

THE ASSOCIATION BETWEEN SELF-REPORTED MENTAL HEALTH
SYMPTOMOLOGY AND COMPLEMENTARY AND ALTERNATIVE
MEDICINE USE AMONG U.S. WOMEN

A DISSERTATION

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BY

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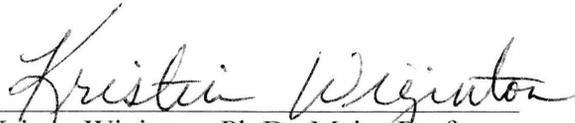
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To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Susan Caroline Pettigrew entitled, "The Association between Self-Reported Mental Health Symptomology and Complementary and Alternative Medicine Use Among U.S. Women." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Health Studies.


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ABSTRACT

SUSAN CAROLINE PETTIGREW

THE ASSOCIATION BETWEEN SELF-REPORTED MENTAL HEALTH SYMPTOMOLOGY AND COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AMONG U.S. WOMEN

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Within the United States, the use of complementary and alternative medicine (CAM) has increased over the past three decades. Review of CAM literature research suggests that people with mental health disorders are heavily represented among those using CAM. The purpose of this retrospective, cross-sectional study, secondary analysis of the 2007 National Health Interview Survey (NHIS) was to explore the relationship between CAM use and mental health symptomology of anxiety, bipolar disorder, and depression in women.

The results of this study provide valuable insight into trends in the use of CAM, including the types of CAM being utilized, as well as the demographic characteristics of women using CAM for mental health conditions. Consistent determinants of CAM use within this sample were education level, geographic region of residence in the US, and ethnicity. CAM use was higher among middle-aged women who had bachelor or graduate degrees (n=337; 88.9%) than with women who had less than a high school diploma (n=245; 43.8%). Use was more common among women living in the West (n=420; 78.4%) than elsewhere in the US. And use was more common among Caucasian

women (n=1129; 74.7%) than non-Caucasian women (n=511, 57.2%). The most frequently used types of CAM for women with any of the target disorders included the following: herbal supplements (n=831; 33.7%), chiropractic or osteopathic manipulation therapy (n=792; 32.1%), deep breathing exercises (n=709; 28.7%), and massage (n=580; 23.5%).

With the high prevalence of CAM use in the US, there is an increasing need for patients and health providers to openly discuss CAM use to ensure safe and coordinated care. Health educators can encourage and facilitate communication between patients and their health care providers. The data from this study reinforce the increasing importance of health educators being prepared to discuss with their patients not only the conventional health care options, but CAM therapies as health care options.

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CHAPTER I

INTRODUCTION

Within the United States, the use of complementary and alternative medicine (CAM) has increased over the past three decades. The National Center for Complementary and Alternative Medicine (NCCAM, 2009a) define CAM as “a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine” (What is CAM?, para. 1). Complementary medicine is used in conjunction with conventional medicine, whereas alternative medicine is used in place of conventional medicine.

According to the 2007 Adult Complementary and Alternative Medicine Supplement of the National Health Interview Survey (NHIS), approximately 38% of adults aged 18 years and older used some form of CAM (NCCAM, 2009a). Non-vitamin/mineral dietary supplements were the most frequently used CAM therapies (17.7%), followed by deep breathing (12.7%), meditation (9.4%), chiropractic or osteopathic manipulation (8.6%), massage (8.3%), and yoga (6.1%) (Barnes, Bloom, & Nahin, 2008). The most frequently used non-vitamin, non-mineral, natural products were fish oil, omega 3, or Docosahexaenoic acid (DHA) (37.4%), followed by glucosamine (19.9%), echinacea (19.8%), flaxseed oil or pills (15.9%), and ginseng (14.1%) (Barnes et al., 2008). Some people use CAM for primary treatment of an acute or chronic condition and others use CAM for health maintenance and wellness. Results from the

survey indicated the most frequent health issues cited as the reason for CAM use were musculoskeletal problems (17.1%), followed by neck pain (5.9%), joint pain (5.2%), arthritis (3.5%), and anxiety (2.8%) (NCCAM, 2009a). Surveys consistently confirm that white middle-age women are the most likely users of CAM. Herbs and other CAM are largely marketed to women for relief of menstrual and menopausal symptoms, mood abnormalities, and for bone health (Tesch, 2003).

Forty-six percent of all Americans have symptoms of mental disorders at some point in their lives (Office on Women's Health, 2008). Mental disorders, such as anxiety, bipolar disorder, and depression, account for significant morbidity and disability within the U.S. (World Health Organization [WHO], 2009). Mental disorders are especially prevalent among women (Wu, et al., 2007), as evidenced by depression and anxiety disorder rates that are double that of men (U.S. Department of Health and Human Services [USDHHS], 2008).

Estimates of CAM use by women diagnosed with anxiety, bipolar disorder, and/or depression are currently not available. Further, there is limited published data on the association between CAM use by women and biological factors (age and body mass index [BMI]), and sociocultural factors (marital status, educational level, income, race/ethnicity, region of the United States, and health insurance). It is important to fully understand the treatments being used and to determine if certain mental conditions are associated with increased CAM usage. Medical providers should be aware that patients may use CAM and inquire about such patient use to reduce the likelihood of adverse interactions between prescribed medications and CAM. The use of some CAM therapies can be

potentially dangerous when combined with pharmacotherapy; therefore, it is crucial for health educators to assist the public in understanding the benefits and potential contraindications of CAM therapies.

Purposes of the Study

This study was multipurpose: 1) To delineate the biological factors (age and BMI) and sociocultural factors (marital status, education level, income, race/ethnicity, region of the United States, and health insurance), of women with self-reported mental health conditions (anxiety, bipolar disorder, and/or depression); 2) To determine the overall prevalence of complementary and alternative medicine (CAM) use among women with self-reported mental health conditions (anxiety, bipolar disorder, and/or depression) as well as the prevalence of CAM use by category; 3) To determine any differences in CAM use and category of CAM therapy based on mental health symptomatology; and 4) To determine if certain descriptive covariates predict CAM use among women.

Theoretical Foundation

Components of the Health Promotion Model (HPM) of Pender (2009) were used to drive this research. More specifically, the components considered in this study include personal factors that are addressed in the HPM. Personal factors and personal beliefs regarding one's capacity to control life events are predictive of behavioral outcomes (Pender, 2009). Pender's HPM has three types of personal factors: biological, sociocultural, and psychological. Biological factors for this study will include age and BMI; sociocultural factors for this study will include marital status, education level, income, race/ethnicity, region of the United States, and health insurance; and psychological

factors for this study will include mental disorders. The assumption of the HPM is that people have the ability to manage their destiny and to control behavioral outcomes (Pajares, 2000; Pender, 2009; Srof & Velsor-Fredrick, 2006).

Hypotheses

The following null hypotheses in this study were tested at the .05 level of significance:

1. Among women with self-reported symptomatology of anxiety, bipolar disorder, and/or depression, there will be no significant difference in the descriptive covariates of women who use CAM therapies and women who do not use CAM therapies.

2. There will be no significant difference between the three symptomatology groupings (anxiety, bipolar disorder, depression) and individual CAM therapy use score.

3. Biological factors (age and BMI), sociocultural factors (marital status, education level, income, race/ethnicity, region of the United States, and health insurance), and type of mental health symptomatology (anxiety, bipolar disorder, depression) will not significantly predict CAM use.

4. Biological factors (age and BMI), sociocultural factors (marital status, education level, income, race/ethnicity, region of the United States, and health insurance), and type of mental health symptomatology (anxiety, bipolar disorder, depression) will not significantly predict type of CAM therapy.

Delimitations

This study had the following delimitations:

1. The study used secondary data from the 2007 NHIS and the Adult Complementary and Alternative Medicine Supplement of the NHIS.
2. The sample for this study consisted of women 18 years of age or older.
3. Only non-institutionalized adults in the US were surveyed.

Limitations

This study may have had the following limitations:

1. Information on use of CAM was self-reported and was subject to the willingness of the participant to accurately report CAM use (Barnes et al., 2008).
2. Recall bias may have occurred because participants were asked to recall if they ever used CAM and, if so, did they use any in the past 12 months.
3. As this is secondary data, the researcher was unable to follow up with participants about data omissions or to gather more in-depth information. The researcher relied on the reported training and abilities of the interviewers who collected the data.
4. Mental disorders (anxiety, bipolar disorder, and/or depression) were self-reported and therefore not validated by physical or psychological examinations. Although it is assumed that the women responded in a truthful manner, social desirability bias may have affected responses on mental disorders.

Assumptions

This study was based on the following assumptions:

1. Data collected for the 2007 NHIS dataset are valid and reliable.
2. The women responded truthfully to all questions on the NHIS and CAM supplement.

Definition of Terms

Anxiety: Exaggerated and excessive worry and tension (for at least 6 months) about everyday activities and events (National Institute of Mental Health [NIMH], 2009a).

Bipolar Disorder (or Manic-depressive Illness): A serious medical illness that causes shifts in a person's mood, energy, activity levels, and ability to function (NIMH, 2009b). The current Diagnostic and Statistical Manual for Mental Disorders (DSM-IV-TR) lists four categories of bipolar disorder: Bipolar I, Bipolar II, Cyclothymia, and Bipolar Disorder NOS (Not Otherwise Specified).

Depression: A medical illness involving at least two of the following persistent symptoms (lasting for at least two weeks): feelings of sadness, hopelessness, and worthlessness; irritability; loss of interest in daily activities; fatigue; lack of concentration; sleep disorders; body aches; and suicidal ideation (NIMH, 2009c).

For purposes of this study, the 36 CAM therapies were divided into the following five categories:

1) *Alternative Medical Systems* include acupuncture, ayurveda, naturopathy, Curandero, Espiritista, Hierbero or Yerbera, Shaman, Botanica, Native American healer/Medicine man, Sobador, and homeopathic treatment.

2) *Biologically Based Therapies* include chelation therapy, vegetarian diet, Macrobiotic Diet, Atkins Diet, Pritikin Diet, Ornish Diet, zone diet, South Beach Diet, and herbal supplements.

3) *Manipulative and Body Based Therapies* include chiropractic or osteopathic manipulation, massage, Feldenkreis, Alexander technique, Pilates, and Trager psychophysical integration.

3) *Mind-Body Therapies* include biofeedback, hypnosis, yoga, Tai chi, Qi gong, meditation with guided imagery, progressive relaxation, and deep-breathing exercises.

5) *Energy Healing Therapy/Reiki*.

CHAPTER II

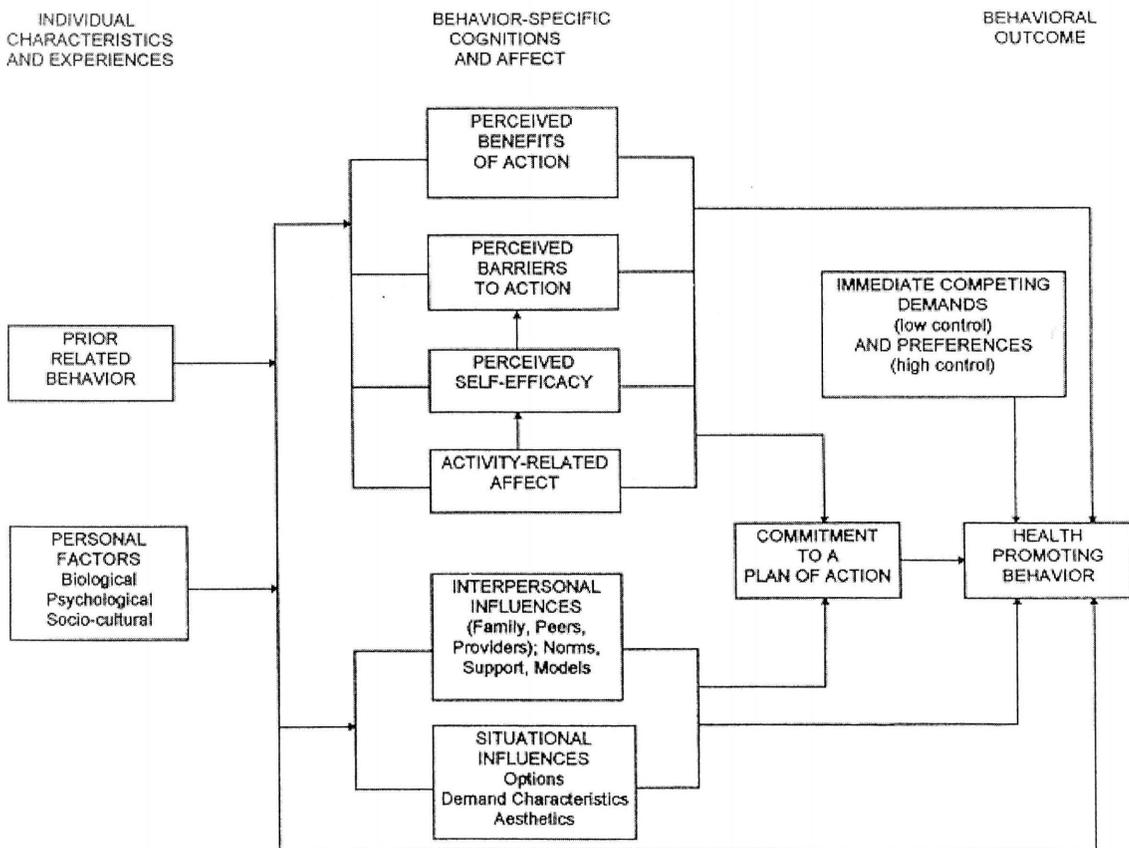
REVIEW OF LITERATURE

This chapter is a review of the literature on CAM use, types of CAM, and predictors of CAM use among women with mental health disorders. The chapter begins with a review of the Health Promotion Model's (HMP) three categories of personal factors: biological factors, sociocultural factors, and psychological factors. CAM use by women with mental health disorders is examined with consideration given to the biological, sociocultural, and psychological factors which may predict success in health-promoting behaviors. CAM use, reasons for CAM use, mental health disorders, conventional therapies for mental health disorders, and CAM for mental health disorders are explored. Pertinent literature pertaining to types of CAM is discussed and includes: 1) Alternative Medical Systems, 2) Biological-Based Therapies, 3) Manipulative and Body-Based Therapies, 4) Mind-Body Therapies, and 5) Energy Healing Therapies.

Health Promotion Model

In an effort to better understand CAM use by women with mental health disorders, the Health Promotion Model (HPM) (Pender, Murdaugh, & Parsons, 2006) was utilized for this study. Pender's HPM was selected because it has been widely used as a framework for research and practices aimed at predicting health-promoting behaviors and outcomes. Women with mental health symptoms often use CAM for health promotion. Pender's HPM identifies individual characteristics that result in health-

promoting behaviors. Individual characteristics, most importantly the personal factors which include biological, sociocultural, and psychological, are predictive of a given behavior and “are shaped by the nature of the target behavior being considered” (Pender et al., 2006, p.52). The present study integrates the personal factors and health-promoting behaviors of the components of Pender’s HPM as illustrated in Figure 1.



Revised Health Promotion Model

Figure 1. Health promotion model.
 From “Health Promotion Model” by N. J. Pender. Retrieved from <http://www.nursing.umich.edu/faculty/pender/chart.gif>
 Reprinted with permission.

Pender's HPM is based on the understanding that each individual has unique personal factors that influence behavior. The three personal categories are: biological, sociocultural, and psychological. The biological factors include age, body mass index, stage of puberty, menopausal status, aerobic capacity, strength, agility, and balance (Pender et al., 2006). The sociocultural factors include race, ethnicity, acculturation, education level, and socioeconomic status, while psychological factors relate to self-esteem, self-motivation, and perceived health status. In keeping with the intent of the model, only those personal factors considered as explanatory or predictive of the target behavior, CAM use, were evaluated in this study. As such, the following variables were utilized:

1. Biological factors including age, gender, and BMI.
2. Sociocultural factors including marital status, education, ethnicity, income, health insurance, and region of the United States.
3. Psychological factors including mental health symptoms – anxiety, bipolar disorder, and depression.

Figure 2 depicts the personal factors that may influence the health-promoting behavior in this study.

Personal Factors

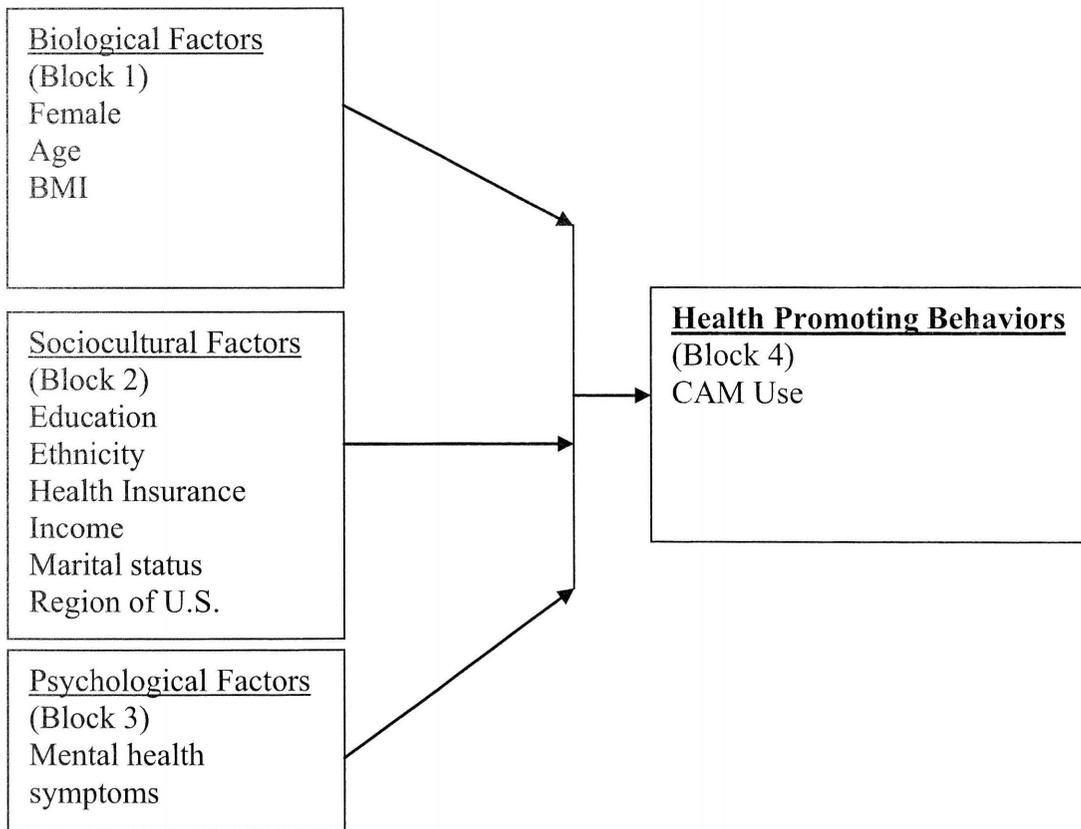


Figure 2. Health-promoting behaviors for CAM use.

CAM Use

As a result of dissatisfaction with traditional health care, shortcomings of modern medicine, lack of health insurance, or out of despair, many Americans are turning to CAM. Complementary, alternative, and unconventional medical practices are growing in demand for the treatment of disease and as a form of self-care to promote health and well-being (Honda & Jacobson, 2005). The acceptance of CAM among patients and health care providers is on the rise. Alternative medical programs have been established

at several prestigious medical schools in the United States. Hospital systems and health maintenance organizations are increasingly integrating CAM services into their standard of care, and managed care organizations and insurance companies are beginning to provide some coverage for CAM treatments (Jonas, 1998; Winslow & Shapiro, 2002). A 2007 survey mailed to 6,439 U.S. hospitals by Health Forum, a subsidiary of the American Hospital Association, revealed that 37% of the responding hospitals offered one or more CAM therapies. The primary reason cited by the hospitals for offering CAM services was patient demand (84%), followed by clinical effectiveness (67%) (American Hospital Association [AHA], 2008). Massage therapy was the CAM service most frequently offered for both inpatient and outpatient care, followed by therapeutic touch (AHA, 2008).

In 1992, Congress established the Office of Alternative Medicine (OAM) at the National Institutes of Health (NIH) to investigate and evaluate complementary and alternative medical practices, and to establish a CAM information clearinghouse (NCCAM, 2009a). Due to the increase in use of alternative and complementary therapies in the United States, the U.S. Dietary Supplement Health and Education Act (DSHEA) was passed in 1994, giving consumers the opportunity to choose for themselves regarding supplemental and alternative medication use (Kirsch, 2000). The DSHEA authorized the establishment of the Office of Dietary Supplements (ODS) at the NIH (NIH, Office of Dietary Supplements, 2009). Then, in 1998, the National Center for Complementary and Alternative Medicine (NCCAM) was established by Congress with the mission to explore

CAM healing practices, train CAM researchers, and inform health care professionals and the general public about CAM. The NCCAM superseded the OAM.

CAM Users

Epidemiological studies have shown that CAM use is increasing among adults in the United States (Chao, Wade, Kronenberg, Kalmuss, & Cushman, 2006). According to the 2007 Adult Complementary and Alternative Medicine Supplement of the NHIS, approximately 38% of adults aged 18 years and older have used some form of CAM (NCCAM, 2009a). Well-known research conducted by Eisenberg, et al. (1998) reported that approximately 42% of the 2,055 people surveyed had used at least one CAM in the past year.

Although CAM use is not limited to a particular segment of society, therapies are more likely to be utilized by people with the following characteristics: women, non-Hispanic whites, middle age, higher education levels, higher household income, and poorer health (Bishop & Lewith, 2008; Chao et al., 2006; Eisenberg et al., 1998; Honda & Jacobson, 2005; Ni, Simile, & Hardy, 2002, Reiter et al., 2009). However, the evidence for income as a predictor of CAM use is not consistent. In addition, there is debate whether CAM use increases with education because people with more education also tend to have higher incomes and therefore can afford CAM (Bishop & Lewith, 2008).

In 2007, the NHIS Adult Complementary and Alternative Medicine Supplement included children (aged 17 years and under) in the survey for the first time. The results revealed that one in nine children in the United States, or 12%, used CAM. Children

whose parents or family members used CAM were more likely to be CAM users (Barnes et al., 2008). The CAM therapies most commonly used by children were for back or neck pain, skeletal and muscular problems, common cold, anxiety or stress, and attention-deficit/hyperactivity disorders. Natural products (non-vitamin and non-mineral), chiropractic, deep-breathing exercises, and yoga were the most commonly used CAM therapies among children (Barnes et al., 2008).

Kessler et al. (2001) assessed trends in CAM use in the United States by evaluating three usage patterns: use in past year, use ever in lifetime, and age of first use. Using data from a nationally representative telephone survey of 2,055 eligible respondents, Kessler et al. (2001) found that 67.6% reported using at least one CAM therapy in their lifetime. Results of the survey suggest that lifetime use of CAM has increased with each decade since 1950. The results also show that the trend for the initiation of CAM use has become younger and that CAM use continues throughout the lifetime (Kessler et al., 2001).

Lamarine, Fisher, and Sbarbaro (2003) surveyed 495 undergraduate and 64 graduate students from five separate regions of the United States regarding their CAM attitudes and practices. The study found that a majority of college students favored the use of CAM, and those who used CAM reported satisfaction. The most commonly used CAM among the college students were herbs, dietary supplements, chiropractic, acupuncture, and massage (Lamarine et al., 2003).

In 2001, a national, cross-sectional telephone survey was conducted in the United States among women, 18 years of age and older, in four racial/ethnic groups: non-

Hispanic Whites, African-Americans, Mexican-Americans, and Chinese-Americans. The interviews were conducted in four languages: English, Spanish, Mandarin, and Cantonese. The 3,172 respondents were asked about their use of health remedies or treatments not typically prescribed by a medical doctor (Chao et al., 2006). The survey included questions regarding respondents' use of the following: vitamins and nutritional supplements; special diets such as whole foods, macrobiotic, or vegetarian; medical herbs or teas; remedies or practices associated with a particular culture (e.g., Chinese medicine, Ayurveda, Native American healing, Curanderismo); homeopathic remedies; yoga/mediation/tai chi; chiropractic treatments; manual therapies (massage or acupressure); energy therapies (Reiki or therapeutic touch); acupuncture; and any other remedy or treatment not typically prescribed by a medical doctor (Chao et al., 2006).

The results of the survey found that in the prior year, non-Hispanic White women (52%) were the highest users of CAM, and Mexican-American women (36%) were the lowest users of CAM (Kronenberg, Cushman, Wade, Kalmuss, & Chao, 2006). Including the adjusted odds ratio (AOR) for sociodemographic and health factors (African-American women AOR of 0.61 and Chinese-American women AOR of 0.72), and a confidence interval of 95%, CAM use over the past year was still consistently higher among non-Hispanic White women. In addition, including the adjustment for Mexican-American women (AOR of 0.78), CAM use over the past year did not differ significantly from non-Hispanic White women (Kronenberg et al., 2006). The results of the survey are consistent with other research indicating that the majority of female CAM

users are on average 42 years of age, employed, married, and have health insurance (Chao et al., 2006).

Reasons for CAM Use

The reasons which have been cited for CAM use include personal beliefs, social influences, and dissatisfaction with and distrust of conventional medicine. Many CAM users are seeking a natural approach to health care and treatment. CAM users often cite that conventional medicine is ineffective or has negative side effects. Economic barriers to conventional health care are also often noted as the reason for CAM use (Chao et al., 2006). Some people use CAM to avoid consulting a health professional. Many CAM therapies are noninvasive and are readily accessible to the health consumer. The data reveal that, regardless of the reason people use CAM, more Americans are putting their personal health care in their own hands and making their own health care decisions.

The Royal London Homeopathic Hospital, a National Health Service facility in the United Kingdom, surveyed almost 500 patients regarding their reasons for seeking CAM treatment (Sharples, van Haselen, & Fisher, 2003). Most of the respondents were women (81%), and two-thirds of the respondents had a chronic illness for at least five years (63%). The most frequent reasons cited by the patients for seeking CAM were that conventional treatment had not helped (62%) and that they had concerns about and/or had experienced side effects from conventional medicine (26%) (Sharples et al., 2003). Some respondents stated that it was their personal preference (41%). Another reason noted by patients was that there was no other treatment available for their health condition (12%). Homeopathic treatment was the most frequently used CAM therapy as reported by 80%

of the respondents, followed by acupuncture (19%) (Sharples et al., 2003). The main health conditions identified by the CAM users were related to the musculoskeletal system (32%), such as arthritis, back pain, pain, and rheumatoid arthritis. However, 20% of the CAM users cited more than one main health condition (Sharples et al., 2003).

CAM Use for Cancer

Cancer patients are frequent users of CAM. The National Cancer Institute (NCI) and the NCCAM sponsored clinical trials to study complementary and alternative medicine therapies for the treatment of cancer (NCI, 2006). Clinical trials have provided evidence that cancer patients who practice Mind-Body Therapies improve their mood, quality of life, and coping skills. People with cancer often use CAM to help relieve side effects of cancer treatments, such as chemotherapy-induced nausea and vomiting, and to tolerate other related pain symptoms (NCI, 2006).

Chemotherapy-induced nausea and vomiting are two of the most feared and common side effects of cancer treatments. A clinical trial funded by the NCI at the University of Rochester studied the efficacy of the herb ginger root, *Zingiber Officinata*, for the relief of chemotherapy-induced nausea and vomiting in cancer patients (Ryan et al., 2009). Of the 644 research participants, 90% were female and the mean age was 53. The patients were undergoing chemotherapy treatment for breast, digestive, lung, or other cancers. The participants were randomized to take either a placebo, 0.5 g of ginger, 1.0 g of ginger, or 1.5 g of ginger. The participants took three capsules of ginger or placebo twice daily for 3 days before chemotherapy and 3 days after chemotherapy. All four study arms were analyzed, and the results indicated that all doses of ginger significantly

reduced nausea ($p=0.003$), with the largest reductions of nausea in the 0.5 g and 1.0 g doses of ginger (Ryan et al., 2009). The results made it clear that ginger is an effective therapy for chemotherapy-induced nausea. In addition, there are a number of ongoing clinical trials for chemotherapy-induced nausea and vomiting, including trials assessing the effectiveness of auricular acupuncture, self-acupressure, and aromatherapy (NCI Office of Cancer Complementary and Alternative Medicine [OCCAM], 2009).

Mental Disorders and CAM Use

Descriptive Statistics of Mental Disorders in the U.S.

Mental illness is a medical condition that can affect a person of any age, gender, race, religion, or income. Mental illness affects people's daily functioning and how they relate to others; it also disrupts people's thinking, feeling, and mood (National Alliance on Mental Illness [NAMI], 2009). Mental disorders are among the most common health conditions in the world, and the U. S. has the highest prevalence of mental disorders of any developed country. Approximately 57.7 million adults in the U.S., or one in four, experience a mental health disorder each year (NAMI, 2010). According to the 2010 statistics from the National Alliance on Mental Illness, 5.7 million American adults (2.6%) have bipolar disorder affects, 14.8 million American adults (6.7%) have major depression, and 40 million American adults (18.7%) have anxiety disorders. A variety of factors, including biochemical, genetic, environmental, and even immigration status, may interact to initiate symptoms of mental disorders.

The National Institute of Mental Health (NIMH) funded a study, between February 2001 and April 2003, of 9,282 adults in the U.S. (Kessler, Berglund, et al.,

2005; Kessler, Chiu, Demler, & Walters, 2005). The survey found that almost half of Americans meet the criteria for a mental illness at some point in their lives. The survey reported 26.2% of the respondents had symptoms that met the diagnostic criteria for a mental disorder within the past year (Kessler, Chiu, et al., 2005). Anxiety disorders were the most prevalent mental disorders as reported by 18.1% of the respondents (Kessler, Chiu, et al., 2005). The survey also found that half of the people with one mental illness also met the criteria for two or more mental illnesses, or comorbidity. Women had a significantly higher rate than men of mood and anxiety disorders (Kessler, Berglund, et al., 2005).

Women are more likely than men to be adversely affected by specific mental disorders, with approximately one in three being diagnosed with depression and/or anxiety (WHO, 2009). Women are twice as likely to experience depression as men (American Psychological Association [APA], 2009; NAMI, 2010). Two large community-based surveys, the Epidemiologic Catchment Area Study and the National Co-morbidity Survey, both conducted in the U.S. by the NIMH, confirmed that the rate of depression is 1.7 to 2.7 times greater for women than for men (Burt & Stein, 2002).

Women of color have higher risk factors for depression than Caucasian women, including lower education and income levels, race discrimination, unemployment, and large family size (APA, 2009). Societal issues, including gender and body image, are a major factor for the large number of African-American and Caribbean women with depression (NAMI, 2010). Latina women are more likely to experience depression than Caucasian or African-American women, especially those who have recently immigrated

to the U.S and are adjusting to the new culture. The impact of immigration and acculturation can lead to low self-esteem, stress, and depression (APA, 2009; NAMI, 2010). According to the U.S. Census Bureau, 21.5% of Hispanics or Latinos live in poverty. These factors can contribute to depressive symptoms. There is an increased risk of depression among the Asian-American and Pacific Islander population as well. Family pressure, cultural adaptation, racism, discrimination, and language barriers all contribute to the risk of depression for these women (NAMI, 2010).

Several possible explanations of the higher prevalence of depression in women include: biological susceptibility, social discrimination, and psychological consequences (Weissman et al., 1993). The APA Summit on Women and Depression reported that women were at higher risk for depression because of socioeconomic, biological, and emotional variables.

Changes in their physical health affect women's mental health. Hormone level fluctuations can affect mood, as evidenced by the greater risk for depression after a miscarriage, during pregnancy, postpartum, during perimenopause, and into menopause (Andreescu, Mulsant, & Emanuel, 2008; USDHHS, 2008; WHO, 2009). Serotonin is a chemical required in the brain for mood maintenance. The rate of synthesis of serotonin and level of serotonin in the blood are significantly higher in men, which could potentially explain the higher rate of depression in women (Society for Women's Health Research, 2004).

Women are also susceptible to depression due to stress at work and at home, such as an unhappy marriage, being a single parent, and being the primary caregiver for

children and/or aging parents (USDHHS, 2008). Sexual and physical abuse have negative psychological effects that may predispose certain women to depression (Mazure, Keita, & Blehar, 2002; Society for Women's Health Research, 2004). Mental disorders are associated with reduced quality of life, functional impairment, disability, and even premature death due to suicide (Andreescu et al., 2008; WHO, 2009). The onset of mental disorders can occur at any stage of life and can be triggered by life-changing events, chemicals in the body, genes, hormones, or other illnesses or disabilities.

Conventional Treatments for Mental Health Disorders

There are a range of approaches to treating mental health symptoms, including lifestyle changes, therapy, prescription medications, and CAM. There are dozens of pharmaceutical medications available to treat mental health symptoms and they are heavily advertised. Many mental health specialists believe that medications may help relieve some of the symptoms, but are often only a short-term solution if the underlying problem is not addressed.

Antidepressants are the most common and first line of therapy for depression used in developed countries. In the United States, 10% of women and 4% of men are currently taking antidepressants (Kotz, 2010). There are many different classes of antidepressants on the market. A selective serotonin reuptake inhibitor (SSRI) is typically the initial medication because SSRIs are thought to be more tolerable with fewer side effects. Antidepressant medications have many side effects and safety concerns, such as lethargy, headache, stomach upset, weight gain, and sexual dysfunction. Some of the more severe side effects of antidepressants are suicidal thoughts and life-threatening liver failure or a

dangerous drop in white blood cell count. The FDA requires that all antidepressant medications have a “black box” warning which is the strictest warning for any prescription medication. Patients may experience withdrawal symptoms when they stop their antidepressant medication; and in some cases, their mental health symptoms are exacerbated, resulting in re-administration of the antidepressant at an increased dosage.

CAM Use for Mental Disorders

A rising number of patients with mental health disorders use nonconventional treatments to complement their conventional medicine (Demling, Neubauer, Luderer, & Worthmuller, 2002). Compared with the general population, a higher percentage of individuals with mental disorders use nonconventional treatments; and people with depression and anxiety symptoms report using nonconventional treatment most often (Unutzer et al., 2000). Depression is among the most common conditions for which alternative treatments are used. Healthcare for Communities, a national survey funded by the Robert Wood Johnson Foundation, queried 9,585 respondents from 1997-1998. Results revealed that approximately one in five (21.3%) CAM users had a diagnosis for a mental disorder (Perron, Jarman, & Kilbourne, 2009; Unutzer et al., 2000).

Researchers from Columbia University extracted a multiethnic subsample of 220 women with depression from a 2001 nationally representative telephone survey of 3,068 women. Fifty-four percent of the women with depression reported CAM use over the past year (Wu et al., 2007). The reasons cited for CAM use among this sample of women with depression were dissatisfaction with and unfavorable side effects from conventional medical treatment (45%), personal experience of ineffectiveness of conventional medical

treatment (43%), and lack of affordability of conventional medicine (17%) (Wu et al., 2007).

The increase in use of CAM among persons diagnosed with mental disorders may result from experiencing adverse effects from conventional medications, finding conventional medications inaccessible or too expensive, refusing to take conventional medications, or reporting no response or partial response to conventional medications (Miller, Emanuel, Rosenstein, & Straus, 2004; Unutzer et al., 2000; Weze, Leathard, Grange, Tiplady, & Stevens, 2007). The last reason is supported by results from a meta-analysis of six clinical trials of 718 depressed patients. Results indicated that antidepressants were more effective than placebo only for patients with severe depression, and the benefit to patients with mild or moderate depression was minimal or nonexistent (Fournier et al., 2010).

Data from a nationally representative survey, conducted between November 1997 and February 1998, and sponsored by the Department of Health Care Policy, The Center for Alternative Medicine Research and Education, and the Department of Medicine at Harvard Medical School, revealed that relaxation techniques and “spiritual healing by others” were the most commonly used CAM therapies for depression and anxiety symptoms in the U.S. (Kessler et al., 2001). Of the 2,055 people surveyed, 57% of those diagnosed with anxiety attacks and 54% of those diagnosed with severe depression reported using CAM therapies as their primary treatment or their adjunctive treatment (Kessler et al., 2001). The data revealed that respondents who found CAM therapies to be “very helpful” were similar to the respondents who found conventional therapies to be

“very helpful” (Kessler et al., 2001). This survey also found that approximately 90% of patients with anxiety who were seen by a psychiatrist also used a form of CAM to treat their anxiety. In addition, more than 60% of patients with depression who were seen by a psychiatrist also used a form of CAM to treat depression (Kessler et al., 2001). Lake and Spiegel (2007) agreed that many people who use CAM for a mental health problem use conventional approaches concurrently.

In 2001, Russinova, Wewiorski, and Cash (2002) conducted an exploratory study on the perceived benefits of CAM use by adults with serious mental illness. Of the 157 individuals who completed the validated survey, 70% were female, 89% were white, 67% were unmarried, 72% were college educated, and 63% were employed. Of the respondents, 45% reported bipolar disorder, 45% schizophrenia spectrum disorder, and 25% depressive disorder. A majority of the participants (86%) reported multiple CAM use was helpful to their mental health. The most frequently reported CAM practices were religious/spiritual activities (50%), meditation (43%), massage (31%), yoga (20%), guided imagery (18%), herbs (16%), chiropractic (13%), and nutritional supplements (13%). Other CAM therapies used included aromatherapy, breathwork, Reiki, tai chi, past-life/regression therapy, homeopathy, ayurvedic medicine, acupuncture, acupressure, and reflexology (Russinova et al., 2002).

Alternative Medical Systems

Acupuncture is a traditional Chinese technique that has shown promise in the treatment of depression. A University of Arizona pilot study of 38 females with major depression found that acupuncture relieved symptoms just as well as psychotherapy or

prescribed medications (Kalb, Springen, & Underwood, 2002). A 2004 meta-analysis by Smith and Hay (2004) examined the efficacy and adverse effects of acupuncture for treating depression. The authors reviewed the data from 7 trials with 517 participants with depression. Due to the lack of well-designed, randomized, controlled trials, there was insufficient evidence to determine if acupuncture was better than antidepressants in reducing the severity of depression (Smith & Hay, 2004). Another meta-analysis focusing on the effects of acupuncture treatment on depression was published in 2007 by Leo and Ligot. The authors examined nine randomized, controlled trials. It was again concluded that due to the low quality of the trials, the evidence was insufficient to determine efficacy of acupuncture (Leo & Ligot, 2007). In 2008, an additional meta-analysis reviewing the benefits of acupuncture in depression was published. Wang et al. (2008) reviewed eight small randomized trials of 477 subjects. The results, based on decreased scores of Hamilton Rating Scale for Depression and Beck Depression Inventory, concluded that acupuncture could significantly reduce the severity of depression (Wang et al., 2008). The studies included in the meta-analysis provided unclear results and were limited by small sample size, study design, problems with randomization and blinding, and the brief duration of the studies. However, safety of acupuncture is well-established, with mild incidence of adverse events such as needle pain, tiredness, and bleeding (Kim & Bowers, 2007).

Homeopathy is widely used in western European countries. Homeopathy has been used to treat depression, and some studies have shown it to be superior to a placebo (Olson, 2009). Homeopathy is individualized to each person; therefore, it is difficult to

draw conclusions regarding treatment effect. A comprehensive review of the research of homeopathy for depression was conducted by Pilkington, Kirkwood, Rampes, Fisher, and Richardson (2005). There were inadequate, high-quality clinical trials located, so the evidence for the effectiveness of homeopathy in depression is limited (Pilkington et al., 2005).

Biologically Based Therapies

Research has shown beneficial effects of omega-3 fatty acids on medical conditions including hypertension, dyslipidemia, macular degeneration, and retinitis pigmentosa (Turnbull, Cullen-Drill, & Smaldone, 2008). There is also some evidence that omega-3 fatty acids reduce depressive symptoms, bipolar disorders, and other psychiatric disorders (Turnbull et al., 2008). Literature suggests the potential benefit of essential fatty acid supplements for affective disorders, although the benefits of omega-3 fatty acid supplements, which include eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), on bipolar disorder and depression are unclear (Olson, 2009).

In countries where consumption of fish is high, lower rates of depression have been documented (Knishinsky, 1998; Lake & Spiegel, 2007; Williams et al., 2006). The literature suggest that omega-3 supplements have the potential to promote good health, are a fundamental nutrient for optimal brain functioning, and have potential to enhance mental health and alleviate depression (Kalb et al., 2002; Knishinsky, 1998; Turnbull et al., 2008; Williams et al., 2006).

A clinical study was conducted at Washington University School of Medicine in St. Louis, Missouri between May 2005 and December 2008 to determine if omega-3 fatty

acid improved the response to sertraline among 122 patients with major depression and coronary heart disease (Carney et al., 2009). All patients were given 50 mg/d of sertraline and randomized to either 2 g/d of omega-3 fatty acid, which consisted of eicosapentaenoic acid (EPA) 930 mg and docosahexaenoic acid (DHA) 759 mg, or a placebo for 10 weeks. The primary outcome measures were from the Beck Depression Inventory (BDI-II) and the Hamilton Rating Scale for Depression (HAM-D). Participants with coronary heart disease and major depression who were treated with sertraline and omega-3 fatty acids did not show superior depression outcomes at 10 weeks compared to the group treated with sertraline and a placebo (Carney et al., 2009).

A literature search, inclusive through November 2006, identified 99 articles on bipolar disorder and omega-3 fatty acid. From these articles, five randomized control trials and two quasi-experimental studies were selected to review. The four studies using an omega-3 combination of EPA and DHA demonstrated a statistically significant positive effect ($p < .05$) on bipolar disorder symptoms (Turnbull et al., 2008). The three studies using either BHA or EPA did not demonstrate a positive effect or reduction in bipolar disorder symptoms. Bipolar disorder symptom improvement outcomes were measured by questionnaires applicable for bipolar disorder. From this review of the literature, it was concluded that omega-3 fatty acid, utilizing the omega-3 combination of EPA and DHA, may be helpful as an adjunct therapy to treat bipolar disorder (Turnbull et al., 2008).

Omega-3 fatty acid has proven to be a well-tolerated supplement with benign adverse effects, with some evidence of a reduction in symptoms of depression and bipolar

disorder. Further research needs to be conducted to positively confirm the efficacy of omega-3 fatty acids and to establish an effective dose.

Herbal remedies have been used to treat psychiatric symptoms by shifting mood, thinking, or behavior and/or to balance psychiatric medications. St. John's wort, *Hypericum perforatum L*, has been used for over 2,000 years to treat a variety of illnesses, including depression. St. John's wort is believed to raise serotonin levels and other neurotransmitter (dopamine and norepinephrine) levels. Some studies have reported it to be as effective as conventional antidepressants for treating mild to moderate depression (Jonas, 1998; Linde, Berner, & Kriston, 2009; Tesch, 2003). A recent study indicated St. John's wort also to be effective in treating major depression (Linde et al., 2009). A review of 29 randomized, double-blind studies with approximately 5,500 subjects with depression compared treatment with St. John's wort, a placebo, or prescription antidepressants. The results showed greater improvement in the group randomized to St. John's wort when compared to the placebo, and almost the same improvement as those randomized to prescription antidepressants (Linde et al., 2009). Research studies have shown most promise for St. John's wort in the treatment of mild to moderate depression, with conflicting results about its efficacy for major depression. Between December 1998 and June 2000, National Institutes of Health (NIH) conducted an eight-week randomized double-blind parallel clinical trial to determine the effectiveness of St. John's wort in treating major depression (Hypericum Depression Trial Study Group, 2002). The 340 participants were randomly assigned: one-third St. John's wort; one-third sertraline; and one-third placebo (Hypericum Depression Trial

Study Group, 2002). This trial found no significant difference between St. John's wort and placebo or between sertraline and placebo in the full response rate based on the Hamilton Depression (HAM-D) scale. The full response rate was 31.9% in the placebo arm versus 23.9% in the St. John's wort arm, and 24.8% in the sertraline arm (Hypericum Depression Trial Study Group, 2002).

Studies have shown St. John's wort to have fewer and milder side effects, and the herb is approximately one-third the cost of conventional medications (Linde et al., 2009; Tesch, 2003). Yet there are potential contraindications for those on blood thinners, oral contraceptives, and prescription antidepressants. In February 2000, the FDA issued a Public Health Advisory letter stating that St. John's wort may interfere with certain medications. Thus, the herbal supplement should only be used with full knowledge by the health care provider (Tesch, 2003).

S-adenosyl-methioinine (SAM-e) is a synthetic form of a chemical that occurs naturally in the human body that is believed to help support and maintain a healthy mood by balancing brain cell functions. In 2002, the U.S. Department of Health & Human Service's (DHHS) Agency for Healthcare Research and Quality (AHRQ) reviewed placebo and active-controlled clinical trials for the efficacy of SAM-e in treating symptoms of depression. AHRQ concluded that SAM-e is more effective than a placebo and is just as effective as treatment with conventional antidepressants (U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, 2002). Preliminary studies have reported that SAM-e, in combination with an SSRI antidepressant, has the potential to improve responses to symptoms of depression

(Papakostas, Alpert, & Fava, 2003). SAM-e has been approved in Europe since the late 1970s as a prescription medication to treat depression (Papakostas et al., 2003).

Other nutritional supplements that are believed to enhance mood include vitamin B12, magnesium, folate, ginseng, kava, and zinc. Ginseng has been used for over 2,000 years to promote overall health and a sense of well-being. People use ginseng as a treatment for symptoms of depression and anxiety, and to improve overall well-being (Tesch, 2003). Kava herb, *Piper methysticum*, has been used by the Pacific Islanders for centuries in social and ceremonial events (NCCAM, 2009c). Kava is also used as a treatment for anxiety disorders. A meta-analysis of randomized trials completed by Pittler and Ernst (2000) found that kava was more efficacious than a placebo as a treatment of anxiety. However, the FDA has reported safety concerns with kava, including liver damage linked to its use (NCCAM, 2009c). All herbal supplements should be used with caution and the dosage should be monitored and discussed with a professional health care provider and/or pharmacist. Although there is some efficacy of herbal supplements in treating mental health disorders, the data is limited by the chemical complexity and lack of standardization, quality control, and regulation in the herbal preparations and the inadequate number of well-controlled clinical trials.

Manipulative and Body-Based Therapies

Massage therapy is the manipulation of the muscles, tendons, and ligaments of the body. Massage is one of the most popular CAM for mental health disorders. Massage therapy decreases stress levels, feelings of anxiety, and symptoms of depression by affecting the body's biochemistry (Field, 2006). Massages can be beneficial for people

with depression by increasing serotonin and dopamine and reducing norepinephrine and the stress hormones cortisol (Field, 2006).

A randomized trial conducted by the University of Washington evaluated the effectiveness of therapeutic massage for persons with generalized anxiety disorder (Sherman et al., 2010). Sixty-eight participants were randomized to one of three treatment groups: therapeutic massage (n = 23); thermotherapy (n = 22); or relaxation therapy (n = 23). Participants were treated with 10 one-hour weekly sessions over a 12-week period. Questionnaires were administered at baseline, after 12-week treatment, and again 26 weeks after randomization to measure outcomes. The primary outcome measure was the Hamilton Anxiety Rating Scale (HARS). All three groups reported that their symptoms of anxiety decreased by approximately 40% at the end of treatment and 50% of the participants maintained their improvements at 26-week follow-up (Sherman et al., 2010). In addition to the reduction in anxiety symptoms, participants reported a decrease in symptoms of depression and experienced less worry (Sherman et al., 2010). All three treatments groups showed clinical improvements which may be due to a generalized relaxation response; however, there was no difference in outcomes among the treatment groups and massage was not found to be more effective (Sherman et al., 2010).

Mind-Body Therapies

Mind-body techniques are often used to treat mental health symptoms by strengthening the communication between the mind and body. Some of the mind-body therapies include, yoga, meditation, and guided imagery. A group of researchers from Harvard Medical School analyzed the data from the 2002 NHIS Alternative Medicine

Supplement. Of the 31,044 adults that completed the survey, 5,170 reported using Mind-Body Therapies (MBT). The study concluded that 16.6% of adults in the U.S. use MBT (Bertisch, Wee, Phillips, & McCarthy, 2009). The study found a positive association (OR 1.44, 95% CI 1.29-1.62) between MBT use and anxiety/depression conditions (Bertisch et al., 2009). Among respondents, 50% used MBT in combination with conventional medicine and the majority of the MBT users found the treatment helpful for their condition (Bertisch et al., 2009).

Yoga and meditation are an ancient Indian practice using breathing, exercise, posture, stretching, and meditation to balance the mind, body, and spirit. Yoga and meditation are types of CAM that have been tested to determine their efficacy in improving or preventing mental health symptoms (Sanghani, Deavenport, Herring, Anderson, & Medina, 2008). Loma Linda University Department of Health Promotion and Education conducted a quasi-experimental pretest-posttest, non-equivalent control pilot study for chronic stress. The study consisted of four 90-minute sessions that included seven breathing exercises, two meditation techniques, and 14 simple yoga postures. There were 40 participants each in the intervention group (mean age 37 years) and 40 participants in the control group (mean age 32 years). The intervention group experienced greater decreases in stress, anxiety, low energy level, and depression ($p < 0.0001$) from pretest to posttest (Sanghani et al., 2008). Findings indicate that yoga may reduce stress, negative thoughts, anxiety levels, and depression (Sanghani et al., 2008). When meditation was incorporated with yoga, there was an even greater decrease in stress and anxiety levels.

Researchers from Harvard Medical School utilized the data from the 2002 NHIS Alternative Medicine Supplement to examine yoga use for health (Birdee et al., 2008). The findings were that of the 31,044 adults who completed the survey, 1,593 reported using yoga in the last twelve months. The yoga users were predominately Caucasian (85%), female (76%), and middle aged (39.5 years) (Birdee et al., 2008). There was an association between the use of yoga and mental health conditions (depression and anxiety) (OR 1.43, 95% CI 1.22-1.67) (Birdee et al., 2008).

Five randomized controlled clinical trials evaluated different forms of yoga and the impact on depression. The authors of the meta-analysis found potentially beneficial effects of yoga on depressed mood (Pilkington et al., 2005). In 2007, the NHIS found that 9.4% of the respondents had used meditation in the past 12 months. The respondents reported using meditation for anxiety, pain, depression, stress, insomnia, and physical and emotional symptoms (Barnes et al., 2008). Some researchers believe that meditation may improve mental health disorders and keep symptoms from recurring.

Dr. David Spiegel, head of Stanford's Center for Integrative Medicine, has used self-hypnosis to treat patients with depression. He taught one female patient to do self-hypnosis by closing her eyes, taking a deep breath, imagining that she is floating, picturing what is depressing her, and putting these thoughts to one side (Kalb et al., 2002). Hypnotherapy, through the use of imagery and suggestion, can help patients modify their behavior with better coping skills and improved mood. Alladin and Alibhai (2007) evaluated cognitive hypnotherapy as an effective treatment for depression. Eighty-four depressed participants were randomly assigned to 16 weeks of cognitive-

behavioral therapy, cognitive hypnotherapy, or hypnotherapy and cognitive-behavioral therapy combined. Baseline scores were measured by utilizing the Beck Depression Inventory, Beck Hopelessness Scale, and the Beck Anxiety Inventory (Alladin & Alibhai, 2007). At the end of the treatment period, both groups improved from baseline. The group assigned to cognitive hypnotherapy improved with an 8% reduction in hopelessness, a 6% reduction in depression, and a 5% reduction in anxiety (Alladin & Alibhai, 2007). This benefit was maintained over a 6-month and 12-month follow-up period (Alladin & Alibhai, 2007).

Energy Healing Therapies

Improved psychological functioning has been recognized as an outcome of touch therapies in both healthy participants and in those with mental health disorders. In one study, participants with serious mental illnesses including schizophrenia, bipolar disorder, and depressive disorder reported improvements in emotional stability, well-being, and concentration following treatment with Reiki Touch (Weze et al., 2007). Reiki Touch is a 3,000-year old Japanese form of healing that promotes peace and relaxation and has been shown to significantly reduce anxiety (Weze et al., 2007).

A study of 147 participants, of whom 66% were women, who identified themselves as having psychological problems, received four 1-hour touch treatment sessions within a 6-week period. The study concluded that gentle touch healing is likely to be helpful in treating people with anxiety and depression. Pre-treatment to post-treatment changes in psychological and physical functioning were self-reported using the widely-used and validated visual analogue scale (VAS) and EuroQoL (EQ-5D)

questionnaires. The VAS measured each subject's level of physical and psychological functioning, including depression, panic, and anxiety. The EQ-5D instrument measured each subject's state of health, including anxiety and depression. A reduction in stress, anxiety and depression scores, as well as increases in relaxation and ability to cope scores, was evidenced through the completion of the self-rating health status instruments. When comparing pre-treatment and post-treatment results, anxiety and depression showed the greatest improvements. Before treatment, 42 participants reported symptom-related problems and, after treatment, only three participants reported symptom-related problems. In addition, the number of participants experiencing severe anxiety and depression decreased from 58 before treatment to 14 after treatment (Weze et al., 2007). Seventy-three participants entered the study taking medication; after treatment, 16% had stopped taking their medication, 37% had reduced their medication, 40% had maintained their medication, and 7% had increased their medication (Weze et al., 2007). No side effects were reported during the treatment which indicates that gentle touch therapy safely complements traditional medicine and is safe and effective in improving psychological well-being in participants with self-reported psychological problems.

Another alternative therapy that involves touch is palmtherapy. Palmtherapy is the applying of moderate pressure on specific lines and certain points on the palm which correspond to brain areas. It is believed this pressure can quickly and safely reduce anxiety (Blaer et al., 2008). Two randomized clinical trials evaluated the use of palmtherapy to ease anxiety prior to cardiac catheterization. The studies were small in number: 23 participants completed the first study and 17 participants completed the

second study. In both studies, the patients awaiting cardiac catheterization had similar levels of anxiety prior to the palmtherapy. After the 45 minute treatment, the participants in study one who received palmtherapy ($M = 7.1$, $SD = 4$) self-reported lower levels of anxiety than those who received sham therapy ($M = 40.1$, $SD = 13$). The participants in study two who received palmtherapy ($M = 11.8$, $SD = 7$) self-reported lower levels of anxiety than those who received sham therapy ($M = 30.0$, $SD = 14$) (Blaer et al., 2008). The small sample size of these studies limit the findings to anecdotal evidence that palmtherapy represents an alternative to pharmacological interventions for relaxation and anxiety reduction.

In summary of the review of literature, there is insufficient evidence on which to base a clinical recommendation of a CAM therapy for mental health disorders due to inadequate clinical data. More clinical research is needed to establish the safety and efficacy of CAM for mental health. The results from well-designed and implemented clinical studies will provide evidence-based data that will be helpful to health care providers and patients in making well-informed decisions about CAM.

Older Adults and CAM Use for Mental Health Disorders

A 2006 national consumer survey by the National Center for Complementary and Alternative Medicine and the American Association of Retired Persons revealed that two-thirds of people 50 years of age and older use some form of CAM (NCCAM, 2009b).

Results from the 2002 NHIS Alternative Health Supplement found that a greater proportion of older adults with self-reported anxiety or depression use CAM. The older adults with symptoms of mental health disorders were more inclined to use spiritual

practices, relaxation techniques, or natural products (Grzywacz et al., 2007). Grzywacz et al. (2007) reported that the population age 65 and older is under-diagnosed and under-treated for mental disorders, partly because they feel that it is a natural part of aging and therefore may suffer in silence without seeking treatment.

Physician-Patient Communication about CAM

A 2001 survey of 302 physicians was conducted to analyze physician-patient communication regarding CAM use. Results indicated that 17% of physicians never ask about CAM use, 52% ask less than half the time, and only 8% ask all the time (Winslow & Shapiro, 2002). The most common reasons physicians cited for not discussing CAM with their patients were they did not feel comfortable and they felt that they needed education to adequately address patients' questions about the topic (Winslow & Shapiro, 2002). The most frequently cited reasons for physicians desiring to learn about CAM were: "want to dissuade if unsafe and/or ineffective", followed by "want to recommend if safe and effective", and lastly, "want facts" (Winslow & Shapiro, 2002).

A 2007 telephone survey, conducted by the American Association of Retired Persons (AARP) and the National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH), was administered to a nationally representative group of 1,559 people aged 50 or older to learn about communication trends among patients and their physicians regarding the use of CAM. Among the group surveyed, 31% discussed CAM with one of their physicians. Women were more likely to have discussed CAM use than men (26% verse 16%). People with incomes of \$75,000 or more (31%), or \$25,000 to \$49,999 (25%), were more likely to have talked with their

physician about CAM use than those with lower incomes (AARP, 2007). Respondents who had attended or graduated from college were also more likely to discuss CAM with their physician than those with less education (AARP, 2007).

From this survey, it is shown that the primary reasons for patient non-communication about CAM use include: the physician never asked (42%), patients did not know they should talk with their doctors (30%), lack of time during the office visit (19%), and a combination of beliefs that the doctor would not know about CAM or that the doctor would have been dismissive (29%) (AARP, 2007). As a result of this survey, the NCCAM and the NIH launched an educational campaign, *Time to Talk*, to encourage open CAM discussions between physicians and patients.

Other information collected from this 2007 AARP and NCCAM survey was the primary sources of CAM information. Family and friends (22%) were the most popular sources for information for CAM users, followed by publications (14%), physicians (12%), and the Internet and radio/television (10%). The remaining sources of CAM information were pharmacists, health food stores, and nutritionists (AARP, 2007).

The key component to effective health care is the dialogue between the patient and the provider. Physicians are often uninformed regarding alternative practices. When the patient and physician acknowledge the prevalence of alternative therapies, they can work together to incorporate the CAM that are beneficial to restore the body to health.

Medical practitioners should ask patients about past and present complementary therapies and their motivation for using them. Physicians, health educators, and health care providers are advised to inquire regularly and to keep an open and ongoing dialogue

regarding the use of CAM and how that use may enhance or interact with conventional therapy, prescription drugs, and over-the-counter medications. Taking an active interest in patient use of CAM enhances the dialogue and supports patients in making informed, appropriate, and safe choices for their health care. Educating the consumer and health care provider about the importance of discussing CAM and providing evidence-based information on the risks, benefits, and likely outcomes of CAM use are significant challenges and opportunities for the health educator.

CHAPTER III

METHODOLOGY

This retrospective, cross-sectional study used secondary data from the 2007 National Health Interview Survey (NHIS). The NHIS is conducted annually by the Centers for Disease Control and Prevention (CDC), and the data is available for public use from the National Center for Health Statistics (NCHS).

Population and Sample

Each year, the CDC conducts the NHIS to collect extensive information from a representative sample of civilian, non-institutionalized individuals throughout the U.S. The Sample Adult Core Questionnaire (SAQ) interview sample for 2007 consisted of 29,266 households (National Center for Health Statistics [NCHS], 2008). The interview sample for the CAM component was 23,393 persons aged 18 years and older (NCHS, 2008).

The sample for this study included females 18 years of age and older who completed both the SAQ and the CAM supplement survey. The dependent variable for Ho1 and Ho2 is a diagnosis of anxiety, bipolar disorder, and/or depression. The dependent variable for Ho3 is the use of CAM therapy. Independent variables include age, marital status, education level, BMI, income, race/ethnicity, region of the United States, and health insurance.

Protection of Human Participants

An Institutional Review Board (IRB) exempt review application was submitted and approved by the Texas Woman's University IRB. Informed consent indicating that the participant agreed to be surveyed was collected by the interviewer at the time of the interview. To protect the confidentiality of the female participants, no identifying information is included in the data sets. Participants are identified by code numbers assigned by a computer.

Instrument

For this study, the NHIS SAQ was utilized. The SAQ asked detailed health-related and sociodemographic questions from one randomly selected adult aged 18 years or older from each household. The Adult Complementary and Alternative Medicine Supplement sponsored by NCCAM was included in the 2007 NHIS SAQ. The supplement questionnaire included questions about 36 types of CAM therapies commonly used in the United States - 10 types of provider-based therapies and 26 other therapies that do not require a provider.

The 10 provider-based therapies included: acupuncture, ayurveda, biofeedback, chelation therapy, chiropractic or osteopathic manipulation, energy healing therapy/Reiki, hypnosis, massage, naturopathy, and traditional healers. The 26 other alternative therapies included: deep-breathing exercises, Atkins Diet, Macrobiotic Diet, Ornish Diet, Pritikin Diet, South Beach Diet, vegetarian diet, zone diet, guided imagery, homeopathic treatment, meditation, Alexander technique, Feldenkreis, Pilates, Trager psychophysical integration, progressive relaxation, Qi gong, Tai chi, Botanica, Curandero, Espiritista,

Hierbero or Yerbera, Native American healer/Medicine man, Shaman, Sobador, herbal supplements, and Yoga. For analytical purposes of this study, CAM therapies were divided into five categories: 1) alternative medical systems, 2) biological based therapies, 3) manipulative and body-based therapies, 4) mind-body therapies, and 5) energy healing therapies.

The 2007 NHIS Sample Adult, Person, and Adult Alternative Medicine data files were merged. This was necessary as most of the variables relating to the measurement of personal factors are in the Sample Adult data files or the Person data files.

Data Collection Strategies

Data were collected by interviewers employed and trained by the U.S. Bureau of the Census according to procedures specified by the NCHS (NCHS, 2009). The NHIS was conducted as face-to-face interviews and the computer-assisted personal interviewing (CAPI) mode was used during the interview. The CAPI allows the interviewers to enter responses directly into a laptop computer during the interview (NCHS, 2009).

Data Analysis Strategies

The Statistical Package for Social Sciences (SPSS) Version 15.0 was utilized for data analysis. Measures of central tendency including means and standard deviations, as well as frequencies and percentages were calculated to describe the sample. Chi-square tests were used to analyze for differences between the five CAM categories and diagnoses. Multiple logistic regressions were used to assess predictors of CAM usage among the women in the study.

CHAPTER IV

RESULTS

Preliminary Analyses

The preliminary analyses contain descriptive statistics which describe the participants of the study, whom are all women. This section also contains information about the demographic, mental health, and CAM variables, as well as information about relationships between the demographic and mental health variables.

The preliminary analyses were computed for all study participants ($N = 13,018$). Due to the large sample size, most of the analyses are significant. In order to differentiate between meaningful findings those that are possibly an artifact of the extremely large sample size, only significant findings with an effect size of .10 or greater are discussed.

Demographic Descriptives

Table 1 shows the frequencies and percentages for the categorical demographic variables. The most frequently reported marital status was married with the spouse in the household (41.2%). Another 20% of the participants had never been married (20.3%). For ethnicity, participants were first asked if they were Hispanic (18.0%). Non-Hispanic participants were asked to pick the best fitting category for their ethnicity. The majority reported that they were Caucasian (58.7%), followed by African-American (17.6%).

In terms of education, approximately equal numbers of participants had a high school diploma or GED (28.2%) or some college, an Associate's Degree, or Technical

Degree (29.2%). Slightly fewer people had less than a high school diploma (18.4%) or a Bachelor's or Graduate degree (24.2%). The most common income category was \$25,000-\$34,999 (16.0%). Approximately 10% of the sample made each of \$10,000-\$14,999 (11.8%), \$15,000-\$19,999 (10.0%), and \$35,000-\$44,999 (11.3%). Each of the remaining income categories had fewer than 10% of the sample.

Participants were asked to report the region of the USA in which they lived. Over one-third of the participants lived in the South (37.8%). Just over 20% lived in the Midwest (21.9%) and West (22.7%). Slightly fewer women reported living in the Northeast (17.5%). The participants were also asked about the number of months that they had health insurance during the past year. The majority of people had zero months with no health insurance, or in other words, was covered for the entire year. Less than 1% of the participants lacked health insurance for any number of the 12 months in the previous year.

Table 1

Frequencies and Percentages for Categorical Demographics

Category	n	%
Ethnicity		
Hispanic	2340	18.0
Non-Hispanic Caucasian	7643	58.7
Non-Hispanic African-American	2292	17.6
Non-Hispanic Asian	637	4.9
Non-Hispanic all Others	106	.8

(continued)

Table 1, continued

Frequencies and Percentages for Categorical Demographics

Category	n	%
Marital Status		
Married - spouse in household	5363	41.2
Married - spouse not in household	193	1.5
Widowed	1801	13.8
Divorced	1817	14.0
Separated	495	3.8
Never married	2648	20.3
Living with partner	622	4.8
Unknown marital status	79	.6
Months No Health Insurance		
Zero	10448	94.9
One	66	.6
Two	75	.7
Three	75	.7
Four	51	.5
Five	29	.3
Six	78	.7
Seven	27	.2
Eight	27	.2
Nine	28	.3
Ten	34	.3
Eleven	38	.3
Twelve	28	.3

(continued)

Table 1, continued

Frequencies and Percentages for Categorical Demographics

Category	n	%
Education Level		
Less than High School Diploma	2361	18.4
High School Diploma/GED	3632	28.2
Some College/Associates/Technical Degree	3761	29.2
Bachelors/Graduate Degree	3112	24.2
Region of USA		
Northeast	2275	17.5
Midwest	2855	21.9
South	4927	37.8
West	2961	22.7
Income		
\$01-\$4,999	594	9.7
\$5,000-\$9,999	552	9.0
\$10,000-\$14,999	719	11.8
\$15,000-\$19,999	611	10.0
\$20,000-\$24,999	635	10.4
\$25,000-\$34,999	978	16.0
\$35,000-\$44,999	689	11.3
\$45,000-\$54,999	490	8.0
\$55,000-\$64,999	272	4.5
\$65,000-\$74,999	182	3.0
\$75,000 and over	382	6.3

Note. Frequencies not summing to 13,018 and percentages not summing to 100 reflect missing data.

The descriptive statistics for the continuous demographic variables of age and BMI are displayed in Table 2. The average age of respondents was 47.89 years ($SD = 18.29$) and ranged from 18 to 85 or more years. All participants who were 85 years or older were coded in the survey as 85. The average BMI was 27.16 ($SD = 6.40$) and ranged from 10.63 to 52.

Table 2

Means and Standard Deviations for Continuous Demographics

Category	N	Mean	SD	Min	Max
Age	13018	47.89	18.29	18.00	85.00
BMI	12104	27.16	6.40	10.63	52.00

Due to the distribution of several of the demographic variables, categories were collapsed into fewer groups for further analyses. For marital status, those who reported that they were married either with or without the spouse in the household and those who were living with their partner were collapsed into one group called *Married/Cohabiting*. Women who were widowed, divorced, or separated were collapsed into a group called *Formerly Married*. In addition, those with an unknown marital status were coded as missing. For ethnicity, Hispanic, African-American, Asian, and Other were

combined into one group called *Other Ethnicity*. In addition, all participants that had any months (1-12) of no health insurance were collapsed into one group. Income was recoded into categories of \$10,000 and analyzed as a continuous variable, due to the approximately normal distribution of the data.

Relationships Among Demographic Variables

The relationships among categorical demographic variables were computed with cross-tabulations with Pearson's chi square. Cramer's V was used as an index of effect size. For the relationships between categorical and continuous demographic variables, one-way analysis of variance (ANOVA) was computed. Partial eta squared (η^2) was used to determine the effect size. Pearson's correlation coefficients were used to measure the relationships between continuous variables. Only coefficients greater than .10 are discussed as significant due to sample size.

Cross-tabulations with Pearson's chi square were computed between ethnicity and the other categorical demographic variables (see Table 3). Health insurance was significantly related to ethnicity ($p < .001$). However, the effect size for the relationship between ethnicity and months of no health insurance coverage was not significant (Cramer's $V = -.05$), which indicates that the significant relationship is likely to only be an artifact of the large sample size. The relationship between ethnicity and marital status was significant ($\chi^2 = 403.77, p < .001$, Cramer's $V = .18$). A greater proportion of Caucasian participants were married/cohabitating (52.8%) compared to 40.5% of those

who not Caucasian. In addition, a greater proportion of non-Caucasian participants were never married (28.7%) compared to those who were Caucasian (28.7%). The relationship between ethnicity and education was also significant ($\chi^2 = 782.80, p < .001$, Cramer's $V = .25$). A greater proportion of Caucasian participants had a Bachelors/Graduate degree (28.7%) compared to those who were not Caucasian (17.8%). Also, a greater proportion of those who were not Caucasian had less than a high school diploma (29.4%) compared to those who were Caucasian (10.7%).

Finally, the relationship between ethnicity and Region was significant ($\chi^2 = 558.23, p < .001$, Cramer's $V = .21$). A greater proportion of Caucasian participants lived in the Midwest (28.8%) compared to those who were not Caucasian (12.2%). Also a greater proportion of those who were not Caucasian lived in the South (43.0%) compared to those who were Caucasian (34.2%). Similarly, a greater proportion of those who were not Caucasian lived in the West (27.6%) compared to those who were Caucasian (19.3%).

A series of one-way ANOVAs was conducted to test the differences in age, BMI, and income between Caucasian and not Caucasian participants, see Table 4. Although each of these three relationships are significant ($p < .001$), none have an effect size greater than partial $\eta^2 = .03$.

Table 3

Frequencies and Percentages for Health Insurance, Marital Status, Education Level, and Region of USA by Ethnicity

Category	Not Caucasian		Caucasian		χ^2	<i>p</i>
	<i>n</i>	%	<i>n</i>	%		
Months No Health Insurance					24.92	<.001
0 Months	3862	93.6	6586	95.8		
1-12 Months	264	6.4	292	4.2		
Marital Status					403.77	<.001
Married/Cohabiting	2165	40.5	4013	52.8		
Never Married	1533	28.7	1115	14.7		
Formerly Married	1642	30.7	2471	32.5		
Education Level					782.80	<.001
Less than High School Diploma	1553	29.4	808	10.7		
High School Diploma/GED	1369	25.9	2263	29.8		
Some College/ Associates/Technical Degree	1422	26.9	2339	30.8		
Bachelors/Graduate Degree	938	17.8	2174	28.7		
Region of USA					558.23	<.001
Northeast	922	17.2	1353	17.7		
Midwest	655	12.2	2200	28.8		
South	2312	43.0	2615	34.2		
West	1486	27.6	1475	19.3		

Table 4

Means and Standard Deviations for Age, BMI and Income by Ethnicity

Category	n	Mean	SD	F	p	Partial η^2
Age				164.11	<.001	.022
Not Caucasian	2364	38.15	12.51			
Caucasian	3469	42.69	13.84			
BMI				34.01	<.001	<.001
Not Caucasian	2364	27.77	6.48			
Caucasian	3469	26.78	6.30			
Income				109.69	<.001	.026
Not Caucasian	2364	3.56	1.96			
Caucasian	3469	4.16	2.28			

Table 5 shows the cross-tabulations with Pearson's chi square between months of no health insurance coverage and the other categorical demographic variables. Although the relationship between no health insurance coverage and marital status was significant ($p < .001$, Cramer's $V = .07$), and the relationship between no health insurance coverage and education was significant ($p < .01$, Cramer's $V = .04$), the effect sizes of both relationships were less than .10. The relationship between no health insurance coverage and region of the USA was not significant, *ns*.

Table 5

Frequencies and Percentages for Marital Status, Education Level, and Region of USA by Health Insurance

Category	0 Months		1-12 Months		χ^2	<i>p</i>
	n	%	n	%		
Marital Status					49.49	<.001
Married/Cohabiting	4989	48.0	227	40.9		
Never Married	1943	18.7	171	30.8		
Formerly Married	3453	33.2	157	28.3		
Education Level					13.94	.003
Less than High School Diploma	1641	15.9	105	19.0		
High School Diploma/GED	2856	27.6	144	26.0		
Some College/Associates/Technical Degree	3046	29.5	188	33.9		
Bachelors/Graduate Degree	2790	27.0	117	21.1		
Region of USA					4.42	.219
Northeast	1971	18.9	86	15.5		
Midwest	2389	22.9	137	24.6		
South	3767	36.1	202	36.3		
West	2321	22.2	131	23.6		

Table 6 shows the series of one-way ANOVAs conducted to test the differences in age, BMI, and income between participants with no months without health insurance and 1-12 months of no insurance in the past year. There was a significant relationship between no insurance coverage and age ($p < .001$, partial $\eta^2 = .02$) and with income ($p < .001$, partial $\eta^2 = .03$), however the effect size was less than .10 for both of these relationships. The relationship between months of no health insurance and BMI was not significant, *ns*.

Table 6

Means and Standard Deviations for Age, BMI and Income by Health Insurance

Category	n	Mean	SD	F	p	Partial η^2
Age				109.97	<.001	.022
0 Months	4496	42.31	13.56			
1-12 Months	354	34.54	11.77			
BMI				1.25	.264	<.001
0 Months	4496	27.02	6.23			
1-12 Months	354	27.41	7.05			
Income				131.52	<.001	.026
0 Months	4496	4.28	2.24			
1-12 Months	354	2.89	1.54			

The relationship between marital status and the other categorical variables of education and region of the USA are shown in Table 7. The relationship between marital

status and education was significant ($\chi^2 = 343.05, p < .001$, Cramer's $V = .21$). A smaller proportion of those who were never married had a high school diploma or GED (22.1%) compared to those who were married (29.0%) or formerly married (30.9%). A greater proportion of never married participants had some college/Associate's/technical degree (36.2%) compared to those who were married (27.1%) or formerly married (28.1%). Also a smaller proportion of those who were formerly married had a bachelors/graduate degree (16.9%) compared to those who were married (28.5%) or never married (25.2%). The relationship between marital status and region was significant ($p < .001$) but had a very small effect size (Cramer's $V = .03$).

A series of one-way ANOVAs were conducted to examine differences between the three marital status categories on the continuous demographic variables (see Table 8). The results revealed a significant effect for marital status on age, $F(2, 5823) = 825.94, p < .001$, partial $\eta^2 = .22$. Those who were never married were significantly younger ($M = 31.58, SD = 11.52$) than those who were married ($M = 41.54, SD = 11.97$) or those who were formerly married ($M = 49.18, SD = 12.22$). In addition, those who were married were significantly younger than those who were formerly married. The results also revealed significant effect for marital status on BMI and income ($p < .001$), however, the effect size was very weak for both relationships (partial $\eta^2 = .01$).

Table 7

Frequencies and Percentages for Education Level, and Region of USA by Marital Status

Category	Married/ Cohabiting		Never Married		Formerly Married		χ^2	<i>p</i>
	n	%	n	%	n	%		
Education Level							343.05	<.001
Less than High School Diploma	941	15.4	434	16.6	977	24.0		
High School Diploma/GED	1772	29.0	579	22.1	1260	30.9		
Some College/ Associates/ Technical Degree	1654	27.1	949	36.2	1146	28.1		
Bachelors/ Graduate Degree	1743	28.5	660	25.2	690	16.9		
Region of USA							29.41	<.001
Northeast	989	16.0	528	19.9	742	18.0		
Midwest	1339	21.7	570	21.5	931	22.6		
South	2379	38.5	951	35.9	1566	38.1		
West	1471	23.8	599	22.6	874	21.2		

Table 8

Means and Standard Deviations for Age, BMI and Income by Marital Status

Category	n	Mean	SD	F	p	Partial η^2
Age				825.94	<.001	.221
Married/Cohabiting	2829	41.54 ^b	11.97			
Never Married	1531	31.58 ^a	11.52			
Former Married	1466	49.18 ^c	12.22			
BMI				35.39	<.001	.012
Married/Cohabiting	2829	26.79	5.98			
Never Married	1531	26.73	6.66			
Former Married	1466	28.39	6.74			
Income				36.16	<.001	.012
Married/Cohabiting	2829	4.11	2.21			
Never Married	1531	3.53	2.12			
Former Married	1466	3.97	2.13			

Note. Means with different superscripts were significantly different ($p < .05$).

The relationship between education and region was significant ($\chi^2 = 122.25, p < .001$, Cramer's $V = .10$), see Table 9. Of those living in the Northeast, a greater proportion of participants had a Bachelor's/Graduate degree (20.2%) compared to those

with some college/Associate's/Technical degree (14.8%). Of those living in the Midwest, a greater proportion of participants had a high school diploma/GED (24.6%) or than less than a high school diploma (17.2%). Of those living in the South, a greater proportion of participants had less than a high school diploma (41.8%) compared to those with a Bachelor's/Graduate degree (34.8%). Finally, in the West, a greater proportion of women had less than a high school diploma (25.1%) compared to those with a high school diploma (19.4%).

A series of one-way ANOVAs were conducted to examine differences between the four education categories on the continuous demographic variables (see Table 10). The results revealed significant effect for education on age and BMI ($p < .001$), however, the effect size for both of these relationships was very weak (partial $\eta^2 = .01$ and $.02$, respectively). The results also revealed a significant effect for education on income, $F(3, 5826) = 433.64, p < .001, \text{partial } \eta^2 = .18$. Those with Bachelor's/Graduate degree had significantly higher income ($M=5.22, SD = 2.40$) than any of the other groups. Those with some college/Associate's/technical degree had significantly higher income ($M = 3.63, SD = 1.93$) than those with less than a high school diploma ($M = 2.55, SD = 1.27$). Those with high school diploma ($M = 3.23, SD = 1.62$) had significantly higher income than those with less than a high school diploma.

Table 9

Frequencies and Percentages for Region of USA by Education Level

	Less than High School Diploma		High School Diploma/GED		Some College/ Associates/ Technical Degree		Bachelors/ Graduate Degree		χ^2	<i>p</i>
	n	%	n	%	n	%	n	%		
Region by USA									122.25	<.001
Northeast	374	15.8	694	19.1	555	14.8	629	20.2		
Midwest	406	17.2	892	24.6	873	23.2	666	21.4		
South	988	41.8	1341	36.9	1431	38.0	1083	34.8		
West	593	25.1	705	19.4	902	24.0	734	23.6		

Table 10

Means and Standard Deviations for Age, BMI and Income by Education Level

Category	n	Mean	SD	F	p	Partial η^2
Age				16.33	<.001	.008
Less than High School Diploma	598	40.46	13.62			
High School Diploma/GED	1405	42.33	14.13			
Some College/Associates/ Technical Degree	2003	39.30	13.89			
Bachelors/Graduate Degree	1824	41.55	12.31			
BMI				40.60	<.001	.020
Less than High School Diploma	598	28.00	6.12			
High School Diploma/GED	1405	27.97	6.63			
Some College/Associates/ Technical Degree	2003	27.59	6.64			
Bachelors/Graduate Degree	1824	25.84	5.81			
Income				433.64	<.001	.183
Less than High School Diploma	598	2.55 ^d	1.27			
High School Diploma/GED	1405	3.23 ^c	1.62			
Some College/Associates/ Technical Degree	2003	3.63 ^b	1.93			
Bachelors/Graduate Degree	1824	5.22 ^a	2.40			

Note. Means with different superscripts were significantly different ($p < .05$).

A series of one-way ANOVAs were conducted to examine differences between the four regions of the USA on the continuous demographic variables (see Table 11). The results failed to reveal a significant relationship between age and region. The results did reveal significant effects for region on BMI and income ($p < .001$), however, the effect size for both of these relationships was very weak (partial $\eta^2 = .01$ for both).

Table 11

Means and Standard Deviations for Age, BMI and Income by Region of USA

Category	n	Mean	SD	F	P	Partial η^2
Age				2.06	.103	.001
Northeast	985	41.69	13.24			
Midwest	1392	41.05	13.69			
South	2147	40.46	13.39			
West	1309	40.66	13.64			
BMI				11.12	<.001	.006
Northeast	985	26.76	6.23			
Midwest	1392	27.34	6.39			
South	2147	27.68	6.63			
West	1309	26.50	6.05			
Income				13.72	<.001	.007
Northeast	985	4.25	2.29			
Midwest	1392	3.77	2.07			
South	2147	3.79	2.13			
West	1309	4.04	2.26			

Pearson's product moment correlations were conducted to examine the relationships among age, BMI, and income. As shown in Table 12, the results revealed significant relationships among each pair of variables ($p < .01$). However, only the relationship between age and income had a coefficient above the .10 effect size cutoff ($r = .204, p < .001$), indicating that older age was significantly associated with higher income levels.

Table 12

Pearson's Correlation Coefficient among Age, BMI, and Income

Category	Age	BMI
BMI	.056 ***	
Income	.204 ***	-.039 **

Note. ** $p < .01$; *** $p < .001$

Mental Health Variable Descriptives

The mental disorders of interest in the current study are anxiety, bipolar disorder, and depression. Although the survey did not specifically collect information on the formal diagnoses of anxiety and depression, the participants were asked about symptoms of anxiety and depression during the past 12 months. In addition, participants reported on whether they had ever been told that they had bipolar disorder. Due to the fact that the participants could have symptoms of more than one disorder, each of these three disorders was analyzed as a separate yes/no item. An additional item, called *Any Disorder*, was created to examine the differences between participants who had symptoms of any of these three disorders and those who had no anxiety, bipolar disorder, or depression symptoms.

The frequencies and percentages for the mental health independent variables are displayed in Table 13. Nearly 20% of participants reported having symptoms of at least one of the disorders of anxiety, bipolar, or depression (19.0%). Approximately equal

numbers of participants reported having symptoms of anxiety (13.2%) and depression (13.9%) during the past year. A much smaller percentage of participants reported having bipolar disorder (1.9%).

Table 13

Frequencies and Percentages for Any Disorder, Anxiety, Bipolar, and Depression

Category	n	%
Any Disorder		
No	10506	81.0
Yes	2468	19.0
Anxiety		
No	11287	86.8
Yes	1710	13.2
Bipolar		
No	12756	98.1
Yes	242	1.9
Depression		
No	11187	86.1
Yes	1809	13.9

Note. Frequencies not summing to 13,018 and percentages not summing to 100 reflect missing data.

Relationships Among Mental Health Variables

For those who had symptoms of at least one of the three disorders, the number of women who had and did not have symptoms of each disorder were compared using a chi square test (see Table 14). The results revealed that significantly more people had anxiety symptoms ($n = 1698$) than did not have them ($n = 770$), $\chi^2(1) = 348.94, p < .001$.

Similarly, significantly more people had depression symptoms ($n = 1794$) than did not have them ($n = 674$), $\chi^2(1) = 502.27, p < .001$. In contrast, significantly fewer women had bipolar disorder ($n = 240$) than did not ($n = 2228$), $\chi^2(1) = 1601.35, p < .001$.

In addition, cross-tabulations with Pearson's chi square was used to examine the relationship between each pair of two disorders, among those who had at least one of the target disorders (see Tables 15 and 16). The results failed to reveal a significant relationship between having symptoms of anxiety and having bipolar disorder, $p > .05$, see Table 15. The results did reveal a significant relationship between those with symptoms of anxiety and those with symptoms of depression $\chi^2 = 217.62, p < .001$, Cramer's $V = .30$. Although a majority of people with and without anxiety symptoms had depression symptoms, a smaller proportion of those who had anxiety symptoms also had depression symptoms (63.8%) compared to those who did not have anxiety symptoms (92.3%). The results also failed to reveal a significant relationship between having symptoms of depression and symptoms of bipolar, $p > .05$, see Table 16.

Table 14

Frequencies and Percentages for Anxiety, Bipolar, and Depression Symptoms Among Those Who Have Symptoms of at Least One of These Disorders

Category	Observed N	Expected N	Residual	χ^2	<i>p</i>
Anxiety				348.94	<.001
No	770	1234	-464		
Yes	1698	1234	464		
Bipolar				1601.35	<.001
No	2228	1234	994		
Yes	240	1234	-994		
Depression				508.27	<.001
No	674	1234	-560		
Yes	1794	1234	560		

Table 15

Frequencies and Percentages for Bipolar and Depression by Anxiety Among Those Who Have Symptoms of at Least One of These Disorders

Category	No		Yes		χ^2	<i>p</i>
	n	%	n	%		
Bipolar Symptoms					3.16	.075
No	683	88.7	1545	91.0		
Yes	87	11.3	153	9.0		
Depression Symptoms					217.62	<.001
No	59	7.7	615	36.2		
Yes	711	92.3	1083	63.8		

Table 16

Frequencies and Percentages for Depression by Bipolar Among Those Who Have Symptoms of at Least One of These Disorders

Category	No		Yes		χ^2	<i>p</i>
	n	%	N	%		
Depression Symptoms					.97	.325
No	602	27.0	72	30.0		
Yes	1626	73.0	168	70.0		

Relationships Between Demographic and Mental Health Variables

The relationships between each of the categorical demographic variables and the mental health variables were tested using cross-tabulations with Pearson's chi square. Effect sizes were computed using Cramer's *V*. The relationships between ethnicity and each of the mental health variables is shown in Table 17. Although the relationships between ethnicity and having symptoms of any disorder, anxiety, and bipolar were significant ($p < .001$), the effect sizes of ethnicity with each of these variables was very small (partial $\eta^2 = .04 - .05$). In addition, the relationship between ethnicity and having symptoms of depression was not significant, *ns*. The relationship between months of no insurance coverage and each of the mental health variables is shown in Table 18. Although the relationships between months of no health insurance coverage and having symptoms of any disorder, anxiety, bipolar disorder, and depression were significant, ($p <$

.001), the effect sizes of months of no insurance with each of these variables was also very small (partial $\eta^2 = .05 - .06$).

Table 17

Frequencies and Percentages for Any Disorder, Anxiety, Bipolar, and Depression by Ethnicity

Category	Not Caucasian		Caucasian		χ^2	<i>p</i>
	n	%	n	%		
Any Disorder					21.07	<.001
No	4439	82.9	6067	79.7		
Yes	918	17.1	1550	20.3		
Anxiety					33.08	<.001
No	4770	88.9	6517	85.4		
Yes	597	11.1	1113	14.6		
Bipolar					27.66	<.001
No	5306	98.9	7450	97.6		
Yes	60	1.1	182	2.4		
Depression					1.34	.247
No	4639	86.5	6548	85.8		
Yes	724	13.5	1085	14.2		

Table 18

Frequencies and Percentages for Any Disorder, Anxiety, Bipolar, and Depression by Health Insurance

Category	0 Months		1-12 Months		χ^2	<i>p</i>
	n	%	n	%		
Any Disorder					41.06	<.001
No	8571	82.3	397	71.5		
Yes	1842	17.7	158	28.5		
Anxiety					39.99	<.001
No	9167	87.9	438	78.8		
Yes	1262	12.1	118	21.2		
Bipolar					24.70	<.001
No	10262	98.4	530	95.5		
Yes	171	1.6	25	4.5		
Depression					30.65	<.001
No	9102	87.3	440	79.1		
Yes	1327	12.7	116	20.9		

Table 19 shows the relationships between marital status and each of the mental health variables. The relationship between marital status and having symptoms of at least one of the disorders was significant, $\chi^2(2) = 141.26, p < .001$, Cramer's $V = .10$. A greater proportion of those who were formerly married had at least one disorder (25.1%) compared to those who were married (16.1%) or never married (16.7%). The relationship between marital status and having symptoms of depression was also significant, $\chi^2(2) = 144.95, p < .001$, Cramer's $V = .11$. A greater proportion of those who were formerly

married had symptoms of depression (19.3%) compared to those who were married (11.2%) or never married (12.1%). Although the relationships between marital status and having symptoms of anxiety and bipolar disorder were significant, ($p < .001$), the effect sizes of marital status with each of these two variables is very small (partial $\eta^2 = .05 - .08$).

Table 19

Frequencies and Percentages for Any Disorder, Anxiety, Bipolar, and Depression by Marital Status

Category	Married/Cohabiting		Never Married		Formerly Married		χ^2	p
	n	%	n	%	n	%		
Any Disorder							141.26	<.001
No	5172	83.9	2199	83.3	3065	74.9		
Yes	992	16.1	441	16.7	1027	25.1		
Anxiety							86.20	<.001
No	5474	88.7	2343	88.5	3397	82.8		
Yes	694	11.3	303	11.5	708	17.2		
Bipolar							29.87	<.001
No	6099	98.8	2588	98.0	3993	97.3		
Yes	75	1.2	54	2.0	110	2.7		
Depression							144.95	<.001
No	5478	88.8	2327	87.9	3310	80.7		
Yes	690	11.2	320	12.1	792	19.3		

The relationships between levels of education and each of the mental health variables are shown in Table 20. The relationship between education and having symptoms of at least one of the disorders was significant, $\chi^2(3)= 141.82, p < .001$, Cramer's $V = .11$. A smaller proportion of those who had a Bachelors/Graduate degree had at least one of the disorders (12.4%) compared to those who had some college/Associate's/technical degree (19.7%), high school/GED (20.6%), or less than high school diploma (24.6%).

The relationship between education and having symptoms of depression was also significant, $\chi^2(3)= 192.94, p < .001$, Cramer's $V = .12$. A smaller proportion of those who had a Bachelor's/Graduate degree had symptoms of depression (7.7%) compared to those who had some college/associates/technical degree (13.5%), high school diploma/GED (15.7%), or less than high school diploma (20.4%). Although a significant relationship was found between education and anxiety symptoms ($p < .001$, Cramer's $V = .08$) and between education and bipolar disorder ($p < .01$, Cramer's $V = .03$), the effect sizes for each of these relationships was very weak. There were no significant relationships between the region of the USA and any of the mental health variables ($p > .05$), see Table 21.

Table 20

Frequencies and Percentages for Any Disorder, Anxiety, Bipolar, and Depression by Education Level

	Less than High School Diploma		High School Diploma/GED		Some College/ Associates/Technical Degree		Bachelors/Graduate Degree		χ^2	<i>p</i>
	n	%	n	%	n	%	n	%		
Any Disorder									141.82	<.001
No	1773	75.4	2874	79.4	3011	80.3	2720	87.6		
Yes	579	24.6	744	20.6	739	19.7	386	12.4		
Anxiety									80.34	<.001
No	1982	84.1	3126	86.2	3205	85.4	2841	91.4		
Yes	376	15.9	501	13.8	549	14.6	268	8.6		
Bipolar									13.78	<.001
No	2299	97.5	3556	98.1	3679	97.9	3074	98.8		
Yes	58	2.5	69	1.9	77	2.1	36	1.2		
Depression									192.94	<.001
No	1878	79.6	3056	84.3	3250	86.5	2871	92.3		
Yes	480	20.4	568	15.7	506	13.5	238	7.7		

Table 21

Frequencies and Percentages for Any Disorder, Anxiety, Bipolar, and Depression by Region of the USA

	Northeast		Midwest		South		West		χ^2	<i>p</i>
	n	%	n	%	n	%	n	%		
Any Disorder									5.93	.115
No	1862	82.2	2311	81.3	3933	80.0	2400	81.4		
Yes	402	17.8	532	18.7	984	20.0	550	18.6		
Anxiety									2.72	.437
No	1983	87.3	2485	87.3	4243	86.2	2576	87.1		
Yes	288	12.7	363	12.7	678	13.8	381	12.9		
Bipolar									5.99	.112
No	2235	98.5	2786	97.7	4827	98.1	2908	98.3		
Yes	33	1.5	66	2.3	94	1.9	49	1.7		
Depression									7.81	.050
No	1981	87.2	2476	86.9	4186	85.1	2544	86.1		
Yes	291	12.8	374	13.1	733	14.9	411	13.9		

The relationships between the continuous demographic variables and the mental health variables were tested using one-way ANOVAs with partial η^2 to test the effect sizes. Table 22 shows the differences in age for those who had and did not have symptoms of anxiety, bipolar disorder, depression, or at least one of these disorders. The results revealed a significant effect for bipolar disorder on age ($p < .01$); however, the effect size for this difference was very weak (partial $\eta^2 < .01$). The results failed to reveal a significant relationship between age and symptoms of any disorder, anxiety, or depression, *ns*.

Table 22

Means and Standard Deviations for Age by Mental Health Variables

Category	n	Mean	SD	F	p	Partial η^2
Age				2.03	.154	<.001
No Disorders	4814	40.73	13.60			
At Least One Disorder	1009	41.39	13.03			
Age				1.57	.210	<.001
No Anxiety Symptoms	5133	40.77	13.57			
Anxiety Symptoms	697	41.45	12.94			
Age				8.71	.003	.001
No Bipolar Symptoms	5742	40.91	13.51			
Bipolar Symptoms	88	36.64	12.11			
Age				1.58	.208	<.001
No Depression Symptoms	5139	40.76	13.61			
Depression Symptoms	689	41.45	12.66			

The differences in BMI for those who had and did not have symptoms of anxiety, bipolar disorder, depression, or at least one of these disorders are shown in Table 23. The differences in income between those who had and did not have the target mental health symptoms are shown in Table 24. Although each of these relationships is significant ($p < .001$), the effect sizes are very small (partial $\eta^2 \leq .01$).

Table 23

Means and Standard Deviations for BMI by Mental Health Variables

Category	n	Mean	SD	F	p	Partial η^2
BMI				61.13	<.001	.010
No Disorders	4814	26.88	6.20			
At Least One Disorder	1009	28.60	7.08			
BMI				13.72	<.001	.002
No Anxiety Symptoms	5133	27.07	6.32			
Anxiety Symptoms	697	28.02	6.85			
BMI				16.67	<.001	.003
No Bipolar Symptoms	5742	27.14	6.37			
Bipolar Symptoms	88	29.94	7.53			
BMI				76.28	<.001	.013
No Depression Symptoms	5139	26.91	6.24			
Depression Symptoms	689	29.16	7.13			

Table 24

Means and Standard Deviations for Income by Mental Health Variables

Category	n	Mean	SD	F	p	Partial η^2
Income				63.95	<.001	.011
No Disorders	4814	4.02	2.20			
At Least One Disorder	1009	3.42	2.01			
Income				37.09	<.001	.006
No Anxiety Symptoms	5133	3.98	2.19			
Anxiety Symptoms	697	3.45	2.04			
Income				13.29	<.001	.002
No Bipolar Symptoms	5742	3.93	2.18			
Bipolar Symptoms	88	3.08	1.89			
Income				65.83	<.001	.011
No Depression Symptoms	5139	4.00	2.20			
Depression Symptoms	689	3.29	1.91			

Descriptives of CAM Variables

Table 25 shows the frequencies and percentages for the number of women who used at least one CAM in each of the five CAM categories. Under the headings for the five CAM groupings, each of the specific CAMs that made up that group are shown, along with the frequency and percentage of women who had ever used that specific CAM. Also included at the bottom of the table are five activities/techniques that were included in the survey, but not formally considered to be CAMs nor included in any of the five CAM groupings. These five activities/techniques were not used in further analyses.

The table has columns for the number of people using each CAM in the entire sample, as well as for those who have symptoms of at least one of the target disorders and for those with symptoms of each of the three disorders of anxiety, bipolar disorder, and depression separately. As can be seen in Table 25, the group of Manipulative and Body Based Therapies were the most commonly used CAMs. Within this group, chiropractic/osteopathic manipulation and massage were used by more people than any of the other CAMs. The Biologically Based Therapies and Mind-Body Therapies were also commonly used. Overall, the most commonly used CAM was the use of herbal supplements, which is considered a Biologically Based Therapy.

Table 25

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies

	Entire Sample		Any Target Disorder		Anxiety		Bipolar		Depression	
	%	n	%	n	%	n	%	n	%	n
Alternative Medical Systems	12.5	(1632)	19.0	(469)	20.5	(350)	20.2	(49)	18.5	(335)
Acupuncture	7.5	(982)	11.8	(292)	12.7	(218)	11.6	(28)	11.3	(205)
Ayurveda	.6	(83)	.9	(21)	.9	(16)	.8	(2)	.7	(13)
Naturopathy	1.8	(235)	2.8	(68)	3.1	(53)	2.9	(7)	2.5	(46)
Curandero	.4	(46)	.6	(16)	.8	(13)	.0	(0)	.7	(12)
Espiritista	.6	(75)	.9	(22)	1.0	(17)	1.2	(3)	1.0	(18)
Hierbero or Yerbera	.4	(55)	.8	(20)	.8	(14)	.8	(2)	.9	(16)
Shaman	.3	(37)	.5	(13)	.5	(9)	1.7	(4)	.6	(10)
Botanica	.2	(28)	.6	(15)	.6	(11)	.4	(1)	.7	(12)
Native American Healer/Medicine Man	.3	(43)	.6	(16)	.7	(12)	2.1	(5)	.5	(9)
Sobador	.4	(49)	.6	(16)	.5	(9)	.0	(0)	.7	(13)
Homeopathic treatment	4.3	(561)	7.1	(174)	7.8	(134)	9.9	(24)	6.6	(120)

(continued)

Table 25, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies

	Entire Sample		Any Target Disorder		Anxiety		Bipolar		Depression	
	%	n	%	n	%	n	%	n	%	n
Biologically Based Therapies	29.9	(3894)	39.1	(966)	41.8	(714)	45.9	(111)	36.3	(657)
Chelation therapy	.3	(44)	.4	(9)	.4	(7)	.0	(0)	.3	(6)
Vegetarian diet	3.8	(497)	5.8	(142)	5.9	(101)	8.3	(20)	5.7	(103)
Macrobiotic diet	.3	(45)	.5	(12)	.4	(7)	.0	(0)	.6	(10)
Atkins diet	4.4	(576)	5.7	(141)	6.1	(104)	7.9	(19)	5.5	(99)
Pritikin diet	.2	(28)	.5	(12)	.6	(10)	.8	(2)	.4	(7)
Ornish diet	.1	(12)	.2	(4)	.2	(4)	.0	(0)	.2	(3)
Zone diet	.6	(81)	.7	(18)	.9	(16)	1.7	(4)	.3	(6)
South Beach diet	3.0	(385)	3.6	(90)	4.3	(73)	3.7	(9)	3.1	(56)
Herbal supplements	25.0	(3257)	33.7	(831)	36.3	(620)	38.8	(94)	30.8	(558)

(continued)

Table 25, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies

	Entire Sample		Any Target Disorder		Anxiety		Bipolar		Depression	
	%	n	%	n	%	n	%	n	%	n
Manipulative and Body Based Therapies	32.0	(4167)	41.2	(1016)	43.2	(739)	45.0	(109)	39.3	(711)
Chiropractic or osteopathic manipulation	22.3	(2905)	32.1	(792)	33.1	(566)	35.5	(86)	31.1	(563)
Massage	18.4	(2390)	23.5	(580)	25.8	(441)	24.4	(59)	21.3	(385)
Feldenkreis	.3	(44)	.3	(8)	.4	(6)	.4	(1)	.2	(4)
Alexander Technique	.3	(43)	.4	(11)	.3	(5)	.8	(2)	.5	(9)
Pilates	4.5	(583)	3.8	(95)	4.3	(73)	3.3	(8)	3.3	(59)
Trager Psychophysical Integration	.1	(18)	.2	(5)	.2	(4)	.0	(0)	.2	(3)

(continued)

Table 25, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies

	Entire Sample		Any Target Disorder		Anxiety		Bipolar		Depression	
	%	n	%	n	%	n	%	n	%	n
Mind-Body Therapies	28.6	(3728)	39.1	(964)	42.6	(729)	47.9	(116)	36.7	(663)
Biofeedback	1.5	(200)	3.0	(74)	3.3	(56)	3.3	(8)	3.6	(65)
Hypnosis	2.8	(364)	5.6	(138)	6.3	(107)	5.0	(12)	5.8	(105)
Yoga	12.8	(1670)	14.3	(353)	15.5	(265)	17.4	(42)	12.1	(218)
Tai chi	3.1	(405)	3.8	(93)	4.3	(74)	5.0	(12)	3.2	(57)
Qi gong	.6	(80)	1.0	(25)	1.1	(19)	.0	(0)	.8	(14)
Meditation	12.5	(1631)	20.1	(496)	22.0	(376)	28.9	(70)	18.9	(341)
Guided imagery	4.2	(551)	7.1	(175)	7.9	(135)	12.8	(31)	7.0	(126)
Progressive relaxation	4.8	(619)	8.3	(204)	9.0	(154)	14.9	(36)	8.1	(147)
Deep breathing exercises	17.6	(2289)	28.7	(709)	31.5	(538)	38.0	(92)	26.4	(477)
Energy Healing Therapy	2.1	(276)	4.0	(98)	4.6	(78)	5.0	(12)	3.5	(63)

(continued)

Table 25, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies

	Entire Sample		Any Target Disorder		Anxiety		Bipolar		Depression	
	%	n	%	n	%	n	%	n	%	n
Other Activities not Reported as CAMs										
Took Vitamins or Minerals	68.2	(8873)	72.0	(1778)	73.9	(1264)	68.2	(165)	69.5	(1258)
Asked Others to Pray for Your Own Health	41.4	(5393)	55.5	(1370)	56.0	(957)	54.5	(132)	58.2	(1053)
Prayed for Own Health	63.0	(8199)	73.0	(1801)	73.2	(1252)	73.1	(177)	74.5	(1348)
Stress Management Class	2.4	(318)	5.3	(130)	5.6	(96)	12.8	(31)	5.6	(102)
Support Group Meeting	3.9	(508)	9.5	(235)	9.9	(170)	20.7	(50)	10.3	(186)

Relationships Among CAM Variables

Among those women that used at least one CAM, the number who had and had not used each of the five categories of CAMs were compared using a chi square test (see Table 26). The results revealed that significantly more people used Biologically Based Therapies ($n = 3894$) than did not use them ($n = 3150$), $\chi^2(1) = 78.58, p < .001$, significantly more people used Manipulative and Body Based Therapies ($n = 4167$) than did not use them ($n = 2875$), $\chi^2(1) = 237.04, p < .001$, and significantly more people used Mind-Body Therapies ($n = 3728$) than did not use them ($n = 3316$), $\chi^2(1) = 24.10, p < .001$. In contrast, significantly fewer women used Alternative Medical Systems ($n = 1632$) than did not use them ($n = 5412$), and significantly fewer people used Energy Healing Therapy ($n = 276$) than did not use it ($n = 6765$), $\chi^2(1) = 502.27, p < .001$.

In addition, cross-tabulations with Pearson's chi square were used to examine the relationship between each pair of two CAM therapy groupings, for those who had used at least one CAM. Table 27 shows the relationships between the Alternative Medical Systems and the other four CAM therapy groupings. The results revealed a significant relationship between using Alternative Medical Systems and using Energy Healing Therapy, $\chi^2(1) = 477.14, p < .001$, Cramer's $V = .26$. Among those who used Energy Healing Therapy, a greater proportion of women also used Alternative Medical Systems (13.1%) compared to those who did not use Alternative Medical Systems (1.1%). The relationships between Alternative Medical Systems and the remaining three CAM

therapy groupings (Biological Based Therapies, Manipulative and Body Based Therapies, and Mind-Body Therapies) were all significant ($p < .001$), however, the effect sizes, which ranged from partial $\eta^2 = .05$ to $.09$, were very weak.

Table 26

Frequencies and Percentages for Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies Among Those Who Have Ever Used at Least One CAM

CAM Category	Observed N	Expected N	Residual	χ^2	p
Alternative Medical Systems				2028.45	<.001
None	5412	3522	1890		
At Least One	1632	3522	-1890		
Biological Based Therapies				78.58	<.001
None	3150	3522	-372		
At Least One	3894	3522	372		
Manipulative and Body Based Therapies				237.04	<.001
None	2875	3521	-646		
At Least One	4167	3521	646		
Mind-Body Therapies				24.10	<.001
None	3316	3522	-206		
At Least One	3728	3522	206		
Energy Healing Therapies				5980.28	<.001
None	6765	3520.5	3244.5		
At Least One	276	3520.5	-3244.5		

Table 27

Frequencies and Percentages for Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Alternative Medical Systems Among Those Who Have Ever Used at Least One CAM

CAM Category	None		At Least One		χ^2	<i>p</i>
	n	%	n	%		
Biological Based Therapies					19.03	<.001
None	2497	46.1	653	40.0		
At Least One	2915	53.9	979	60.0		
Manipulative and Body Based Therapies					51.51	<.001
None	2334	43.1	541	33.2		
At Least One	3077	56.9	1090	66.8		
Mind-Body Therapies					28.45	<.001
None	2642	48.8	674	41.3		
At Least One	2770	51.2	958	58.7		
Energy Healing Therapies					477.14	<.001
None	5348	98.9	1417	86.9		
At Least One	62	1.1	214	13.1		

The relationships between the Biologically Based Therapies and the other three groupings are shown in Table 28. The results revealed a significant relationship between using Biologically Based Therapies and using Energy Healing Therapy, $\chi^2(1) = 108.76$, $p < .001$, Cramer's $V = .12$. Among those who used Energy Healing Therapy, a greater

proportion of women also used Biologically Based Therapies (6.1%) compared to those who did not use Biologically Based Therapies (1.2%). Although the relationship between Biologically Based Therapies and Manipulative and Body Based Therapies was significant ($p < .001$, partial $\eta^2 = .05$), the effect size was very weak. There was not a significant relationship between Biologically Based Therapies and Mind-Body Therapies, *ns*.

The relationships between Manipulative and Body Based Therapies and the other two groupings of Mind-Body Therapies and Energy Healing Therapies are shown in Table 29. The results revealed a significant relationship between using Manipulative and Body Based Therapies and using Energy Healing Therapy, $\chi^2(1) = 142.94$, $p < .001$, Cramer's $V = .14$. Among those who used Energy Healing Therapy, a greater proportion of women also used Manipulative and Body Based Therapies (6.2%) compared to those who did not use Manipulative and Body Based Therapies (.6%). There was not a significant relationship between Manipulative and Body Based Therapies and Mind-Body Therapies, *ns*.

Finally, the relationship between Mind-Body Therapies and Energy Healing Therapy is shown in Table 30. The relationship between these two CAM groupings was significant, $\chi^2(1) = 145.20$, $p < .001$, Cramer's $V = .14$. Among those who used Energy Healing Therapy, a greater proportion of women also used Mind-Body Therapies (6.5%) compared to those who did not use Manipulative and Body Based Therapies (1.0%).

Table 28

Frequencies and Percentages for Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Biological Based Therapies Among Those Who Have Ever Used at Least One CAM

CAM Category	None		At Least One		χ^2	<i>p</i>
	n	%	n	%		
Manipulative and Body Based Therapies					20.40	<.001
None	1193	37.9	1682	43.2		
At Least One	1956	62.1	2211	56.8		
Mind-Body Therapies					.29	.593
None	1494	47.4	1822	46.8		
At Least One	1656	52.6	2072	53.2		
Energy Healing Therapies					108.76	<.001
None	3110	98.8	3655	93.9		
At Least One	39	1.2	237	6.1		

Table 29

Frequencies and Percentages for Mind-Body Therapies, and Energy Healing Therapies by Manipulative and Body-Based Therapies Among Those Who Have Ever Used at Least One CAM

CAM Category	None		At Least One		χ^2	<i>p</i>
	n	%	n	%		
Mind-Body Therapies					2.48	.116
None	1321	45.9	1994	47.9		
At Least One	1554	54.1	2173	52.1		
Energy Healing Therapies					142.94	<.001
None	2858	99.4	3907	93.8		
At Least One	17	.6	259	6.2		

Table 30

Frequencies and Percentages for Energy Healing Therapies by Mind-Body Therapies Among Those Who Have Ever Used at Least One CAM

CAM Category	None		At Least One		χ^2	<i>p</i>
	n	%	n	%		
Energy Healing Therapies					145.20	<.001
None	3283	99.0	3482	93.5		
At Least One	32	1.0	244	6.5		

Primary Analyses

The primary analyses section addresses each of the four research hypotheses. In order to determine the consistency of the analyses as well as reduce the issues involved

with using the full sample ($N = 13,018$), a kfold cross-validation was conducted. Each of the two cross-validation samples were random and made up of an equal number of participants ($n = 1,000$). The random samples were stratified to include a similar proportion of people with each of the three target disorders as the full sample. The two samples were also stratified to include a similar proportion of people who had used at least one CAM as the full sample. The frequencies and percentages of the two random cross-validation samples were run and compared to the percentages in the full sample. The percentages for each of the demographic variables were within 3% of the percentages of the full sample. To aid in interpretation of the findings from the stratified random samples, the findings from the full sample are also shown in the tables. Therefore all analyses have been run on three groups – the full sample and the two random samples. All significant findings will be discussed in terms of findings that are significant in both the full sample and at least one of the cross-validation samples. All statistics in the text are reported from the first random sample unless otherwise reported.

Ho1: Among Women with Self-Reported Symptomology of Anxiety, Bipolar Disorder, and/or Depression, There will be no Significant Difference in the Descriptive Covariates of Women who use CAM Therapies and Women who do not use CAM Therapies

The demographic characteristics of women with at least one of the target disorders were compared to determine if there were differences between those who used at least one CAM and those who did not. Next the same comparisons were made on women with symptoms of anxiety, bipolar disorder, and depression. Cross-tabulations

with chi square were used to test the relationships between CAM use and the categorical demographic variables for women who had symptoms of at least one of the target disorders. The cross-tabulations showing the same comparisons among women without symptoms of the disorders are shown in Appendix A.

A series of two (no CAMs vs. any CAMs) X two (no disorder vs. disorder) ANOVAs were used to test the effects of having a disorder and using at least one CAM on the continuous demographic variables. No significant main effects were found for CAM use on any of the continuous demographic variables of age, BMI, or income. All significant findings are discussed if they are significant in the full sample and at least one of the two random samples, the descriptive data as well as statistical information and significance levels for each of the three samples are shown in each of the tables.

At Least One Target Disorder

Table 31 shows the cross-tabulations with Pearson's chi square between CAM use and each of the categorical demographic variables for those women who had symptoms of at least one of the target disorders. The relationship between CAM use and ethnicity was significant, $\chi^2(1) = 13.62, p < .001$, Cramer's $V = .15$. A greater percentage of Caucasian women had used at least one CAM (73.9%) compared to those who were not Caucasian (59.3%). The relationship between CAM use and months of no insurance coverage was also significant, $\chi^2(1) = 6.56, p < .05$, Cramer's $V = .12$. A greater percentage of women who had 1-12 months of no insurance coverage had used at least one CAM (87.2%) compared to those who had coverage during the entire previous year

(67.4%). There was also a significant relationship between CAM use and education, $\chi^2(3) = 66.95, p < .001$, Cramer's $V = .34$. A greater percentage of women with Bachelors/ Graduate degree used at least one CAM (90.5%) compared to those who had some college/associates/technical (81.7%), high school diploma/GED (62.6%), or less than HS (48.4%). Finally, the relationship between CAM use and region of the USA was significant, $\chi^2(3) = 12.32, p < .01$, Cramer's $V = .14$. A greater percentage of women from the west region of the USA used at least one CAM (80.6%), compared to those from the Northeast (60.9%), Midwest (66.7%), or South (65.7%). There was no significant relationship between CAM use and marital status, *ns*.

A series of two (no CAMs vs. at least one CAM) X two (no disorder vs. at least one disorder) ANOVAs were used to test the effects of having a disorder and using at least one CAM on the continuous demographic variables of age, BMI, and income. As shown in Table 32, there was a main effect for disorder on BMI, $F(1, 405) = 14.47, p < .001$, indicating that those who had symptoms of at least one of the target disorders had significantly higher BMI ($M = 29.32, SD = 7.39$) than those with none of the target disorders ($M = 27.09, SD = 6.48$). In addition, there was also a significant main effect for disorder on income, $F(1, 405) = 4.63, p < .05$, indicating that those who had no disorders had significantly higher income ($M = 4.11, SD = 2.13$) than those who had symptoms of at least one disorder ($M = 3.56, SD = 2.12$). While the effects sizes were not large enough in the entire sample to show meaningful differences, a statistically significant difference

was found in the random samples, indicating that a meaningful relationship between symptoms of at least one of the target disorders and BMI and income are likely to exist. Table 33 shows that there was no significant interaction was found between CAM use and disorder, indicating that among those with at least one disorder, there were no significant differences between the age, BMI, or income of those who used at least one CAM and those who did not, *ns*.

Anxiety Symptoms

Table 34 shows the cross-tabulations with Pearson's chi square between CAM use and each of the categorical demographic variables for those women who had anxiety symptoms. The relationship between CAM use and ethnicity was significant, $\chi^2(1) = 5.99, p < .05$, Cramer's $V = .14$. A greater percentage of Caucasian women had used at least one CAM (77.3%) compared to those who were not Caucasian (64.7%). There was also a significant relationship between CAM use and education, $\chi^2(3) = 31.93, p < .001$, Cramer's $V = .31$. A greater percentage of women with a Bachelor's/Graduate degree used at least one CAM (94.0%) compared to those who had some college/Associate's/Technical degree (82.5%), high school diploma/GED (68.2%), or less than HS (54.2%). Finally, the relationship between CAM use and region of the USA was significant, $\chi^2(3) = 10.39, p < .05$, Cramer's $V = .18$. A greater percentage of women from the west region of the USA used at least one CAM (85.1%), compared to those from the South (70.1%), Midwest (73.9%) and Northeast (59.6%). There was no significant relationship between CAM use and marital status or insurance coverage, *ns*.

Table 31

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Any Disorder and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Ethnicity												
Not Caucasian	42.8	(383)	57.2	(511)	40.7	(90)	59.3	(131)	42.2	(100)	57.8	(137)
Caucasian	25.3	(382)	74.7	(1129)	26.1	(97)	73.9	(274)	27.6	(102)	72.4	(267)
Months No Health Insurance												
0 Months	31.1	(559)	68.9	(1238)	32.6	(148)	67.4	(306)	33.0	(149)	67.0	(302)
1-12 Months	26.6	(41)	73.4	(113)	12.8	(5)	87.2	(34)	36.8	(14)	63.2	(24)

(continued)

Table 31, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Any Disorder and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Marital Status												
Married/Cohabiting	29.6	(287)	70.4	(683)	32.2	(76)	67.8	(160)	30.1	(65)	69.9	(151)
Never Married	36.9	(156)	63.1	(267)	37.0	(37)	63.0	(63)	39.3	(46)	60.7	(71)
Formerly Married	31.6	(318)	68.4	(687)	28.5	(72)	71.5	(181)	33.2	(90)	66.8	(181)
Education												
Less than High School												
Diploma	56.2	(314)	43.8	(245)	51.6	(81)	48.4	(76)	62.6	(87)	37.4	(52)
High School Diploma/GED	35.3	(258)	64.7	(472)	37.4	(64)	62.6	(107)	32.8	(63)	67.2	(129)
Some College/												
Associates/Technical Degree	19.9	(143)	80.1	(577)	18.3	(30)	81.7	(134)	22.4	(41)	77.6	(142)
Bachelors/Graduate Degree	11.1	(42)	88.9	(337)	9.5	(9)	90.5	(86)	11.5	(10)	88.5	(77)

(continued)

Table 31, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Any Disorder and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Region of USA												
Northeast	35.6	(138)	64.4	(250)	39.1	(36)	60.9	(56)	35.6	(31)	64.4	(56)
Midwest	29.6	(153)	70.4	(364)	33.3	(42)	66.7	(84)	28.8	(42)	71.2	(104)
South	37.1	(358)	62.9	(606)	34.3	(84)	65.7	(161)	40.2	(94)	59.8	(140)
West	21.6	(116)	78.4	(420)	19.4	(25)	80.6	(104)	25.2	(35)	74.8	(104)

Note. Full Sample Crosstabs: Ethnicity $\chi^2(1) = 13.621, p < .001$, Cramer's $V = .152$, Insurance $\chi^2(1) = 6.564, p < .05$, Cramer's $V = .12$, Marital Status $\chi^2(2) = 2.54, p = .280$, Cramer's $V = .07$, Education $\chi^2(3) = 66.95, p < .001$, Cramer's $V = .34$, Region $\chi^2(3) = 12.32, p < .01$, Cramer's $V = .14$. Random Sample 1 Crosstabs: Ethnicity $\chi^2(1) = 13.62, p < .001$, Cramer's $V = .24$, Insurance $\chi^2(1) = 6.56, p < .05$, Cramer's $V = .12$, Marital Status $\chi^2(2) = 2.54, p = .280$, Cramer's $V = .07$, Education $\chi^2(3) = 66.95, p < .001$, Cramer's $V = .34$, Region $\chi^2(3) = 12.32, p < .01$, Cramer's $V = .14$. Random Sample 2 Crosstabs: Ethnicity $\chi^2(1) = 13.75, p < .001$, Cramer's $V = .15$, Insurance $\chi^2(1) = .23, p = .633$, Cramer's $V = .02$, Marital Status $\chi^2(2) = 2.91, p = .234$, Cramer's $V = .07$, Education $\chi^2(3) = 81.93, p < .001$, Cramer's $V = .37$, Region $\chi^2(3) = 10.66, p < .05$, Cramer's $V = .13$.

Table 32

Means and Standard Deviations for Age, BMI and Income by Any Disorder

	Full Sample		Random Sample 1		Random Sample 2	
	Mean	SD	Mean	SD	Mean	SD
Age						
No Disorders	40.71	13.60	40.52	13.60	41.07	13.01
At Least One Disorder	41.37	13.03	39.79	12.66	41.82	12.86
BMI						
No Disorders	26.88 ^a	6.21	27.09 ^a	6.48	27.21 ^a	6.78
At Least One Disorder	28.65 ^b	7.08	29.32 ^b	7.39	29.73 ^b	7.73
Income						
No Disorders	4.02 ^a	2.20	4.10 ^a	2.13	4.14 ^a	2.20
At Least One Disorder	3.42 ^b	2.00	3.56 ^b	2.12	3.21 ^b	1.90

Note. Means with different superscripts were significantly different ($p < .05$). Full Sample Age ANOVA $F(1,5773) = .24, p = .622$, partial $\eta^2 < .001$. Random Sample 1 Age ANOVA: $F(1,405) = .01, p = .924$, partial $\eta^2 < .001$. Random Sample 2 Age ANOVA: $F(1,451) = .13, p = .716$, partial $\eta^2 < .001$. Full Sample BMI ANOVA $F(1,5773) = 55.19, p < .001$, partial $\eta^2 = .009$. Random Sample 1 BMI ANOVA: $F(1,405) = 14.47, p < .001$, partial $\eta^2 < .05$. Random Sample 2 BMI ANOVA: $F(1,451) = 13.32, p < .001$, partial $\eta^2 < .05$. Full Sample Income ANOVA $F(1,5773) = 72.10, p < .001$, partial $\eta^2 = .012$. Random Sample 1 Income ANOVA: $F(1,405) = 6.89, p < .01$, partial $\eta^2 < .05$. Random Sample 2 Income ANOVA: $F(1,451) = 27.91, p < .001$, partial $\eta^2 = .058$.

Table 33

Means and Standard Deviations for Age, BMI and Income by Any Disorder and CAM Use

		Full Sample		Random Sample 1		Random Sample 2	
		No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAMs	At Least One CAM
95	Age						
	No Disorders						
	Mean	39.30	41.66	34.57	43.86	39.56	42.19
	SD	(13.36)	(13.69)	(11.68)	(13.50)	(12.93)	(13.01)
	At Least One Disorder						
	Mean	39.54	41.95	38.59	40.11	40.47	42.25
SD	(12.43)	(13.17)	(12.29)	(12.78)	(13.15)	(12.78)	
95	BMI						
	No Disorders						
	Mean	26.99	26.80	26.12	27.63	27.36	27.10
	SD	(6.16)	(6.24)	(6.92)	(6.18)	(6.65)	(6.90)
	At Least One Disorder						
	Mean	29.03	28.53	30.77	28.92	30.44	29.51
SD	(7.13)	(7.06)	(8.34)	(7.08)	(7.14)	(7.91)	

(continued)

Table 33, continued

Means and Standard Deviations for Age, BMI and Income by Any Disorder and CAM Use

	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAMs	At Least One CAM
Income						
No Disorders						
Mean	3.62	4.29	3.77	4.29	3.66	4.50
SD	(1.97)	(2.30)	(1.77)	(2.30)	(1.93)	(2.33)
At Least One Disorder						
Mean	2.87	3.60	3.14	3.68	2.58	3.40
SD	(1.54)	(2.10)	(1.88)	(2.17)	(1.20)	(2.03)

Note. Full Sample ANOVA Interaction Age (Any Disorder X CAM): $F(1,5773) < .01, p = .956$, partial $\eta^2 < .001$. Full Sample ANOVA Interaction BMI (Any Disorder X CAM): $F(1,5773) = .37, p = .543$, partial $\eta^2 < .001$. Full Sample ANOVA Interaction Income (Any Disorder X CAM): $F(1,5773) = .08, p = .775$, partial $\eta^2 < .001$. Random Sample 1 ANOVA Interaction Age (Any Disorder X CAM): $F(1,405) = 7.42, p < .01$, partial $\eta^2 < .05$. Random Sample 1 ANOVA Interaction BMI (Any Disorder X CAM): $F(1,405) = 4.63, p < .05$, partial $\eta^2 < .05$. Random Sample 1 ANOVA Interaction Income (Any Disorder X CAM): $F(1,405) < .001, p = .984$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction Age (Any Disorder X CAM): $F(1,451) = .10, p = .749$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction BMI (Any Disorder X CAM): $F(1,451) = .20, p = .656$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction Income (Any Disorder X CAM): $F(1,451) = .01, p = .943$, partial $\eta^2 < .001$.

A series of two (no CAMs vs. at least one CAM) X two (no anxiety vs. anxiety) ANOVAs were used to test the effects of having symptoms of anxiety and using at least one CAM on the continuous demographic variables of age, BMI, and income. As shown in Table 35, there was a main effect for anxiety on income, $F(1, 452) = 9.07, p < .01$, indicating that those who had no anxiety symptoms had significantly higher income ($M = 3.77, SD = 2.11$) than those who had symptoms of anxiety ($M = 3.27, SD = 1.99$). While the effect size was not large enough in the entire sample to show meaningful differences, a statistically significant difference was found in the random samples, indicating that a meaningful relationship between symptoms of anxiety and income is likely to exist. No significant interaction was found between CAM use and symptoms of anxiety and the continuous variables of age, BMI, and income, indicating that there were no significant differences between the age, BMI, or income of those who used at least one CAM and those who did not, *ns* (see Table 36).

Bipolar Disorder Symptoms

Table 37 shows the cross-tabulations with Pearson's chi square between CAM use and each of the categorical demographic variables for those women who had symptoms of bipolar disorder. Although the relationship between CAM use and ethnicity was not significant in sample one, sample two did show a significant relationship between the two variables, $\chi^2(1) = 5.40, p < .05$, Cramer's $V = .22$. A greater percentage of Caucasian women had used at least one CAM (75.3%) compared to those not Caucasian (51.9%).

Table 34

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Anxiety and CAM Use

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	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Ethnicity												
Not Caucasian	39.5	(228)	60.5	(349)	35.3	(41)	64.7	(75)	38.3	(44)	61.7	(71)
Caucasian	22.9	(247)	77.1	(832)	22.7	(48)	77.3	(163)	23.9	(52)	76.1	(166)
Months No Health Insurance												
0 Months	28.6	(349)	71.4	(873)	29.2	(73)	70.8	(177)	30.9	(75)	69.1	(168)
1-12 Months	24.3	(28)	75.7	(87)	5.0	(1)	95.0	(19)	30.8	(8)	69.2	(18)

(continued)

Table 34, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Anxiety and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Marital Status												
Married/Cohabiting	25.3	(170)	74.7	(503)	25.8	(34)	74.2	(98)	24.6	(28)	75.4	(86)
Never Married	33.3	(96)	66.7	(192)	31.4	(16)	68.6	(35)	36.4	(24)	63.6	(42)
Formerly Married	29.9	(206)	70.1	(484)	26.8	(38)	73.2	(104)	28.5	(43)	71.5	(108)
Education												
Less than High School												
Diploma	51.4	(186)	48.6	(176)	45.8	(38)	54.2	(45)	60.3	(38)	39.7	(25)
High School Diploma/GED	32.4	(158)	67.6	(330)	31.8	(28)	68.2	(60)	29.5	(33)	70.5	(79)
Some College/												
Associates/Technical Degree	18.1	(96)	81.9	(434)	17.5	(18)	82.5	(85)	17.4	(19)	82.6	(90)
Bachelors/Graduate Degree	11.0	(29)	89.0	(234)	6.0	(3)	94.0	(47)	11.1	(5)	88.9	(40)

(continued)

Table 34, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Anxiety and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Region of USA												
Northeast	31.9	(88)	68.1	(188)	40.4	(19)	59.6	(28)	22.0	(11)	78.0	(39)
Midwest	27.4	(96)	72.6	(255)	26.1	(18)	73.9	(51)	29.1	(25)	70.9	(61)
South	35.2	(233)	64.8	(429)	29.9	(41)	70.1	(96)	38.1	(48)	61.9	(78)
West	15.8	(58)	84.2	(309)	14.9	(11)	85.1	(63)	16.9	(12)	83.1	(59)

Note. Full Sample Crosstabs: Ethnicity $\chi^2(1) = 5.96, p < .05$, Cramer's $V = .14$, Insurance $\chi^2(1) = 5.45, p < .05$, Cramer's $V = .14$, Marital Status $\chi^2(2) = .60, p = .741$, Cramer's $V = .04$, Education $\chi^2(3) = 31.93, p < .001$, Cramer's $V = .31$, Region $\chi^2(3) = 10.39, p < .05$, Cramer's $V = .18$. Random Sample 1 Crosstabs: Ethnicity $\chi^2(1) = 5.96, p < .05$, Cramer's $V = .14$, Insurance $\chi^2(1) = 5.45, p < .05$, Cramer's $V = .14$, Marital Status $\chi^2(2) = .60, p = .74$, Cramer's $V = .04$, Education $\chi^2(3) = 31.93, p < .001$, Cramer's $V = .31$, Region $\chi^2(3) = 10.39, p < .05$, Cramer's $V = .18$. Random Sample 2 Crosstabs: Ethnicity $\chi^2(1) = 7.62, p < .01$, Cramer's $V = .15$, Insurance $\chi^2(1) = .000, p = .992$, Cramer's $V = .00$, Marital Status $\chi^2(2) = 2.85, p = .240$, Cramer's $V = .09$, Education $\chi^2(3) = 44.21, p < .001$, Cramer's $V = .37$, Region $\chi^2(3) = 11.34, p < .05$, Cramer's $V = .18$.

Table 35

Means and Standard Deviations for Age, BMI and Income by Anxiety

	Full Sample		Random Sample 1		Random Sample 2	
	Mean	SD	Mean	SD	Mean	SD
Age						
No Disorders	40.75	13.58	40.13	13.22	41.83	13.12
At Least One Disorder	41.42	12.94	40.05	12.74	40.77	12.48
BMI						
No Disorders	27.06 ^a	6.33	28.10	7.18	28.48	7.19
At Least One Disorder	28.08 ^b	6.85	28.87	6.82	28.87	7.94
Income						
No Disorders	3.98 ^a	2.19	3.91	2.14	3.77 ^a	2.11
At Least One Disorder	3.45 ^b	2.04	3.55	2.12	3.27 ^b	1.99

Note. Means with different superscripts were significantly different ($p < .05$). Full Sample Age ANOVA $F(1,5780) = .32, p = .570$, partial $\eta^2 < .001$. Random Sample 1 Age ANOVA: $F(1,406) = .51, p = .477$, partial $\eta^2 < .01$. Random Sample 2 Age ANOVA: $F(1,452) = .57, p = .450$, partial $\eta^2 < .01$. Full Sample BMI ANOVA $F(1,5780) = 13.26, p < .001$, partial $\eta^2 < .001$. Random Sample 1 BMI ANOVA: $F(1,406) = 2.59, p = .108$, partial $\eta^2 < .01$. Random Sample 2 BMI ANOVA: $F(1,452) = .15, p = .698$, partial $\eta^2 < .001$. Full Sample Income ANOVA $F(1,5780) = 44.81, p < .001$, partial $\eta^2 < .001$. Random Sample 1 Income ANOVA: $F(1,406) = 2.36, p = .126$, partial $\eta^2 < .01$. Random Sample 2 Income ANOVA: $F(1,452) = 9.07, p < .01$, partial $\eta^2 < .05$.

Table 36

Means and Standard Deviations for Age, BMI and Income by Anxiety and CAM Use

		Full Sample		Random Sample 1		Random Sample 2	
		No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAMs	At Least One CAM
102	Age						
	No Anxiety Symptoms						
	Mean	39.29	41.71	35.37	42.40	40.03	42.92
	SD	(13.34)	(13.65)	(11.91)	(13.23)	(13.22)	(12.96)
	Anxiety Symptoms						
	Mean	39.92	41.82	40.18	40.02	39.44	41.07
SD	(11.96)	(13.17)	(12.18)	(12.91)	(12.00)	(12.62)	
BMI	No Anxiety Symptoms						
	Mean	27.13	27.02	27.57	28.35	28.57	28.43
	SD	(6.24)	(6.39)	(7.44)	(7.05)	(6.94)	(7.36)
	Anxiety Symptoms						
	Mean	28.43	27.99	30.42	28.53	28.85	28.88
	SD	(7.05)	(6.80)	(9.32)	(6.17)	(7.43)	(8.09)

(continued)

Table 36, continued

Means and Standard Deviations for Age, BMI and Income by Anxiety and CAM Use

	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAMs	At Least One CAM
Income						
No Anxiety Symptoms						
Mean	3.59	4.24	3.59	4.06	3.39	4.00
SD	(1.95)	(2.30)	(1.79)	(2.27)	(1.79)	(2.26)
Anxiety Symptoms						
Mean	2.81	3.62	3.14	3.64	2.36	3.48
SD	(1.57)	(2.11)	(2.01)	(2.15)	(1.19)	(2.08)

Note. Full Sample ANOVA Interaction Age (Any Disorder X CAM): $F(1,5780) = .16, p = .687$, partial $\eta^2 < .001$. Full Sample ANOVA Interaction BMI (Any Disorder X CAM): $F(1,5780) = .29, p = .587$, partial $\eta^2 < .001$. Full Sample ANOVA Interaction Income (Any Disorder X CAM): $F(1,5780) = .57, p = .449$, partial $\eta^2 < .001$. Random Sample 1 ANOVA Interaction Age (Any Disorder X CAM): $F(1,406) = 4.42, p < .05$, partial $\eta^2 < .05$. Random Sample 1 ANOVA Interaction BMI (Any Disorder X CAM): $F(1,406) = 2.01, p = .158$, partial $\eta^2 < .01$. Random Sample 1 ANOVA Interaction Income (Any Disorder X CAM): $F(1,406) < .01, p = .959$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction Age (Any Disorder X CAM): $F(1,452) = .15, p = .698$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction BMI (Any Disorder X CAM): $F(1,452) = .01, p = .927$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction Income (Any Disorder X CAM): $F(1,452) = 1.02, p = .312$, partial $\eta^2 < .01$.

Table 37 also shows a significant relationship between CAM use and education, $\chi^2(3) = 18.33, p < .001$, Cramer's $V = .40$. A greater percentage of women with a Bachelor's/Graduate degree (95.0%) or some college/Associate's/technical degree (91.2%) used at least one CAM compared to those who had a high school diploma/GED (65.6%), or less than a high school diploma (51.9%). Also, the relationship between CAM use and region of the USA was significant, although not in sample one, $\chi^2(3) = 11.72, p < .01$, Cramer's $V = .32$. A greater percentage of women from the West (90.9%) and Midwest (78.8%) region of the USA used at least one CAM, compared to those from the Northeast (68.8%), or South (53.3%). Neither the relationship between CAM use and months of no insurance coverage nor the relationship between CAM use and marital status was significant, *ns*.

A series of two (no CAMs vs. at least one CAM) X two (no bipolar vs. bipolar disorder) ANOVAs were used to test the effects of having bipolar disorder and using at least one CAM on the continuous demographic variables of age, BMI, and income. As shown in Table 38, there was a main effect for bipolar disorder on age in the second random sample, $F(1, 452) = 12.81, p < .001$, indicating that those who had bipolar disorder were significantly younger ($M = 35.67, SD = 11.36$) than those without bipolar disorder ($M = 42.13, SD = 12.92$). In addition, there was also a significant main effect for bipolar disorder on income in the second random sample, $F(1, 452) = 5.99, p < .05$, indicating that those who had bipolar disorder had significantly lower income ($M = 2.72, SD = 1.64$)

than those who did not have bipolar ($M = 3.72$, $SD = 2.11$). While the effects sizes were not large enough in the entire sample to show meaningful differences, a statistically significant difference was found in the second random sample, indicating that a meaningful relationship between symptoms of at bipolar disorder and age and income are likely to exist. No significant interaction was found between CAM use and bipolar disorder and the continuous variables of age, BMI, and income, indicating that among those with symptoms of bipolar disorder, there were no significant differences between the age, BMI, or income of those who used at least one CAM and those who did not, *ns*. (see Table 39).

Depression Symptoms

Table 40 shows the cross-tabulations with Pearson's chi square between CAM use and the categorical demographic variables for those women who had depression symptoms. The relationship between CAM use and ethnicity was significant, $\chi^2(1) = 6.13$, $p < .05$, Cramer's $V = .12$. A greater percentage of Caucasian women had used at least one CAM (70.4%) compared to those who were not Caucasian (59.2%). There was a significant relationship between CAM use and education, $\chi^2(3) = 50.02$, $p < .001$, Cramer's $V = .33$. A greater percentage of women with Bachelors/Graduate degree (90.0%) and some college/Associate's/ technical degree (81.4%) used at least one CAM compared to those who had high school diploma/GED (61.5%), or less than high school (47.4%). Also, the relationship between CAM use and region of the USA was significant, $\chi^2(3) = 8.06$, $p < .05$, Cramer's $V = .13$. A greater percentage of women from the West

(77.3%) used at least one CAM compared to those who were from the South (65.3%), Midwest (60.6%), or Northeast (60.0%). the relationship between CAM use and months of no insurance coverage or between CAM use and marital status was significant, *ns*.

Table 37

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Bipolar and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Ethnicity												
Not Caucasian	38.6	(22)	61.4	(35)	30.0	(9)	70.0	(21)	48.1	(13)	51.9	(14)
Caucasian	23.9	(42)	76.1	(134)	22.9	(19)	77.1	(64)	24.7	(22)	75.3	(67)
Months No Health Insurance												
0 Months	29.1	(48)	70.9	(117)	27.9	(24)	72.1	(62)	31.6	(24)	68.4	(52)
1-12 Months	25.0	(6)	75.0	(18)	.0	(0)	100.0	(12)	50.0	(6)	50.0	(6)
Marital Status												
Married/Cohabiting	25.0	(18)	75.0	(54)	27.8	(10)	72.2	(26)	22.2	(8)	77.8	(28)
Never Married	44.0	(22)	56.0	(28)	40.0	(8)	60.0	(12)	46.7	(14)	53.3	(16)
Formerly Married	21.1	(23)	78.9	(86)	17.9	(10)	82.1	(46)	24.5	(12)	75.5	(37)

(continued)

Table 37, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Bipolar and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Education												
Less than High School Diploma	51.9	(28)	48.1	(26)	48.1	(13)	51.9	(14)	55.6	(15)	44.4	(12)
High School Diploma/GED	32.8	(22)	67.2	(45)	34.4	(11)	65.6	(21)	31.4	(11)	68.6	(24)
Some College/ Associates/ Technical Degree	14.7	(11)	85.3	(64)	8.8	(3)	91.2	(31)	18.9	(7)	81.1	(30)
Bachelors/Graduate Degree	8.3	(3)	91.7	(33)	5.0	(1)	95.0	(19)	12.5	(2)	87.5	(14)

(continued)

Table 37, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Bipolar and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Region of USA												
Northeast	37.5	(12)	62.5	(20)	43.8	(7)	56.3	(9)	31.3	(5)	68.8	(11)
Midwest	25.4	(16)	74.6	(47)	30.0	(9)	70.0	(21)	21.2	(7)	78.8	(26)
South	35.2	(32)	64.8	(59)	22.7	(10)	77.3	(34)	46.7	(21)	53.3	(24)
West	8.5	(4)	91.5	(43)	8.7	(2)	91.3	(21)	9.1	(2)	90.9	(20)

Note. Full Sample Crosstabs: Ethnicity $\chi^2(1) = .60, p = .440$, Cramer's $V = .07$, Insurance $\chi^2(1) = 4.44, p < .05$, Cramer's $V = .21$, Marital Status $\chi^2(2) = 4.07, p = .131$, Cramer's $V = .191$, Education $\chi^2(3) = 18.33, p < .001$, Cramer's $V = .40$, Region $\chi^2(3) = 6.82, p = .078$, Cramer's $V = .25$. Random Sample 1 Crosstabs: Ethnicity $\chi^2(1) = .597, p = .44$, Cramer's $V = .07$, Insurance $\chi^2(1) = 4.44, p < .05$, Cramer's $V = .21$, Marital Status $\chi^2(2) = 4.07, p = .131$, Cramer's $V = .19$, Education $\chi^2(3) = 18.33, p < .001$, Cramer's $V = .40$, Region $\chi^2(3) = 6.82, p = .078$, Cramer's $V = .25$. Random Sample 2 Crosstabs: Ethnicity $\chi^2(1) = 5.40, p < .05$, Cramer's $V = .22$, Insurance $\chi^2(1) = 1.57, p = .211$, Cramer's $V = .13$, Marital Status $\chi^2(2) = 5.75, p = .056$, Cramer's $V = .22$, Education $\chi^2(3) = 12.81, p < .01$, Cramer's $V = .33$, Region $\chi^2(3) = 11.72, p < .01$, Cramer's $V = .32$.

Table 38

Means and Standard Deviations for Age, BMI and Income by Bipolar Disorder

	Full Sample		Random Sample 1		Random Sample 2	
	Mean	SD	Mean	SD	Mean	SD
Age						
No Disorders	40.90 ^a	13.51	40.46	13.04	42.13 ^a	12.94
At Least One Disorder	36.64 ^b	12.11	37.25	12.83	35.67 ^b	11.36
BMI						
No Disorders	27.14	6.38	28.21	7.06	28.43	7.35
At Least One Disorder	29.94	7.53	29.49	7.11	30.16	7.93
Income						
No Disorders	3.93 ^a	2.18	3.85	2.14	3.72 ^a	2.11
At Least One Disorder	3.08 ^b	1.89	3.43	2.08	2.72 ^b	1.64

Note. Means with different superscripts were significantly different ($p < .05$). Full Sample Age ANOVA $F(1,5780) = 9.54, p < .01$, partial $\eta^2 = .002$. Random Sample 1 Age ANOVA: $F(1,407) = 1.31, p = .253$, partial $\eta^2 < .01$. Random Sample 2 Age ANOVA: $F(1,452) = 12.81, p < .001$, partial $\eta^2 < .05$. Full Sample BMI ANOVA $F(1,5780) = 8.92, p < .01$, partial $\eta^2 = .002$. Random Sample 1 BMI ANOVA: $F(1,407) = .18, p = .733$, partial $\eta^2 < .001$. Random Sample 2 BMI ANOVA: $F(1,452) = 1.19, p = .276$, partial $\eta^2 < .01$. Full Sample Income ANOVA $F(1,5780) = 9.93, p < .01$, partial $\eta^2 = .002$. Random Sample 1 Income ANOVA: $F(1,407) = 1.43, p = .232$, partial $\eta^2 < .01$. Random Sample 2 Income ANOVA: $F(1,452) = 5.99, p < .05$, partial $\eta^2 < .05$

Table 39

Means and Standard Deviations for Age, BMI and Income by Bipolar and CAM Use

		Full Sample		Random Sample 1		Random Sample 2	
		No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAMs	At Least One CAM
III	Age						
	No Bipolar Symptoms						
	Mean	39.39	41.81	36.42	42.15	40.65	42.88
	SD	(13.26)	(13.59)	(12.12)	(13.07)	(12.91)	(12.92)
	Bipolar Symptoms						
	Mean	31.73	37.64	34.17	37.74	27.50	37.54
SD	(10.48)	(12.24)	(11.74)	(13.07)	(6.55)	(11.45)	
BMI	No Bipolar Symptoms						
	Mean	27.20	27.11	28.14	28.23	28.54	28.38
	SD	(6.30)	(6.43)	(8.04)	(6.62)	(6.89)	(7.58)
	Bipolar Symptoms						
	Mean	29.77	29.97	27.70	29.77	30.02	30.19
	SD	(7.67)	(7.55)	(4.35)	(7.46)	(9.20)	(7.76)

(continued)

Table 39, continued

Means and Standard Deviations for Age, BMI and Income by Bipolar and CAM Use

	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAMs	At Least One CAM
Income						
No Bipolar Symptoms						
Mean	3.54	4.17	3.54	3.98	3.27	3.95
SD	(1.94)	(2.28)	(1.87)	(2.24)	(1.76)	(2.24)
Bipolar Symptoms						
Mean	2.60	3.18	2.83	3.53	2.38	2.80
SD	(1.06)	(2.01)	(.98)	(2.20)	(1.19)	(1.73)

Note. Full Sample ANOVA Interaction Age (Any Disorder X CAM): $F(1,5780) = .83, p = .363$, partial $\eta^2 < .001$. Full Sample ANOVA Interaction BMI (Any Disorder X CAM): $F(1,5780) = .025, p = .88$, partial $\eta^2 < .001$. Full Sample ANOVA Interaction Income (Any Disorder X CAM): $F(1,5780) = .01, p = .936$, partial $\eta^2 < .001$. Random Sample 1 ANOVA Interaction Age (Any Disorder X CAM): $F(1,407) = .14, p = .711$, partial $\eta^2 < .001$. Random Sample 1 ANOVA Interaction BMI (Any Disorder X CAM): $F(1,407) = .38, p = .537$, partial $\eta^2 < .01$. Random Sample 1 ANOVA Interaction Income (Any Disorder X CAM): $F(1,407) = .07, p = .797$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction Age (Any Disorder X CAM): $F(1,452) = 2.29, p = .131$, partial $\eta^2 < .01$. Random Sample 2 ANOVA Interaction BMI (Any Disorder X CAM): $F(1,452) = .01, p = .913$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction Income (Any Disorder X CAM): $F(1,452) = .09, p = .760$, partial $\eta^2 < .001$.

Table 40

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Depression and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Ethnicity												
Not Caucasian	43.6	(308)	56.4	(398)	40.8	(75)	59.2	(109)	44.7	(85)	55.3	(105)
Caucasian	26.5	(280)	73.5	(775)	29.6	(82)	70.4	(195)	27.8	(80)	72.2	(208)
Months No Health Insurance												
0 Months	32.5	(420)	67.5	(872)	34.5	(121)	65.5	(230)	33.0	(117)	67.0	(238)
1-12 Months	30.4	(34)	69.6	(78)	17.9	(5)	82.1	(23)	44.8	(13)	55.2	(16)
Marital Status												
Married/Cohabiting	31.8	(215)	68.2	(461)	38.0	(68)	62.0	(111)	30.5	(50)	69.5	(114)
Never Married	39.4	(119)	60.6	(183)	40.3	(29)	59.7	(43)	39.1	(34)	60.9	(53)
Formerly Married	32.3	(251)	67.7	(526)	28.4	(59)	71.6	(149)	35.6	(80)	64.4	(145)

(continued)

Table 40, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Depression and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Education												
Less than High School Diploma	55.8	(259)	44.2	(205)	52.6	(71)	47.4	(64)	63.0	(75)	37.0	(44)
High School Diploma/GED	35.2	(197)	64.8	(363)	38.5	(55)	61.5	(88)	32.5	(51)	67.5	(106)
Some College/Associates/Technical Degree	20.3	(100)	79.7	(392)	18.6	(22)	81.4	(96)	25.2	(34)	74.8	(101)
Bachelors/Graduate Degree	11.3	(26)	88.7	(205)	10.0	(6)	90.0	(54)	7.9	(5)	92.1	(58)

(continued)

Table 40, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by Depression and CAM Use

	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Region of USA												
Northeast	38.9	(109)	61.1	(171)	40.0	(30)	60.0	(45)	38.6	(27)	61.4	(43)
Midwest	31.6	(114)	68.4	(247)	39.4	(39)	60.6	(60)	29.0	(31)	71.0	(76)
South	37.5	(269)	62.5	(449)	34.7	(66)	65.3	(124)	40.3	(75)	59.7	(111)
West	23.9	(96)	76.1	(306)	22.7	(22)	77.3	(75)	27.8	(32)	72.2	(83)

Note. Full Sample Crosstabs: Ethnicity $\chi^2(1) = 6.13, p < .05$, Cramer's $V = .12$, Insurance $\chi^2(1) = 3.23, p = .072$, Cramer's $V = .09$, Marital Status $\chi^2(2) = 5.48, p = .065$, Cramer's $V = .11$, Education $\chi^2(3) = 50.02, p < .001$, Cramer's $V = .33$, Region $\chi^2(3) = 8.06, p < .05$, Cramer's $V = .13$. Random Sample 1 Crosstabs: Ethnicity $\chi^2(1) = 6.13, p < .05$, Cramer's $V = .12$, Insurance $\chi^2(1) = 3.23, p = .072$, Cramer's $V = .09$, Marital Status $\chi^2(2) = 5.48, p = .065$, Cramer's $V = .11$, Education $\chi^2(3) = 50.02, p < .001$, Cramer's $V = .33$, Region $\chi^2(3) = 8.06, p = .045$, Cramer's $V = .13$. Random Sample 2 Crosstabs: Ethnicity $\chi^2(1) = 14.57, p < .001$, Cramer's $V = .18$, Insurance $\chi^2(1) = 1.69, p = .194$, Cramer's $V = .07$, Marital Status $\chi^2(2) = 2.01, p = .352$, Cramer's $V = .07$, Education $\chi^2(3) = 67.68, p < .001$, Cramer's $V = .38$, Region $\chi^2(3) = 7.02, p = .071$, Cramer's $V = .12$.

A series of two (no CAMs vs. at least one CAM) X two (no disorder vs. at least one disorder) ANOVAs were used to test the effects of having depression symptoms and using at least one CAM on the continuous demographic variables of age, BMI, and income. As shown in Table 41, there was a main effect for depression symptoms on BMI, $F(1, 406) = 14.25, p < .001$, indicating that those with depression symptoms had significantly higher BMI ($M = 29.88, SD = 7.57$) than those without symptoms of depression ($M = 27.34, SD = 6.55$). In addition, there was also a significant main effect for depression symptoms on income, $F(1, 406) = 9.60, p < .01$, indicating that those who had depression symptoms had significantly higher income ($M = 4.10, SD = 2.15$) than those with depression symptoms ($M = 3.36, SD = 2.05$). While the effects sizes were not large enough in the entire sample to show meaningful differences, a statistically significant difference was found in the random samples, indicating that a meaningful relationship between symptoms of depression and BMI and income are likely to exist.

No significant interaction was found between CAM use and symptoms of depression and the continuous variables of age, BMI, and income, indicating that among those with at least one disorder, there were no significant differences between the age, BMI, or income of those who had symptoms of depression and those who did not, *ns.* (see Table 42).

Table 41

Means and Standard Deviations for Age, BMI and Income by Depression

	Full Sample		Random Sample 1		Random Sample 2	
	Mean	SD	Mean	SD	Mean	SD
Age						
No Disorders	40.75	13.62	39.92	13.39	40.82	13.22
At Least One Disorder	41.41	12.66	40.44	12.58	42.44	12.45
BMI						
No Disorders	26.91 ^a	6.25	27.34 ^a	6.55	27.45 ^a	6.94
At Least One Disorder	29.22 ^b	7.13	29.88 ^b	7.57	30.27 ^b	7.78
Income						
No Disorders	4.00 ^a	2.20	4.10 ^a	2.15	3.91 ^a	2.18
At Least One Disorder	3.29 ^b	1.90	3.36 ^b	2.05	3.22 ^b	1.88

Note. Means with different superscripts were significantly different ($p < .05$). Full Sample Age ANOVA $F(1,5780) = .09, p = .759$, partial $\eta^2 < .001$. Random Sample 1 Age ANOVA: $F(1,406) = .48, p = .504$, partial $\eta^2 < .01$. Random Sample 2 Age ANOVA: $F(1,451) = 2.37, p = .124$, partial $\eta^2 < .01$. Full Sample BMI ANOVA $F(1,5780) = 58.30, p < .001$, partial $\eta^2 = .010$. Random Sample 1 BMI ANOVA: $F(1,406) = 14.25, p < .001$, partial $\eta^2 < .05$. Random Sample 2 BMI ANOVA: $F(1,451) = 16.77, p < .001$, partial $\eta^2 < .05$. Full Sample Income ANOVA $F(1,5780) = 69.25, p < .001$, partial $\eta^2 = .012$. Random Sample 1 Income ANOVA: $F(1,406) = 9.60, p < .01$, partial $\eta^2 < .05$. Random Sample 2 Income ANOVA: $F(1,451) = 14.16, p < .001$, partial $\eta^2 < .05$.

Table 42

Means and Standard Deviations for Age, BMI and Income by Depression and CAM Use

	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAMs	At Least One CAM
Age						
No Depression Symptoms						
Mean	39.34	41.66	35.36	41.97	38.70	42.08
SD	(13.32)	(13.73)	(11.71)	(13.61)	(12.84)	(13.32)
Depression Symptoms						
Mean	39.21	42.17	38.24	41.09	42.55	42.40
SD	(12.54)	(12.62)	(12.69)	(12.52)	(13.04)	(12.29)
BMI						
No Depression Symptoms						
Mean	27.05	26.82	26.77	27.60	27.40	27.48
SD	(6.24)	(6.25)	(7.55)	(6.06)	(6.95)	(6.96)
Depression Symptoms						
Mean	29.08	29.27	30.91	29.57	31.22	29.95
SD	(6.77)	(7.26)	(7.91)	(7.48)	(6.42)	(8.18)

(continued)

Table 42, continued

Means and Standard Deviations for Age, BMI and Income by Depression and CAM Use

	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAMs	At Least One CAM
Income						
No Depression Symptoms						
Mean	3.61	4.26	3.73	4.27	3.50	4.15
SD	(1.96)	(2.30)	(1.83)	(2.26)	(1.90)	(2.31)
Depression Symptoms						
Mean	2.75	3.47	3.03	3.46	2.62	3.42
SD	(1.45)	(2.00)	(1.79)	(2.12)	(1.17)	(2.03)

Note. Full Sample ANOVA Interaction Age (Any Disorder X CAM): $F(1,5778) = .267, p = .606$, partial $\eta^2 < .001$. Full Sample ANOVA Interaction BMI (Any Disorder X CAM): $F(1,5778) = .502, p = .479$, partial $\eta^2 < .001$. Full Sample ANOVA Interaction Income (Any Disorder X CAM): $F(1,5778) = .123, p = .726$, partial $\eta^2 < .001$. Random Sample 1 ANOVA Interaction Age (Any Disorder X CAM): $F(1,406) = 1.588, p = .208$, partial $\eta^2 < .01$. Random Sample 1 ANOVA Interaction BMI (Any Disorder X CAM): $F(1,406) = 1.796, p = .181$, partial $\eta^2 < .01$. Random Sample 1 ANOVA Interaction Income (Any Disorder X CAM): $F(1,406) = .053, p = .818$, partial $\eta^2 < .001$. Random Sample 2 ANOVA Interaction Age (Any Disorder X CAM): $F(1,451) = 1.690, p = .194$, partial $\eta^2 < .01$. Random Sample 2 ANOVA Interaction BMI (Any Disorder X CAM): $F(1,451) = .775, p = .379$, partial $\eta^2 < .01$. Random Sample 2 ANOVA Interaction Income (Any Disorder X CAM): $F(1,451) = .116, p = .734$, partial $\eta^2 < .001$.

Ho2. There will be No Significant Difference between the Three Symptomology Groupings (Anxiety, Bipolar Disorder, Depression) and Individual CAM Therapy Use Score.

The differences between the total number of CAMs used for those with and without symptoms of the target disorders were compared using the non-parametric Mann-Whitney Test. Table 43 shows the means and standard deviations of the total number of CAMs used by each of the mental health variables, along with the non-parametric Z scores and significance level of the differences. The difference between the number of CAMs for women with and without symptoms of at least one of the disorders was significant, $p < .001$, indicating that those with at least one of the disorders used significantly more CAMs ($M = 2.49, SD = 3.04$) than those with none of the target disorders ($M = 1.49, SD = 2.11$). The difference between the number of CAMs for women with and without symptoms of anxiety was significant, $p < .001$, indicating that those with symptoms of anxiety used significantly more CAMs ($M = 2.93, SD = 3.35$) than those with no anxiety symptoms ($M = 1.68, SD = 2.29$). The difference between the number of CAMs for women with and without symptoms of bipolar disorder was significant, $p < .001$, indicating that those with symptoms of bipolar disorder used significantly more CAMs ($M = 3.23, SD = 3.38$) than those with no bipolar symptoms ($M = 1.94, SD = 2.62$). The difference between the number of CAMs for women with and without symptoms of depression was significant, $p < .05$, indicating that those with

symptoms of depression used significantly more CAMs ($M = 2.27, SD = 2.95$) than those with no depression symptoms ($M = 1.92, SD = 2.55$).

Table 43

Means and Standard Deviations for Number of CAMs by Any Disorder, Anxiety, Bipolar, and Depression Used

	Full Sample			Random Sample 1			Random Sample 2		
	n	Mean	Z	n	Mean	Z	n	Mean	Z
At Least One Disorder									
No	10248	1.50 (2.27)	-16.38***	394	1.49 (2.11)	-5.67***	389	1.50 (2.39)	-5.00***
Yes	2405	2.41 (2.99)		592	2.49 (3.04)		606	2.15 (2.69)	
Anxiety Symptoms									
No	11019	1.53 (2.31)	-16.72***	661	1.68 (2.29)	-6.18***	663	1.67 (2.52)	-5.03***
Yes	1656	2.62 (3.09)		327	2.93 (3.35)		333	2.34 (2.69)	

(continued)

Table 43, continued

Means and Standard Deviations for Number of CAMs by Any Disorder, Anxiety, Bipolar, and Depression Used

	Full Sample			Random Sample 1			Random Sample 2		
	n	Mean	Z	n	Mean	Z	n	Mean	Z
Bipolar Symptoms									
No	12444	1.64 (2.43)	-7.49***	880	1.94 (2.62)	-4.38***	881	1.78 (2.50)	-3.65***
Yes	233	2.98 (3.22)		113	3.23 (3.38)		116	2.78 (3.09)	
Depression Symptoms									
No	10913	1.58 (2.35)	-11.03***	531	1.92 (2.55)	-1.97*	517	1.69 (2.43)	-2.95**
Yes	1761	2.25 (2.92)		461	2.27 (2.95)		478	2.12 (2.75)	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

At Least One Target Disorder

Cross-tabulations with Pearson's chi square were calculated to test the relationships between the mental health variables and whether or not the participants used any CAMs from the five CAM categories. Table 44 shows the relationships between the participants having at least one of the target disorders and whether or not the participants used any CAMs. The relationship between having symptoms of at least one of the target disorders and using at least one CAM was significant, $\chi^2(3) = 8.06, p < .05$, Cramer's $V = .13$, indicating that a greater proportion of those who had at least one disorder used at least one CAM (68.4%) compared to those who did not have at least one disorder (52.5%). The relationship between having symptoms of at least one of the target disorders and using a CAM from the Alternative Medical System was significant, $\chi^2(3) = 8.06, p < .05$, Cramer's $V = .13$, indicating that a greater proportion of those who had at least one disorder used at least one CAM from this group (19.8%) compared to those who did not have at least one disorder (12.9%). The relationship between having symptoms of at least one of the target disorders and using a CAM from the Biologically Based Therapies was significant, $\chi^2(3) = 8.06, p < .05$, Cramer's $V = .13$, indicating that a greater proportion of those who had at least one disorder used at least one CAM from this group (40.0%) compared to those who did not have at least one disorder (28.2%). The relationship between having symptoms of at least one of the target disorders and using a CAM from the Manipulative and Body Based Therapies was significant, $\chi^2(3) = 8.06, p < .05$, Cramer's $V = .13$, indicating that a greater proportion of those who had at least one

disorder used at least one CAM from this group (43.9%) compared to those who did not have at least one disorder (28.9%). The relationship between having symptoms of at least one of the target disorders and using a CAM from the Mind-Body Therapies was significant, $\chi^2(3) = 8.06, p < .05$, Cramer's $V = .13$, indicating that a greater proportion of those who had at least one disorder used at least one CAM from this group (40.4%) compared to those who did not have at least one disorder (27.2%). The relationship between having symptoms of at least one of the target disorders and using an Energy Healing Therapy CAM was not significant, *ns*.

Anxiety Symptoms

The relationships between the participants having anxiety symptoms and whether or not the participants used any of the five categories of CAMs are shown in Table 45. The relationship between anxiety and at least one CAM was significant, $\chi^2(1) = 23.93, p < .001$, Cramer's $V = .16$, indicating that a greater proportion of those who had anxiety symptoms used at least one CAM (72.8%) compared to those who did not have who had no anxiety symptoms (56.7%). The relationship between having symptoms of anxiety and using a CAM from the Biologically Based Therapies was significant, $\chi^2(1) = 29.64, p < .001$, Cramer's $V = .17$, indicating that a greater proportion of those who had anxiety used at least one CAM from this group (47.1%) compared to those who did not have anxiety (29.5%). The relationship between having symptoms of anxiety and using a CAM from the Manipulative and Body Based Therapies was significant, $\chi^2(1) = 15.09, p < .001$, Cramer's $V = .12$, indicating that a greater proportion of those who had anxiety used at

least one CAM from this group (46.5%) compared to those who did not have anxiety (33.7%).

Table 44

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Any Disorder

	Full Sample				Random Sample 1				Random Sample 2			
	No Disorders		At Least One Disorder		No Disorders		At Least One Disorder		No Disorders		At Least One Disorder	
	%	n	%	n	%	n	%	n	%	n	%	n
CAMs												
None	47.5	(4865)	31.8	(765)	47.5	(187)	31.6	(187)	47.0	(183)	33.3	(202)
At Least One	52.5	(5383)	68.2	(1640)	52.5	(207)	68.4	(405)	53.0	(206)	66.7	(404)
Alternative Medical Systems												
None	88.7	(9092)	80.5	(1936)	87.1	(343)	80.2	(475)	87.9	(342)	80.9	(490)
At Least One	11.3	(1155)	19.5	(469)	12.9	(51)	19.8	(117)	12.1	(47)	19.1	(116)
Biologically Based Therapies												
None	71.5	(7326)	59.8	(1436)	71.8	(283)	60.0	(355)	70.1	(272)	58.3	(353)
At Least One	28.5	(2914)	40.2	(966)	28.2	(111)	40.0	(237)	29.9	(116)	41.7	(252)

(continued)

Table 44, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Any Disorder

	Full Sample				Random Sample 1				Random Sample 2			
	No Disorders		At Least One Disorder		No Disorders		At Least One Disorder		No Disorders		At Least One Disorder	
	%	n	%	n	%	n	%	n	%	n	%	n
	<hr/>											
Manipulative and Body Based Therapies												
None	69.3	(7090)	57.7	(1385)	71.1	(280)	56.1	(332)	70.4	(273)	62.1	(376)
At Least One	30.7	(3140)	42.3	(1016)	28.9	(114)	43.9	(260)	29.6	(115)	37.9	(229)
Mind-Body Therapies												
None	73.1	(7487)	59.9	(1438)	72.8	(287)	59.6	(353)	74.8	(291)	63.6	(385)
At Least One	26.9	(2753)	40.1	(964)	27.2	(107)	40.4	(239)	25.2	(98)	36.4	(220)

(continued)

Table 44, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Any Disorder

	Full Sample				Random Sample 1				Random Sample 2			
	No Disorders		At Least One Disorder		No Disorders		At Least One Disorder		No Disorders		At Least One Disorder	
	%	n	%	n	%	n	%	n	%	n	%	n
Energy Healing Therapy												
None	98.3	(10049)	95.9	(2302)	98.2	(387)	95.8	(567)	97.7	(378)	97.0	(586)
At Least One	1.7	(176)	4.1	(98)	1.8	(7)	4.2	(25)	2.3	(9)	3.0	(18)

Not e. Full Sample Crosstabs: CAMs $\chi^2(1) = 193.52, p < .001$, Cramer's $V = .12$, Alternative Medical Systems $\chi^2(1) = 117.90, p < .001$, Cramer's $V = .10$, Biologically Based Therapies $\chi^2(1) = 126.48, p < .001$, Cramer's $V = .10$, Manipulative and Body Based Therapies $\chi^2(1) = 118.97, p < .001$, Cramer's $V = .10$, Mind-Body Therapies $\chi^2(1) = 164.52, p < .001$, Cramer's $V = .11$, Energy Healing Therapy $\chi^2(1) = 51.01, p < .001$, Cramer's $V = .06$. Random Sample 1 Crosstabs: CAMs $\chi^2(1) = 25.32, p < .001$, Cramer's $V = .16$, Alternative Medical Systems $\chi^2(1) = 7.78, p < .01$, Cramer's $V = .09$, Biologically Based Therapies $\chi^2(1) = 14.57, p < .001$, Cramer's $V = .12$, Manipulative and Body Based Therapies $\chi^2(1) = 22.56, p < .001$, Cramer's $V = .15$, Mind-Body Therapies $\chi^2(1) = 18.14, p < .001$, Cramer's $V = .14$, Energy Healing Therapy $\chi^2(1) = 4.51, p < .001$, Cramer's $V = .07$. Random Sample 2 Crosstabs: CAMs $\chi^2(1) = 18.77, p < .001$, Cramer's $V = .14$, Alternative Medical Systems $\chi^2(1) = 8.62, p < .01$, Cramer's $V = .09$, Biologically Based Therapies $\chi^2(1) = 14.01, p < .001$, Cramer's $V = .12$, Manipulative and Body Based Therapies $\chi^2(1) = 7.04, p < .01$, Cramer's $V = .08$, Mind-Body Therapies $\chi^2(1) = 13.58, p < .001$, Cramer's $V = .12$, Energy Healing Therapy $\chi^2(1) = .38, p = .537$, Cramer's $V = .02$

Table 45

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Anxiety

		Full Sample				Random Sample 1				Random Sample 2			
		No Anxiety Symptoms		Anxiety Symptoms		No Anxiety Symptoms		Anxiety Symptoms		No Anxiety Symptoms		Anxiety Symptoms	
		%	n	%	n	%	n	%	n	%	n	%	n
130	CAMs												
	None	46.9	(5164)	28.7	(475)	43.3	(286)	27.2	(89)	43.6	(289)	28.8	(96)
	At Least One	53.1	(5855)	71.3	(1181)	56.7	(375)	72.8	(238)	56.4	(374)	71.2	(237)
	Alternative Medical Systems												
	None	88.4	(9737)	78.9	(1306)	85.3	(564)	78.0	(255)	84.9	(563)	81.1	(270)
	At Least One	11.6	(1281)	21.1	(350)	14.7	(97)	22.0	(72)	15.1	(100)	18.9	(63)
	Biologically Based Therapies												
	None	71.2	(7836)	939.0	(57)	70.5	(466)	52.9	(173)	67.2	(445)	54.5	(181)
	At Least One	28.8	(3175)	714.0	(43)	29.5	(195)	47.1	(154)	32.8	(217)	45.5	(151)

(continued)

Table 45, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Anxiety

	Full Sample				Random Sample 1				Random Sample 2			
	No Anxiety Symptoms		Anxiety Symptoms		No Anxiety Symptoms		Anxiety Symptoms		No Anxiety Symptoms		Anxiety Symptoms	
	%	n	%	n	%	n	%	n	%	n	%	n
Manipulative and Body Based Therapies												
None	68.9	(7575)	55.3	(914)	66.3	(438)	53.5	(175)	68.4	(453)	59.0	(196)
At Least One	31.1	(3425)	44.7	(739)	33.7	(223)	46.5	(152)	31.6	(209)	41.0	(136)
Mind-Body Therapies												
None	72.8	(8016)	55.9	(924)	70.3	(465)	53.8	(176)	73.2	(485)	57.8	(192)
At Least One	27.2	(2995)	44.1	(729)	29.7	(196)	46.2	(151)	26.8	(178)	42.2	(140)

(continued)

Table 45, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Anxiety

	Full Sample				Random Sample 1				Random Sample 2			
	No Anxiety Symptoms		Anxiety Symptoms		No Anxiety Symptoms		Anxiety Symptoms		No Anxiety Symptoms		Anxiety Symptoms	
	%	n	%	n	%	n	%	n	%	n	%	n
Energy Healing Therapy												
None	98.2	(10797)	95.3	(1574)	97.9	(647)	94.5	(309)	97.4	(644)	97.0	(321)
At Least One	1.8	(198)	4.7	(78)	2.1	(14)	5.5	(18)	2.6	(17)	3.0	(10)

Note. Full Sample Crosstabs: CAMs $\chi^2(1) = 192.69, p < .001$, Cramer's $V = .12$, Alternative Medical Systems $\chi^2(1) = 116.09, p < .001$, Cramer's $V = .10$, Biologically Based Therapies $\chi^2(1) = 139.27, p < .001$, Cramer's $V = .11$, Manipulative and Body Based Therapies $\chi^2(1) = 119.86, p < .001$, Cramer's $V = .10$, Mind-Body Therapies $\chi^2(1) = 197.78, p < .001$, Cramer's $V = .13$, Energy Healing Therapy $\chi^2(1) = 57.39, p < .001$, Cramer's $V = .07$. Random Sample 1 Crosstabs: CAMs $\chi^2(1) = 23.93, p < .001$, Cramer's $V = .16$, Alternative Medical Systems $\chi^2(1) = 8.32, p < .01$, Cramer's $V = .09$, Biologically Based Therapies $\chi^2(1) = 29.64, p < .001$, Cramer's $V = .17$, Manipulative and Body Based Therapies $\chi^2(1) = 15.09, p < .001$, Cramer's $V = .12$, Mind-Body Therapies $\chi^2(1) = 26.22, p < .001$, Cramer's $V = .16$, Energy Healing Therapy $\chi^2(1) = 8.01, p < .001$, Cramer's $V = .09$. Random Sample 2 Crosstabs: CAMs $\chi^2(1) = 20.37, p < .001$, Cramer's $V = .14$, Alternative Medical Systems $\chi^2(1) = 2.38, p = .123$, Cramer's $V = .05$, Biologically Based Therapies $\chi^2(1) = 15.30, p < .001$, Cramer's $V = .12$, Manipulative and Body Based Therapies $\chi^2(1) = 8.61, p < .01$, Cramer's $V = .09$, Mind-Body Therapies $\chi^2(1) = 23.88, p < .001$, Cramer's $V = .16$, Energy Healing Therapy $\chi^2(1) = .17, p = .682$, Cramer's $V = .01$

Table 45 also shows that the relationship between having symptoms of anxiety and using a CAM from the Mind-Body Therapies was significant, $\chi^2(1) = 26.22, p < .001$, Cramer's $V = .16$, indicating that a greater proportion of those who had anxiety used at least one CAM from this group (46.2%) compared to those who did not have anxiety (29.7%). Finally, the relationships between having symptoms of anxiety and using a CAM from the Alternative Medical System as well as using an Energy Healing Therapy CAM were not significant, all *ns*.

Bipolar Disorder

The relationships between the participants having bipolar disorder and whether or not the participants used any of the five categories of CAMs are shown in Table 46. The relationship between bipolar and having symptoms of bipolar disorder and using at least one CAM was significant, $\chi^2(1) = 9.55, p < .01$, Cramer's $V = .10$, indicating that a greater proportion of those who had bipolar used at least one CAM (75.2%) compared to those who did not have bipolar (60.2%). The relationship between having symptoms of bipolar disorder and using a CAM from the Biologically Based Therapies was significant, $\chi^2(1) = 6.48, p < .05$, Cramer's $V = .08$, indicating that a greater proportion of those who had bipolar used at least one CAM from this group (46.0%) compared to those who did not have bipolar (33.9%). The relationship between having symptoms of bipolar disorder and using a CAM from the Manipulative and Body Based Therapies was significant, $\chi^2(1) = 9.67, p < .05$, Cramer's $V = .10$, indicating that a greater proportion of those who

had bipolar used at least one CAM from this group (51.3%) compared to those who did not have bipolar (36.3%). The relationship between having symptoms of bipolar disorder and using a CAM from the Mind-Body Therapies was significant, $\chi^2(1) = 22.01, p < .001$, Cramer's $V = .15$, indicating that a greater proportion of those who had bipolar used at least one CAM from this group (54.9%) compared to those who did not have bipolar (32.5%). Finally, the relationships between having symptoms of at least one of the target disorder and using a CAM from the Alternative Medical System and using an Energy Healing Therapy CAM were not significant, all *ns*.

Depression Symptoms

The relationships between the participants having depression symptoms and whether or not the participants used any of the five categories of CAMs are shown in Table 47. The relationship between having symptoms of depression and using at least one CAM was significant, $\chi^2(1) = 5.99, p < .05$, Cramer's $V = .08$, indicating that a greater proportion of those who had depression used at least one CAM (65.9%) compared to those who did not have depression (58.4%). The relationship between having symptoms of depression and using a CAM from the Alternative Medical System was significant, $\chi^2(1) = 4.10, p < .05$, Cramer's $V = .06$, indicating that a greater proportion of those who had depression used at least one CAM from this group (19.5%) compared to those who did not have depression (14.7%). The relationship between having symptoms of depression and using a CAM from the Manipulative and Body Based Therapies was significant, $\chi^2(1) = 7.07, p < .01$, Cramer's $V = .08$, indicating that a greater proportion of

those who had depression used at least one CAM from this group (42.3%) compared to those who did not have depression (34.1%).

Table 46

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Bipolar

	Full Sample				Random Sample 1				Random Sample 2			
	No Bipolar Symptoms		Bipolar Symptoms		No Bipolar Symptoms		Bipolar Symptoms		No Bipolar Symptoms		Bipolar Symptoms	
	%	n	%	n	%	n	%	n	%	n	%	n
CAMs												
None	44.8	(5579)	27.5	(64)	39.8	(350)	24.8	(28)	39.7	(350)	30.2	(35)
At Least One	55.2	(6865)	72.5	(169)	60.2	(530)	75.2	(85)	60.3	(531)	69.8	(81)
Alternative Medical Systems												
None	87.3	(10865)	79.0	(184)	83.6	(736)	77.9	(88)	84.2	(742)	79.3	(92)
At Least One	12.7	(1578)	21.0	(49)	16.4	(144)	22.1	(25)	15.8	(139)	20.7	(24)
Biologically Based Therapies												
None	69.6	(8657)	52.2	(121)	66.1	(582)	54.0	(61)	64.5	(568)	50.4	(58)
At Least One	30.4	(3777)	47.8	(111)	33.9	(298)	46.0	(52)	35.5	(312)	49.6	(57)

(continued)

Table 46, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Bipolar

		Full Sample				Random Sample 1				Random Sample 2			
		No Bipolar Symptoms		Bipolar Symptoms		No Bipolar Symptoms		Bipolar Symptoms		No Bipolar Symptoms		Bipolar Symptoms	
		%	n	%	n	%	n	%	n	%	n	%	n
137	Manipulative and Body Based Therapies												
	None	67.4	(8368)	53.2	(124)	63.8	(561)	48.7	(55)	66.4	(584)	56.9	(66)
	At Least One	32.6	(4054)	46.8	(109)	36.3	(319)	51.3	(58)	33.6	(295)	43.1	(50)
Mind-Body Therapies													
	None	71.0	(8828)	50.0	(116)	67.5	(594)	45.1	(51)	69.9	(616)	53.9	(62)
	At Least One	29.0	(3606)	50.0	(116)	32.5	(286)	54.9	(62)	30.1	(265)	46.1	(53)

(continued)

Table 46, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Bipolar

	Full Sample				Random Sample 1				Random Sample 2			
	No Bipolar Symptoms		Bipolar Symptoms		No Bipolar Symptoms		Bipolar Symptoms		No Bipolar Symptoms		Bipolar Symptoms	
	%	n	%	n	%	n	%	n	%	n	%	n
Energy Healing Therapy												
None	97.9	(12153)	94.8	(220)	97.3	(856)	92.9	(105)	97.4	(855)	96.5	(111)
At Least One	2.1	(263)	5.2	(12)	2.7	(24)	7.1	(8)	2.6	(23)	3.5	(4)

Note. Full Sample Crosstabs: CAMs $\chi^2(1) = 27.92, p < .001$, Cramer's $V = .05$, Alternative Medical Systems $\chi^2(1) = 14.25, p < .001$, Cramer's $V = .03$, Biologically Based Therapies $\chi^2(1) = 32.67, p < .001$, Cramer's $V = .05$, Manipulative and Body Based Therapies $\chi^2(1) = 20.73, p < .001$, Cramer's $V = .04$, Mind-Body Therapies $\chi^2(1) = 48.40, p < .001$, Cramer's $V = .06$, Energy Healing Therapy $\chi^2(1) = 9.10, p < .001$, Cramer's $V = .03$. Random Sample 1 Crosstabs: CAMs $\chi^2(1) = 9.55, p < .01$, Cramer's $V = .10$, Alternative Medical Systems $\chi^2(1) = 2.35, p = .125$, Cramer's $V = .05$, Biologically Based Therapies $\chi^2(1) = 6.48, p < .05$, Cramer's $V = .08$, Manipulative and Body Based Therapies $\chi^2(1) = 9.67, p < .01$, Cramer's $V = .10$, Mind-Body Therapies $\chi^2(1) = 22.01, p < .001$, Cramer's $V = .15$, Energy Healing Therapy $\chi^2(1) = 6.08, p < .05$, Cramer's $V = .08$. Random Sample 2 Crosstabs: CAMs $\chi^2(1) = 3.95, p < .05$, Cramer's $V = .06$, Alternative Medical Systems $\chi^2(1) = 1.81, p = .179$, Cramer's $V = .04$, Biologically Based Therapies $\chi^2(1) = 8.68, p < .01$, Cramer's $V = .09$, Manipulative and Body Based Therapies $\chi^2(1) = 4.12, p < .05$, Cramer's $V = .06$, Mind-Body Therapies $\chi^2(1) = 11.99, p < .01$, Cramer's $V = .11$, Energy Healing Therapy $\chi^2(1) = .28, p = .594$, Cramer's $V = .02$

Table 47

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Depression

	Full Sample				Random Sample 1				Random Sample 2			
	No Depression Symptoms		Depression Symptoms		No Depression Symptoms		Depression Symptoms		No Depression Symptoms		Depression Symptoms	
	%	n	%	n	%	n	%	n	%	n	%	n
CAMs												
None	46.3	(5051)	33.4	(588)	41.6	(221)	34.1	(157)	42.6	(220)	34.5	(165)
At Least One	53.7	(5862)	66.6	(1173)	58.4	(310)	65.9	(304)	57.4	(297)	65.5	(313)
Alternative Medical Systems												
None	88.1	(9618)	81.0	(1426)	85.3	(453)	80.5	(371)	86.3	(446)	80.8	(386)
At Least One	11.9	(1294)	19.0	(335)	14.7	(78)	19.5	(90)	13.7	(71)	19.2	(92)
Biologically Based Therapies												
None	70.4	(7673)	62.6	(1102)	65.2	(346)	64.4	(297)	65.7	(339)	60.0	(286)
At Least One	29.6	(3231)	37.4	(657)	34.8	(185)	35.6	(164)	34.3	(177)	40.0	(191)

(continued)

Table 47, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Depression

	Full Sample				Random Sample 1				Random Sample 2			
	No Depression Symptoms		Depression Symptoms		No Depression Symptoms		Depression Symptoms		No Depression Symptoms		Depression Symptoms	
	%	n	%	n	%	n	%	n	%	n	%	n
Manipulative and Body Based Therapies												
None	68.3	(7443)	59.6	(1047)	65.9	(350)	57.7	(266)	68.6	(354)	61.8	(295)
At Least One	31.7	(3451)	40.4	(711)	34.1	(181)	42.3	(195)	31.4	(162)	38.2	(182)
Mind-Body Therapies												
None	71.9	(7844)	62.3	(1096)	66.1	(351)	63.8	(294)	71.0	(367)	64.8	(309)
At Least One	28.1	(3060)	37.7	(663)	33.9	(180)	36.2	(167)	29.0	(150)	35.2	(168)

(continued)

Table 47, continued

Frequencies and Percentages for Any CAM Use, Alternative Medical Systems, Biological Based Therapies, Manipulative and Body-Based Therapies, Mind-Body Therapies, and Energy Healing Therapies by Depression

	Full Sample				Random Sample 1				Random Sample 2			
	No Depression Symptoms		Depression Symptoms		No Depression Symptoms		Depression Symptoms		No Depression Symptoms		Depression Symptoms	
	%	n	%	n	%	n	%	n	%	n	%	n
Energy Healing Therapy												
None	98.1	(10677)	96.4	(1694)	97.4	(517)	96.1	(443)	97.7	(503)	96.8	(461)
At Least One	1.9	(212)	3.6	(63)	2.6	(14)	3.9	(18)	2.3	(12)	3.2	(15)

Note. Full Sample Crosstabs: CAMs $\chi^2(1) = 102.08, p < .001$, Cramer's $V = .09$, Alternative Medical Systems $\chi^2(1) = 69.49, p < .001$, Cramer's $V = .07$, Biologically Based Therapies $\chi^2(1) = 42.42, p < .001$, Cramer's $V = .06$, Manipulative and Body Based Therapies $\chi^2(1) = 52.69, p < .001$, Cramer's $V = .07$, Mind-Body Therapies $\chi^2(1) = 67.66, p < .001$, Cramer's $V = .07$, Energy Healing Therapy $\chi^2(1) = 19.10, p < .001$, Cramer's $V = .04$. Random Sample 1 Crosstabs: CAMs $\chi^2(1) = 5.99, p < .05$, Cramer's $V = .08$, Alternative Medical Systems $\chi^2(1) = 4.10, p < .05$, Cramer's $V = .06$, Biologically Based Therapies $\chi^2(1) = .06, p = .809$, Cramer's $V = .01$, Manipulative and Body Based Therapies $\chi^2(1) = 7.07, p < .01$, Cramer's $V = .08$, Mind-Body Therapies $\chi^2(1) = .59, p = .443$, Cramer's $V = .02$, Energy Healing Therapy $\chi^2(1) = 1.27, p = .260$, Cramer's $V = .04$. Random Sample 2 Crosstabs: CAMs $\chi^2(1) = 6.76, p < .01$, Cramer's $V = .08$, Alternative Medical Systems $\chi^2(1) = 5.51, p < .05$, Cramer's $V = .07$, Biologically Based Therapies $\chi^2(1) = 3.50, p = .061$, Cramer's $V = .06$, Manipulative and Body Based Therapies $\chi^2(1) = 5.00, p < .05$, Cramer's $V = .07$, Mind-Body Therapies $\chi^2(1) = 4.39, p < .05$, Cramer's $V = .07$, Energy Healing Therapy $\chi^2(1) = .63, p = .428$, Cramer's $V = .03$

Although the relationship between symptoms of depression and using a CAM from the Mind-Body Therapies was not significant in Random Sample 1, the results revealed in Table 47 that the relationship was significant in second random sample. $\chi^2(1) = 4.39, p < .05$, Cramer's $V = .07$, indicating that a greater proportion of those who had depression used at least one CAM from this group (35.2%) compared to those who did not have depression (29.0%). Finally, the relationships between having symptoms of depression and using a CAM from the Biologically Based Therapies and using an Energy Healing Therapy CAM were not significant, all *ns.*, were not significant.

Ho3. Biological Factors (Age and BMI), Sociocultural Factors (Marital Status, Educational Level, Income, Race/Ethnicity, Region of the United States, and Health Insurance), and Type of Mental Health Symptomology (Anxiety, Bipolar Disorder, Depression) will Not Significantly Predict CAM Use

A multiple linear regression using three blocks was used to assess factors predictive of total number of CAMs used in each of the three samples. Block one consisted of the biological predictors (age, BMI), block two consisted of the sociocultural predictors (marital status, education, income, region, health insurance), and block three consisted of the mental health predictors (anxiety symptoms, bipolar disorder, depression symptoms). Model 2 (consisting of block one and block two) was significant, $F(13, 317) = 7.58, p < .001$, and accounted for 21% of the variance. Model 3 (consisting of all three blocks) was also significant, $F(16, 314) = 7.98, p < .001$, and accounted for 25% of the

variance. Model 3 accounted for significantly more variance than Model 2 ($p < .001$) and therefore is presented in Table 48.

The results indicated that ethnicity, education, region of the USA, and symptoms of anxiety and bipolar disorder were significant predictors of the total number of CAMs used. Being Caucasian (compared to not Caucasian) was associated with an increase in the number of CAMs used ($Beta = .159, p < .01$). In addition, as compared to having less than a high school diploma, having some college/Associate's/Technical degree ($Beta = .279, p < .01$) and having a Bachelor's/Graduate degree ($Beta = .383, p < .001$) were associated with an increase in the number of CAMs used. For region, as compared to living in the Northeast, living in the West ($Beta = .258, p < .001$) was associated with an increase in the number of CAMs used. Finally, having symptoms of anxiety ($Beta = .173, p < .001$) and bipolar disorder ($Beta = .105, p < .05$; as compared to not having symptoms of these disorders) were associated with an increase in the number of CAMs used.

Although significant, the results of the multiple linear regressions should be interpreted with caution due to the non-normal distribution of the total number of CAMs. A multiple logistic regression was also run on whether or not the participants used at least one CAM, including the same blocks of predictors used in the multiple linear regressions. The results are presented below and show the same pattern of significant predictors that were shown in the linear regression on the total number of CAMs.

Table 48

Multiple Linear Regression Predicting Total Number for CAMs from Biological Factors, Sociocultural Factors, and Type for Mental Health Problem

Category	Full Sample Beta	Random Sample 1 Beta	Random Sample 2 Beta
Age	.094 ***	.076	.066
BMI	.010	-.015	.071
Never Married ^a	.054 ***	.045	.033
Former Married ^a	.006	.001	.062
Caucasian ^b	.168 ***	.159 **	.115 **
High School Diploma/GED ^c	.052 *	.125	.075
Some College/Associates/ Technical Degree ^c	.178 ***	.279 **	.192 **
Bachelors/Graduate Degree ^c	.341 ***	.383 ***	.495 ***
Income	.054 ***	.088	.096
Midwest Region of USA ^d	-.017	-.028	.030
South Region of USA ^d	-.061 ***	-.013	-.033
West Region of USA ^d	.125 ***	.258 ***	.119
1-12 Months No Health Coverage ^c	.043 **	.025	-.013
Anxiety Symptoms ^f	.130 ***	.173 ***	.122 **
Bipolar Disorder ^g	.038 **	.105 **	.072
Depression Symptoms ^h	.041 **	.071	.085
F	66.23 ***	7.980 ***	8.600 ***
Adjusted R ²	.179	.253	.254

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms.

Multiple logistic regressions using three blocks were used to assess factors predictive of any CAM usage. Block one consisted of the biological variables (age, BMI), block two consisted of the sociocultural variables (marital status, education, income, region, health insurance), and block three consisted of the mental health variables (anxiety symptoms, bipolar disorder, depression symptoms). A summary of the Odds Ratios for block three for each of the three samples is shown in Table 49. Being Caucasian versus not Caucasian predicted increased odds of using at least one CAM (*Odds Ratio* = 1.829, $p < .05$). Higher levels of education were also associated with increased odds of using at least one CAM. Having a high school diploma versus less than a high school diploma predicted increased odds of using at least on CAM (*Odds Ratio* = 3.923, $p < .01$). Having some college/Associate's/ Technical degree versus less than a high school diploma predicted increased odds of using at least one CAM (*Odds Ratio* = 4.592, $p < .01$). In addition having a Bachelor's/Graduate degree versus less than a high school diploma predicted increased odds of using at least one CAM (*Odds Ratio* = 6.328, $p < .01$). Living in the West versus the Northeast region of the USA predicted increased odds of using at least one CAM (*Odds Ratio* = 2.650, $p < .05$). For the mental health factors, having anxiety symptoms (versus not having anxiety symptoms) predicted increased odds of using at least one CAM (*Odds Ratio* = 2.303, $p < .05$). Those women with symptoms of bipolar disorder predicted marginally increased odds of using at least one CAM (*Odds Ratio* = 3.165, $p < .10$). Having symptoms of depression also predicted increased odds of using at least one CAM (*Odds Ratio* = 2.389, $p < .01$).

Table 49

Multiple Logistic Regression Predicting CAM Use from Biological Factors, Sociocultural Factors, and Type for Mental Health Problem

Category	Full Sample Odds Ratio	Random Sample 1 Odds Ratio	Random Sample 2 Odds Ratio
Age	1.011 ***	1.051 ***	.991
BMI	1.012 *	.981	1.009
Never Married ^a	1.101	.870	.403 **
Former Married ^a	.901	.928	2.327 *
Caucasian ^b	2.307 ***	1.829 *	.973
High School Diploma/GED ^c	1.855 ***	1.712	3.923 **
Some College/Associates/ Technical Degree ^c	3.175 ***	4.592 **	7.739 ***
Bachelors/Graduate Degree ^c	5.036 ***	6.328 **	19.094 ***
Income	1.025	.950	1.044
Midwest Region of USA ^d	1.012	.594	.914
South Region of USA ^d	.864	1.024	1.110
West Region of USA ^d	1.623 ***	2.650 *	1.312
1-12 Months No Health Coverage ^c	1.352 *	2.191	1.703
Anxiety Symptoms ^f	1.952 ***	1.957 +	2.303 *
Bipolar Disorder ^g	2.027 +	3.165 +	1.870
Depression Symptoms ^h	1.642 ***	1.556	2.389 **

Note. + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 633.22$, $p < .001$, Nagelkerke $R^2 = .170$, Random Sample 1: Model $\chi^2(16) = 79.99$, $p < .001$, Nagelkerke $R^2 = .283$, Random Sample 2: Model $\chi^2(16) = 71.41$, $p < .001$, Nagelkerke $R^2 = .281$.

Ho4. Biological Factors (Age And BMI), Sociocultural Factors (Marital Status, Educational Level, Income, Race/Ethnicity, Region of the United States, and Health Insurance), and Type of Mental Health Symptomology (Anxiety, Bipolar Disorder, Depression) will Not Significantly Predict Type of CAM Therapy

Alternative Medical Systems

Multiple logistic regressions using three blocks were used to assess factors predictive of using at least one Alternative Medical System CAM. Block one consisted of biological variables (age, BMI), block two consisted of sociocultural variables (marital status, education, income, region, health insurance), and block three consisted of mental health variables (anxiety symptoms, bipolar disorder, depression symptoms). A summary of the Odds Ratios for block three for each of the three samples is shown in Table 50. Higher levels of education were associated with increased odds of using at least one Alternative Medical System CAM. Having a high school diploma versus less than a high school diploma marginally predicted increased odds of using at least one Alternative Medical System CAM (*Odds Ratio* = 6.268, $p < .10$). In addition, having some college/Associate's/Technical degree marginally predicted increased odds of using at least one Alternative Medical System CAM (*Odds Ratio* = 6.673, $p < .10$), and having a Bachelor's/Graduate degree predicted increased odds of using at least one Alternative Medical System CAM (*Odds Ratio* = 16.435, $p < .01$). For the mental health factors, having symptoms of depression marginally predicted increased odds of using at least one Alternative Medical System CAM (*Odds Ratio* = 1.800, $p < .10$).

Table 50

Multiple Logistic Regression Predicting Alternative Medical Systems Use from Biological Factors, Sociocultural Factors, and Type for Mental Health Problem

Category	Full Sample Odds Ratio	Random Sample 1 Odds Ratio	Random Sample 2 Odds Ratio
Age	1.019 ***	1.012	1.013
BMI	.993	.978	.999
Never Married ^a	1.230+	1.257	1.083
Former Married ^a	.946	1.081	1.593
Caucasian ^b	1.248+	1.140	.835
High School Diploma/GED ^c	1.128	2.623	6.268+
Some College/Associates/ Technical Degree ^c	1.585 *	6.673+	4.117
Bachelors/Graduate Degree ^c	2.802 ***	7.413+	16.435 **
Income	1.029	1.062	1.039
Midwest Region of USA ^d	.809	.428	1.152
South Region of USA ^d	.851	.592	.807
West Region of USA ^d	2.154 ***	1.879	1.646
1-12 Months No Health Coverage ^c	1.467 *	1.713	.963
Anxiety Symptoms ^f	2.132 ***	1.302	1.412
Bipolar Disorder ^g	.905	.751	1.208
Depression Symptoms ^h	1.330+	1.800+	1.306

Note. + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 288.84$, $p < .001$, Nagelkerke $R^2 = .104$, Random Sample 1: Model $\chi^2(16) = 35.127$, $p < .01$, Nagelkerke $R^2 = .152$, Random Sample 2: Model $\chi^2(16) = 35.88$, $p < .01$, Nagelkerke $R^2 = .171$.

Biologically Based Therapies

Multiple logistic regressions using three blocks were used to assess factors predictive of using at least one Biologically Based Therapies CAM. Block one consisted of biological variables (age, BMI), block two consisted of sociocultural variables (marital status, education, income, region, health insurance), and block three consisted of mental health variables (anxiety symptoms, bipolar disorder, depression symptoms). A summary of the Odds Ratios for block three for each of the three samples is shown in Table 51. Being Caucasian versus not Caucasian predicted increased odds of using at least one Biologically Based Therapies CAM (*Odds Ratio* = 2.631, $p < .01$). Higher levels of education were also associated with increased odds of using at least one Biologically Based Therapies CAM. In contrast to having less than a high school diploma, having a high school diploma marginally predicted increased odds of using at least one Biologically Based Therapies CAM (*Odds Ratio* = 3.038, $p < .10$), having some college/Associate's/Technical degree (*Odds Ratio* = 8.041, $p < .001$), and having a Bachelor's/Graduate degree predicted increased odds of using at least one Biologically Based Therapies CAM (*Odds Ratio* = 3.387, $p < .05$). Living in the West versus the Northeast region of the USA marginally predicted increased odds of using at least one Biologically Based Therapies CAM (*Odds Ratio* = 2.287, $p < .10$). In addition, having some months of no health insurance coverage versus no months without coverage predicted increased odds of using at least one Biologically Based Therapies CAM (*Odds Ratio* = 4.281, $p < .01$). For the mental health factors, having anxiety symptoms (versus

not having anxiety symptoms) predicted increased odds of using at least one Biologically Based Therapies CAM (*Odds Ratio* = 2.609, $p < .01$).

Manipulative and Body Based Therapies

Multiple logistic regressions using three blocks were used to assess factors predictive of using at least one Manipulative and Body Based Therapies CAM. Block one consisted of the biological variables (age, BMI), block two consisted of the sociocultural variables (marital status, education, income, region, health insurance), and block three consisted of the mental health variables (anxiety symptoms, bipolar disorder, depression symptoms). A summary of the Odds Ratios for block three for each of the three samples is shown in Table 52. Being Caucasian versus not Caucasian predicted increased odds of using at least one Manipulative and Body Based Therapies CAM (*Odds Ratio* = 2.220, $p < .01$). Higher levels of education were also associated with increased odds of using at least one Manipulative and Body Based Therapies CAM. In contrast to having less than a high school diploma, having some college/Associate's/Technical degree (*Odds Ratio* = 4.497, $p < .05$), and having a Bachelor's/Graduate degree (*Odds Ratio* = 4.427, $p < .01$) predicted increased odds of using at least one Manipulative and Body Based Therapies CAM. Living in the West versus the Northeast region of the USA marginally predicted increased odds of using at least one Manipulative and Body Based Therapies CAM (*Odds Ratio* = 2.873, $p < .01$). For the mental health factors, having anxiety symptoms (versus not having anxiety symptoms) predicted increased odds of using at least one Manipulative and Body Based Therapies CAM (*Odds Ratio* = 2.049, $p < .05$).

Table 51

Multiple Logistic Regression Predicting Biological Based Therapies Use from Biological Factors, Sociocultural Factors, and Type for Mental Health Problem

Category	Full Sample Odds Ratio	Random Sample 1 Odds Ratio	Random Sample 2 Odds Ratio
Age	1.017 ***	1.026 *	1.004
BMI	1.022 ***	1.025	.999
Never Married ^a	1.042	.907	.644
Former Married ^a	.927	.957	1.589
Caucasian ^b	2.085 ***	2.631 **	1.153
High School Diploma/GED ^c	1.672 **	1.156	3.038 +
Some College/Associates/ Technical Degree ^c	2.610 ***	2.440 +	8.041 ***
Bachelors/Graduate Degree ^c	3.779 ***	3.387 *	14.417 ***
Income	1.038 *	.966	1.020
Midwest Region of USA ^d	1.102	.454 +	1.236
South Region of USA ^d	1.085	.729	2.035 +
West Region of USA ^d	1.774 ***	1.304	2.287 +
1-12 Months No Health Coverage ^c	1.541 **	4.281 **	1.713
Anxiety Symptoms ^f	1.836 ***	2.609 **	1.578
Bipolar Disorder ^g	2.133 **	1.762	2.010
Depression Symptoms ^h	1.203	.732	1.719 *

Note. + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 525.42, p < .001$, Nagelkerke $R^2 = .141$, Random Sample 1: Model $\chi^2(16) = 73.55, p < .001$, Nagelkerke $R^2 = .247$, Random Sample 2: Model $\chi^2(16) = 70.74, p < .001$, Nagelkerke $R^2 = .257$.

Table 52

Multiple Logistic Regression Predicting Manipulative and Body-Based Therapies Use from Biological Factors, Sociocultural Factors, and Type for Mental Health Problem

Category	Full Sample Odds Ratio	Random Sample 1 Odds Ratio	Random Sample 2 Odds Ratio
Age	1.012 ***	1.012	1.025 *
BMI	.999	.995	1.007
Never Married ^a	1.089	1.032	.882
Former Married ^a	.906	.944	1.204
Caucasian ^b	2.628 ***	2.220 **	1.624 +
High School Diploma/GED ^c	1.777 ***	2.256	1.882
Some College/Associates/ Technical Degree ^c	2.570 ***	2.629 +	4.497 *
Bachelors/Graduate Degree ^c	3.729 ***	4.427 **	8.845 **
Income	1.060 ***	1.030	1.082
Midwest Region of USA ^d	1.109	1.029	1.421
South Region of USA ^d	.796 *	.902	1.029
West Region of USA ^d	1.684 ***	2.873 **	1.695
1-12 Months No Health Coverage ^e	1.154	1.172	1.250
Anxiety Symptoms ^f	1.855 ***	1.266	2.049 *
Bipolar Disorder ^g	1.336	1.342	1.701
Depression Symptoms ^h	1.141	1.443	1.252

Note. + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 644.19, p < .001$, Nagelkerke $R^2 = .169$, Random Sample 1: Model $\chi^2(16) = 76.17, p < .001$, Nagelkerke $R^2 = .191$, Random Sample 2: Model $\chi^2(16) = 49.98, p < .001$, Nagelkerke $R^2 = .187$.

Mind-Body Therapies

Multiple logistic regressions using three blocks were used to assess factors predictive of using at least one Mind-Body Therapies CAM. Block one consisted of the biological variables (age, BMI), block two consisted of the sociocultural variables (marital status, education, income, region, health insurance), and block three consisted of the mental health variables (anxiety symptoms, bipolar disorder, depression symptoms). A summary of the Odds Ratios for block three for each of the three samples is shown in Table 53. Being Caucasian versus not Caucasian marginally predicted increased odds of using at least one Mind-Body Therapies CAM (*Odds Ratio* = 1.658, $p < .10$). Higher levels of education were also associated with increased odds of using at least one Mind-Body Therapies CAM. Having some college/Associate's/ technical degree versus less than a high school diploma predicted increased odds of using at least one Mind-Body Therapies CAM (*Odds Ratio* = 5.000, $p < .01$). In addition having a Bachelor's/Graduate degree versus less than a high school diploma predicted increased odds of using at least one Mind-Body Therapies CAM (*Odds Ratio* = 7.958, $p < .01$). Living in the South versus the Northeast region of the USA predicted marginally increased odds of using at least one Mind-Body Therapies CAM (*Odds Ratio* = 2.003, $p < .10$). Living in the West versus the Northeast region of the USA predicted increased odds of using at least one Mind-Body Therapies CAM (*Odds Ratio* = 3.640, $p < .01$). For the mental health factors, having anxiety symptoms (versus not having anxiety symptoms) predicted increased odds of using at least one Mind-Body Therapies CAM (*Odds Ratio* = 2.182, $p < .01$). Those

women with symptoms of bipolar disorder predicted marginally increased odds of using at least one Mind-Body Therapies CAM (*Odds Ratio* = 4.424, $p < .01$).

Energy Healing Therapy

Multiple logistic regressions using three blocks were used to assess factors predictive of using the Energy Healing Therapy CAM. Block one consisted of the biological variables (age, BMI), block two consisted of the sociocultural variables (marital status, education, income, region, health insurance), and block three consisted of the mental health variables (anxiety symptoms, bipolar disorder, depression symptoms). A summary of the Odds Ratios for block three for each of the three samples is shown in Table 54. Having higher income predicted increased odds of using Energy Healing Therapy (*Odds Ratio* = 1.420, $p < .05$). Living in the West versus the Northeast region of the USA predicted marginally increased odds of using the Energy Healing Therapy CAM (*Odds Ratio* = 7.337, $p < .10$).

Table 53

Multiple Logistic Regression Predicting Mind-Body Therapies Use from Biological Factors, Sociocultural Factors, and Type for Mental Health Problem

Category	Full Sample	Random Sample 1	Random Sample 2
	Odds Ratio	Odds Ratio	Odds Ratio
Age	1.002	1.013	1.009
BMI	.998	.990	1.030+
Never Married ^a	1.270**	1.184	1.645
Former Married ^a	.979	1.180	1.120
Caucasian ^b	1.684***	1.658+	1.383
High School Diploma/GED ^c	1.830**	2.811	1.050
Some College/Associates/ Technical Degree ^c	3.532***	5.000**	2.366
Bachelors/Graduate Degree ^c	6.532***	7.958**	5.671**
Income	1.020	1.038	1.014
Midwest Region of USA ^d	.948	1.787	.898
South Region of USA ^d	.666***	2.003+	.812
West Region of USA ^d	1.214+	3.640**	.775
1-12 Months No Health Coverage ^e	1.250+	.609	.806
Anxiety Symptoms ^f	2.299***	2.182**	2.094**
Bipolar Disorder ^g	2.234**	4.424**	1.812
Depression Symptoms ^h	1.264+	1.080	1.378

Note. + $p < .10$; ** $p < .01$; *** $p < .001$; ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 601.87$, $p < .001$, Nagelkerke $R^2 = .161$, Random Sample 1: Model $\chi^2(16) = 53.87$, $p < .001$, Nagelkerke $R^2 = .189$, Random Sample 2: Model $\chi^2(16) = 67.55$, $p < .001$, Nagelkerke $R^2 = .247$.

Table 54

Multiple Logistic Regression Predicting Energy Healing Therapies Use from Biological Factors, Sociocultural Factors, and Type for Mental Health Problem

	Full Sample	Random Sample 1	Random Sample 2
Category	Odds Ratio	Odds Ratio	Odds Ratio
Age	1.013	1.009	.967
BMI	.971	.936	.880+
Never Married ^a	1.670 *	2.364	1.167
Former Married ^a	1.242	3.097	.736
Caucasian ^b	2.730 ***	.954	1.919
Some College/Associates/ Technical Degree ^c	1.584	.247	1.257
Bachelors/Graduate Degree ^c	4.257 ***	2.265	7.706
Income	1.118 *	1.420 *	1.130
South Region of USA ^d	.573 *	1.437	.253
West Region of USA ^d	2.091 **	7.337+	1.101
1-12 Months No Health Coverage ^c	1.790+	3.061	.778
Anxiety Symptoms ^f	2.884 ***	2.764	1.499
Bipolar Disorder ^g	.995	.395	1.509
Depression Symptoms ^h	1.044	.902	2.938

Note. + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to High School Diploma or less; ^dCompared to Midwest Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 140.27$, $p < .01$, Nagelkerke $R^2 = .153$, Random Sample 1: Model $\chi^2(16) = 26.54$, $p < .05$, Nagelkerke $R^2 = .294$, Random Sample 2: Model $\chi^2(16) = 27.48$, $p < .05$, Nagelkerke $R^2 = .314$.

CHAPTER V

DISCUSSION OF FINDINGS AND SUMMARY

The overall purpose of this secondary data analysis was to explore the relationship between CAM use and mental health symptomology of anxiety, bipolar disorder, and depression in women. Demographic characteristics of the sample were also considered in relationship to CAM use and mental health symptomology. This study utilized retrospective, cross-sectional data from the 2007 NHIS and the Adult Complementary and Alternative Medicine Supplement of the NHIS to increase knowledge regarding the use of CAM by women with self-reported mental health conditions. This is an important topic with potential implications for clinical medicine and health education in addressing the significant morbidity and disability among women within the U.S. due to mental illness (WHO, 2009), particularly in light of the high prevalence of CAM use in the U.S. (Barnes, Bloom, & Nahin, 2007; NCCAM, 2009a).

The results of this study provide valuable insight into trends in the use of CAM, including the types of CAM being utilized, as well as the demographic characteristics of women using CAM for mental health conditions. Consistent determinants of CAM use within this sample were education level, geographic region of residence in the U.S., and ethnicity. CAM use was higher among women who had bachelor or graduate degrees (n=337; 88.9%) than with women who had less than a high school diploma (n=245; 43.8%). Use was more common among women living in the West (n=420; 78.4%) than

elsewhere in the U.S. And use was more common among Caucasian women (n=1129; 74.7%) than non-Caucasian women (n=511, 57.2%). The most frequently used types of CAM for women with any of the target disorders included the following: herbal supplements (n=831; 33.7%), chiropractic or osteopathic manipulation therapy (n=792; 32.1%), deep-breathing exercises (n=709; 28.7%), and massage (n=580; 23.5%).

This study had a multipurpose objective to:

1. Delineate the biological factors (age and BMI) and sociocultural factors (marital status, education level, income, race/ethnicity, region of the United States, and health insurance) of women with self-reported mental health conditions (anxiety, bipolar disorder, and/or depression);
2. Determine the overall prevalence of complementary and alternative medicine (CAM) use among women with self-reported mental health conditions (anxiety, bipolar disorder, and/or depression) as well as the prevalence of CAM use by category;
3. Determine any differences in CAM use and category of CAM therapy based on mental health symptomatology; and,
4. Determine if certain descriptive covariates predict CAM use among women.

Due to the large sample size, all results were calculated for the full sample of women who completed both the 2007 NHIS and the Adult Complementary and Alternative Medicine Supplement as well as two random cross-validation samples. Significant findings presented in Chapter IV are based on analyses that were significant in both the full sample and at least one of the cross-validation samples. For simplicity, all statistics that are

referred to in the Chapter V discussion are taken from the analysis of the full sample.

Findings from the three samples in this study are presented in the following hypotheses summary tables.

Data collection was driven by the following four hypotheses:

1. Among women with self-reported symptomology of anxiety, bipolar disorder, and/or depression, there will be no significant difference in the descriptive covariates of women who use CAM therapies and women who do not use CAM therapies.

Table 55
Summary of Findings for Hypothesis 1

	Reject Null		
	Full Sample	RS1	RS2
At Least One Target Disorder			
Ethnicity	X	X	X
Health Insurance	X	X	
Marital Status			
Education	X	X	X
Region of USA	X	X	X
Age		X	
BMI		X	
Income			
Anxiety			
Ethnicity	X	X	X
Health Insurance	X	X	
Marital Status			
Education	X	X	X
Region of USA	X	X	X
Age			
BMI		X	
Income			

(continued)

Table 55, continued

Summary of Findings for Hypothesis 1

	Reject Null		
	Full Sample	RS1	RS2
Bipolar Disorder			
Ethnicity			X
Health Insurance	X	X	
Marital Status			
Education	X	X	X
Region of USA			X
Age			
BMI			
Income			
Depression			
Ethnicity	X	X	X
Health Insurance			
Marital Status			
Education	X	X	X
Region of USA	X		
Age			
BMI			
Income			

2. There will be no significant difference between the three symptomology groupings (anxiety, bipolar disorder, depression) and individual CAM therapy use score.

Table 56

Summary of Findings for Hypothesis 2

	Reject Null		
	Full Sample	RS1	RS2
Number of CAMs			
At Least One Target Disorder	X	X	X
Anxiety Symptoms	X	X	X
Bipolar Disorder	X	X	X
Depression Symptoms	X	X	X
At Least One Target Disorder			
At Least One CAM	X	X	X
Alternative Medical Systems	X	X	X
Biologically Based Therapies	X	X	X
Manipulative and Body Based Therapies	X	X	X
Mind-Body Therapies	X	X	X
Energy Healing Therapy	X	X	
Anxiety			
At Least One CAM	X	X	X
Alternative Medical Systems	X	X	
Biologically Based Therapies	X	X	X
Manipulative and Body Based Therapies	X	X	X
Mind-Body Therapies	X	X	X
Energy Healing Therapy	X	X	

(continued)

Table 56, continued

Summary of Findings for Hypothesis 2

	Reject Null		
	Full Sample	RS1	RS2
Bipolar Disorder			
At Least One CAM	X	X	X
Alternative Medical Systems	X		
Biologically Based Therapies	X	X	X
Manipulative and Body Based Therapies	X	X	X
Mind-Body Therapies	X	X	X
Energy Healing Therapy	X	X	
Depression			
At Least One CAM	X	X	X
Alternative Medical Systems	X	X	X
Biologically Based Therapies	X		
Manipulative and Body Based Therapies	X	X	X
Mind-Body Therapies	X		X
Energy Healing Therapy	X		

3. Biological factors (age and BMI), sociocultural factors (marital status, education level, income, race/ethnicity, region of the United States, and health insurance), and type of mental health symptomology (anxiety, bipolar disorder, depression) will not significantly predict CAM use.

Table 57

Summary of Findings for Hypothesis 3

	Reject Null		
	Full Sample	RS1	RS2
Age	X		
BMI			
Never Married ^a	X		
Former Married ^a			
Caucasian ^b	X	X	X
High School Diploma/GED ^c	X		
Some College/Associates/ Technical Degree ^c	X	X	X
Bachelors/Graduate Degree ^c	X	X	X
Income	X		
Midwest Region of USA ^d			
South Region of USA ^d	X		
West Region of USA ^d	X	X	
1-12 Months No Health Coverage ^c	X		
Anxiety Symptoms ^f	X	X	X
Bipolar Disorder ^g	X	X	
Depression Symptoms ^h	X		

Note. ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms

4. Biological factors (age and BMI), sociocultural factors (marital status, education level, income, race/ethnicity, region of the United States, and health insurance),

and type of mental health symptomology (anxiety, bipolar disorder, depression) will not significantly predict type of CAM therapy use.

Table 58

Summary of Findings for Hypothesis 4. CAM Use

	Reject Null		
	Full Sample	RS1	RS2
Age	X	X	
BMI	X		
Never Married ^a			X
Former Married ^a			X
Caucasian ^b	X	X	
High School Diploma/GED ^c	X		X
Some College/Associates/ Technical Degree ^c	X	X	X
Bachelors/Graduate Degree ^c	X	X	X
Income			
Midwest Region of USA ^d			
South Region of USA ^d			
West Region of USA ^d	X	X	
1-12 Months No Health Coverage ^e	X		
Anxiety Symptoms ^f	X	X	X
Bipolar Disorder ^g	X	X	
Depression Symptoms ^h	X		X

(continued)

Note. ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 633.22, p < .001$, Nagelkerke $R^2 = .170$, Random Sample 1: Model $\chi^2(16) = 79.99, p < .001$, Nagelkerke $R^2 = .283$, Random Sample 2: Model $\chi^2(16) = 71.41, p < .001$, Nagelkerke $R^2 = .281$.

Table 58, continued

Summary of Findings for Hypothesis 4. Alternative Medical Systems

	Reject Null		
	Full Sample	RS1	RS2
Age	X		
BMI			
Never Married ^a	X		
Former Married ^a			
Caucasian ^b	X		
High School Diploma/GED ^c			X
Some College/Associates/ Technical Degree ^c	X	X	
Bachelors/Graduate Degree ^c	X	X	X
Income			
Midwest Region of USA ^d			
South Region of USA ^d			
West Region of USA ^d	X		
1-12 Months No Health Coverage ^e	X		
Anxiety Symptoms ^f	X		
Bipolar Disorder ^g			
Depression Symptoms ^h	X	X	

(continued)

Note. ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 288.84, p < .001$, Nagelkerke $R^2 = .104$, Random Sample 1: Model $\chi^2(16) = 35.127, p < .01$, Nagelkerke $R^2 = .152$, Random Sample 2: Model $\chi^2(16) = 35.88, p < .01$, Nagelkerke $R^2 = .171$.

Table 58, continued

Summary of Findings for Hypothesis 4. Biological Based Therapies

	Reject Null		
	Full Sample	RS1	RS2
Age	X	X	
BMI	X		
Never Married ^a			
Former Married ^a			
Caucasian ^b	X	X	
High School Diploma/GED ^c	X		X
Some College/Associates/ Technical Degree ^c	X	X	X
Bachelors/Graduate Degree ^c	X	X	X
Income	X		
Midwest Region of USA ^d		X	
South Region of USA ^d			X
West Region of USA ^d	X		X
1-12 Months No Health Coverage ^e	X	X	
Anxiety Symptoms ^f	X	X	
Bipolar Disorder ^g	X		
Depression Symptoms ^h			X

(continued)

Note. ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 525.42, p < .001$, Nagelkerke $R^2 = .141$, Random Sample 1: Model $\chi^2(16) = 73.55, p < .001$, Nagelkerke $R^2 = .247$, Random Sample 2: Model $\chi^2(16) = 70.74, p < .001$, Nagelkerke $R^2 = .257$.

Table 58, continued

Summary of Findings for Hypothesis 4. Manipulative and Body-Based Therapies

	Reject Null		
	Full Sample	RS1	RS2
Age	X		X
BMI			
Never Married ^a			
Former Married ^a			
Caucasian ^b	X	X	X
High School Diploma/GED ^c	X		
Some College/Associates/ Technical Degree ^c	X	X	X
Bachelors/Graduate Degree ^c	X	X	X
Income	X		
Midwest Region of USA ^d			
South Region of USA ^d	X		
West Region of USA ^d	X	X	
1-12 Months No Health Coverage ^e			
Anxiety Symptoms ^f	X		X
Bipolar Disorder ^g			
Depression Symptoms ^h			

(continued)

Note. ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 644.19, p < .001$, Nagelkerke $R^2 = .169$, Random Sample 1: Model $\chi^2(16) = 76.17, p < .001$, Nagelkerke $R^2 = .191$, Random Sample 2: Model $\chi^2(16) = 49.98, p < .001$, Nagelkerke $R^2 = .187$.

Table 58, continued

Summary of Findings for Hypothesis 4. Mind-Body Therapies

	Reject Null		
	Full Sample	RS1	RS2
Age			
BMI			X
Never Married ^a	X		
Former Married ^a			
Caucasian ^b	X	X	
High School Diploma/GED ^c	X		
Some College/Associates/ Technical Degree ^c	X	X	
Bachelors/Graduate Degree ^c	X	X	X
Income			
Midwest Region of USA ^d			
South Region of USA ^d	X	X	
West Region of USA ^d	X	X	
1-12 Months No Health Coverage ^e	X		
Anxiety Symptoms ^f	X	X	X
Bipolar Disorder ^g	X	X	
Depression Symptoms ^h	X		

(continued)

Note. ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to Less than High School; ^dCompared to Northeast Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms. Full Sample: Model $\chi^2(16) = 601.87, p < .001$, Nagelkerke $R^2 = .161$, Random Sample 1: Model $\chi^2(16) = 53.87, p < .001$, Nagelkerke $R^2 = .189$, Random Sample 2: Model $\chi^2(16) = 67.55, p < .001$, Nagelkerke $R^2 = .247$.

Table 58, continued

Summary of Findings for Hypothesis 4. Energy Healing Therapies

	Reject Null		
	Full Sample	RS1	RS2
Age			
BMI			X
Never Married ^a	X		
Former Married ^a			
Caucasian ^b	X		
Some College/Associates/ Technical Degree ^c			
Bachelors/Graduate Degree ^c	X		
Income	X	X	
South Region of USA ^d	X		
West Region of USA ^d	X	X	
1-12 Months No Health Coverage ^e	X		
Anxiety Symptoms ^f	X		
Bipolar Disorder ^g			
Depression Symptoms ^h			

Note. ^aCompared to Married/Cohabiting; ^bCompared to Not Caucasian; ^cCompared to High School Diploma or less; ^dCompared to Midwest Region; ^eCompared to 0 Months No Coverage; ^fCompared to No Anxiety Symptoms; ^gCompared to No Bipolar Disorder; ^hCompared to No Depression Symptoms.

Demographics

A total of 13,018 women representing a national sample of the U.S. population responded to the Adult Complementary and Alternative Medicine Supplement of the

NHIS. Demographic characteristics of the respondents indicated a mean age of 48. A majority of the women were married (n=5556). Data from this survey are representative of a predominantly Caucasian population (n=7,643; 58.7%), and are not proportionately representative of Hispanic (n=2,340; 18.0%), African-American (n=2,292; 17.6%), Asian-American (n=637; 4.9%), or other minority groups (n=106; 0.8%). Less than 1% of the respondents had no health insurance coverage during the past year which is not representative of the U.S. population. In 2008, for example, the Centers for Disease Control and Prevention (CDC) reported that 20% of the U.S. population age 18 to 64 was uninsured (CDC, 2009b). The average respondent was overweight with a Body Mass Index (BMI) of 27. According to CDC and World Health Organization (WHO) guidelines, an adult is considered overweight if the BMI is between 25 and 29.9 (CDC, 2009a; World Health Organization [WHO], 2010). The prevalence of overweight women in the U.S. is 61.1%, with 33.2 % considered obese (National Institute of Diabetes and Digestive and Kidney Diseases [NIDDK], 2007). Lastly, the majority of the survey respondents resided in the South region of the United States.

Findings of the Relationships Among Demographics

The findings in this cohort reflect the general U.S. population with a mean age for females who were never married of 32, followed by 42 years for married women, and 49 years for formerly married women. It is not a surprise that age and marital status were highly correlated (married versus never married versus formerly married was significant).

The demographics also indicated that a greater portion of married and formerly married respondents were Caucasian compared to those who were never married.

The relationship between ethnicity and region (Northeast, Midwest, South, and West) was as anticipated. A greater proportion of Caucasian participants lived in the Midwest compared to non-Caucasian participants. Of the non-Caucasian participants, the greatest proportion lived in the South (43.0%) and the West (27.6%). This stratification of the ethnicity is consistent with the U.S. Census Bureau data on race and ethnicity (U.S. Census Bureau, 2009).

As projected, education was highly correlated with income. Those without a high school diploma made significantly less income than all other educational groups. For each additional level of education, the income level increased proportionately.

The NIMH (2009d) estimate that 26.2% of the U.S. population 18 years of age and older suffer from a mental health disorder in a given year. In this study, 20% of the women surveyed indicated having one or more of the target mental health disorders. Depression was the most common of these disorders (14%), followed by anxiety (13%) and bipolar disorder (2%). The proportion of women having anxiety and/or depression is consistent with the higher rates of these mental disorders for women in the U.S. (USDHHS, 2008). According to Kessler et al. (2005), depressive disorder and anxiety disorder are the most prevalent mental disorders. Bipolar disorder has the lowest prevalence of the three mental disorders being studied. Comorbidity was evident in the study sample due to the significant relationship between the number of women who had

both anxiety symptoms and depression symptoms (n= 1,083; 63.8%). These findings are consistent with mental disorder comorbidity, in which depression often co-occurs with anxiety, according to NIMH (2009d). However, the sample of women who had only depression symptoms was a greater percentage (n=711; 92.3%).

Relationships between Demographics and Independent Variable

The analysis indicates that mental health disorders are associated with several variables including marital status and education level. Formerly married women indicated a higher rate of depression (19%) and anxiety (17%) disorders than their counterparts. In addition, the higher the education level, the lower the percentage of those having at least one disorder. The level of education and the specific self-reported symptoms of depression were significant ($p < .001$).

Relationship among Dependent Variables (CAM)

The five types of CAM studied were Alternative Medical Systems, Biologically Based Therapies, Manipulative and Body Based Therapies, Mind-Body Therapies, and Energy Healing Therapy. Of these, Biologically Based Therapies (n=3,894; 29.9%), Manipulative and Body Based Therapies (n=4,167; 32.0%), and Mind-Body Therapies (n=3,728; 28.6%) were used most frequently. Biologically Based Therapies, specifically herbal supplements (n=3,257; 25.0%), were the most commonly used CAM. This finding is consistent with findings in the literature (Lamarine et al., 2003; Russinova et al., 2002; Upchurch & Chyu, 2004) in which herbal supplements are often reported as the

most frequently used CAM. This is a health concern due to the risk of adverse interactions between herbal supplements and conventional medicines.

Among the five CAM types, Alternative Medical Systems and Energy Healing Therapy were used less frequently which is consistent with the 1999 NHIS (Upchurch & Chyu, 2004). Although Energy Healing Therapy was seldom used as monotherapy (~1.2%), it was often used in combination with one of the four other types of CAM (6.1% in combination with Biologically Based Therapies, Manipulative and Body Based Therapies, and Mind-Body Therapies; and 13.1% in combination with Alternative Medical Systems).

Hypothesis 1

Among women with self-reported symptomology of anxiety, bipolar disorder, and/or depression, there will be no significant difference in the descriptive covariates of women who use CAM therapies and women who do not use CAM therapies.

Due to the nature of mental illness comorbidity, 45% of the population suffers from more than one mental disorder simultaneously (NIMH, 2009d). Analyses were conducted comparing women with and without self-reported symptoms of anxiety, bipolar disorder, and depression. The data were analyzed this way because women often reported more than one disorder. The analyses also compared those with at least one self-reported disorder and those without a self-reported disorder. Evaluating those with and without one or more disorders allows for a unique comparison between CAM use by those with a disorder and CAM use by those without a disorder. The results partially

confirmed hypothesis 1. However, it was found that residing in the Western part of the US and higher education levels were significant covariates for women who used CAM.

The only significant difference regarding age was for women with bipolar disorder. Women with bipolar disorder were younger ($M=37$) than those without bipolar disorder ($M=41$). In the current study, the mean age for depression ($M=41$), anxiety ($M=41$) and bipolar ($M=37$) symptoms was older than the median age for the broader U.S. population with these symptoms. According to the National Institute of Mental Health (2009d), the median age of onset for depression is 32 years, the median age of onset for bipolar disorder is 25 years, and the median age of onset for anxiety is 22 years.

BMI was a significant variable for women with at least one mental disorder. It was significant for women with depression, but not significant for women with either anxiety or bipolar disorder. Women who had symptoms of depression had significantly higher BMI ($M=29.2$) than those without symptoms of depression ($M=26.9$). The mean BMI for women with depression in this study is characterized as overweight and borderline obese, with BMI 25 to 29.9 overweight and BMI ≤ 30 obese, as defined by the CDC (2009a) and WHO (2010). Body dissatisfaction is often cited as an integral component of depression in women. Body image dissatisfaction is not dependent on a high BMI, as women with low BMIs may also have high dissatisfaction and distortion of body image. Binge eating is a coping behavior for many women diagnosed with depression. The increased weight then compounds the body image dissatisfaction, leading to a continuous cycle of depressive symptoms and binge eating.

There was no significant difference among women with health insurance coverage who used CAM and women with health insurance coverage who did not use CAM. One could speculate that women with health insurance coverage do not use CAM because many CAM therapies are not covered by health insurance or, to the contrary, women without health insurance use CAM therapies because of their inability to afford conventional medical treatment. For this study, however, health insurance status was not associated with CAM use. Chao et al. (2006) and Upchurch and Chyu (2004), did report that the majority of women who use CAM have health insurance.

Women with no mental disorders, and women who used at least one CAM therapy, had a higher income than those who used no CAM. In addition, women with symptoms of depression had significantly lower income than those without such symptoms. Depression is a debilitating illness and can be a barrier to finding and retaining employment. Women with low income are twice as likely to have depression as women with higher income (Mazure et al., 2002).

Caucasian women with at least one mental disorder (74.7%) were significantly more likely to use at least one CAM compared to non-Caucasian women with at least one mental disorder (57.2%). The only exception was women with bipolar disorder, where there was no significant difference in CAM use based on ethnicity.

As might be expected, higher education was a significant variable of CAM use among women with and without one mental disorder. A greater percentage of women with bachelors or graduate degrees used CAM for anxiety, bipolar disorders, and

depression. The higher the education level, the higher the percentage of women who used at least one CAM. This is consistent with past studies in which women with higher levels of education were found to be more likely to use CAM (Barnes et al., 2008; Kronenberg et al., 2006; Upchurch & Chyu, 2004). The correlation of higher education level and CAM use might be explained by a greater likelihood for more educated women to research information on CAM use (Bishop & Lewith, 2008), as well as the ability to educate themselves about their illness and the treatment options (Astin, 1998). A person with a higher level of education may be more likely to question the health care provider on treatment options and less likely to simply accept conventional medicine (Astin, 1998). Consistent with the literature (Barnes et al., 2008), CAM use was higher among women living in the West compared to the Northeast, Midwest, or South.

Hypothesis 2

There will be no significant difference between the three symptomology groupings (anxiety, bipolar disorder, depression) and individual CAM therapy use score.

The results of hypothesis 2 indicate that women with at least one of the targeted mental disorders (68.2%) used more CAM than those who did not have a targeted mental disorder (52.5%). This relationship between having a mental health disorder and the likelihood of using a CAM is established in the literature (Lake & Spiegle, 2007). The results revealed a significant relationship between having symptoms of at least one of the target disorders and the amount of CAM use when compared to those with no mental disorder. From this study, depression (66.6%) was found to be a strong predictor of using

at least one CAM, compared to those without depression (53.7%). Unutzer et al. (2000) found patients with depression and anxiety used CAM more often than the general population. Eisenberg et al. (1998) reported that 41% of patients with depression and 43% of patients with anxiety symptoms used at least one CAM, compared with 28% of the overall U.S. adult population.

The results from the respondents revealed that women with anxiety or bipolar disorder were more likely to use Biologically Based Therapies, Manipulative and Body Based Therapies, and Mind-Body Therapies when compared to those women without these disorders. Those with depression symptoms were significantly more likely to use Alternative Medical Systems and Manipulative and Body Based Therapies than those without depression symptoms. The study results revealed that the relationship between at least one target disorder (anxiety, depression, or bipolar) and Energy Healing Therapy was not significant. Energy Healing Therapy was the least popular CAM therapy for women with mental health disorders.

Hypothesis 3

Biological factors (age and BMI), sociocultural factors (marital status, education level, income, race/ethnicity, region of the United States, and health insurance), and type of mental health symptomology (anxiety, bipolar disorder, depression) will not significantly predict CAM use.

The results of hypothesis 3 indicated that biological factors are not significant, but sociocultural factors and type of mental health symptomology are significant in

predicting whether CAM is used. Specifically, when holding all other variables constant, ethnicity, education level, and region were significant covariates for CAM use by women. All education levels were predictive of CAM use, with the higher education levels corresponding to the higher likelihood of CAM use. Results revealed that Caucasian women were 2.3 times more likely to use any CAM therapy than women of other ethnicities.

As shown in previous studies (Bishop & Lewith, 2008; Chao et al., 2006; Honda & Jacobson, 2005; Reiter et al., 2009), ethnicity and education level were predictive of CAM use, with the highest use among Caucasian women and women with relatively higher education levels. The present study found no predictive association of CAM use and income, which conflicts with previous research (Bishop & Lewith, 2008; Chao et al., 2006; Honda & Jacobson, 2005; Reiter et al., 2009).

Women with anxiety (OR=1.95) and depression (OR=1.64) were also found to be more likely to use CAM. Women with bipolar (OR=2.03) were marginally more likely to use CAM than women without these symptoms. Consistent with the literature, individuals with depression and anxiety are significantly more likely to use CAM (Eisenberg et al., 1998; Unutzer et al., 2000).

Hypothesis 4

Biological factors (age and BMI), sociocultural factors (marital status, education level, income, race/ethnicity, region of the United States, and health insurance), and type

of mental health symptomology (anxiety, bipolar disorder, depression) will not significantly predict type of CAM therapy use.

The CAM therapy types were grouped into five broad categories: Alternative Medical Systems, Biologically Based Therapies, Manipulative and Body Based Therapies, Mind-Body Therapies, and Energy Healing Therapy. The findings suggest that women use a wide variety of CAM therapies. Biologically Based Therapies (29.9%), Mind-Body Therapies (28.6%) and Manipulative and Body Based Therapies (32.0%) were the most frequently used types of CAM by all women. Echoing the findings of Barnes et al. (2008), herbal supplements were the most commonly used Biologically Based Therapy, chiropractic or osteopathic manipulation were the most commonly used Manipulative and Body Based Therapy, and deep-breathing exercises were the most commonly used Mind-Body Therapy. As mentioned previously, Energy Healing Therapy was the least-used CAM therapy by all women (2.1%) as well as by women with a targeted mental disorder (4.0%).

Anxiety symptoms were predictive of Biologically Based Therapy use (OR=1.84), with deep-breathing exercises being the most frequent type at 31.5%. The presence of anxiety symptoms increased the odds of using Manipulative and Body Based Therapies (OR=1.86), with the most frequently used type being chiropractic or osteopathic manipulation therapy (33.1%). Having symptoms of anxiety (OR=2.30) and bipolar disorder (OR=2.23) were predictors of the use of Mind-Body Therapies. In

contrast, depression was not a predictor of the types of CAM use. Lastly, ethnicity (Caucasian) was a significant predictor of the use of all CAM therapies.

Activities Not Reported as CAM that are Commonly used for Mental Health Disorders

Several widespread activities, including prayer, exercise, and multivitamin use, were not included as CAM modalities in the 2007 Adult Complementary and Alternative Medicine Supplement of the NHIS. Of all women who completed the survey, 68.2% took vitamins or minerals; of those with anxiety, bipolar, or depression, 72.0% took vitamins or minerals. Vitamin and mineral use has grown tremendously in the US and is now a multi-billion dollar industry. The popularity of vitamin and mineral supplements could be due to the direct-to-consumer marketing with the expansion of sales in grocery stores, pharmacies, and more recently via the Internet. Federal regulation is limited and, as such, vitamins and minerals are often advertised using ambiguous claims grounded more on testimonials than evidence-based studies. Consumers with mental disorders or terminal diseases may be most vulnerable to the advertising techniques of these companies. The role of the government in regulation of supplements, as well as the influence of advertising on people's use of CAM should be further investigated.

Prayer was frequently used among women with the three target disorders, including asking others to pray for their health (55.5%) and praying for their own health (73.0%). The data suggest that women rely heavily on prayer for healing and that such spiritual practices are often used. A 1998 national survey of 2,055 respondents found that 741 adults (35%) used prayer for health concerns (McCaffrey, Eisenberg, Legedza,

Davis, & Phillips, 2004). According to findings by Kessler et al. (2001), the adult population in the US uses spiritual healing for symptoms of anxiety (9.9%) and depression (10.5%).

Exercise (aerobic, strength, or stretch/flexibility) has long been recognized as an important adjunctive therapy for the treatment of mental illness. Exercise reduces depressive symptoms in people with a diagnosis of depression by decreasing cortisol levels and raising endorphins and serotonin levels which in turn reduce both anxiety and depression symptoms. In studies that compared exercise with no treatment, exercise was found to reduce symptoms of depression (Thachil, Mohan, & Bhugra, 2007). Exercise is a remedy for mild to moderate depression and plays a complementary role in alleviating severe depression. In some cases, exercise can be as effective as an antidepressant for recovery (Tamayo, 2000).

Physical exercise is an effective preventive measure for depression (Sanchez-Villegas et al., 2009). Surveys have shown lower rates of depression among people who exercise more than five hours a week. A survey of 401 people found a positive correlation between exercise and psychological well-being (Tamayo, 2000). Another survey of employees from companies with a wellness program found that physically fit employees exhibited the lowest incidence of psychological distress in comparison to those considered physically unfit (Tamayo, 2000).

Eating a nutritious, balanced diet, including fruits and leafy green vegetables, can reduce the intensity of some mental disorder symptoms. In addition, studies suggest that

eating fatty fish two to three times a week reduces symptoms of depression and anxiety. In contrast, products containing caffeine, such as coffee, tea, cola and chocolate, contain chemicals that may increase anxiety symptoms. Minimizing the amount of starches and sugars in the diet can prevent variations in blood-sugar levels that affect mood. A study of 11,000 healthy Spanish participants, who followed a Mediterranean diet rich in vegetables, fruits, nuts, whole grains, and fish, found that those who followed the diet had many health benefits, including a 30% reduction in the risk of clinical depression (Sanchez-Villegas et al., 2009).

Limitations

Although this study provides a comprehensive assessment of CAM use by women in the US with anxiety, depression and bipolar symptoms, there are some limitations. Importantly, this analysis was based on cross-sectional data and, as such, did not allow calculation of risk or benefit of CAM use over time. One limitation of using secondary data is that the research questions were not developed by the researcher, nor were the data collected by the researcher. Additional questions about CAM use, including frequency and duration, as well as reasons for CAM use and whether CAM was used concurrently with conventional therapies, would have been useful. As the NHIS is a retrospective survey, the participants could have provided inaccurate information due to recall bias. Also, the women may have been unwilling to disclose mental health conditions and/or their CAM use information.

Another limitation of the findings is that the mental disorders (anxiety, bipolar, and/or depression) were self-reported. There is no data to confirm whether the women had been diagnosed with the mental disorders or if they were solely self-diagnosed and possibly self-medicating. It would have been helpful if the accuracy of the self-reported mental health diagnosis had been confirmed through medical record review. Also, it would have been beneficial to know if the women were utilizing CAM for treatment of their mental disorders or simply to promote their overall health and well-being.

Although limitations exist and more refined research designs might provide better understanding of CAM use by women in the US with mental disorders, the research study proves sufficient to address the hypotheses proposed and contribute to the existing literature. The main purpose was to characterize women with anxiety, depression and bipolar symptoms and to provide some descriptive information about patterns and types of CAM use.

Future Research

A more in-depth analysis of the data from the 2007 Adult Complementary and Alternative Medicine Supplement of the NHIS that also includes children and men with mental health disorders could help explain the use of CAM therapies within households. It would be interesting to determine if CAM use for mental health disorders is the same for men and children as it is for women. Further investigation of the motivations for CAM use is warranted.

There are substantial gaps in our understanding of CAM use among women with symptoms of anxiety, depression, and bipolar; therefore, it would be advantageous to include in the sample the additional variables of immigration, pregnancy, cigarette use, alcohol use, level of physical activity, diet, and sleep patterns. Future analysis including these variables may provide a better understanding of women with the mental disorders, and explain the association and the variation in patterns of CAM use.

Therapies such as multivitamin use and prayer were not considered as CAM therapies for the 2007 NHIS. The role of spirituality and prayer should be investigated further to determine clinical outcomes and quality of life for patients suffering from mental disorders. People may find comfort in prayer, especially those with mental conditions. Data from the 1999 NHIS revealed that spiritual healing and prayer were the most commonly used CAM by women (Upchurch & Chyu, 2004). A 2001 survey completed by 157 males and females with serious mental illness reported that 50% practiced religious/spiritual CAM activities (Ruscinova et al., 2002). If multivitamins and prayer were included as additional types of CAM in the 2007 NHIS, the reported level of CAM use would have been substantially higher. Prayer, including personal prayer and prayer for others, was reported more than any other CAM in the 2007 NHIS. Lastly, the Mediterranean Diet should be included with the Biologically Based Therapies as it is a popular diet that has been shown to lower the risk of developing depression (Sanchez-Villegas et al., 2009).

Summary and Recommendations for Health Education Practice

Health care in the US is changing in response to today's well-informed health care consumer. There is a continuing trend toward increased CAM use in the US, especially among women (Upchurch & Chyu, 2004). Research suggests that people with mental health disorders are heavily represented among those using CAM. The study results provide valuable insight into the trends and demographic characteristics of women using CAM for mental disorders as well as the type of CAM being utilized. Consistent determinants of CAM use within this sample were education level, region in the US, and ethnicity. This study confirms previously identified associations between CAM use by Caucasian women of middle age, with a higher level of education, residing in the Western part of the US. The most frequently used types of CAM for women with any of the target disorders were herbal supplements, chiropractic or osteopathic manipulation therapy, deep breathing exercises, and massage. As CAM becomes more integrated into health care services, knowing more about use, attitudes, and behaviors by women with mental health disorders is essential.

Public interest in CAM therapy is growing rapidly, and CAM therapies are widely used. More clinical research is needed to establish the safety and efficacy of CAM for mental health. The results from well-designed and well-implemented clinical studies will provide evidence-based data to either substantiate or refute current claims regarding CAM therapies.

With the high prevalence of CAM use in the US, there is an increasing need for patients and health providers to openly discuss CAM use to ensure safe and coordinated care. Patients often combine their CAM treatments with traditional medical care; however, they often do not disclose their use of CAM treatments to their health provider or physician. Herbal supplements, in conjunction with other CAM therapies, may be a risk factor due to potentially harmful interactions between conventional treatments and CAM. Therefore, it is critical that patients fully disclose all therapies being utilized so that their health care providers are aware of self-treatment methods. Health care providers should incorporate conversations during their routine assessments with patients to include questions about CAM use. Collecting CAM use information and discussing the medical treatment options with patients can help to ensure that health care decisions are made with the active participation of fully-informed patients.

Health educators can encourage and facilitate communication between patients and their health care providers. The data from this study reinforce the increasing importance of health educators being prepared to discuss with their patients not only the conventional health care options, but CAM therapies as health care options. All regimen choices from the complex range of health care options that treat disease as well as maintain health should be presented to the consumer. It is critical that the health care providers be aware of the benefits and potential adverse complications of CAM therapies.

Clearly there is an urgent need for the development of effective health education to address the growing use of CAM. This can begin with CAM education as part of the

required professional medical curriculum and with continuing education for health educators and health care providers. Health educators can develop educational and curriculum resources as well as sponsor and teach seminars and workshops. Health educators should be at the forefront of helping health care providers and health care consumers by providing reliable information and guidance on CAM therapies.

Health educators should take a proactive role in the development of relevant educational curricula, and public health policies should be tailored to include information regarding the use of CAM. As one of the core health educator's responsibilities, serve as a resource person to target populations with high CAM use through written materials such as brochures, flyers, and other educational materials. CAM users need to be informed of the risk, benefits, and likely outcomes and be provided the tools to access all treatment options.

REFERENCES

- Alladin, A., & Alibhai, A. (2007). Cognitive hypnotherapy for depression: An empirical investigation. *The International Journal of Clinical and Experimental Hypnosis*, 55(2), 147-166. doi:10.1080/00207140601177897
- Andreescu, C., Mulsant, B. H., & Emanuel, J. E. (2008). Complementary and alternative medicine in the treatment of bipolar disorder – A review of evidence. *Journal of Affective Disorders*, 110, 16-26.
- American Association of Retired Persons. (2007). *Complementary and alternative medicine: What people 50 and older are using and discussing with their physicians*. Retrieved from http://www.aarp.org/research/health/prevention/cam_2007.html
- American Hospital Association. (2008, September 15). Latest survey shows more hospitals offering complementary and alternative medicine services. Retrieved from <http://www.aha.org/aha/press-release/2008/080915-pr-cam.html>
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders IV- text revision* (4th ed.). Arlington, VA: American Psychiatric Association.
- American Psychological Association. (2009). Women and depression. Retrieved from <http://www.apa.org/about/gr/issues/women/depression.aspx>

- Astin, J. A. (1998). Why patients use alternative medicine: Results from a national survey. *Journal of American Medical Association*, 279(19), 1548-1553.
doi:10.1001/jama.279.19.1548
- 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. Retrieved from
<http://www.cdc.gov/nchs/data/nhsr/nhsr012.pdf>
- Birdee, G. S., Legedza, A. T., Saper, R. B., Bertisch, S. M., Eisenberg, D. M., & Phillips, R. S. (2008). Characteristics of yoga users: Results of a national survey. *Journal of General Internal Medicine*, 23(10), 1653-1658. doi:10.1007/s11606-008-07355
- Bertisch, S. M., Wee, C. C., Phillips, R. S., & McCarthy, E. P. (2009). Alternative mind-body therapies used by adults with medical conditions. *Journal of Psychosomatic Research*, 66, 511-519. doi:10.1016/j.jpsychores.2008.003
- Bishop, F. L., & Lewith, G. T. (2008). Who uses CAM? A narrative review of demographic characteristics and health factors associated with CAM use. *Evidence-based Complementary and Alternative Medicine*. March 13, 2008.
doi:10.1093/ecam/nen023

- Blaer, Y., Jafari, J., Podberezsky, A., David, T., Reizin, L., & Benjamin, J. (2008). Single-blind and double-blind randomized controlled trials of palmtherapy, an alternative medicine approach for anxiety before cardiac catheterization. *Evidence-based Complementary and Alternative Medicine*, 5(1) 103-105. doi:10.1093/ecam/nellll
- Burt, V. K., & Stein, K. (2002). Epidemiology of depression throughout the female life cycle. *Journal of Clinical Psychiatry*, 63(7), 9-15.
- Carney, R. M., Freedland, K. E., Rubin, E. H., Rich, M. W., Steinmeyer, B. C., & Harris, W. S. (2009). Omega-3 augmentation of sertraline in treatment of depression in patients with coronary heart disease. *Journal of American Medical Association*, 302(15), 1651-1657.
- Centers for Disease Control and Prevention. (2009a). Defining overweight and obesity. Retrieved from <http://www.cdc.gov/obesity/defining.html>
- Centers for Disease Control and Prevention. (2009b). Health insurance coverage. Retrieved from <http://www.cdc.gov/nchs/FASTATS/hinsure.htm>
- Chao, M. T., Wade, C., Kronenberg, F., Kalmuss, D., & Cushman, L. F. (2006). Women's reasons for complementary and alternative medicine use: Racial/ethnic differences. *Journal of Alternative Medicine*, 12(8), 1719-720.

- Demling, J. H., Neubauer, S., Luderer, H. J., & Worthmuller, M. (2002). A survey of psychiatric patients' use of non-medical alternative practitioners: Incidence, methods, estimation, and satisfaction. *Complementary Therapies in Medicine, 10*, 193-201.
- Eisenberg, D. M., Davis, R. B., Ettner, S. L., Appel, S., Wilkey, S., Rompay, M. V., & Kessler, R. C. (1998). Trends in alternative medicine use in the United States, 1990-1997. *Journal of American Medical Association, 280*, 1569-1575.
- Field, T. (2006). *Massage therapy research*. New York, NY: Churchill, Livingstone, Elsevier.
- Fournier, J. C., DeRubeis, R. J., Hollon, S. D., Dimidjian, S., Amsterdam, J. D., Shelton, R. C., & Fawcett, J. (2010). Antidepressant drug effects and depression severity: A patient-level meta-analysis. *Journal of American Medical Association, 303*(1), 47-53.
- Grzywacz, J. G, Suerken, C. K., Quandt, S. A., Bell, R. A., Lang, W., & Arcury, T. A. (2006). Older adults' use of complementary and alternative medicine for mental health: Findings from the 2002 National Health Interview Survey. *Journal of Alternative Medicine, 12*(5), 467-473.
- Honda, K., & Jacobson, J. S. (2005). Use of complementary and alternative medicine among United States adults: The influence of personality, coping strategies, and social support. *Preventive Medicine, 40*, 46-53.

- Hypericum Depression Trial Study Group. (2002). Effect of Hypericum perforatum (St John's wort) in major depression disorder. *Journal of American Medical Association, 287*(14), 1807-1814. doi:10.1001/jama.287.14.1807.
- Jonas, W. (1998). Alternative medicine and the conventional practitioner. *Journal of American Medical Association, 279*(9), 708-709.
- Kalb, C., Springen, K., & Underwood, A. (2002, December). How to lift the mind. *Newsweek, 140*(23), 54.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry, 62*, 593-602.
- Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry, 62*, 617-627.
- Kessler, R. C., Davis, R. B., Foster, D. F., Van Rompay, M. I., Walters, E. E., Wilkey, S. A., Kaptchuk, T. J., & Eisenberg, D. M. (2001). Long-term trends in the use of complementary and alternative medical therapies in the United States. *Annals of Internal Medicine, 135*, 262-268.

- 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. *American Journal of Psychiatry*, 158, 289-294.
- Kim, Y. H., & Bowers, J. (2007, July 1). Efficacy of acupuncture for treating depression. *Alternative Therapies for Women's Health*, 9(7), 49-53.
- Kirsch, A. D. (2000). Assessment of the pharmacology, toxicology, safety and efficacy of Echinacea species. Retrieved from http://www.fda.gov/ohrms/dockets/dailys/00/Sep00/091100/cp00001%20attachment_2.pdf
- Knishinsky, R. (1998). *The Prozac alternative*. Rochester, VT: Healing Arts Press.
- Kotz, B. (2010, January). Do you really need that antidepressant? *U.S. News & World Report*. Retrieved from <http://www.usnews.com/health/blogs/on-women/2010/01/06/do-you-really-need-that-antidepressant.html>
- Kronenberg, F., Cushman, L. F., Wade, C. M., Kalmuss, D., & Chao, M. T. (2006). Race/ethnicity and women's use of complementary and alternative medicine in the United State: Results of a national survey. *American Journal of Public Health*, 96(7), 1236-1242.
- Lake, J. H., & Spiegel, D. (2007). *Complementary and alternative treatments in mental health care*. Washington, DC: American Psychiatric Publishing.

- Lamarine, R., Fisher, K. J., Sbarbaro, V. (2003). Alternative medicine attitudes and practices of U.S. college students: An exploratory study. *California Journal of Health Promotion, 1*(4), 24-29.
- Leo, R. J., & Ligot, J. S. (2007). A systematic review of randomized controlled trials of acupuncture in the treatment of depression. *Journal of Affective Disorders, 97*(1-3), 13-22. doi:10.1016/j.jad.2006.06.012
- Linde, K., Berner, M. M., & Kriston, L. (2008). St. John's wort for major depression. *Cochrane Database of Systematic Reviews, 4*. doi:10.1002/14651858.CD000448.pub3
- Mazure, C. M., Keita, G. P., & Blehar, M. C. (2002). Summit on women and depression: Proceeding and recommendation. *Proceedings of the American Psychological Association*. Retrieved from <http://www.apa.org/pi/women/programs/depression/summit-2002.pdf>
- McCaffrey, A. M., Eisenberg, D. M., Legedza, A.T., Davis, R. B., & Phillips, R. S. (2004). Prayer for health concerns, Results of a national survey on prevalence and pattern of use. *Achieves of Internal Medicine, 164*, 858-862.
- McGrath, E., Keita, G. P., Strickland, B., & Russo, N. F. (1990). *Women and depression: Risk factors and treatment issues*. Washington, DC: American Psychological Association.

- Miller, F. G., Emanuel, E. J., Rosenstein, D. L., & Straus, S. E. (2004). Ethical issues concerning research in complementary and alternative medicine. *Journal of the American Medical Association*, 291(5), 599-604.
- National Alliance on Mental Illness. (2010). *What is mental illness: Mental illness facts*. Retrieved from http://www.nami.org/Content/NavigationMenu/Inform_Yourself/About_Mental_Illness/About_Mental_Illness.htm
- National Cancer Institute. (2005). *Theory at a glance: A guide for health promotion practice*. Retrieved from <http://www.cancer.gov/PDF/481f5d53-63df-41bc-bfaf-5aa48ee1da4d/TAAG3.pdf>
- National Cancer Institute. (2006). *Complementary and alternative medicine in cancer treatment: Questions and answers*. Retrieved from <http://www.cancer.gov/cancertopics/factsheet/therapy/CAM>
- National Cancer Institute, Office of Cancer Complementary and Alternative Medicine. (2009). *NCI CAM history and the role of OCCAM*. Retrieved from http://www.cancer.gov/cam/cam_at_nci.html
- National Center for Complementary and Alternative Medicine (2009a). *What is complementary and alternative medicine?* Retrieved from <http://nccam.nih.gov/health/whatiscam/>

National Center for Complementary and Alternative Medicine (2009b). *Information and communication about CAM research and decision-making about CAM use.*

Retrieved from <http://plan.nccam.nih.gov/index.cfm?module=paper3>

National Center for Complementary and Alternative Medicine (2009c). *Herbs at a glance: Kava.* Retrieved from <http://nccam.nih.gov/health/kava/ataglance.htm>

National Center for Health Statistics. (2009). *National Health Interview Survey (NHIS).*

Retrieved from <http://www.cdc.gov/nchs/about/major/nhis/hisdesc.htm>

National Center for Health Statistics. (2008). *2007 National Health Interview Survey (NHIS) public use data release.* Retrieved from

ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2007/srvydesc.pdf

National Institute of Diabetes and Digestive and Kidney Diseases. (2007). *Statistics related to overweight and obesity.* Retrieved from

<http://win.niddk.nih.gov/statistics/index.htm>

National Institute of Health, Office of Dietary Supplements. (2009). *About the office of Dietary Supplements (ODS).* Retrieved from

http://ods.od.nih.gov/about/about_ods.asp

National Institute of Mental Health. (2009a). *Anxiety disorders.* Retrieved from

<http://www.nimh.nih.gov/health/publications/anxiety-disorders/index.shtml>

National Institute of Mental Health. (2009b). *Bipolar disorder.* Retrieved from

<http://www.nimh.nih.gov/health/publications/bipolar-disorder/index.shtml>

- National Institute of Mental Health. (2009c). *Depression*. Retrieved from <http://www.nimh.nih.gov/health/publications/depression/complete-index.shtml>
- National Institute of Mental Health. (2009d). *The number count: Mental disorders in America*. Retrieve from <http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america/index.shtml>
- Ni, H., Simile, C., & Hardy, A. M. (2002). Utilization of complementary and alternative medicine by United States adults. *Medical Care*, 40(4), 353-358.
- Office of Women's Health, U.S. Department of Health and Human Services. (2008). *Women's mental health – What it means to you*. Retrieved from <http://download.ncadi.samhsa.gov/ken/pdf/OWH09-CONSUMER/womenmentalhealth.pdf>
- Olson, S. (2009). *Less well-studied CAM remedies for depression – ayurveda and homeopathy*. Retrieved from Mental Health Care Inc. website: <http://www.mhcinc.org/>
- Pajares, F. (2002). *Overview of social cognitive theory and self-efficacy*. Retrieved from <http://www.des.emory.edu/mfp/eff.html>
- Papakostas, G. I., Alpert, J. E., & Fava, M. (2003, December). S-adenosyl-methionine in depression: a comprehensive review of the literature. *Current Psychiatry Reports*, 5(6), 460-466.

- Pender, N. J. (2009). Biographical sketch. *Assumptions and theoretical propositions of the Health Promotion Model*. Retrieved from University of Michigan website: http://www.nursing.umich.edu/faculty/pender_nola.html
- Pender, N.J. (2006). *Health promotion model*. Retrieved from University of Michigan website: <http://www.nursing.umich.edu/faculty/pender/chart.gif>
- Pender, N. J., Murdaugh, C. L., & Parsons, M. A. (2006). *Health promotion in nursing practice* (5th ed.). Upper Saddle River, N.J.: Pearson Prentice Hall.
- Perron, B. E., Jarman, C. N., & Kilbourne, A. M. (2009). Access to conventional mental health and medical care among users of complementary and alternative medicine with bipolar disorders. *The Journal of Nervous and Mental Disease*, 197 (4), 287-290.
- Pettler, M. H., & Ernst, E. (2000). Efficacy of Kava for treating anxiety: Systematic review and meta-analysis. *Journal of Clinical Psychopharmacology*, 20(1), 84-89.
- Ryan, J. L., Heckler, C., Dakhil, S. R., Kirshner, J., Flynn, P. J., Hickok, J. T., & Morrow, G. R. (2009). Ginger for chemotherapy-related nausea in cancer patients: A URCC CCOP randomized, double-blind, placebo-controlled clinical trial of 644 cancer patients [Supplemental abstract 9511]. *Journal of Oncology*, 27(15S).

- Reiter, P. L., Katz, M. L., Ferketich, A.K., Paskett, E. D., Clinton, S. K., & Bloomfield, C. D. (2009). Complementary and alternative medicine use among Amish and non-Amish residents of Ohio Appalachia. *Journal of Rural Nursing and Health Care, 9*(2), 29-40.
- Russinova, Z., Wewiorski, N. J., & Cash, D. (2002). Use of alternative health care practices by persons with serious mental illness: Perceived benefits. *American Journal of Public Health, 92*(10), 1600-1603.
- Sanchez-Villegas, A., Delgado-Rodriguez, M., Alonso, A., Schlatter, J., Lahortiga, F., Majem, L. S., & Martinez-Gonzalez, M. A. (2009). Association of the Mediterranean dietary pattern with the incidence of depression. *Archives of General Psychiatry, 66*(10), 1090-1098.
- 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? *California Journal of Health Promotion, 6*(2), 73-78.
- Sharples, F. M. C., van Haselen, R., & Fisher, H. P. (2003). NHS patients' perspective on complementary medicine: A survey. *Complementary Therapies in Medicine, 11*, 243-248.
- Sherman, K. J., Ludman, E.J., Cook, A.J., Hawkes, R.J., Roy-Byrne, P.P., Bentley, S., Brooks, M.Z., & Cherkin, D. C. (2010). Effectiveness of therapeutic massage for generalized anxiety disorder: a randomized controlled trial. *Depression and Anxiety*. Advance online publication. doi:10.1002/da.20671

- Smith, C. A., & Hay, P. P. J. (2004). Acupuncture for depression. *Cochrane Database of Systematic Reviews*, 3. doi:10.1002/14651858.CD004046.pub2
- Society for Women's Health Research. (2004). *Sex difference in mental health*. Retrieved from http://www.womenshealthresearch.org/site/PageServer?pagename=hs_facts_mental
- Srof, B. J., & Velsor-Friedrich, B. (2006). Health promotion in adolescents: A review of Pender's health promotion model. *Nursing Science Quarterly*, 19, 366-373.
- Tamayo, C. (2000). Exercise and depression. *Alternative Therapies in Women's Health*, 2, 33-36.
- Tesch, B. J. (2003). Herbs commonly used by women: An evidence-based review. *American Journal of Obstetrics & Gynecology*, 188(5), S44-55.
- Thachil, A. F., Mohan, R., & Bhugra, D. (2007). The evidence base of complementary and alternative therapies in depression. *Journal of Affective Disorders*, 97(1), 23-35.
- Turnbull, T., Cullen-Drill, M., & Smaldone, A. (2008). Efficacy of omega-3 fatty acid supplementation on improvement of bipolar symptoms: A systematic review. *Archives of Psychiatric Nursing*, 22(5), 305-311.
- Upchurch, D. M., & Chyu, L. (2004). Use of complementary and alternative medicine among American women. *Women's Health Issues*, 15, 5-13.
doi:10.1016/j.whi.2004.08.010

- U.S. Census Bureau. (2009). *Race and Ethnicity*. Retrieved from http://factfinder.census.gov/servlet/ACSSAFFPeople?_submenuId=people_10&_sse=on
- U.S. Department of Health and Human Services. (2008). *Women's mental health*. Retrieved from <http://www.womenshealth.gov/mh/>
- U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. (2002). *S-adenosyl-L-methionine for treatment of depression, osteoarthritis, and liver disease*. Retrieved from www.ahrq.gov/clinic/epcsums/samesum.htm.
- Wang, H., I, H., Wang, B., Cui, Y., Zhu, L., Rong, Z., & Chen, H. (2008). Is acupuncture beneficial in depression: A meta-analysis of 8 randomized controlled trials? *Journal of Affective Disorders, 111*, 125-134. doi:10.1016/j.jad.2008.04.020
- Weissman, M. M., Bland, R., Joyce, P. R., Newman, S., Wells, J. E., & Wittchen, H. (1993). Sex differences in rates of depression: Cross-national perspectives. *Journal of Affective Disorders, 29*. 77-84.
- Weze, C., Leathard, H. L., Grange, J., Tiplady, P., & Stevens, G. (2007). Healing by gentle touch ameliorates stress and other symptoms in people suffering with mental health disorders or psychological stress. *Evidence-based Complementary and Alternative Medicine, 4*(1), 115-123. doi:10.1093/ecam/nel052

- Williams, A., Katz, D., Ali, A., Girard, C., Goodman, J., & Bell, I. (2006). Do essential fatty acids have a role in the treatment of depression? *Journal of Affective Disorders, 93*, 117-123.
- Winslow, L. C. & Shapiro, H. (2002). Physicians want education about complementary and alternative medicine to enhance communication with their patients. *Archives of Internal Medicine, 162*, 1176-1181.
- World Health Organization. (2009). *Gender and women's mental health: Gender disparities and mental health: The facts*. Retrieved from http://www.who.int/mental_health/prevention/genderwomen/en/
- World Health Organization. (2010). *Obesity and overweight*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs311/en/>
- Wu, P., Fuller, C., Liu, X., Lee, H., Fan, B., Hoven, C.W., Mandell, D., Wade, C., & Kronenberg, F. (2007). Use of complementary and alternative medicine among women with depression: Results of a national survey. *Psychiatric Services, 58*(3), 349-356.

APPENDIX A

Frequencies and Percentages for Demographic Characteristics by CAM Use for Those Without A Target Disorder

Table A

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use For Those With No Target Disorder

Category	Full Sample		Random Sample 1		Random Sample 2							
	No CAMs		At Least One CAM		No CAM		At Least One CAM					
	%	(n)	%	(n)	%	(n)	%	(n)				
Ethnicity												
Not Caucasian	60.5	(2614)	39.5	(1704)	60.6	(106)	39.4	(69)	60.8	(101)	39.2	(65)
Caucasian	38.0	(2251)	62.0	(3679)	37.0	(81)	63.0	(138)	36.8	(82)	63.2	(141)
Months No Health Insurance												
0 Months	45.0	(3767)	55.0	(4597)	46.0	(151)	54.0	(177)	44.1	(139)	55.9	(176)
1-12 Months	45.0	(174)	55.0	(213)	58.3	(7)	41.7	(5)	20.0	(3)	80.0	(12)

Table A, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use For Those With No Target Disorder

Category	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs %	At Least One CAM (n)	No CAMs %	At Least One CAM (n)	No CAM %	At Least One CAM (n)
Marital Status						
Married/Cohabiting	45.3 (2301)	54.7 (2773)	45.9 (94)	54.1 (111)	44.9 (93)	55.1 (114)
Never Married	49.5 (1057)	50.5 (1079)	53.7 (44)	46.3 (38)	61.6 (45)	38.4 (28)
Formerly Married	49.2 (1466)	50.8 (1511)	42.6 (43)	57.4 (58)	41.5 (44)	58.5 (62)
Education						
Less than High School Diploma	68.9 (1190)	31.1 (538)	64.7 (33)	35.3 (18)	71.7 (43)	28.3 (17)
High School Diploma/GED	55.2 (1548)	44.8 (1255)	56.4 (66)	43.6 (51)	52.5 (52)	47.5 (47)
Some College/ Associates/Technical Degree	41.7 (1226)	58.3 (1713)	39.5 (47)	60.5 (72)	45.3 (53)	54.7 (64)
Bachelors/Graduate Degree	30.0 (798)	70.0 (1861)	33.3 (33)	66.7 (66)	28.4 (31)	71.6 (78)

Table A, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use For Those With No Target Disorder

Category	Full Sample		Random Sample 1		Random Sample 2							
	No CAMs		At Least One CAM		No CAM		At Least One CAM					
	%	(n)	%	(n)	%	(n)	%	(n)				
Region of USA												
Northeast	47.6	(860)	52.4	(947)	51.6	(32)	48.4	(30)	50.7	(35)	49.3	(34)
Midwest	42.7	(964)	57.3	(1293)	45.6	(52)	54.4	(62)	40.7	(37)	59.3	(54)
South	53.8	(2067)	46.2	(1775)	53.7	(73)	46.3	(63)	51.4	(75)	48.6	(71)
West	41.6	(974)	58.4	(1368)	36.6	(30)	63.4	(52)	43.4	(36)	56.6	(47)

Note. Full Sample Crosstabs: Ethnicity $\chi^2(1) = 13.621, p < .001$, Cramer's $V = .152$, Insurance $\chi^2(1) = 6.564, p < .05$, Cramer's $V = .12$, Marital Status $\chi^2(2) = 2.54, p = .280$, Cramer's $V = .07$, Education $\chi^2(3) = 66.95, p < .001$, Cramer's $V = .34$, Region $\chi^2(3) = 12.32, p < .01$, Cramer's $V = .14$. Random Sample 1 Crosstabs: Ethnicity $\chi^2(1) = 13.62, p < .001$, Cramer's $V = .24$, Insurance $\chi^2(1) = 6.56, p < .05$, Cramer's $V = .12$, Marital Status $\chi^2(2) = 2.54, p = .280$, Cramer's $V = .07$, Education $\chi^2(3) = 66.95, p < .001$, Cramer's $V = .34$, Region $\chi^2(3) = 12.32, p < .01$, Cramer's $V = .14$. Random Sample 2 Crosstabs: Ethnicity $\chi^2(1) = 13.75, p < .001$, Cramer's $V = .15$, Insurance $\chi^2(1) = .23, p = .633$, Cramer's $V = .02$, Marital Status $\chi^2(2) = 2.91, p = .234$, Cramer's $V = .07$, Education $\chi^2(3) = 81.93, p < .001$, Cramer's $V = .37$, Region $\chi^2(3) = 10.66, p < .05$, Cramer's $V = .13$.

Table B

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Anxiety

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Category	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Ethnicity												
Not Caucasian	59.8	(2776)	40.2	(1868)	55.5	(156)	44.5	(125)	54.5	(157)	45.5	(131)
Caucasian	37.5	(2388)	62.5	(3987)	34.2	(130)	65.8	(250)	35.2	(132)	64.8	(243)
Months No Health Insurance												
0 Months	44.5	(3984)	55.5	(4970)	42.5	(227)	57.5	(307)	40.7	(213)	59.3	(310)
1-12 Months	43.8	(187)	56.2	(240)	35.5	(11)	64.5	(20)	33.3	(9)	66.7	(18)

Table B, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Anxiety

Category	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAM	At Least One CAM
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Marital Status						
Married/Cohabiting	45.0 (2418)	55.0 (2957)	44.0 (136)	56.0 (173)	42.1 (130)	57.9 (179)
Never Married	49.1 (1118)	50.9 (1158)	49.6 (65)	50.4 (66)	54.0 (67)	46.0 (57)
Formerly Married	48.0 (1586)	52.0 (1719)	36.4 (78)	63.6 (136)	40.1 (91)	59.9 (136)
Education						
Less than High School						
Diploma	68.5 (1322)	31.5 (609)	61.1 (77)	38.9 (49)	67.6 (92)	32.4 (44)
High School Diploma/GED	54.1 (1652)	45.9 (1402)	51.0 (102)	49.0 (98)	45.6 (82)	54.4 (98)
Some College/						
Associates/Technical Degree	40.6 (1273)	59.4 (1860)	32.6 (59)	67.4 (122)	39.3 (75)	60.7 (116)
Bachelors/Graduate Degree	29.2 (812)	70.8 (1966)	27.1 (39)	72.9 (105)	23.8 (36)	76.2 (115)

Table B, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Anxiety

Category	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAM	At Least One CAM
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Region of USA						
Northeast	47.4 (912)	52.6 (1014)	45.8 (49)	54.2 (58)	51.9 (55)	48.1 (51)
Midwest	42.2 (1024)	57.8 (1404)	44.4 (76)	55.6 (95)	35.5 (54)	64.5 (98)
South	52.9 (2195)	47.1 (1953)	47.8 (117)	52.2 (128)	47.6 (121)	52.4 (133)
West	41.0 (1033)	59.0 (1484)	31.9 (44)	68.1 (94)	39.1 (59)	60.9 (92)

Note. Full Sample Crosstabs: Ethnicity $\chi^2(1) = 5.96, p < .05$, Cramer's $V = .14$, Insurance $\chi^2(1) = 5.45, p < .05$, Cramer's $V = .14$, Marital Status $\chi^2(2) = .60, p = .741$, Cramer's $V = .04$, Education $\chi^2(3) = 31.93, p < .001$, Cramer's $V = .31$, Region $\chi^2(3) = 10.39, p < .05$, Cramer's $V = .18$. Random Sample 1 Crosstabs: Ethnicity $\chi^2(1) = 5.96, p < .05$, Cramer's $V = .14$, Insurance $\chi^2(1) = 5.45, p < .05$, Cramer's $V = .14$, Marital Status $\chi^2(2) = .60, p = .74$, Cramer's $V = .04$, Education $\chi^2(3) = 31.93, p < .001$, Cramer's $V = .31$, Region $\chi^2(3) = 10.39, p < .05$, Cramer's $V = .18$. Random Sample 2 Crosstabs: Ethnicity $\chi^2(1) = 7.62, p < .01$, Cramer's $V = .15$, Insurance $\chi^2(1) = .000, p = .992$, Cramer's $V = .00$, Marital Status $\chi^2(2) = 2.85, p = .240$, Cramer's $V = .09$, Education $\chi^2(3) = 44.21, p < .001$, Cramer's $V = .37$, Region $\chi^2(3) = 11.34, p < .05$, Cramer's $V = .18$.

Table C

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Bipolar

Category	Full Sample		Random Sample 1		Random Sample 2	
	No CAMs	At Least One CAM	No CAMs	At Least One CAM	No CAM	At Least One CAM
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Ethnicity						
Not Caucasian	57.7 (2982)	42.3 (2182)	51.2 (188)	48.8 (179)	50.0 (188)	50.0 (188)
Caucasian	35.7 (2597)	64.3 (4683)	31.6 (162)	68.4 (351)	32.1 (162)	67.9 (343)
Months No Health Insurance						
0 Months	42.8 (4288)	57.2 (5728)	39.6 (278)	60.4 (424)	38.2 (264)	61.8 (427)
1-12 Months	40.4 (209)	59.6 (308)	30.8 (12)	69.2 (27)	26.8 (11)	73.2 (30)
Marital Status						
Married/Cohabiting	43.1 (2576)	56.9 (3406)	40.0 (163)	60.0 (245)	38.8 (150)	61.2 (237)
Never Married	47.5 (1192)	52.5 (1319)	45.4 (74)	54.6 (89)	48.1 (77)	51.9 (83)
Formerly Married	45.5 (1766)	54.5 (2118)	34.9 (105)	65.1 (196)	37.0 (122)	63.0 (208)

Table C, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Bipolar

Category	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Education												
Less than High School Diploma	66.1	(1480)	33.9	(758)	56.3	(103)	43.7	(80)	66.5	(115)	33.5	(58)
High School Diploma/GED	51.5	(1787)	48.5	(1686)	46.7	(121)	53.3	(138)	40.5	(104)	59.5	(153)
Some College/ Associates/ Technical Degree	37.9	(1361)	62.1	(2229)	29.5	(74)	70.5	(177)	33.1	(87)	66.9	(176)
Bachelors/Graduate Degree	27.9	(839)	72.1	(2167)	23.6	(41)	76.4	(133)	21.7	(39)	78.3	(141)

Table C, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Bipolar

Category	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Region of USA												
Northeast	45.5	(987)	54.5	(1180)	44.6	(62)	55.4	(77)	43.3	(61)	56.7	(80)
Midwest	40.7	(1107)	59.3	(1613)	40.9	(88)	59.1	(127)	35.1	(72)	64.9	(133)
South	50.8	(2396)	49.2	(2323)	43.6	(147)	56.4	(190)	44.2	(148)	55.8	(187)
West	38.4	(1089)	61.6	(1749)	28.0	(53)	72.0	(136)	34.5	(69)	65.5	(131)

Note. Full Sample Crosstabs: Ethnicity $\chi^2(1) = .60, p = .440$, Cramer's $V = .07$, Insurance $\chi^2(1) = 4.44, p < .05$, Cramer's $V = .21$, Marital Status $\chi^2(2) = 4.07, p = .131$, Cramer's $V = .191$, Education $\chi^2(3) = 18.33, p < .001$, Cramer's $V = .40$, Region $\chi^2(3) = 6.82, p = .078$, Cramer's $V = .25$. Random Sample 1 Crosstabs: Ethnicity $\chi^2(1) = .597, p = .44$, Cramer's $V = .07$, Insurance $\chi^2(1) = 4.44, p < .05$, Cramer's $V = .21$, Marital Status $\chi^2(2) = 4.07, p = .131$, Cramer's $V = .19$, Education $\chi^2(3) = 18.33, p < .001$, Cramer's $V = .40$, Region $\chi^2(3) = 6.82, p = .078$, Cramer's $V = .25$. Random Sample 2 Crosstabs: Ethnicity $\chi^2(1) = 5.40, p < .05$, Cramer's $V = .22$, Insurance $\chi^2(1) = 1.57, p = .211$, Cramer's $V = .13$, Marital Status $\chi^2(2) = 5.75, p = .056$, Cramer's $V = .22$, Education $\chi^2(3) = 12.81, p < .01$, Cramer's $V = .33$, Region $\chi^2(3) = 11.72, p < .01$, Cramer's $V = .32$.

Table D

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Depression

Category	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Ethnicity												
Not Caucasian	59.7	(2693)	40.3	(1818)	57.5	(123)	42.5	(91)	54.5	(116)	45.5	(97)
Caucasian	36.8	(2358)	63.2	(4044)	30.9	(98)	69.1	(219)	34.2	(104)	65.8	(200)
Months No Health Insurance												
0 Months	44.0	(3913)	56.0	(4971)	41.5	(181)	58.5	(255)	41.6	(171)	58.4	(240)
1-12 Months	42.1	(181)	57.9	(249)	30.4	(7)	69.6	(16)	16.7	(4)	83.3	(20)
Marital Status												
Married/Cohabiting	44.2	(2375)	55.8	(2997)	39.4	(104)	60.6	(160)	41.7	(108)	58.3	(151)
Never Married	48.4	(1095)	51.6	(1168)	47.7	(53)	52.3	(58)	55.3	(57)	44.7	(46)
Formerly Married	47.8	(1538)	52.2	(1677)	38.3	(57)	61.7	(92)	35.5	(54)	64.5	(98)

Table D, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Depression

Category	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Education												
Less than High School Diploma	68.3	(1249)	31.7	(580)	60.5	(46)	39.5	(30)	68.8	(55)	31.3	(25)
High School Diploma/GED	54.1	(1611)	45.9	(1368)	51.7	(76)	48.3	(71)	47.8	(64)	52.2	(70)
Some College/Associates/Technical Degree	40.1	(1271)	59.9	(1902)	33.1	(55)	66.9	(111)	36.4	(60)	63.6	(105)
Bachelors/Graduate Degree	29.0	(815)	71.0	(1995)	26.9	(36)	73.1	(98)	27.1	(36)	72.9	(97)

Table D, continued

Frequencies and Percentages for Ethnicity, Health Insurance, Marital Status, Education, and Region by CAM Use for Those without Depression

Category	Full Sample				Random Sample 1				Random Sample 2			
	No CAMs		At Least One CAM		No CAMs		At Least One CAM		No CAM		At Least One CAM	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Region of USA												
Northeast	46.4	(892)	53.6	(1031)	48.8	(39)	51.3	(41)	45.3	(39)	54.7	(47)
Midwest	41.6	(1007)	58.4	(1413)	39.3	(57)	60.7	(88)	36.9	(48)	63.1	(82)
South	52.7	(2157)	47.3	(1933)	47.9	(92)	52.1	(100)	48.5	(94)	51.5	(100)
West	40.1	(995)	59.9	(1485)	28.9	(33)	71.1	(81)	36.4	(39)	63.6	(68)

Note. Full Sample Crosstabs: Ethnicity $\chi^2(1) = 6.13, p < .05$, Cramer's $V = .12$, Insurance $\chi^2(1) = 3.23, p = .072$, Cramer's $V = .09$, Marital Status $\chi^2(2) = 5.48, p = .065$, Cramer's $V = .11$, Education $\chi^2(3) = 50.02, p < .001$, Cramer's $V = .33$, Region $\chi^2(3) = 8.06, p < .05$, Cramer's $V = .13$. Random Sample 1 Crosstabs: Ethnicity $\chi^2(1) = 6.13, p < .05$, Cramer's $V = .12$, Insurance $\chi^2(1) = 3.23, p = .072$, Cramer's $V = .09$, Marital Status $\chi^2(2) = 5.48, p = .065$, Cramer's $V = .11$, Education $\chi^2(3) = 50.02, p < .001$, Cramer's $V = .33$, Region $\chi^2(3) = 8.06, p = .045$, Cramer's $V = .13$. Random Sample 2 Crosstabs: Ethnicity $\chi^2(1) = 14.57, p < .001$, Cramer's $V = .18$, Insurance $\chi^2(1) = 1.69, p = .194$, Cramer's $V = .07$, Marital Status $\chi^2(2) = 2.01, p = .352$, Cramer's $V = .07$, Education $\chi^2(3) = 67.68, p < .001$, Cramer's $V = .38$, Region $\chi^2(3) = 7.02, p = .071$, Cramer's $V = .12$.

APPENDIX B

Permission to Use Health Promotion Model

From: Nola Pender [REDACTED]
To: susan pettigrew
Date: Tue, February 9, 2010 3:01:37 PM
Subject: Re: Permission to Use Health Promotion Model Diagram

Dear Susan:

You have my permission to use the revised Health Promotion Model diagram in your dissertation. Good luck with your academic work.

Wishing you good health,

Nola Pender

Quoting susan pettigrew [REDACTED]

> Hello Dr. Pender,

>

> I am writing to request permission to use your revised Health Promotion Model diagram found on the University of Michigan School of Nursing website: http://www.nursing.umich.edu/faculty/pender_nola.html

>

> I am a PhD candidate at Texas Woman's University in Denton, Texas. I would like, with your permission, to include your revised Health Promotion Model diagram in my dissertation.

>

> Thank you for your time; I look forward to your response.

>

> Susan C. Pettigrew, BA, MAT, MEd, MPH

> [REDACTED]

> [REDACTED]

> [REDACTED]

> [REDACTED]

APPENDIX C

Approval Letter from the Graduate School for Prospectus



The Graduate School
P.O. Box 425649, Denton, TX 76204-5649
940-898-3415 FAX 940-898-3412

0664886

August 13, 2009

Susan Pettigrew



Dear Ms. Pettigrew:

I have received and approved the prospectus entitled *The Association Between Self-Reported Mental Health Symptomology and Complementary and Alternative Medicine Use Among U.S. Women* for your Dissertation research project.

Best wishes to you in the research and writing of your project.

Sincerely yours,

Ruth A. Johnson, Ph.D.
Associate Dean of the Graduate School

cc: Dr. Kristin Wiginton, Health Studies
Dr. Gay James, Chair, Health Studies

APPENDIX D

Approval from Dissertation Committee for Prospectus

**TEXAS WOMAN'S UNIVERSITY-GRADUATE SCHOOL
PROSPECTUS COVER SHEET**

Department/College/School of College of Health Sciences Department of Health Studies

Prospectus for Dissertation Thesis

This prospectus proposed by Susan Pettigrew (Student Name) 067171 - 0664886 (ID#)

and entitled: (none)

THE ASSOCIATION BETWEEN SELF-REPORTED MENTAL HEALTH SYMPTOMOLOGY AND COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AMONG U.S. WOMEN

has been read and approved by the members of her/his Research Committee.

This research checks one:

- Involves human subjects or use of animals. (Attach IRB or IACUC approval letter and written approval letters from external agencies where data will be collected, if applicable.)
- Does not involve either human subjects or use of animals.

Research Committee (Original Signatures Required):

For Graduate School Use Only	
PROSPECTUS	
Original Signatures	✓
Unconditional Admission	✓
Approved Degree Program	✓
Admission to Candidacy	✓
Institution Agency Approval	
Human Subjects Approval	✓
Animal Use Approval	N/A
Dean Approval <i>[Signature]</i>	Date <i>7/29/09</i>
Letter Sent	

Full Major Professor (Signature) *Kristin Wiginton* (Date) 7-29-09
(Type Name) Dr. Kristin Wiginton
 Full Member (Signature) *Marilyn Massey-Stokes* (Date) 7.29.09
(Type Name) Dr. Marilyn Massey-Stokes
 Full Member (Signature) *Jody Bowen Early* (Date) 7.29.09
(Type Name) Dr. Jody Bowen-Comen
 Member (Signature) _____ (Date) _____
(Type Name) _____
 Chair/Director/Associate Dean (Signature) *[Signature]* (Date) 7/29/2009
(Type Name) Dr. Gay James
 Dean of College/School (Signature) _____ (Date) _____
(Type Name) _____

In accordance with Reg. 11B 1922, an individual is entitled to request to be informed about the information collected about them; receive and review their information; and correct any incorrect information.

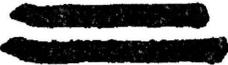
APPENDIX E

Approval Letter from Institutional Review Board



Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 425619, Denton, TX 76204-5619
940-898-3378 Fax 940-898-3416
e-mail: IRB@twu.edu

July 31, 2009

Ms. Susan Pettigrew


Dear Ms. Pettigrew:

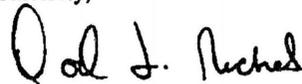
Re: The Association Between Self-Reported Mental Health Symptomology and Complementary and Alternative Medicine Use Among U.S. Women

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and was determined to be exempt from further review.

If applicable, agency approval letters must be submitted to the IRB upon receipt PRIOR to any data collection at that agency. Because a signed consent form is not required for exempt studies, the filing of signatures of participants with the TWU IRB is not necessary.

Another review by the IRB is required if your project changes in any way, and the IRB must be notified immediately regarding any adverse events. If you have any questions, feel free to call the TWU Institutional Review Board.

Sincerely,

A handwritten signature in black ink that reads "David J. Nichols".

Dr. David Nichols, Chair
Institutional Review Board - Denton

cc. Dr. Gay James, Department of Health Studies
Dr. Kristin Wiginton, Department of Health Studies
Graduate School