N., Warner, T. D., & Hammerschlag, R. (2007).

Acupuncture for posttraumatic stress disorder: A randomized controlled pilot trial.

The Journal of Nervous and Mental Disease, 195(6), 504–513.

doi:10.1097/NMD.0b013e31803044f8

Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of*

Psychosomatic Research, 11(2), 213–218.

Horney, K. (1945). *Our inner conflicts*. New York, NY: Norton. Retrieved from

<http://archive.org/details/OurInnerConflicts>

Huffman, K. J. (2012). The developing, aging neocortex: how genetics and epigenetics

influence early developmental patterning and age-related change. *Genetics of*

Aging, 3, 212. doi:10.3389/fgene.2012.00212

Hussong, A. M., & Chassin, L. (2004). Stress and coping among children of alcoholic

parents through the young adult transition. *Development and Psychopathology*,

16(4), 985–1006.

Jacobs, G. D. (2001). Clinical applications of the relaxation response and mind-body

interventions. *Journal of Alternative and Complementary Medicine*, 7 (Suppl 1),

S93–101.

James, W. (1890). *The principles of psychology*. New York, NY: Holt. Retrieved from

<http://archive.org/details/theprinciplesofp01jameuoft>

Jayson, S. (2013). Who's feeling stressed? Young adults, new survey shows. *USA Today*.

Retrieved from <http://www.usatoday.com/story/news/nation/2013/02/06/stress->

psychology-millennials-depression/1878295/

Kail, R. V., & Cavanaugh, J. C. (2010). *Human development: A life-span view* (5th ed).

Belmont, CA: Wadsworth Cengage Learning.

Kaplan, S. A., Madden, V. P., Mijanovich, T., & Purcaro, E. (2013). The perception of stress and its impact on health in poor communities. *Journal of Community Health, 38*(1), 142–149. doi:10.1007/s10900-012-9593-5

Kemeny, M. E., & Schedlowski, M. (2007). Understanding the interaction between

psychosocial stress and immune-related diseases: a stepwise progression. *Brain,*

Behavior, and Immunity, 21(8), 1009–1018. doi:10.1016/j.bbi.2007.07.010

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R., National

Comorbidity Survey Replication. (2003). The epidemiology of major depressive

disorder: results from the National Comorbidity Survey Replication (NCS-R). *The*

Journal of the American Medical Association, 289(23), 3095–3105.

doi:10.1001/jama.289.23.3095

Kessler, R. C., Soukup, J., Davis, R. B., Foster, D. F., Wilkey, S. A., Van Rompay, M. I.,

& Eisenberg, D. M. (2001). The use of complementary and alternative therapies

to treat anxiety and depression in the United States. *The American Journal of*

Psychiatry, 158(2), 289–294.

Kisch, A. I., & Reeder, L. G. (1969). Client evaluation of physician performance. *Journal*

of Health and Social Behavior, 10(1), 51–58.

Krebs, K. (2001). Complementary healthcare practices: Stress management: The

complementary alternative medicine approach. *Gastroenterology Nursing, 24*(5),

261–263.

Krieger, N. (2001). Theories for social epidemiology in the 21st century: An ecosocial perspective. *International Journal of Epidemiology*, *30*(4), 668–677.

LaBrie, J. W., Ehret, P. J., Hummer, J. F., & Prenovost, K. (2012). Poor adjustment to college life mediates the relationship between drinking motives and alcohol consequences: A look at college adjustment, drinking motives, and drinking outcomes. *Addictive Behaviors*, *37*(4), 379–386.

doi:10.1016/j.addbeh.2011.11.018

Lapointe, M. M. (2008). *Adolescent smoking and health research*. New York, NY: Nova Biomedical Books.

Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York, NY: McGraw-Hill.

Lazarus, R. S. (1991). *Emotion and adaptation*. New York, NY: Oxford University Press.

Lazarus, R. S. (1993). Coping theory and research: Past, present, and future. *Psychosomatic Medicine*, *55*(3), 234–247.

Lazarus, R. S., & Cohen, J. B. (1977). Environmental stress. In I. Altman & J. F. Wohlwill (Eds.), *Human Behavior and Environment* (Vol. 2). New York, NY: Plenum Press.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

Lazarus, R. S., & Launier, R. (1978). Stress-related transactions between person and environment. In L. A. Pervin & M. Lewis (Eds.), *Perspectives in interactional*

- psychology* (pp. 287–327). New York, NY: Plenum Press.
- Lehrer, P. M., Woolfolk, R. L., & Sime, W. E. (Eds.). (2007). *Principles and practice of stress management*. New York, NY: Guilford Press.
- Leventhal, H., Meyer, D., & Nerenz, D. (1980). The common sense representation of illness danger. In S. Rachman (Ed.), *Medical psychology* (Vol. 2, pp. 7–30). New York, NY: Pergamon Press.
- Li, A. W., & Goldsmith, C.-A. W. (2012). The effects of yoga on anxiety and stress. *Alternative Medicine Review: A Journal of Clinical Therapeutic*, 17(1), 21–35.
- Lindlof, T. R., & Taylor, B. C. (2010). *Qualitative communication research methods*. Thousand Oaks, CA: Sage.
- Lowe, R., Norman, P., & Bennett, P. (2000). Coping, emotion and perceived health following myocardial infarction: Concurrent and predictive associations. *British Journal of Health Psychology*, 5(4), 337–350. doi:10.1348/135910700168964
- Mahmoud, J. S. R., Staten, R., Hall, L. A., & Lennie, T. A. (2012). The relationship among young adult college students' depression, anxiety, stress, demographics, life satisfaction, and coping styles. *Issues in Mental Health Nursing*, 33(3), 149–156. doi:10.3109/01612840.2011.632708
- Marks, G., Richardson, J. L., Graham, J. W., & Levine, A. (1986). Role of health locus of control beliefs and expectations of treatment efficacy in adjustment to cancer. *Journal of Personality and Social Psychology*, 51(2), 443–450.
- Massimini, M., & Peterson, M. (2009). Information and communication technology: Affects on U.S. college students. *Journal of Psychosocial Research on*

- Cyberspace*, 3(1). Retrieved from
<http://www.cyberpsychology.eu/view.php?cisloclanku=2009061503>
- Masten, R., Tusak, M., Zalar, B., & Ziherl, S. (2009). Stress, coping and social support in three groups of university students. *Psychiatria Danubina*, 21(1), 41–48.
- Matheny, K. B., Curlette, W. L., Aysan, F., Herrington, A., Gfroerer, C. A., Thompson, D., & Hamarat, E. (2002). Coping resources, perceived stress, and life satisfaction among Turkish and American university students. *International Journal of Stress Management*, 9(2), 81–97. doi:10.1023/A:1014902719664
- McEwen, B. S. (1998). Stress, adaptation, and disease: Allostasis and allostatic load. *Annals of the New York Academy of Sciences*, 840, 33–44.
- McEwen, B. S. (2005). Stressed or stressed out: What is the difference? *Journal of Psychiatry & Neuroscience*, 30(5), 315.
- McNamara, K. (2000). Outcomes associated with service involvement among disengaged youth. *Journal of Drug Education*, 30(2), 229–245.
- Menninger, K. A. (1967). *The vital balance: The life process in mental health and illness*. New York, NY: Viking Press.
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation: Revised and expanded from qualitative research and case study applications*. Thousand Oaks, CA: Sage.
- Mohammad, M., Mahmoodabad, S. S. M., Zadehe, D. S., Barkhordari, A., Hosaini, F., Kaveh, M. H., Rahiminegad, M. (2013). The study of the effect of stress management program on transactional model constructs in Yazd teachers of

- primary schools. *European Journal of Experimental Biology*, 3(4), 188–193.
- Moos, D. R. H., & Schaefer, J. A. (1986). *Coping with life crises: An integrated approach*. New York, NY: Basic Books.
- Moskowitz, A., Stein, J. A., & Lightfoot, M. (2013). The mediating roles of stress and maladaptive behaviors on self-harm and suicide attempts among runaway and homeless youth. *Journal of Youth and Adolescence*, 42(7), 1015-1027.
- National Center for Complementary and Alternative Medicine. (2008a). *According to a New Government Survey, 38 Percent of Adults and 12 Percent of Children Use Complementary and Alternative Medicine | NCCAM*. Retrieved from <http://nccam.nih.gov/news/2008/121008.htm>
- National Center for Complementary and Alternative Medicine. (2008b). *The Use of Complementary and Alternative Medicine in the United States*. Retrieved from http://nccam.nih.gov/news/camstats/2007/camsurvey_fs1.htm
- National Center for Complementary and Alternative Medicine. (2013). *Complementary, Alternative, or Integrative Health: What's In a Name?* Retrieved from <http://nccam.nih.gov/health/whatiscam>
- National Institute of Mental Health. (2011). The teen brain: Still under construction. *National Institute of Mental Health*. Retrieved from <http://www.nimh.nih.gov/health/publications/the-teen-brain-still-under-construction/index.shtml>
- Ndao, D. H., Ladas, E. J., Bao, Y., Cheng, B., Nees, S. N., Levine, J. M., & Kelly, K. M. (2013). Use of complementary and alternative medicine among children,

- adolescent, and young adult cancer survivors: a survey study. *Journal of Pediatric Hematology/Oncology*, 35(4), 281-288.
- Nelson, K. M. (2008). Designing healthier communities through the input of children. *Journal of Public Health Management and Practice*, 14(3), 266–271.
doi:10.1097/01.PHH.0000316485.49888.f6
- Neshat-Doost, H. T., Dalgleish, T., & Golden, A.-M. J. (2008). Reduced specificity of emotional autobiographical memories following self-regulation depletion. *Emotion*, 8(5), 731–736. doi:10.1037/a0013507
- Newman, B., & Newman, P. (2008). *Development through life: A psychosocial approach*. Belmont, CA: Cengage Learning.
- Nidich, S. I., Rainforth, M. V., Haaga, D. A. F., Hagelin, J., Salerno, J. W., Travis, F., ... Schneider, R. H. (2009). A randomized controlled trial on effects of the Transcendental Meditation program on blood pressure, psychological distress, and coping in young adults. *American Journal of Hypertension*, 22(12), 1326–1331.
doi:10.1038/ajh.2009.184
- Nordin, M., Andersson, L., & Nordin, S. (2010). Coping strategies, social support, and responsibility in chemical intolerance. *Journal of Clinical Nursing*, 19(15-16), 2162–2173. doi:10.1111/j.1365-2702.2010.03264.x
- Ohayon, M. M. (2007). Insomnia: A ticking clock for depression? *Journal of Psychiatric Research*, 41(11), 893–894. doi:10.1016/j.jpsychires.2007.07.008
- Ohayon, M. M., & Roberts, L. W. (2014). Links between occupational activities and depressive mood in young adult populations. *Journal of Psychiatric Research*, 49,

10–17. doi:10.1016/j.jpsychires.2013.10.002

- Olpin, M., & Hesson, M. (2012). *Stress management for life: A research-based experiential approach* (3rd ed). Belmont, CA: Cengage Learning.
- Palmer, L. K. (2013). The relationship between stress, fatigue, and cognitive functioning. *College Student Journal*, 47(2), 312–325.
- Pelletier, J. E., & Laska, M. N. (2012). Balancing healthy meals and busy lives: Associations between work, school, and family responsibilities and perceived time constraints among young adults. *Journal of Nutrition Education and Behavior*, 44(6), 481–489. doi:10.1016/j.jneb.2012.04.001
- Pemberton, E., & Turpin, P. G. (2008). The effect of essential oils on work-related stress in intensive care unit nurses. *Holistic Nursing Practice*, 22(2), 97–102.
doi:10.1097/01.HNP.0000312658.13890.28
- Penman, S., Cohen, M., Stevens, P., & Jackson, S. (2012). Yoga in Australia: Results of a national survey. *International Journal of Yoga*, 5(2), 92–101. doi:10.4103/0973-6131.98217
- Persike, M., & Seiffge-Krenke, I. (2012). Competence in coping with stress in adolescents from three regions of the world. *Journal of Youth and Adolescence*, 41(7), 863–879.
- Pierceall, E. A., & Keim, M. C. (2007). Stress and coping strategies among community college students. *Community College Journal of Research and Practice*, 31(9), 703–712.
- Piko, B. (2011). Gender differences and similarities in adolescents' ways of coping. *The*

Psychological Record, 51(2), 4.

Potts, M., & Walsh, J. (2003). Tackling India's HIV epidemic: Lessons from Africa.

British Medical Journal, 326(7403), 1389–1392.

Punamaki, R.-L., Salo, J., Komproe, I., Qouta, S., El-Masri, M., & De Jong, J. T. V. M.

(2008). Dispositional and situational coping and mental health among Palestinian political ex-prisoners. *Anxiety, Stress, and Coping*, 21(4), 337–358.

doi:10.1080/10615800701797333

Ratanasiripong, P., Sverduk, K., Prince, J., & Hayashino, D. (2012). Biofeedback and

counseling for stress and anxiety among college students. *Journal of College*

Student Development, 53(5), 742–749. doi:10.1353/csd.2012.0070

Rebbeck, T. R., Weber, A. L., Spangler, E., & Zeigler-Johnson, C. M. (2013). What

stresses men? Predictors of perceived stress in a population-based multi-ethnic

cross sectional cohort. *BMC Public Health*, 13, 113. doi:10.1186/1471-2458-13-

113

Rinaldis, M., Pakenham, K. I., & Lynch, B. M. (2012). A structural model of the

relationships among stress, coping, benefit-finding and quality of life in persons

diagnosed with colorectal cancer. *Psychology & Health*, 27(2), 159–177.

doi:10.1080/08870441003768047

Rose, D. N., & Bond, M. J. (2008). Identity, stress and substance abuse among young

adults. *Journal of Substance Use*, 13(4), 268–282.

Rozanski, A., Blumenthal, J. A., Davidson, K. W., Saab, P. G., & Kubzansky, L. (2005).

The epidemiology, pathophysiology, and management of psychosocial risk factors

- in cardiac practice: The emerging field of behavioral cardiology. *Journal of the American College of Cardiology*, 45(5), 637–651. doi:10.1016/j.jacc.2004.12.005
- Russell, D. W., & Cutrona, C. E. (1991). Social support, stress, and depressive symptoms among the elderly: Test of a process model. *Psychology and Aging*, 6(2), 190–201.
- Sanghani, S., Deavenport, A., Herring, P., Anderson, S. E., & Medina, E. (2008). A pilot study: Can a short-term complementary and alternative medicine intervention combat stress? *Californian Journal of Health Promotion*, 6(2), 73–78.
- Sanghani, S., Deavenport, A., Herring, P., Anderson, S. E., Medina, E., & Kazemi, S. (2010). Enhancing wellness by therapeutic lifestyle change: Does cost determine program commitment? *Californian Journal of Health Promotion*, 8(1). Retrieved from http://cjhp.fullerton.edu/Volume8_2010/Issue1/40-45sanghani.pdf
- Sasaki, M., & Yamasaki, K. (2005). Dispositional and situational coping and mental health status of university students. *Psychological Reports*, 97(3), 797–809.
- Sasaki, M., & Yamasaki, K. (2007). Stress coping and the adjustment process among university freshmen. *Counselling Psychology Quarterly*, 20(1), 51–67. doi:10.1080/09515070701219943
- Schachter, S., & Singer, J. E. (1962). Cognitive, social, and physiological determinants of emotional state. *Psychological Review*, 69, 379–399.
- Scheier, M. F., & Bridges, M. W. (1995). Person variables and health: Personality predispositions and acute psychological states as shared determinants for disease. *Psychosomatic Medicine*, 57(3), 255–268.

- Scheier, M. F., Weintraub, J. K., & Carver, C. S. (1986). Coping with stress: Divergent strategies of optimists and pessimists. *Journal of Personality and Social Psychology, 51*(6), 1257–1264.
- Schreiber, L. R. N., Grant, J. E., & Odlaug, B. L. (2012). Emotion regulation and impulsivity in young adults. *Journal of Psychiatric Research, 46*(5), 651–658. doi:10.1016/j.jpsychires.2012.02.005
- Seburg, E. M., Horvath, K. J., Garwick, A. W., McMorris, B. J., Vehe, R. K., & Scal, P. (2012). Complementary and alternative medicine use among youth with juvenile arthritis: Are youth using CAM, but not talking about it? *Journal of Adolescent Health, 51*(2), 200-202.
- Selye, H. (1936). A syndrome produced by diverse nocuous agents. *Nature, 138*(3479), 32–32. doi:10.1038/138032a0
- Selye, H. (1978). *The stress of life* (Rev. ed.). New York, NY: McGraw-Hill.
- Shikai, N., Uji, M., Shono, M., Nagata, T., & Kitamura, T. (2008). Dispositional coping styles and childhood abuse history among Japanese undergraduate students. *Open Family Studies Journal, 1*, 76–80.
- Sifferlin, A. (2013). The most stressed out generation. *Time Magazine*. Retrieved from <http://healthland.time.com/2013/02/07/the-most-stressed-out-generation-young-adults>
- Simard, A.-A., & Henry, M. (2009). Impact of a short yoga intervention on medical students' health: A pilot study. *Medical Teacher, 31*(10), 950–952. doi:10.3109/01421590902874063

- Smeeding, S. J. W., Bradshaw, D. H., Kumpfer, K., Trevithick, S., & Stoddard, G. J. (2010). Outcome evaluation of the Veterans Affairs Salt Lake City Integrative Health Clinic for chronic pain and stress-related depression, anxiety, and post-traumatic stress disorder. *Journal of Alternative and Complementary Medicine*, *16*(8), 823–835. doi:10.1089/acm.2009.0510
- Smith, C. A., & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. *Cognition & Emotion*, *7*(3-4), 233–269. doi:10.1080/02699939308409189
- Somerfield, M. R., & McCrae, R. R. (2000). Stress and coping research: Methodological challenges, theoretical advances, and clinical applications. *The American Psychologist*, *55*(6), 620–625.
- Stawski, R. S., Sliwinski, M. J., Almeida, D. M., & Smyth, J. M. (2008). Reported exposure and emotional reactivity to daily stressors: The roles of adult age and global perceived stress. *Psychology and Aging*, *23*(1), 52–61. doi:10.1037/0882-7974.23.1.52
- Stecker, T. (2004). Well-being in an academic environment. *Medical Education*, *38*(5), 465–478. doi:10.1046/j.1365-2929.2004.01812.x
- Steinberg, L., Vandell, D. L., & Bornstein, M. H. (2010). *Development: Infancy through adolescence*. Belmont, CA: Cengage Learning.
- Steinhardt, M., & Dolbier, C. (2008). Evaluation of a resilience intervention to enhance coping strategies and protective factors and decrease symptomatology. *Journal of American College Health*, *56*(4), 445–453. doi:10.3200/JACH.56.4.445-454

- Sterling, P., & Eyer, J. (1988). Allostasis: A new paradigm to explain arousal pathology. In S. Fisher & J. T. Reason (Eds.), *Handbook of life stress, cognition, and health*. Chichester, NY: Wiley.
- Strauss, J. L., & Lang, A. J. (2012). Complementary and alternative treatments for PTSD. *PTSD Research Quarterly*, 23(2), 1–7.
- Su, D., & Li, L. (2011). Trends in the use of complementary and alternative medicine in the United States: 2002–2007. *Journal of Healthcare for the Poor and Underserved*, 22(1), 296–310. doi:10.1353/hpu.2011.0002
- Suls, J., David, J. P., & Harvey, J. H. (1996). Personality and coping: Three generations of research. *Journal of Personality*, 64(4), 711–735.
- Taylor, S. E., Helgeson, V. S., Reed, G. M., & Skokan, L. A. (1991). Self-generated feelings of control and adjustment to physical illness. *Journal of Social Issues*, 47(4), 91–109.
- Taylor, S. E., Kemeny, M. E., Aspinwall, L. G., Schneider, S. G., Rodriguez, R., & Herbert, M. (1992). Optimism, coping, psychological distress, and high-risk sexual behavior among men at risk for acquired immunodeficiency syndrome (AIDS). *Journal of Personality and Social Psychology*, 63(3), 460–473.
- Thomas, S. J., Caputi, P., & Wilson, C. J. (2014). Specific attitudes which predict psychology students' intentions to seek help for psychological distress: Attitudes towards personal treatment. *Journal of Clinical Psychology*, 70(3), 273–282. doi:10.1002/jclp.22022
- Thomé, S., Eklöf, M., Gustafsson, E., Nilsson, R., & Hagberg, M. (2007). Prevalence of

perceived stress, symptoms of depression and sleep disturbances in relation to information and communication technology (ICT) use among young adults: An explorative prospective study. *Computers in Human Behavior*, 23(3), 1300–1321. doi:10.1016/j.chb.2004.12.007

- Thompson, S. C., & Spacapan, S. (1991). Perceptions of control in vulnerable populations. *Journal of Social Issues*, 47(4), 1–21.
- Tsang, H. W., Cheung, W. M., Chan, A. H., Fung, K. M., Leung, A. Y., & Au, D. W. (2013). A Pilot Evaluation on a Stress Management Program Using a Combined Approach of Cognitive Behavioral Therapy (CBT) and Complementary and Alternative Medicine (CAM) for Elementary School Teachers. *Stress and Health*.
- Turner, H. A., & Schieman, S. (2008). *Stress processes across the life course*. Oxford, UK: Elsevier JAI.
- Turner, J., Perkins, H. W., & Bauerle, J. (2008). Declining negative consequences related to alcohol misuse among students exposed to a social norms marketing intervention on a college campus. *Journal of American College Health*, 57(1), 85–94.
- Uchino, B. N., Uno, D., & Holt-Lunstad, J. (1999). Social support, physiological processes, and health. *Current Directions in Psychological Science*, 8(5), 145–148. doi:10.1111/1467-8721.00034
- Upchurch, D. M., & Rainisch, B. K. W. (2012). Racial and ethnic profiles of complementary and alternative medicine use among young adults in the United States findings from the national longitudinal study of adolescent health. *Journal*

of Evidence-Based Complementary & Alternative Medicine, 17(3), 172-179.

Vaillant, G. E. (1995). *Adaptation to life*. Cambridge, MA: Harvard University Press.

Van der Kolk, B. A., McFarlane, A. C., & Weisaeth, L. (1996). *Traumatic stress: The effects of overwhelming experience on mind, body, and society*. New York, NY: Guilford Press.

Visconti, K. J., Sechler, C. M., & Kochenderfer-Ladd, B. (2013). Coping with peer victimization: The role of children's attributions. *School Psychology Quarterly*, 28(2), 122-140. doi:10.1037/spq0000014

Walinga, J. (2008). Toward a theory of change readiness: The roles of appraisal, focus, and perceived control. *The Journal of Applied Behavioral Science*, 44(3), 315–347. doi:10.1177/0021886308318967

Weinberger, D. R., Elvevag, B., & Giedd, J. N. (2005). *The adolescent brain*. Washington, DC: National Campaign to Prevent Teen Pregnancy. Retrieved from <http://www.moash.org/wp-content/uploads/2013/02/The-Adolescent-BRAIN.pdf>

Weiten, W. (2009). *Psychology applied to modern life: Adjustment in the 21st century* (9th ed.). Belmont, CA: Wadsworth Cengage Learning.

Welle, P. D., & Graf, H. M. (2011). Effective lifestyle habits and coping strategies for stress tolerance among college students. *American Journal of Health Education*, 42(2), 96–105.

White House Commission on Complementary and Alternative Medicine Policy. (2002). *White House Commission on Complementary And Alternative Medicine Policy*. Retrieved from <http://www.whccamp.hhs.gov/>

- Yadav, R. K., Magan, D., Mehta, N., Sharma, R., & Mahapatra, S. C. (2012). Efficacy of a short-term yoga-based lifestyle intervention in reducing stress and inflammation: Preliminary results. *Journal of Alternative and Complementary Medicine, 18*(7), 662–667. doi:10.1089/acm.2011.0265
- Yahav, R., & Cohen, M. (2008). Evaluation of a cognitive-behavioral intervention for adolescents. *International Journal of Stress Management, 15*(2), 173.
- Yamasaki, K., & Uchida, K. (2006). Relation of positive affect with emotion-focused coping in Japanese undergraduates. *Psychological Reports, 98*(3), 611–620.
- Zeidner, M., & Saklofske, D. (1996). Adaptive and maladaptive coping. In M. Zeidner & N. S. Endler (Eds.), *Handbook of coping: Theory, research, applications* (pp. 505–531). New York, NY: Wiley.
- Zhang, Y.-F., Ren, G.-F., & Zhang, X.-C. (2010). Acupuncture plus cupping for treating insomnia in college students. *Journal of Traditional Chinese Medicine, 30*(3), 185–189.
- Ziegelstein, R. C. (2007). Acute emotional stress and cardiac arrhythmias. *Journal of the American Medical Association, 298*(3), 324. doi:10.1001/jama.298.3.324
- Zimmerman, C., & Kandiah, J. (2012). A pilot study to assess students' perceptions, familiarity, and knowledge in the use of complementary and alternative herbal supplements in health promotion. *Alternative Therapies in Health and Medicine, 18*(5), 28–33.

Appendix A: Survey Questionnaire

Relationship between Stress and Complementary and Alternative Medicine Use

Dear participant: I am conducting this survey to examine whether variables such as exposure to CAM, stress level, dispositional coping style, sociodemographic variables, and social support influence the use of CAM modalities for stress management among young adults. Your responses will be anonymous, confidential, and never associated with any information that is personally identifiable. Only survey results will be reported. Participation in this study is entirely voluntary. You may decide not to complete this survey at any time without affecting your relationship with SCU or any other SCU employee. Completion of this survey indicates your consent to participate. Thank you.

1. Are you:
Male
Female

2. Please specify your ethnicity:
Hispanic or Latino
Not Hispanic or Latino

3. Please specify your race:
American Indian or Alaska Native
Asian
African American
Native Hawaiian or Pacific Islander
Caucasian
Other, please specify: _____

4. What is your marital status?
Single
Married
Unmarried, but living with partner (cohabiting)
Divorced
Separated
Widowed

5. What is your income?
Less than \$10,000
\$10,000 - \$20,000

\$20,001 - \$30,000

\$30,001 - \$40,000

More than \$40,000

6. Knowledge and exposure to CAM

Operational Definition:

The degree to which an individual has gained knowledge about, or been influenced to use one or more Complementary or Alternative Medicine (CAM) modalities and the extent to which that individual perceives him or herself as capable of engaging in one or more modality.

Please rate the degree to which you have learned about, or been influenced to use ANY or all of the following categories of CAM modalities.

Modalities	Not at all	Slight Degree	Some Degree	Moderate Degree	Great Degree
1) Meditation	<input type="checkbox"/>				
2) Yoga	<input type="checkbox"/>				
3) Hypnosis	<input type="checkbox"/>				
4) Guided imagery	<input type="checkbox"/>				
5) Music therapy	<input type="checkbox"/>				
6) Prayer	<input type="checkbox"/>				
7) Herbal therapies	<input type="checkbox"/>				
8) Special Diets	<input type="checkbox"/>				
9) Orthomolecular medicine	<input type="checkbox"/>				
10) Individual biological therapies	<input type="checkbox"/>				
11) Talking to friends	<input type="checkbox"/>				
12) Seek family support	<input type="checkbox"/>				
13) Qi Gong	<input type="checkbox"/>				
14) Rei Ki	<input type="checkbox"/>				
15) Therapeutic touch	<input type="checkbox"/>				
16) Massage	<input type="checkbox"/>				
17) Supplements	<input type="checkbox"/>				
18) Music	<input type="checkbox"/>				
19) Acupuncture treatments	<input type="checkbox"/>				
20) Ayurvedic treatments	<input type="checkbox"/>				
21) Chiropractic treatments	<input type="checkbox"/>				

22)	Homeopathic Medicine	<input type="checkbox"/>				
23)	Native American Medicine	<input type="checkbox"/>				
24)	Naturopathic Medicine	<input type="checkbox"/>				

7. Use of coping behavior for stress management

Please select the how often you use following modalities for your stress management.

Modalities	Not at all	Slight Degree	Some Degree	Moderate degree	Great Degree
1) Meditation	<input type="checkbox"/>				
2) Yoga	<input type="checkbox"/>				
3) Hypnosis	<input type="checkbox"/>				
4) Guided imagery	<input type="checkbox"/>				
5) Music therapy	<input type="checkbox"/>				
6) Prayer	<input type="checkbox"/>				
7) Herbal therapies	<input type="checkbox"/>				
8) Special Diets	<input type="checkbox"/>				
9) Orthomolecular medicine	<input type="checkbox"/>				
10) Individual biological therapies	<input type="checkbox"/>				
11) Talking to friends	<input type="checkbox"/>				
12) Seek family support	<input type="checkbox"/>				
13) Qi gong	<input type="checkbox"/>				
14) Rei Ki	<input type="checkbox"/>				
15) Therapeutic touch	<input type="checkbox"/>				
16) Massage	<input type="checkbox"/>				
17) Prescription drugs	<input type="checkbox"/>				
18) Alcohol	<input type="checkbox"/>				
19) Smoking	<input type="checkbox"/>				
20) Supplements	<input type="checkbox"/>				
21) Sex	<input type="checkbox"/>				
22) Sleep	<input type="checkbox"/>				
23) Workout	<input type="checkbox"/>				
24) Run/Walk	<input type="checkbox"/>				
25) Acupuncture treatments	<input type="checkbox"/>				
26) Ayurvedic treatments	<input type="checkbox"/>				

27)	<u>Chiropractic treatments</u>	<input type="checkbox"/>				
28)	<u>Homeopathic Medicine</u>	<input type="checkbox"/>				
29)	<u>Native American Medicine</u>	<input type="checkbox"/>				
30)	<u>Naturopathic Medicine</u>	<input type="checkbox"/>				
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Hassles Scale

Check each hassle that you are currently experiencing and circle the degree of severity using the following scale:

0 = None or Did Not Occur

1 = Somewhat severe

2 = Moderately severe

3 = Extremely severe

- | | | | | | |
|-----|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 1) | Misplacing or losing things | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2) | Troublesome neighbors | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3) | Social obligations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4) | Inconsiderate smokers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5) | Troubling thoughts about your future | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6) | Thoughts about death | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7) | Health of a family member | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8) | Not enough money for clothing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9) | Not enough money for housing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10) | Concerns about owing money | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11) | Concerns about money for emergencies | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12) | Someone owes you money | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13) | Financial responsibility for someone who doesn't live with you | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14) | Conserving electricity, water, etc. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15) | Smoking too much | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16) | Use of alcohol | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17) | Personal use of drugs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18) | Too many responsibilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19) | Decisions about having children | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20) | Non-family members living with you | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

21)	Planning meals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22)	Concerns about the meaning of life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23)	Trouble relaxing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24)	Problems getting along with coworkers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25)	Concerns about medical treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26)	Fear of rejection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27)	Sexual problems due to physical causes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28)	Sexual problems other than physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29)	Friends or relatives too far away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30)	Wasting time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31)	Filling out forms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32)	Financing children's education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33)	Gender bias/harassment at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34)	Being exploited	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35)	Rising prices of common goods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36)	Not getting enough sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37)	Problems with your children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38)	Problems with younger people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39)	Problems with older people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40)	Unchallenging work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41)	Concerns about meeting high standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42)	Financial dealing with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43)	Trouble reading, writing, or spelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44)	Trouble with math	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45)	Legal problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46)	Not enough time to get things done	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47)	Not enough energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48)	Side effects of medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

49)	Physical illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50)	Inability to express yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51)	Silly practical mistakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52)	Financial security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53)	Fear of confrontation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54)	Not enough money for healthcare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55)	Feeling lonely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56)	Concerns about accidents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57)	Concerns about getting a loan/credit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58)	Having to wait in lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59)	Too much time on your hands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60)	Unexpected company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
61)	Too many interruptions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62)	Not enough money for food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63)	Not enough money for necessities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64)	Dislike coworkers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65)	Dislike current work duties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
66)	Laid-off or out of work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
67)	Concerns about retirement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
68)	Care for pets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
69)	Concerns about job security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70)	Housekeeping responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
71)	Trouble making decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
72)	Difficult customers/clients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
73)	Physical appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74)	Difficulties getting pregnant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
75)	Concerns about health in general	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
76)	Social isolation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

77)	Preparing meals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
78)	Auto maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79)	Neighborhood deterioration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
80)	Declining physical abilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
81)	Concerns about bodily functions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
82)	Not getting enough rest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
83)	Problems with aging parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
84)	Problems with your lover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
85)	Difficulties seeing or hearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
86)	Too many things to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
87)	General job dissatisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
88)	Worry about changing jobs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
89)	Too many meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
90)	Problems with divorce/separation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
91)	Gossip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
92)	Concerns about weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
93)	Watching too much television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
94)	Concerns about inner conflicts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
95)	Feeling conflicted about what to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
96)	Regrets over past decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
97)	Menstrual problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
98)	The weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
99)	Nightmares	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
100)	Concerns about getting ahead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
101)	Hassles from boss/supervisor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
102)	Difficulties with friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
103)	Overload of family responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
104)	Problems with employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

105) Not enough time for family

9. Coping Resources Inventory

Directions

For each of the sixty statements that follow, fill in the circle that best describes you in the last six months.

	Never or Rarely	Some- times	Often	Always or Almost Always
1) I have plenty of energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) I say what I need or want without making excuses or dropping hints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) I like myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) I am comfortable with the number of friends that I have	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) I eat junk food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) I feel as worthwhile as anyone else	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) I am happy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) I am comfortable talking to strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) I am part of a group, other than my family, that cares about me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) I accept the mysteries of life and death	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) I see myself as loveable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) I actively look for the positive side of people and situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) I exercise vigorously 3-4 times a week	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) I accept compliments easily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) I show others when I care about them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) I believe that people are willing to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- | | | | | | |
|-----|---|--------------------------|--------------------------|--------------------------|--------------------------|
| | <hr/> | | | | |
| | have me talk about my feelings | | | | |
| 17) | I can show it when I am sad | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18) | I am aware of my good qualities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <hr/> | | | | |
| 19) | I express my feelings to close friends | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20) | I can make sense out of my world | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21) | My weight is within 5 lbs. of what it should be | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22) | I believe in a power greater than myself | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23) | I actively pursue happiness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24) | I can tell other people when I am hurt | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25) | I encourage others to talk about their feelings | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26) | I like my body | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27) | I initiate contact with people | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28) | I confide in my friends | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29) | I can cry when sad | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30) | I want to be of service to others | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31) | I can say what I need or want without putting others down | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 32) | I accept problems that I cannot change | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33) | I know what is important in life | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 34) | I admit when I'm afraid of something | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 35) | I enjoy being with people | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
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|-----|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 36) | I am tired | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37) | I express my feelings clearly and directly | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 38) | Certain traditions play an important part in my life | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39) | I express my feelings of joy | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 40) | I can identify my emotions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 41) | I attend church or religious meetings | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 42) | I do stretching exercises | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 43) | I eat well-balanced meals | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 44) | I pray or meditate | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 45) | I accept my feelings of anger | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 46) | I seek to grow spiritually | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 47) | I can express my feelings of anger | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 48) | My values and beliefs help me to meet daily challenges | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 49) | I put myself down | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 50) | I get along well with others | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 51) | I snack between meals | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 52) | I take time to reflect on my life | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 53) | Other people like me | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 54) | I laugh wholeheartedly | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 55) | I am optimistic about my future | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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|-----|-----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 56) | I get enough sleep | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 57) | My emotional life is stable | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 58) | I feel that no one cares about me | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59) | I am shy | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 60) | I am in good physical shape | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
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