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# The Incorporation of Integrative Medicine to Assess and Address Diabetic Patients' Psychosocial Needs

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The Incorporation of Integrative Medicine to  
Assess and Address Diabetic Patients' Psychosocial Needs

by

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MSW Clinical Research Paper

Presented to the Faculty of the School of Social Work  
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St. Paul, Minnesota

In Partial fulfillment of the Requirement for the Degree of  
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Committee Members

GRSW 682

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The Clinical Research Project is a graduation requirement for MSE students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

### **Abstract**

The purpose of this project was to increase the understanding of the assessment, implementation and referral of Complementary and Alternative Medicine (CAM) in order to meet psychosocial needs and decrease stress among diabetic patients. Using a mixed method design, both qualitative and quantitative research questions were incorporated into a survey distributed using a non-probability sample of healthcare professionals working in family medicine or general medicine practices within the metro area. The study attempted to answer the following questions: Is integrative medicine being conducted by healthcare professionals to address type 1 and type 2 diabetic patients' psychosocial needs in family medicine and primary care settings? Is IM being assessed, referred and implemented in family medicine and primary care settings? Quantitative data was analyzed using both descriptive and inferential statistical analyses. Qualitative data was interpreted using the content analysis technique. Findings indicated respondents who ask about CAM use during clinic appointments are more likely to implement CAM during office appointments. Respondents that ask about CAM during office visits were more likely to refer to CAM for additional care. Next, there was an increased likelihood of putting psychosocial interventions in the treatment plan when respondents assessed for diabetic patients' psychosocial needs. The respondents who endorsed practicing CAM personally were more likely than those who have not to refer diabetic patients' to CAM for additional needs. Findings suggested that implementing CAM is not a standard practice. Findings related to barriers were consistent with previous literature. Respondents endorsed an increase in blood sugars are a result of stress among diabetic patients. These findings emphasize the importance of assessing and addressing psychosocial needs among diabetics in order to decrease the harmful effects of stress.

**Keywords:** Complementary and Alternative Medicine (CAM), Integrative Medicine (IM), conventional medicine, Diabetes Mellitus, assessment, stress, psychosocial needs, assessment, implementation, referral, primary care, barriers,

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### **Introduction**

According to the American Diabetes Association (ADA), "Diabetes Mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both (2006)." Diabetes is a prevalent and growing epidemic. As of 2011, almost 26 million people from birth to death were affected by diabetes (Centers for Disease Control (CDC, 2011). The CDC (2011) recently reported that diabetes affects approximately 4% of 20 to 44 year olds, 14% of 45 to 64 year olds and almost 27% of adults older than 65.

These are alarming rates as is, however this epidemic has been estimated to increase in the future. Boyle and colleagues (2001) found that the amount of United States citizens diagnosed with diabetes is estimated to increase from 11 million individuals in 2000 to 29 million people in 2050. Not only is diabetes rampant in the United States of America but the World Health Organization (WHO) and International Diabetes Federation (IDF) estimated that the international projection in 2030 will be approximately 366 million individuals affected by diabetes worldwide (2003).

The ADA (2012) suggests a need for comprehensive care when treating diabetes; which should include meeting both physiological and psychosocial needs because addressing emotional health is necessary for optimum health and wellness. Jack (2003) further defined diabetics' psychosocial needs to include interventions for stress reduction and mental illness. This reason is due to the consequences that stress and mental health have on individuals suffering from diabetes.

First, stress has physical effects on the body. Surwit and Schneider (1993, p. 382) suggested that "diabetic individual's glucose metabolism is compromised so these stress



effects can be problematic.” To complicate matters, diabetics experience difficulties when stressors are ongoing and subsequent increased blood sugars occur over an extended period of time (Surwit & Schneider, 1993). Furthermore, Innes, Vincent and Taylor (2007) reported that

“chronic psychosocial stress can lead to a destructive, self-perpetuating cascade of neuroendocrine, metabolic, inflammatory, and neuropsychological changes that promote the development of insulin resistance syndrome, atherosclerosis and cardiovascular disease” (p. 44).

Second, it is suggested that the risks associated with the psychological suffering connected to diabetes is a considerable forecaster of depression (Connell, Davis, Gallant & Sharpe, 1994). Lloyd, Pambinco, and Orchard (2010) also reported findings that there was a strong connection among symptoms of depression and related suffering from diabetes, autonomous of additional control variables. However, there is also the potential for increased mental health concerns associated with unmet psychosocial and self care needs as well as the already increased rate of depression among diabetics. Depression associated with diabetic adults can also happen due to the interactions between psychological and social adversities as a consequence of internal psychological issues associated to diabetes (Lustman, 1992). Findings imply that self care is critical to meeting diabetics' mental and emotional stability as research showed decreased self care activities was more prevalent among respondents with major depression (Lin, et al., 2004).

Third, there are some findings that suggest a link between untreated mental health needs and poorer diabetic care. In fact, Rubin and Peyrot (1992) reported that poor

diabetes control can originate from the physical effects of stress or inadequate psychosocial care. Additionally, Rubin and Peyrot (1992) concluded that psychological disorders are common among diabetics and may contribute to poor outcomes including diminished physiological and psychological comfort and wellbeing, hence there appears to be a need for psychosocial objectives to combat these difficulties. Similarly, Gonzalez and colleagues (2008) found that symptoms of depression forecasted succeeding noncompliance to essential facets of care in type 2 diabetics, despite controlling self care variables.

The extensive psychosocial needs of individuals with diabetes, demonstrate a need to assess and implement psychosocial interventions; however this is one area that may fall short in diabetic care. Peyrot and colleagues (2005) reported that diabetics' concerns about their diabetes-associated anguish were common among respondents and in fact their physicians typically were also familiar with these concerns. Concerns included worries related to weight, financial status, and diabetes complications among others. However, Peyrot and colleagues (2005) reported that the primary care providers consistently perceived fewer problems among their patients than other providers, such as nurses. Nurses and like providers likely have increased interactions with patients requiring more care and thus may be more aware of presenting symptoms (Peyrot, et al., 2005). However, this still presents a concern that primary care physicians are not as in tune with such concerns as they treat the greater part of diabetic patients. Klinkman (1997) also found that mood disorders were under-detected and undertreated in primary care due to multiple barriers within the current health care system such as lack of time,

compensation configurations and the clinician's familiarity of the patient or psychosocial presentation.

Assessment is one area that social work could assist in ensuring biological, psychological and social components were properly understood within medical settings. Unfortunately, social workers are not always employed in medical clinics.

Biopsychosocial assessments including gaining multisystemic information including history, social, familial, medical, spiritual, cultural, employment, and educational aspects of each individual. Assessment could be a tool in identifying patients that are at risk and increase supports for managing mental health symptoms, treatment and the ability to practice self care techniques.

Even when healthcare providers were aware of patients' emotional concerns that influenced their health maintenance, often physicians did not have resources to assist with self care management. Delmater and colleagues (2001) reported that meager contact with health care providers, deficient support networks, feelings of loss, stressful lifestyle surroundings, and insufficient understanding of supports and resources is capable of amplifying stress and negatively influencing health care (cited in DeCoster & Cummings, 2005). This suggests that conventional medicine may not be adequately attending to patients' psychosocial needs. In fact, DeCoster and Cummings (2005) suggested social workers' assistance is needed to ensure psychosocial needs are adequately met as there are questions surrounding whether health care professionals are adequately equipped to manage the high amount and scope of patient needs.

Peyrot and colleagues (2005) believe that services provided and diabetic patients' well being may be hindered due to the feelings of inadequacy held by health care

providers about their skill level in assessing emotional issues and providing subsequent relief. Even though providers recognize their lack of confidence they rarely refer patients to additional services to better manage their psychosocial needs; which was noted among the 13 countries included within this particular study (Peyrot, et al., 2005).

Given that the projected growth of this chronic illness and the inability of the current health care system to meet the full spectrum of diabetics' psychosocial needs there is an obligation to evaluate needed changes within the current system. Ultimately, assisting individuals with diabetes to gain the understanding and proficiency to control the disease is vital to live a happy and extended life (WHO & IDF, 2003). The treatment regimen for diabetes must be grounded in some degree of conventional bio-medicine, however complementary medicine techniques may be a valuable adjunct to meet the psychosocial needs that the current conventional model does not (Songer, Ettaro & Economics of Diabetes Project Panel, 1998). Integrative medicine incorporates both conventional and complementary and alternative medicine to manage the mind-body connection (Maizes, Rakel & Niemiec, 2009). Complementary and alternative medicine (CAM) strategies have been shown to trigger physiological responses in the body to decrease stress (Selhub, 2007). In fact, Finger and Mayfield-Arnold (2008) reported that stressors have directed many people to review CAM strategies for their health care management. Mind-body interventions are an essential part of a promising therapeutic direction for diabetics (Kliger, 2004).

Integrative care for individuals diagnosed with diabetes aligns well with social work values and practice. First, social work is grounded in looking at biopsychosocial dimensions. DeCoster (2001) suggested that because social workers are educated in

person-environment factors and psychosocial issues they are best accustomed to provide psychosocial interventions for Type 2 Diabetics.

Second, stress has been shown to affect the body and mind, and therefore stress reduction interventions have been suggested to have a place in clinical social work practice (Littrell, 2008). Third, gaining further understanding of mind-body connections allows social workers to provide empowerment for clients (Finger & Mayfield-Arnold, 2002).

Lastly, the National Association of Social Workers (2008) stated that social workers have a responsibility to evaluate the treatment clients receive. Biological needs are included within the social workers' assessment and practice; therefore there is an importance for social workers to advocate for diabetic patients to ensure that all areas of their being and associated systems are serving them appropriately and holistically.

Maizes and colleagues (2009, p. 11) reported that although the "division of power" between physician and patient has become somewhat distorted, patient-centered care is still a new concept. Barrett and colleagues (2003) have shown that individuals in agencies that embrace patient-centered care have shown increased contentment with their care. Barrett and colleagues (2003) attributes barriers to further progress include financial, administrative, and scientific dissimilarity as well as unawareness regarding integrative medicine. Grace and Higgs (2010) showed just that in their data analysis of integrative medicine among physicians who reported feeling that more concentration was on the patient driven model and less so in areas that prohibited efficiency. Furthermore there is research to suggest positive outcomes in patient-centered models for both patients and providers.

**Purpose Statement:** There is a need for more integrative approach to healthcare to address both mind and body components of individuals with diabetes in order to decrease diabetic stress and complications that is seen within the current conventional medical system. Additionally, previous research suggests that the current biomedical system does not adequately assess, implement or refer diabetic patients to incorporate psychosocial needs into their primary healthcare planning. While research has looked at the effects of complementary and alternative medicine on the general population, more research is needed on the use of CAM therapies to treat diabetics' psychosocial needs.

### **Definitions**

**Acute Stress:** typically short-term and most common type of stress (APA, 2013).

Symptoms typically include emotional and physiological distress.

**Chronic Stress:** ongoing stress which is often difficult to recognize and often rarely treated (APA, 2013). Chronic stress can lead to severe consequences, including death.

**Conventional Medicine:** "also called western and allopathic medicine, is medicine as practiced by holders of M.D. (medical doctors) and D.O. (doctor of osteopathic medicine) degrees and by allied health professionals such as physical therapists, psychologists, and registered nurses" (NCCAM, 2011, in What is CAM).

**Complimentary and Alternative Medicine (CAM;** also known as unconventional medicine)" An all encompassing term although when broken down,

“Complimentary medicine refers to the use of CAM together with conventional medicine and most use of CAM by Americans is complementary” and

“Alternative medicine refers to use of CAM in place of conventional medicine.”

(NCCAM, 2011, in What is CAM)

Types of CAM therapies are separated into groupings or domains including natural products which includes supplements, herbs and probiotics, mind and body medicine which includes meditation, yoga, and acupuncture, among others; manipulative and body-based practices including massage and spinal manipulation. Additional forms include movement therapies, traditional healers, and energy manipulation (NCCAM, 2011). It has also been separated by Payne (2001, p. 130) into five groups which include “manipulative and body-based therapies, biological therapies, mind/body interventions, alternative system of medical practice, and energy medicine.”

**Endocrinologist:** physician specializing and treating people with endocrine gland problems (ADA, 2013).

**Family Medical Doctor:** provide care for “individuals across their life span, from childhood to adulthood and their scope of practice may include obstetrics and minor surgery” (Sutter Health, 2013).

**Hemoglobin/ HA1c:** The ADA states that “hemoglobin, a protein that links up with sugars such as glucose, is found inside red blood cells.” Its function is to transmit “oxygen from the lungs to all the cells of the body.” When diabetes is out of control, the bloodstream has excess glucose (ADA, 2012, PG). The ADA (2012 stated that the glucose surplus

“enters your red blood cells and links up (or glycate) with molecules of hemoglobin. The more excess glucose in your blood, the more hemoglobin gets glyated. By measuring the percentage of A1C in the blood, you get an overview of your average blood glucose control for the past few months” (ADA, 2012, in A1c).

The hemoglobin A1C is a blood test to gauge the “average blood glucose levels over the past two to three months” (American Diabetes Association, 2012, in A1c).

**Integrative Medicine:** (also known as “integrated medicine” or IM) Integrative medicine unites treatments from biomedicine and CAM (NCCAM, 2012).

**Mind-Body Connection:** (also known as mind body medicine) Mind-body medicine (MBM) or connection “focuses on the interactions among the brain, mind, body, and behavior, and the powerful ways in which emotional, mental, social spiritual, and behavioral factors can directly affect health” (National Center for Complementary and Alternative Medicine, NCCAM, 2005, in MBM). MBM characteristically is focused on the interventions which “promote health, such as relaxation, hypnosis, visual imagery, meditation, yoga, biofeedback, tai chi, Qi gong, cognitive-behavioral therapies, group support, autogenic training and spirituality” (NCCAM, 2005, in MBM).

**Primary Care Physician:** healthcare provider who provides “basics of health care, focusing on wellness and prevention” (Sutter Health, 2013). Primary Care Physicians “focuses on your overall health, making sure you get recommended screenings and risk assessments, and also helps navigate you through medical specialists” (Sutter Medicinal, 2013).

**Psychosocial approach/needs:** take action to “individual’s interrelated interpersonal and emotional necessities managing them simultaneously” (International Organization of Migration, 2010). “Psychosocial health services” are those emotional and social outreach efforts that allow individuals, relatives, and medical practitioners to improve efficiency within conventional health care system and to deal with the emotions, actions and



interpersonal facets of poor health and the subsequent costs in order to encourage improved wellbeing (Adler & E.K., 2008, p. 81)

**Self Care:** there are many definitions based on various contexts for self care however for the purposes of this study, self care will be defined as “a psychosocial approach is one that refers to an interrelation between psychological and social factors” (IOM, 2010).

**Type 1 diabetes:** previously referred to as insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes. Type 1 diabetes

“develops when the body's immune system destroys pancreatic beta cells, the only cells in the body that make the hormone insulin that regulates blood glucose. To survive, people with type 1 diabetes must have insulin delivered by injection or a pump.” (CDC, 2011, in Types of Diabetes)

Type 1 diabetes' typical onset is among youth and adolescents however it has been seen amongst older ages as well (CDC, 2011). This diabetes classification is only accounted for in “approximately 5% of all diagnosed cases of diabetes” (CDC, 2011, in Types of Diabetes). Contributing factors associated with type 1 diabetes include “autoimmune, genetic and environmental” components and there are no known preventative methods at this time (CDC, 2011, in Types of Diabetes).

**Type 2 diabetes:** previously called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes is responsible for the majority of diabetes in United States (ADA, 2006). Type 2 diabetes typically starts

“As insulin resistance, a disorder in which the cells do not use insulin properly. As the need for insulin rises, the pancreas gradually loses its ability to produce it.” (CDC, 2011, in Types of Diabetes)

Type 2 diabetes is typically connected to individuals meeting one or more of the following factors including aging adult, overweight, “older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical inactivity, and race/ethnicity” (CDC, 2011, in Types of Diabetes). Certain groups are at an increased risk for the disease and its associated difficulties; which include African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Native Hawaiians or Other Pacific Islanders (CDC, 2011). Children and adolescents are now being diagnosed with type 2 diabetes at an increased rate (Boyle, et al., 2001).

### **Conceptual Framework**

#### **Personal Lens**

This study was inspired by my personal experience with type 1 diabetes. I was diagnosed with diabetes approximately 25 years ago. Throughout that time I have watched substantial change in the standards of diabetes care. However, as I began to view health care from a social work perspective, I became curious whether diabetes care was being handled in a systematic way or whether it encompassed both physiological and psychological needs. I recall times when I felt that the focus in medical care for diabetes was one-sided, mostly centered on physical health. This often left me feeling unsupported and alone in the daily experience of life with diabetes; which presented as symptoms including low mood, anxiety and anger and grief related to management of a chronic illness. I am forever indebted to biomedicine which has provided blood sugar stability and control in the treatment of my diabetes; ultimately delaying or decreasing the likelihood of diabetes-related complications. However, I am motivated not only as a

diabetic but also as a social worker to gain a better understanding about integrative medicine for individuals with diabetes in order to treat the whole person.

### **Theoretical Lens**

There are several areas of study with corresponding theoretical frameworks that are applicable to this research study. Before exploring the frameworks behind integrative medicine, it is important to have a full understanding of its meaning. After defining integrative medicine, this paper will explore social work's framework of ecological theory and conventional medicine's biopsychosocial theory. Lastly, the importance with subsequent fields of study that have originated from both of these models, including psychoimmunology and the mind-body connection will be explained.

#### **Integrative medicine.**

Integrative medicine (IM) is a concept that incorporates both CAM and biomedical strategies (Boon, Verhoef, O'Hara, Findlay & Majid, 2004). Ultimately, IM is a premise that is attempting to close the gap between alternative and conventional medicine (Maizes, et al., 2009). The framework of integrative medicine believes that patients need holistic care taking into consideration individual needs (Myklebust, Kimborough-Pradhan & Gorenflo, 2008). Emotions, mental, physical and spiritual components are all seen as elements involved in well-being and illness and are considered central fixtures for a curative approach (Myklebust, et al., 2008). Moreover, IM promotes the patient-provider relationship as the key ingredient in producing beneficial transformation in health care sites (Maizes, et al, 2009). Maizes and colleagues (2009, p. 2) also added that IM is defined as a model that offers "patient-

centered and healing-oriented care” using both biomedicine and alternative medical approaches.

Boon and colleagues (2004) suggested that a working definition of integrative medicine includes four main concepts including collaboration between healthcare professional and patient,

“to treat the whole person, to assist the innate healing properties of each person, and to promote health and wellness as well as the prevention of disease; is an interdisciplinary, non-hierarchical blending of both conventional medicine and complementary and alternative healthcare that provides seamless continuum of decision-making and patient-centered care and support; employs a collaborative team approach guided by consensus building, mutual respect and a shared vision of health care that permits the practitioner and the patient to contribute their particular knowledge and skills within the context of a shared, synergistically charged plan of care; and results in more effective and cost-effective care by synergistically combining therapies and services in a manner that exceeds the collective effect of the individual practices” (p. 55).

Additionally, there are several fundamental principles behind the IM concept. Maizes and colleagues, in collaboration with the University of Arizona Center for Integrative Medicine (2009, pp.6-8), outlined that following principles: partnership between professional and patient in the therapeutic course of action; every aspect that influences “health, wellness, and disease are taken into consideration, including mind, spirit, and community, as well as body;” accurate utilization of biomedical and unconventional techniques simultaneously that assists the body’s instinctive remedial reaction; successful

objectives that are natural and not as pervasive ought to be utilized when feasible; IM maintains a critical eye before making decisions on the value of CAM treatments and does not automatically dismiss biomedical techniques; high-quality medical remedies are grounded on “good science and is inquiry-driven and open to new paradigms; alongside the concept of treatment, the broader concepts of health promotion and the prevention of illness are paramount;” and providers of IM must demonstrate its values and be expected to continuous “self-exploration and self-development.”

### **Ecological theory.**

Social work is grounded in the ecological theory. In this theoretical paradigm, individuals and society are only fully understood when viewed through their relational connection (Gitterman & Heller, 2011). Gitterman and Heller (2011) reported that ecological theory partners nicely with social work’s biopsychosocial lens due to this framework’s acknowledgement of the reciprocal relationship between person and systems. Pardeck (1996) stated that the ecological lens emphasizes that successful treatment happens at multisystemic levels while also attending to many dynamics within the practice itself. Ecological theory is versatile due to the nature of incorporating other theoretical models from other professions into its framework. For example, Maziak and Ward (2009) stated that ecological theory’s perspective on health is one example of how dynamic this model is. The ecological framework presumes a supposition that health and well-being are dynamic ideas that encompass body, intellect, health, emotions and a sense of comfort (Stokols, 1992).

From the ecological perspective, our current health care system is in need of expansion including environmental shifts in the system (Maziak & Ward, 2009). Stokols

(1992) suggests that an individual's health condition should be viewed through flexible interchange of holistic aspects as opposed to solely highlighting ecological and organic factors. Pardeck (1996) agrees with the importance of understanding the relationship between systems and differentiates from the biomedical lens, stating that this paradigm emphasizes the use of a health lens while more conventional frameworks emphasize disease. Overall, this person-in-environment concept looks directly at interconnectedness of each individual's wellbeing. Social work is clear about the need for individualistic and holistic practices including the relationship between mind and body (Finger & Mayfield-Arnold, 2002). In fact, social work has been imperative in the execution of support within the health care field that has provided familiarity with mental and behavioral characteristics of physical wellbeing (Tataryn, 2002). The literature has demonstrated that ecological framework will be fully aligned with this study's purpose; therefore, I will be using this social work framework as the lens in this study.

### **Biopsychosocial model of health.**

The biopsychosocial model of health is also a framework to utilize for this study. Engel (1977), a physician and the founder of the biopsychosocial model of health proposed a comprehensive approach to illness where the doctor grasps the individual's full reality of "illness" as opposed to having a narrow outlook of "disease."

Emotional and organic systems are interconnected and these relationships produce vital ramifications in a range of consequences (Hamilton-West, 2011). The biopsychosocial model recognizes that events and shared interpersonal circumstances all play a part in the way sickness appears; which in turn may alter how the practitioner distinguishes symptoms. Therefore, this model believes that the lens must account for

the whole person. Assal (1999 as cited in Hamilton-West, 2011) reported that this model is especially relevant among persistent illness because individuals with chronic illness are accountable for ongoing daily management not the practitioner and only with a holistic lens can a plan be created to encompass all needs within the environment.

### **Emerging Disciplines**

There are two emerging areas of study, born from a combination of both ecological and biopsychosocial frameworks that are important to mention for the purposes of this study, mind-body connection and psychoimmunology. First, mind-body connection has been studied using the biopsychosocial perspective (Zittel, Lawrence & Wodarski, 2002). The term mind-body became more prominent in research over the past 20 years (Finger & Mayfield-Arnold, 2008). Although the research itself is still in its infancy, mind-body medicine dates back 2000 years (Snoek, 2001). In order to fully understand the mind-body connection, there are several fundamental concepts born in research, which need explanation.

Research on stress has been a key piece in showing the connection between the mind and the body. First, Walter Cannon's "fight or flight" concept showed the connection among stress and physiological responses; subsequently describing the effect on the "neuroendocrine" system in response to supposed threats in mammals (1932, as cited in NCCAM, 2005, p. 2). This is important because it offered insight into the stress response and the sympathetic nervous system in animals. Second, another very important term is the "placebo effect" originated by Henry Beecher (1956). The placebo effect showed that over 30% of reactions to health care remedies may be due to opinion or conviction proposing that the brain has control over body processes (as cited in NCCAM,

2005, p. 2). Both of these concepts demonstrate the body's response to a belief or emotion, supporting the argument that there is a connection between mind and body.

In addition to connections between the mind and body, a connection between environmental stress and the body's response to the stressor have been identified (Selye, 1956 as cited in NCCAM, 2005). Thus, Selye (1956) later outlined that harmful results are associated with worry, tension and anguish on physical wellbeing (as cited in NCCAM, 2005). A second emerging discipline born out of these findings was psychoimmunology, a framework that evaluates the relationship among the immune system in relation to emotional conditions and illnesses (Zittel, et al., 2002). Research pertaining to psychoimmunology has played a vital role in the comprehension of the mind-body connection as it looked directly at the connection between stress and the body. This is due to the understanding gained that "the entire body is incorporated into the network of physical and emotional functioning" (Pert, 1986; Ruff & Pert, 1986; Pert & Dienstfrey, as cited in Zittel, 2002, p. 21). Pert and colleagues found one example of research findings important to this understanding. They reported that the "brain receptors" in charge of supervising biological operations are positioned in the limbic brain; which is primarily known for its connection to emotions. Consequently we now understand that the body is a system of simultaneous physiological and psychological operation (as cited in Zittel, 2002).

As research continued to explore this concept, studies found that in order to preserve permanence and equilibrium it is vital that the system responsible for responding to stress is in good health (Selhub, 2007). In fact, this "complex network, the stress response system, involves the nervous, endocrine, and immune systems" which allows



these messages to be sent both physiologically and psychologically (Selhub, 2007, p. 4). Ultimately, if the body is balanced, this process sanctions the body to operate uniformly and become accustomed to managing ongoing issues while remaining in equilibrium (Selhub, 2007). However, stress, emotional coping styles, and interpersonal support operate as principal causes of well-being or illness according to this construct (Tataryn, 2002). For example, Cohen and colleagues (as cited in Zittel et al., 2002; Nee, 2012) reported that stress increases vulnerability to respiratory illness and cancer.

When the stress system is activated, mind-body therapies assist in bringing forth the “relaxation response” (Selhub, 2007, p. 4). Herbert Benson termed the phrase “relaxation response” which he discovered throughout his personal practice of meditation (Rice, 2001, p. 214). Essentially, the relaxation response is the counter-reaction to the “stress response” (Selhub, 2007, p. 4). This parasympathetic response assists the body in unwinding; in turn assisting the cardiovascular system to slow down and allowing the body to take in more oxygen leading to a drowsy, ease-like state (Rice, 2001). Lazar (2000, as cited in Dinardo, 2009, p. 30) also added that this response encourages the regulation of “cortisol and other stress hormones.” Essentially, the goal of mind-body therapies is to activate the relaxation response or parasympathetic nervous system in order to neutralize the sympathetic system and the body’s reaction to stress (Dinardo, 2009). Many complementary and alternative medicine (CAM) practices embody the mind-body connection concept. In fact, studies concluded that “psychosocial interactions can affect physiological functions” in turn creating the possibility of the illness evolving as well as devolving (Nee, 2012, p. 1).

To recap, this study will determine whether integrative medicine is being conducted to address the psychosocial needs of individuals with diabetes.

### **Literature Review**

First, the literature review will explore the effects of stress associated with unmet psychosocial needs. Second, the paper will review the current standards of diabetic care, assessment of psychosocial needs, current recommendations for addressing psychosocial needs and outcomes of psychosocial needs within conventional medicine. Next, this paper will explore CAM use among diabetic patients; commonly used practices, outcomes, risks, and recommendations and referrals. Last, barriers to integrative medicine and current steps toward integrative medicine will be outlined. The literature was frequently unclear about which specific professions were involved in the term healthcare provider. For the purposes of this paper, the term healthcare provider will be an all encompassing term including physicians, primary care doctors, endocrinologists, nurses and other professionals who work on healthcare teams. This paper is not focused specifically on one professional field but rather all providers within a primary care or family medicine practice. Also the terms conventional medicine, western medicine and biomedicine will be used synonymously to represent the majority of healthcare typically provided within the United States. The term unconventional medicine and CAM will be used synonymously to represent alternative medicine practices. The term stress will refer to emotional and psychological stress unless otherwise indicated.

### **The Role of Stress in Association with Unmet Psychosocial Needs.**

Understanding the role that stress can play in an individual with diabetes is very important because it has been shown to affect both physiological and psychological

functioning. Research continues to find that stress can result from psychosocial issues (Adler & Page, 2008). The literature reviewed focused on psychological and emotional stress. It could be argued also that lack of care for psychosocial needs plays a large part in the process. In fact, observing discontentment in relation to the stress caused from diabetes management facilitates the discovery and conversations surrounding overlooked psychosocial needs (Snoek, 2001). Cox, Gill-Taylor, Nowacek, Holley-Wilcox and Pohl (1984, p. 63) concluded that individuals with diabetes usually believe that stress is a major cause with control of blood sugars; however “different stressors may have differential effects for different diabetic patients.” Diabetes itself can provoke stress which then can lead to an inability to continue with medical self care (Jack, 2003). McEwen (1998, as cited in Rice, 2001, p. 214) reported that glucose levels increase from stress in diabetic individuals due to a boost in stress hormones subsequently creating a drop in “insulin action.” Furthermore, diabetics “under perceived stress may find that caring for their diabetes is less of a priority, leading to poor glycemic control, which further exacerbates the situation” (Rice, 2001, p. 214). With better control on diabetes low blood sugars become more common (Rice, 2001). Additionally, during relaxation, “the body metabolizes carbohydrate more efficiently,” essentially decreasing blood sugars (Curtis et al., 1985; Guthrie, et al., 1987 as cited in Rice, 2001, p. 214). It is possible that type 1 diabetics may have low blood sugars during relaxation exercises therefore it is vital that they are informed so they can be aware and correct blood sugars as needed (Guthrie, et al., 1987; McGrady & Bailey, 1991 as cited in Rice, 2001).

Research reviewing the effects of stress among individuals with type 2 diabetes has shown more consistent in results. Peyrot and McMurry (1992) reported that stress

was “substantially associated with an elevated HbA1C in the majority of the subgroups sampled; concluding that persistent psychosocial stress is connected with poorer control of blood sugars with individuals who struggle to successfully manage stress. This may be attributed to differences in sensitivity to stress (Peyrot & McMurry, 1992). Surwit, Schneider and Feinglos (1992, p. 1413) reported that data implied that type 2 diabetics have unusual “adrenergic sensitivity in the pancreas” among other places, suggesting type 2 diabetics are generally more responsive to taxing stimuli although more research is needed. Surwit and Schneider (1993, p. 83) concluded that “stress has been shown to affect glucose acutely and chronically” in type 2 diabetics. Despite the differences between type 1 and type 2 diabetes, the research shows that psychosocial interventions have positive effects on stress although continued research is needed (Surwit & Schneider, 1993). Surwit and Feinglos (1988, p. 83) hypothesized that the “sympathetic nervous system is linked to the pathophysiology of Type 2 Diabetes.”

Given the amount of psychosocial needs and associated negative effects with diabetes-related complications, it is imperative that diabetic patients have a healthcare model that is best able support and serve the multitude of needs associated with their chronic illness. In fact Finger and Mayfield-Arnold (2008) reported that stressors have directed many people to review CAM strategies for their health care management. Harvey and Lawson (2008) added that coping skills are significantly connected to an individual’s awareness of the daily impact of their health or lack thereof. Therefore, an individual’s day to day functioning will play a role in the choice of coping positively or negatively. Adler and Page (2008) reported that psychosocial concerns must be integrated into the health care picture.

**Conventional Medicine: Standards of Care for Diabetes**

Typically, standards of care for diabetes comprise multiple providers including but not limited to an Endocrinologist, Primary Care Provider, Diabetes Education, Registered Dietician, Dentist, Pharmacist, Ophthalmologist, and possibly a Podiatrist, and therapist (ADA, 2012). There are several imperative areas within standards of care for the psychosocial needs of individuals with diabetes. The biomedical community has outlined the standard of care of psychosocial needs' in three areas: assessment of, attending to, and referring externally as ways of managing these needs.

**Assessment of psychosocial needs.**

The ADA (2012) recommends that screening for psychosocial needs should be completed at appointments on a regular basis. Aanstoot and deWit (2007) suggested that psychosocial needs should be evaluated yearly at minimum. It is also recommended that a psychosocial assessment is given at diagnosis and occasionally thereafter in order to assess psychological, emotional and interpersonal dealings and areas affecting well being; effectiveness of familial relationships, diabetes self care and execution, threatening conduct, day-to-day dealings and sadness (Aanstoot & deWit, 2007). Additionally, Rubin and Peyrot (1992) stated that despite self-care abilities all practitioners should recognize individuals who are experiencing stress related to diabetes, use successful interventions to alleviate the suffering, recognize individuals who appear to be agonizing with mental illness, and refer these individuals to specific providers. Aanstoot and deWit (2007) reported assessments of psychological, emotional and interpersonal comfort components are a vital piece health care for diabetes, which is clearly highlighted in

current standards for diabetes care. It was difficult to find a standard assessment and clear understanding of what assessment looks like in practice within the literature.

However, despite the need for systemic assessment of the patients' life and surroundings, assessments often become focused primarily at the micro level (Glasgow, 1997). The plethora of assessment tools available may be another complicating factor in completing these assignments (Glasgow, 1997). Glasgow (1997) stated that there are specific considerations when choosing the right tool; particularly the effectiveness for the situation, the dependability within the given milieu, whether the assessment tool is particular to diabetic individuals or not, and what assessment method is the most fitting. The literature did not outline a standard assessment psychosocial assessment tool.

Glasgow (1997) also suggested that assessments need to be systemic in order to fully comprehend all psychosocial needs. Further recommendations are given on psychosocial assessment and care within the Standards of Medical Care in Diabetes (ADA, 2012), which state the importance of screening psychosocial variables and outline which variables are concerning, screening tools and suggestions for referral. However, Aanstoot and deWit (2007) suggested that among the multitude of assessment tools for adolescents managing diabetes, for example there are possible holes particularly in emotional needs and coping mechanisms. Time and expense are other difficult pieces that lead to possible gaps when fully assessing for psychosocial needs within biomedical settings (Glasgow, 1997).

### **Recommendations for addressing psychosocial needs.**

Recommendations for practice and incorporation of psychosocial needs are somewhat contradictory. The ADA (2012, p. s 16) recommends both a mutual and

comprehensive approach to diabetes care which should be grounded in a patient-centered framework however in the same recommendation it also stated that individuals diagnosed with diabetes ought to be given health care from a “from a physician-coordinated team” which is theoretically contradictory. From a social work perspective, a collaborative team would suggest equal relationships and a team led by one professional area redefines how integration will appear. This may be one area where theoretical concepts do not align with practice.

Despite this, it is evident that the care for individuals with diabetes needs to include a systematic and comprehensive methodology and participation of a subsequent group of enthusiastic practitioners within a framework where superior medical care and patient driven models are of precedence (ADA, 2012). The National Diabetes Education Program (NDEP, 2009, p. 7) reported that a “patient-centered approach” connects an individual with diabetes to their health care group in a more dynamic manner in order to generate an achievable and specific self-care arrangement that can assist the individual to accomplish the most adequate position of personal health and well-being.

Essentially, psychological health is a vital component to diabetes medical care and is often referred externally in order to meet the patients' needs (ADA, 2012). The ADA (2012) recommends that mental health needs are referred outside to a mental health professional. The ADA (2012) reported that despite the health care provider not feeling capable of managing emotional needs, the patient-provider relationship should be the necessary base to increase the possibility that the individual will follow up with a referral source. Fundamentally, the recommendations state the importance of creating a holistic plan to manage psychosocial needs.

**Outcomes of psychosocial needs in conventional medicine.**

It is argued that the self-care aspect of conventional diabetes care is often offered through diabetes self-management education; however the current allopathic system does not appear to fully meet all needs of individuals with diabetes (Ryan, Pick & Marceau, 2001). Ryan and colleagues (2001) stated that despite the progress in analytical abilities, procedural talents, and the assortment of medicinal treatments, there has been a decrease in faith between patients and health care providers. In addition to loss of trust, over 50% of participants in the Diabetes Attitudes, Wishes and Needs (DAWN) study identified having considerable anguish related to diabetes (Novo Nordisk, 2001). The DAWN study which included both people with both types of diabetes, found that less than one third of its participants reported they feel they are capable of fully controlling their diabetes independently (Novo Nordisk, 2001). Additionally, less than 50% reported getting synchronized treatment for diabetes (Novo Nordisk, 2001); which suggests that while recommendations are made for comprehensive care it may not be currently implemented in the way it was intended. According to ADA, synchronized treatment after diabetes is identified should include monitoring blood glucose, weight, complications, mental health, and psychosocial needs (ADA, 2012).

It should be noted however, that primary care physicians were found to be further prone than other health care professionals; three times as likely, to have an understanding regarding, individually pledging to, and recommending individuals for unconventional treatment options (Anson, Borkan, Neher & Smoker 1994). Doctors or doctors whose family members personally subscribe to CAM practices showed almost 50% higher referral rates to their patients. Additionally, doctors who implement CAM techniques



into their routines with patients have almost one quarter higher recommendation rates (Anson et al., 1994). Anson and colleagues (1994, p. 549) found that the most frequent CAM therapy recommendations during the month+ of practice preceding the study, was “spinal manipulation (15%), followed by acupuncture (11%), and spiritual healing (10%).”

### **CAM among Individuals with Diabetes**

It is not uncommon for individuals with diabetes to use CAM modalities. When compared to individuals without diabetes, diabetic patients were more prone to use CAM therapies than non-diabetic patients (Sadyah & Eberhardt, 2006). One study found that over 40% of diabetics reported using CAM in their lives and over one quarter of diabetics surveyed reported CAM use within the year prior to the date of the survey (Sadyah & Eberhardt, 2006). Yeh, Eisenberg, Davis and Phillips (2002) identified a higher amount in their findings. Almost 60% of participants stated that they used unconventional health care within the past year; over 30% purposely for care of their diabetes. Pagan and Tanguma (2007) reported that almost 71% of diabetics utilized a minimum of one CAM therapy during the preceding calendar year. Bell and colleagues (2006) found that unconventional methods were found at considerably increased rates for diabetics; diabetics used CAM methods almost 73% of the time compared to 61% of non-diabetic individuals which was possibly due to participants' amplified commitment to praying which was measured within this particular study. Finally, Egede, Ye, Zheng and Silverstein (2002) found a much higher rate, stating that diabetics were almost twice as probable to turn to unconventional medicine as those without. Additionally, Egede and colleagues (2002) reported that having the diagnosis of diabetes was actually an

independent predictor in the use of mind-body medicine (as cited in Garrow & Egede, 2006b).

The only study reviewed that did not show similar findings was Lind, Lafferty, Grembowski and Diehr (2006) who reported that over 17% of diabetic individuals had a minimum of one appointment with an unconventional medical practitioner; lower than that of the control group. Despite the differences in percentages, overall research points to the increased use of unconventional medicine by individuals with diabetes. However, similar to non-diabetics, diabetics appear to use unconventional medicine in addition to their biomedical health management (Egede et al., 2002).

There appear to be differences as well when reviewing conventional prescriptions versus supplements and vitamins within individuals with diabetes. Ryan and colleagues (2001, p. 242) reported that of the diabetic respondents studied, almost 80% were subscribing to recommended drugs for diabetes care, almost 45% were using “over-the-counter supplements” and approximately 30% were using unconventional medicines. This suggests that there are many individuals who choose an integrative approach to their health care practice. Additionally, some research indicates that some individuals with diabetes are not only using unconventional remedies but actually spending similar amounts when compared to conventional medications. Ryan and colleagues (2001) found that individuals with diabetes expend approximately the same amount of capital on non-prescription supplements and vitamins and unconventional drugs combined than on prescribed medication for their diabetes. This again suggests that diabetic patients have a preference for integrative approaches to their health care therefore this seems an important area that receives more attention in research.

Previous research has posed concern that diabetics using unconventional practices were not receiving conventional healthcare. A finding from Garrow and Egede (2006a) reported that almost 50% of respondents with diabetes participated in the use of CAM which was similar to previous findings. However, Garrow and Egede (2006a) found two major themes; first unconventional medicine use in individuals with diabetes did not appear to act as a barricade for prevention options or of biomedical interventions as previously believed; and secondly unconventional medicine seemed to be linked to amplified emergency medical care and appointments with general practitioners. Not only are they receiving care, they are receiving care at higher rates when compared to individuals who do not use unconventional practices. Another study found that participants in unconventional medical practices were found to have an increased typical amount of yearly primary health care appointments when measured against individuals who did not use unconventional methods; almost 30 opposed to under 20 appointments and only a minimal amount of unconventional visits were made to treat diabetes-specific symptoms (Lind et al., 2006).

There are many hypotheses for these findings. It could be likely that unconventional practices are treating side effects of the diabetes, such as other health concerns often associated with diabetes such as neuropathy or other coexisting health needs altogether (Lind, et al., 2006). Also, it may be that patients with higher number of appointments want more independence in their healthcare but still feel conventional medicine is essential or another possibility is that these patients are more ill so are choosing multiple options for their wellbeing (Garrow & Egede, 2006a). Lastly there

could be the possibility is that CAM use could be helping with emotional and psychological distress however further research is needed to determine this.

Almost 90% of participants of unconventional medicine diagnosed with diabetes stated that CAM interventions played a vital role in health maintenance as opposed to almost 80% of CAM users without diabetes (Pagan & Tanguma, 2007). Not only are individuals with diabetes using higher amounts of CAM modalities, individuals with diabetes who acknowledged postponement or not receiving medical care at all because of the expense had a 7% increased likelihood to have integrated at least one CAM intervention during the preceding year opposed to diabetics who did not report having to delay needed medical care (Pagan & Tanguma, 2007). Schoenberg, Palo-Stoller, Kart, Perzynski and Chapleski (2004) studied a diverse group of elderly diabetic individuals and found that one quarter of individuals were participating in CAM treatment modalities.

#### **Most commonly used practices.**

There are many differences among study findings regarding the most commonly used CAM practices among diabetic individuals. Egede and colleagues (2002, p. 326) identified the top CAM modalities used by diabetic individuals which included, beginning with most recognized was guidance regarding diet and including nourishment into daily practice, spiritual healing, herbal remedies, massage therapy, and meditation training. Garrow and Egede (2006b, p. 895) added additional CAM modalities in their findings, stating that diabetic patients have an increased likelihood to use prayer but less likely to use herbs, yoga, or vitamins when compared to the general population. Furthermore, in another study, Garrow and Egede (2006b) reported that almost 70% of

grown individuals with diabetes disclosed to using vitamins and prayer; almost 20% integrated an herbal remedy and used chiropractic care; over 15% used relaxation therapy, and almost 15% used another CAM modality while over 5% used a kind of diet and almost 5% used yoga (Garrow & Egede, 2006a). Garrow and Egede (2006b) also found that aging adults managing diabetes integrated a combination of “culturally specific CAM modalities” although narrow in overall diabetes care methods compared to biomedical modalities.

### **Outcomes of CAM and Diabetes.**

Ospina and colleagues (2007, as cited in Birdee & Yeh, 2009, p. 227) stated that diabetes is “associated with diminished quality of life and psychological depression and anxiety. Furthermore, Whitebird, Kreitzer and O’Connor (2009, p. 227) reported “diabetes poses a major life stress that requires considerable physical, emotional and psychological accommodating and coping.” Birdee and Yeh (2010) suggest that mind-body treatment would counter these stressors suggesting that mind-body therapies have behavioral and psychological effects that may help patients cope with disease and improved quality of life (as cited in Birdee & Yeh, 2010). Astin (1998) also reported that some CAM treatment options are eye-catching to people due to the ability to have feel empowered and involved in the health care process.

There have been many positive outcomes with CAM therapies and diabetes thus far. Although minimal, a variety of studies have looked at the effects of therapies such as breathing practices, mindfulness-based stress reduction, progressive muscle relaxation, yoga, tai chi, biofeedback, ayurvedic diets, meditation and herbal supplements therapies and their relationship with diabetes. Much of the research is particularly interested in the

health-related effects of CAM practices and while there is a lot of research to suggest that CAM practices can assist diabetics with health related concerns, many are also suggestive of relief with diabetes-related distress.

First, Martarelli, Cocchioni, Scuri and Pompei (2011, p. 623) reported that diaphragmatic breathing reduced heart rates, amplified insulin production, decreased blood sugar and decreased “free-radical production” as specified by elevated “antioxidant levels.” Second, Whitebird and colleagues (2009) conducted a literature review and found that there was a half point decrease in the hemoglobin A1c test associated with the “mindfulness based stress reduction program.” A third example, McGrady, Bailey and God (1991, p. 360) reported considerably decreased “fasting blood glucose levels, percentage of fasting blood glucose levels at target” when weighed against to the inexperienced participants; concluding that biofeedback may be a worthy addition to type 2 diabetes care. However, it should also be noted that McGrady and Horner (1999) did not discover any substantial variation between test group and control groups but indicated that participants who were not successful in treatment showed more mood dysregulation. Similarly, Song and colleagues (2009) reported that scientific examination showed augmentation of overall well-being and strain with yoga and tai chi practices in addition to lower hemoglobin A1c tests and blood sugars in type 2 diabetics. Surwit and Feinglos (1983) also found significant improvement as well in glucose tolerance without affecting insulin sensitivity or glucose tolerance with progressive muscle relaxation in type 2 diabetics.

Fourth, Innes and colleagues (2006) conducted a literature review on yoga programs used with type 2 diabetics. They found 25 qualified studies which showed the

possibility of progress with threatening summaries although inadequacy among studies is preclusive to making solid confirmation of findings. Aljasir, Bryson and Al-shehri (2008) conducted a review of yoga among individuals with type 2 diabetes and indicated progress with type 2 individuals; however mostly temporary or insignificant. Findings included no unpleasant results for participants. Bijlani and colleagues (2005, p. 267) reported that “fasting plasma glucose, serum total cholesterol, low-density lipoprotein (LDL) cholesterol, very LDL cholesterol, the ration of total cholesterol to high density lipoprotein (HDL) cholesterol and total triglycerides were significant lower and HDL cholesterol significantly higher” at the end of the course to the start among participants with cardiovascular disease and diabetes. Lastly, Elder and colleagues (2006) found that over 90% of individuals with type 2 diabetes undergoing treatment including ayurvedic diet, meditation instruction and herb supplements completed however no noteworthy variations were found when compared to the control group. Although blood sugar taken after no consumption, “total cholesterol, low density lipoprotein cholesterol and weight were statistically significant” when HbA1c surpassed the average (Elder, et al., 2006, p. 24). Elder and colleagues (2006) indicated that current Ayurvedic research is inadequate compared to normal research principles.

### **Risks.**

First, Ernst (2000) reported that several varieties of CAM therapies also have associated hazards “acupuncture for instance has caused deaths and other serious complications through infection and trauma; chiropractic treatment has done so through vertebral arterial dissection after upper spinal manipulation; and herbal medicines have caused serious complications through hepato- and nephrotoxicity as well as herb-drug

interactions” although atypical the precise occurrence remains unidentified at this time (as cited in Ernst 2001, p. 1486). One example found from Izzo and colleagues (2001, as cited in Barnes, Powell-Griner, McFann & Nahin, 2004) indicated that aromatic plants have been found to have “potentially fatal consequences” when interacting with some prescription medications.

Second, another concern with the current structure of CAM use is the minimal amount of patient-doctor consultation and ensuing adverse side effects. Eisenberg and colleagues (1998) reported that there has been a substantial increase in the amount of individuals who met with both a biomedical practitioner and unconventional practitioner from less than 10% in the early 90s to almost 15% in the late 90s. Of these patients who incorporated both conventional and alternative therapies, only slightly over 38% discussed these alternative interventions were discussed with their physician (Eisenberg, et al., 1998). Similarly, Eisenberg and colleagues (1993 as cited in Eisenberg, 1997) reported that almost three quarters of individuals who admitted to CAM use did not report it to their medical doctor. Another study, found even less; Druss and Rosenheck (1999) found that less 20% who integrated both unconventional and conventional medicine practices informed their medical doctor about their CAM use. This is concerning due to the possibility of unfavorable interactions when integrating some CAM remedies with drugs prescribed by a medical doctor (Wynia, Eisenber & Wilson, 1999).

However, individuals with diabetes appear to have different communication with their biomedical practitioners than individuals without diabetes. Over 50% of consumers of unconventional medicine diagnosed with diabetes informed their physicians about their unconventional medical use compared to only about 40% of those without diabetes



(Pagan & Tanguma, 2007). In another study, Egede and colleagues found that 60% of diabetics informed their use of unconventional medicine with their conventional health provider as opposed to less than 30% of individuals without diabetes (Egede et al., 2002). Additionally, over 40% of diabetics also indicated receiving referrals from their conventional health care providers to unconventional medicine practitioners (Egede et al., 2002). Despite the increase of communication and referrals between diabetics and their doctors, there are still concerns that between 40% and 50% do not communicate to their doctor. When it comes specifically to individuals with diabetes, this is a larger concern due to potential adverse reactions.

The responsibility of communication is suggested to be the responsibility of the health care provider. Birdee and Yeh (2010) recommended that conventional health providers begin conversations with diabetic patients about their utilization of unconventional therapies as often patients are not revealing such use. Eisenberg (1997) also agreed and stated that it is physicians' responsibility to advise patients about inadvertent drug interactions and the fact that these interactions are not fully understood.

Another concern is that there is some doubt associated with conventional medicine among patients. One quarter of CAM users felt that biomedicine would not be unable to assist them and over 10% believed that conventional medicine was too costly; however CAM therapies are only recommended 25% of the time (Barnes, 2004). Adams, Cohen, Eisenberg and Jonsen (2002) suggested that if a person seeing a conventional medical provider is not encouraged when exploring unconventional healing options, the patient-provider relationship may be damaged. Additionally, it is important that the provider understand why patients are using the treatment options that they selected.

Although, Adam and colleagues (2002) encouraged CAM therapies, they also outlined ethical aspects that need to be considered when choosing treatment convention and nonconventional treatment options including

“severity and acuteness of illness, curability with conventional treatment degree of invasiveness, associated toxicities, and side effects of conventional treatment; quality of evidence of safety and efficacy of desired CAM treatment, knowledge and voluntary acceptance of those risks by the patient, persistence of the patient’s intention to use CAM treatment” (p. 660).

### **Barriers to Implementation of IM**

There are several barriers that affect the current system from making needed changes to implement integrative medicine as a common framework. Research has outlined time, cost, accessibility, patient-centered care in a disease-modeled society, and differences in disease models.

#### **Time.**

One reason behind this may be patients’ inability to interact with health care physicians. Peeples and Seley (2007) reported that on average most diabetics see their health care practitioners approximately one hour per year which appears inadequate for the daily involvement diabetes requires, not to mention the adjustments with individual routines and activities. This suggests that time acts as a barrier within the current conventional medical system to having adequate time to look at patient needs’ in a holistic manner. Providers have also noted that it is already hard enough to meet with patients with the already bleak time restrictions (Hansson, et al., 2008; Deen, et al., 2003 as cited in Maizes, et al., 2009). Maizes and colleagues (2009) reported that time plays a

major role in the likelihood of comprehensive care due to the average appointment times in the current medical system. Furthermore, practicality may play a role in why psychosocial needs are not assessed or addressed effectively (Glasgow 1997). However, Freeman and colleagues (2002, as cited in Maizes, et al., 2009) reported “longer consultations resulted in fewer prescriptions, better handling of psychosocial problems, and empowered

### **Cost and accessibility of CAM.**

Barrett and colleagues (2003) reported that unconventional medicine is more perceptive while conventional is logical; hence the need for both strengths in health care settings. Given this need, CAM is frequently “less financially and institutionally accessible, at least for those with conventional health insurance and limited income” (Barrett, et al., 2003, p. 937). However, despite the fact that insured patients have coverage for extensive procedures they may lack the ability to pay for out-of-pocket expenses for less risky integrative methods (Bodeker & Kronenberg, 2002). In fact, Astin (1998) reported that U.S citizens spend more on unconventional medicine than on all hospital care. However, the overall medical costs often force individuals to choose between fundamental requirements to live and care needed for overall wellbeing (Arts, et al., 1991 as cited in Bodeker & Kronenberg, 2002). Another cost barrier in addition to overall health care interventions is associated with comprehensive assessment (Glasgow, 1997). This creates barriers from the start of the process of providing holistic care.

In developed countries CAM is often connected to people with superior revenue and advanced schooling (Eisenberg, et al., 1998). Bodeker and Kronenberg (2002, p. 1589) argued that “unmet needs of ethnic minorities, women, children, the poor, the

elderly, and persons with special medical conditions must be considered in the establishment of a public health research, framework and priorities for action.” These populations do not appear to be identified as those receiving integrative health care (Eisenberg, et al., 1998).

Not only are patients affected by the disparities in the current health care system, in fact, Maizes and colleagues (2009) reported that conventional health care providers are not able to remain financially sustainable if they choose to increase the length of the appointment that would be necessary to holistically review the patient’s needs. However, there has been recent legislation associated with the Affordable Care Act that aligns very nicely with the integrative medicine, patient-centered care model (Institute of Medicine, 2001). There is a possibility with this legislation to effectively meet patient needs and keep overall costs down however these findings will take some time to surface (Institute of Medicine, 2001). Additional research suggests that CAM practices decrease the need for acute care in turn creating a cost savings (Maizes, et al., 2009).

### **Payers.**

Maizes and colleagues (2009) reported that the focus of care is often prioritized by “acute followed by chronic disease management with minimal funding or attention paid to preventative care.” Additionally, O’Connell (2001) noted that the dual healthcare framework is expensive in our current framework. Many changes are needed to move to an integrative system (Maizes, et al., 2009, p. 14). Peeples and Seley (2007) added that self care behaviors including the assessment of and interventions associated with self care needs must become recognized by insurance companies in order to improve diabetes care.

**Patient-provider relationship and models of disease.**

Aside from the barrier of time limits, costs, and accessibility, diabetic patients and doctors look at health and disease in different manners which may impact outcomes and the patient-provider relationship. Loewe and Freeman (2000) found that patients with type 2 diabetes are often concerned with diabetes when it begins to interfere in their interpersonal realm while doctors' focus and training is to understand the contributory factors and how to avoid further development of the disease. Essentially, research suggests that reviewing and increasing congruence in communication between physician and patient may lead to better outcomes which may also expand the current conventional medicine framework and amplify the participation of diabetic individuals (Loewe & Freeman, 2000). O'Connell (2001) suggests that when we are unaware of an individual's comprehensive health care plan or feelings of displeasure then excellent care cannot be provided. O'Connell (2001) recommends that a comprehensive system may allow for more of those conversations in turn increasing teamwork among all health care providers involved.

Not only does direct communication affect outcomes, but indirect communication or unconscious beliefs also appeared to play a role in outcomes. In another study, African American patients with type 2 diabetes were found to have more self care behaviors based on their healthcare professional's beliefs associated to diabetes thus suggesting that the professional's opinion forecasted their diabetes management actions (Tang, Stansfield, Oh, Anderson & Fitzgerald, 2008). Heisler, Bouknight, Hayward, Smith and Kerr (2002) similarly reported that diabetic individuals' assessment of their doctor's ability to communicate and engage in patient-driven style of making choices

were vigorously connected with their description of self care related to diabetes.

Moreover, health care professional's beliefs and communication styles may contribute to outcomes therefore it is important to ensure that psychosocial needs are continued.

Being on the same page and feeling connected is important in diabetes management. Maddigan, Majumdar and Johnson (2005) reported that positive awareness of rapport between individuals with type 2 diabetes and healthcare personnel straightforwardly resulted in compliance with nutrition and physical activity and was the strongest forecaster of feelings of proficiency in taking care of diabetes. NCCAM (2012) recommends that patients using CAM therapies should inform their conventional practitioner to ensure safety. Unconventional providers suggested rather that individuals using unconventional medicine feel heard by their CAM provider and believe they are more autonomous in making choices regarding their health care, more encouraged, are worried about wellbeing with allopathic options, feel connected to values associated with unconventional options and do not have accessibility to biomedical options (Astin, 1998; Eisenberg, 1997). Furthermore, although it appears necessary to better train our physicians on complementary practices, Rice also suggests that professionals of alternative medicines also should be grateful for accomplishments made in the biomedical field.

#### **Need for regulations and research.**

Barrett and colleagues (2003) reported "the total number of visits to CAM healers was said to be 425 million in 1991 and 629 million in 1997; compared to less than 390

million to conventional primary care physicians during the same years. Despite the high amount of patients choosing to integrate health care options, there remains a lack of regulation which may have a role in the inconsistent integration of both conventional and unconventional options. The World Health Organization (WHO) Traditional Medicines Strategy (2002-2005) focused on four areas that will require action if the prospect of integrative medicine in public health has a chance to be fully taken advantage of which include “policy, safety, efficacy, and quality; access; and rational use” (2002-2005, as cited in Bodeker & Kronenberg, 2002, p. 1583).

Additionally there may be barriers to integrating this type of research into the current system, as Maizes and colleagues (2009) suggest that part of the struggle is due to the lack of shared language creating a gap in communication regarding research.

#### **Concerns between conventional and unconventional providers.**

Barnes (2004) pointed to shared misinterpretation and common incongruity between conventional and unconventional medical providers. There appears to be different concerns between both parties. One common dispute from biomedical professionals is that CAM techniques lack the research outcomes that are needed to establish effectiveness. However, CAM professionals dispute this point with the stance that many of the categories of alternative medicine options are not applicable to examine within the structure of the biomedical research model (Furham & Forey, 1994). Furnham and Forey (1994, p.459) suggested that because CAM interventions began from a different theoretical perspective about the “nature of human beings, health, illness and therapy” that in turn created a need for finding different research methods as conventional research methods may not work for CAM studies. This is further

complicated by the reality that often too many variables are involved in making it difficult to prove effectiveness. Also, traditional medical practitioners argue that there is a lack of accountability parameters for CAM providers. Another belief held by biomedical providers is that CAM outcomes are often attributed to the “placebo effect” (Furnham & Forey, 1994). However, these beliefs held by conventional professionals are beginning to dissolve by many (Furnham & Forey, 1994).

Frenkel, Ben-Arye, Geva and Klein (2007) reported that it is common for CAM providers to feel divided from allopathic health care professionals. Barret and colleagues (2004) reported a juxtaposition that CAM providers would like more unification between traditional and CAM practices but mentioned apprehension regarding hurdles for blending practices, such as unavailability for some, expenditure, mistrust and antagonism among others. However, CAM providers also have responsibility in bridging the gap between providers.

One contributing factor could be that there is minimal consistent education for CAM providers and minimal contact of CAM scholars to conventional medicine and there is a propensity with CAM scholars and providers to have a pessimistic outlook with biomedical providers (Hollenberg, 2006; Shuval et al., 2002; Weeks et al., 2005, as cited in Frenkel et al., 2007). Frenkel and colleagues (2007) reported that scholars studying CAM therapies felt they should better learn how to correspond with professionals within the traditional medical field. Frenkel and colleagues (2007) outlined six themes from respondents which included the need for a collective idiom, ways to converse, assurance and vigor, analytical processing, self examination, amalgamation of conventional and nonconventional medicine, and continued exploration and investigation of the integration



of CAM and conventional medicine. Frenkel and colleagues (2007) reported that scholars felt more prepared to communicate.

### **Recommendations and referrals for CAM use among diabetics.**

On one hand, there is collaboration between both CAM and conventional medical professionals about the need to discuss all health care strategies within diabetic standards of care. In fact, the ADA (2004) strongly urges conventional medical providers to discuss CAM practices with their patients. On the other hand, there are different views about one another's strategies between both conventional and unconventional providers when treating diabetes. Conventional providers are often concerned about the efficacy about CAM therapies with diabetic health care just as they are with use in general population. For example, the ADA (2004) clearly defined the common features that unverified treatments have such as alternative therapies being created independent of reputable and systematic organizations and usually not presented with precise scientific qualifications, include:

- mismanaged presentations taken out of context from technical articles,
- present with embellishments included within outcomes,
- therapies may be likely profitable for creators,
- advocates often deject or decline collaborative discussions before evaluation by trustworthy and sound medical doctor or researcher, and
- creators and supporters regularly maintain the stance that there is a biomedical scheme behind the others' opposition.

For example, Jones and colleagues (2006) stated that several African Americans from rural areas stated that they were suggested not to consume CAM products due to the

unidentified side effects and many participants stated that there is limited data on unconventional medicine and diabetes

Additionally, there are mixed messages about recommendations regarding CAM treatments in the research and in the ideal standards of care. Ernst (2001, p. 1487) outlined certain unconventional treatments suggested within the literature for individuals with diabetes including biofeedback, herbal supplements, meditations, qigong and yoga among others; but also acknowledged that unconventional therapies present in implicit and explicit safety concerns and ought to be submitted for participation to review both advantages and contraindications. Cohen and Eisenberg (2002, as cited in Birdee & Yeh, 2010) also reported that there is an importance for medical doctors to assist patients in looking at both effectiveness and security.

### **Current Steps toward Integrative Medicine**

In summary, diabetes must have some health management grounded in conventional medicine. However, conventional medicine does not appear to meet the full spectrum of psychosocial needs. It appears necessary to make some changes within the current medical system in order to holistically treat individuals with diabetes (Maizes et al., 2009). Considering that plethora of barriers in our current system, integrative medicine appears the most appropriate model as IM is grounded in patient-driven, team-focused care (Maizes et al., 2009). Integrative medicine could have many facets that would fit nicely with the extensive and systemic needs of diabetics. Integrative medicine incorporates both conventional and complementary medicine (Myklebust et al., 2008). In addition to a holistic framework, CAM strategies have also been shown to trigger physiological responses in the body to decrease stress (Selhub, 2007). Additionally,

Kliger (2004) suggested that mind-body interventions are an essential part of a promising therapeutic direction for diabetics. The Bravewell Collaborative (2011) reported that of 20 clinical conditions treated in over 29 integrative medical centers studies throughout the country, stress was actually one of the five conditions that showed the most success in outcomes.

Along with the cautious messages communicated by conventional practitioners about CAM therapies, there has also been positive feedback from within the biomedical community as well. O'Connell (2001) suggested to her biomedical colleagues that becoming more knowledgeable about CAM therapies in order to find the best management protocol is essential. In fact, O'Connell (2001) stated that the importance is increasing as the current allopathic system is no longer caring for patients' needs, real or alleged. Barnes (2004) reported that over one quarter of consumers of unconventional medicine were recommended to try it by their biomedical provider.

Despite the continued barriers within our current allopathic medical system for an integrative approach to health care, changes appear to be occurring in both education and in practice. Staples and Gordon (2005) reported that CAM is being included in medical school curricula more regularly however unfortunately it is still minimal. Additionally, Staples and Gordon (2005, p. 36) reported that following a mind-body techniques instruction course, there was "a significant increase in personal use of mind-body skills and the number of participants who were teaching their clients to use all modalities and a significant decrease in the number of participants who were referring to others for training." And Ernst (2001) reported that these thoughts are changing (as cited in Barrett, et al., 2003). Despite these steps, a greater understanding is needed regarding how

integrated medicine is being conducted with individuals with diabetes in primary care settings.

**Research Question:** Is integrative medicine being conducted by healthcare professionals to address type 1 and type 2 diabetic patients' psychosocial needs in family medicine and primary care settings? Is IM being assessed, referred and implemented in family medicine and primary care settings?

## **Methods**

### **Research Design**

A mixed method design was used for this exploratory survey. The survey included both quantitative and qualitative components. Participants were asked to complete this survey online. There were 27 quantitative questions and four qualitative questions within the Integrative Medicine Questionnaire for Healthcare Professionals survey, which was created by the investigator for the purposes of this study. The quantitative questions asked a variety of items regarding professional characteristics, the participant's understanding of alternative medical models, general patient demographic information, beliefs about alternative medicine, psychosocial needs of patients served, complementary and alternative medicine practices, demographic information, and thoughts regarding integrative medicine. The qualitative questions allowed participants to explain differences in psychosocial needs between different types of diabetes, their beliefs of the effects of stress on diabetes, outline typical reasons for CAM referrals, and clarified whether professional values of individuals working in family medicine align their values with those of complementary and alternative medicine and/or integrative medicine.

### **Sampling and Recruitment**

The sample was drawn using dual non-probability sampling techniques; both availability and snowball sampling were used in this study. The researcher sent an email with a link to gain access to the survey to a chosen administrator at the clinic who forwarded the email onto the various health care staff at the clinic. The individuals who chose to participate in the study received a prompt in the survey to forward the email onto any other health care professionals that also met the criteria of working in a primary care and family practice settings. Due to the large cost and time frame it would demand to gain a complete sampling frame within this population, it did not appear viable (Monette, Sullivan & DeJong, 2011). Given the large majority of medical settings treating diabetes in the Twin Cities area paired with the nine-month time limit to complete this research, it appeared unfeasible to draw from a probability sample for the purposes of this study. Much of the current research on CAM or IM models has only reviewed the effects on the physiology and not as a model to address diabetics' psychosocial needs; therefore this study increased the possibility to move forward in researching this population in the future.

Participants are healthcare professionals recruited through a family medicine clinic within the Twin Cities area in Minnesota. This clinic was chosen due to its specialization of diabetes care organization-wide. Participants had to currently work in a conventional primary or family medicine clinic otherwise their data was excluded from the findings. The researcher estimated approximately 30 participants will respond. The unit analysis for this study is individual.

### **Data Collection**

The data was collected in a cross-sectional, one time survey of voluntary respondents. The survey was developed with the assistance of an online survey instrument, Qualtrics by the investigator due to the inability to find any survey options for health care professionals regarding integrative medicine. The survey questions were arranged in a non-threatening and straight-forward manner (Berg, 2012). See Appendix C for survey example. The survey was piloted among individuals within both social work and nursing fields and feedback about the survey was delivered verbally directly to the researcher. The researcher provided participants access to the instrument via email. See Appendix B for details regarding the consent form that was given to all participants prior to beginning the survey instrument. Participants that did not complete the letter of informed consent document were not allowed to continue participation in the study. The researcher obtained access to respondents' answers via Qualtrics, an online survey tool.

### **Protection of Human Subjects**

In order to protect the participants of this study, the study was evaluated and determined appropriate by the University of St. Thomas Institutional Review Board prior to data collection. All participants were informed prior to partaking that participation was voluntary and they were able to withdraw from the survey at any time. It was not possible for the researcher to identify participants from the survey itself as no identifying information was collected linking participants to their data. Healthcare employees at a local clinic received an email with attached link in order to access the survey.

Participants anonymously took an online 37-question survey via Qualtrics in order to protect their confidentiality. Survey data was stored on the Qualtrics database protected via password. The quantitative data received from Qualtrics program was

entered into a spreadsheet which was saved on a jump drive. The jump drive was stored in a locked cabinet at the researcher's home with access only to the researcher. The computer which was used by the researcher for all research-related tasks was password protected; only known by the researcher. The qualitative data was reviewed on the Qualtrics database. The codes and themes were saved and stored on the same jump drive as the quantitative data. Records will be saved until June 1, 2013 at which point the jump drive holding the data will be destroyed.

### **Data Analysis**

The hypothesis for this study is: integrative medicine is not being conducted (assessed, referred, or implemented) in a way that addresses and supports diabetics' psychosocial needs. Quantitative data was measured using both descriptive and inferential statistics. Descriptive statistics was conducted following data collection and will include frequency distribution and measure of central tendency and dispersion. Inferential statistics was conducted and included chi square, correlation, and t-tests.

Qualitative data was analyzed using a qualitative coding strategy, content analysis. Content analysis is a comprehensive assessment of materials, in this case survey data, in order to discover commonalities, ideas and implications within the survey data (Berg, 2012). A code assists in identifying the data, and a theme is a concept that is created once three or more of the same code has been recognized in the data, which assists in understanding the data (Berg, 2012). Open coding was used to determine codes within the data. Open coding is a process in which conclusions are held until all text has been coded and the researcher remains true to the text without embellishment (Berg,

2012). Three instances of a code creates the basis for a theme (Berg, 2012). Each theme consisted of three direct quotes from the respondents.

### **Strengths and Limitations**

There were several strengths associated with this study proposal. First, this project appears likely feasible due to the small extent being studied. Second, the small number of individuals participating in this study decreased the problems often related to time needed to collect and analyze the data (Monette, et al., 2010). Third, due to the small extent and number of individuals being studied financial considerations did not appear impractical (Monette, et al., 2010). Fourth, this survey included open-ended question which are often helpful as exploratory studies tend to increase theoretical development (Toft, 2012). Fifth, anonymity was contained given the use of Qualtrix program. Sixth, this survey added to the limited understanding we have about integrative medicine and diabetes care.

Due to nature of study being a new area of research territory, there were limitations associated with this study. First, there was a lack of representativeness to the general population which compromises external validity given the sampling technique and sample size (Monette, et al., 2010). Second, the degree of sampling error remains unknown (Monette, et al., 2010). Third, there were two threats to internal validity, which included history because the study is only being conducted on a one time basis and instrumentation due to unknown validity and reliability of the new survey being used (Toft, 2012). The fourth limitation is that it was impossible to really know who answered the questionnaire, however because it is sent in a secure way to individually protected email addresses, it decreases the likelihood of this limitation (Toft, 2012). Fifth, non-



response bias also affects the generalizability of findings (Monette, et al., 2010). Sixth, there was a possibility that participants would feel pressured to give politically correct responses given the title of the survey; however the anonymity of the survey has hopefully decreased this likelihood (Toft, 2012). Last, this research may have been exclusive of those individuals without email access or who may not be on the email list, which did not allow the researchers to access their information however the clinic being surveyed had a protocol that all employees receive email access during orientation so this may have decreased the likelihood of possible exclusion (Toft, 2012). In conclusion, given these limitations, the ability to generalize the sample to the population is not be possible. However, given the infancy of this area of research, these limitations are acceptable for this study,

### **Findings**

Both descriptive and inferential statistical analyses were completed on quantitative questions in attempt to gain a more thorough understanding of the research question. Additionally, qualitative questions were coded and themes were derived. Descriptive statistics explored respondents' gender, education, years in practice, personal and professional similarity and beliefs of CAM, views regarding Integrative Medicine, differences in patients' needs, stress and treatment of stress among patients, assessment of CAM, referral to CAM providers, and implementation of CAM in primary care settings.

Inferential statistics explored associations between education degree and variables of CAM implementation, referrals to CAM for additional care and CAM referrals for psychosocial needs; asking diabetic patients about CAM and variables of referring for

CAM for additional care, implementing CAM in office visits and similarity to professional values to IM; and CAM referral for additional care and variables including professional identity and personal use of CAM. Additionally, similar values to IM and asking about psychosocial needs, and understanding IM principles were explored; asking diabetics about psychosocial needs and variables including psychosocial interventions on treatment plan and asking non-diabetic patients about psychosocial needs; understanding IM principles and beliefs in framework; and lastly number of years of practice and percentage of CAM curricula in academic settings. All Inferential statistics used a p-value of .05 or less to determine significance in analyses.

## **Respondents**

### **Gender.**

The sample size consisted of twenty-five respondents. All of respondents answered Question 37, "Which gender do you identify with?" The findings of this study showed that 7 of the respondents are male (25%), 18 are female (64.3%), and there were no respondents who identified as transgendered. These findings show that the majority of the respondents were female.

### **Education and years in practice.**

The majority of respondents (71.4%) identified that the highest amount of education received was a "Professional Degree" defined as either an Medical Doctor (MD), Doctor of Osteopathy (DO) or Juris Doctor (JD). The remaining respondents identified having achieved an "Associate's Degree" (3.6%), a "Bachelor's Degree" (7.1%), or a "Master's Degree" (7.1%). Respondents who identified as a Medical Doctor (18 respondents) had the largest presence in the survey (64.3%). The remaining

participants identified themselves as a Nurse (10.7%), Doctor of Osteopathic Medicine (7.1%), or under the response titled "Other" (7.1%).

Of the 22 respondents who answered Question 36, which asked, "How many years have you been practicing your profession?" the mean percentage was 14.86 with a standard deviation of 13. The minimum response was 1 year and the maximum response was 33 years.

As Figure 1 shows, Respondents reported a minimum of 0% to a maximum of 20% of their academic curricula was focused on CAM. Of 25 respondents, the mean percentage was 5.69% with a standard deviation of 4.6%. The data appears positively skewed.

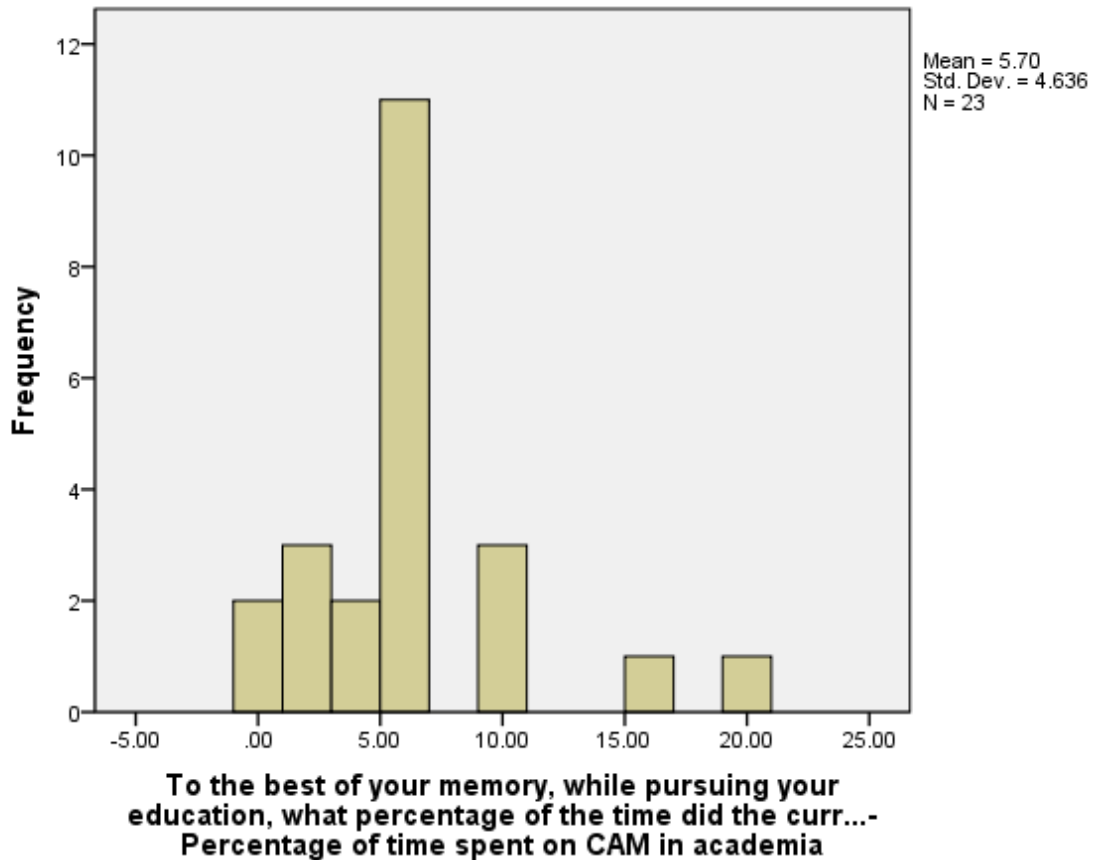


Figure 1. Percentage of Time Curricula Focused on CAM  
 Minimum 0%, Maximum 100%

**Personal and Professional Familiarity of CAM**

When asked Question 21, “Do you practice Complimentary and Alternative Medicine personally?”, 13 respondents (46.4%) replied, “No, I have never tried.” Additionally, 7 respondents (25%) chose the response option, “Yes, sometimes”, 3 respondents (10.7) replied, “Yes, but not currently”, and 2 respondents (7.1%) chose “No, although I have tried I am not currently practicing.”

Of the 25 respondents who replied to Question 20, “Professionally, how familiar are you with interventions?” approximately 60% replied “Somewhat”, almost 18% replied “Not Familiar,” and almost 11% replied “Very Familiar.”

### **Similarity of Beliefs among Models**

Of the 25 respondents who responded Question 34, “Which of the following statements best fits with your beliefs on ?” all of the respondents replied, “I feel that some of the principles fit my beliefs while others do not.” Respondents were asked to “Please explain what [CAM] principle(s) fit your values.” Of the 16 respondents who responded to the question several themes including lack of research and evidence, mind-body connection and patient-centered focus.

#### **Lack of research and evidence.**

The first theme and the largest representation in responses was the theme of there being a lack of research and evidence. The following are examples of the theme:

*“There are components of CAM that I see no evidence for and so don’t value their use. I am very open to anything that works but like to see evidence that it does.”*

*“Some treatments are not evidenced based.”*

*“Certainly agree with relaxation methods-yoga, etc. However, herbs/supplement research studies have shown little/no benefit to people with diabetes.”*

*“More research needed to validate therapies”*

*“Biggest issue for me currently is evidence basis tends to be weak.”*

*“Most of the complementary an alternative medicine treatments [sic.] are not supported by data.”*

**Mind-body connection.**

Secondly, the mind-body connection was apparent among respondents when explaining what Integrative Medicine principles fit their values. The following are examples of this theme:

*“Mind-body connection is essential to recognize in treatment plans”*

*“The ideas of mind, body and spirit needing to be addressed to fully help the patient.”*

*“Mind and body connection [sic.]”*

**Patient-centered focus.**

Third, the holistic, patient-centered focus was also noted among responses. The following are examples of this theme:

*“Teamwork, working with patient to mutually agree upon treatment options”*

*“...If the patient says it helps, then why not use it”*

*“Patient centered, whole-person in context of the environment”*

**Views on Integrative Medicine**

Of the respondents who answered Question 29, “How well do you feel you understand Integrative Medicine?” 25% replied, “A little,” 50% replied, “Somewhat,” and slightly over 14% of participants stated, “A lot.” When asked Question 33, “How similar are your professional values to Integrative Medicine?” the majority of respondents identified that their values are “Somewhat” similar to Integrative Medicine (60.7%).

Of the 25 respondents who replied to Question 32, “How much do you agree with the following statement: Integrative Medicine is becoming the new framework within the healthcare industry?”, almost 40% replied “Neither Agree nor Disagree”, approximately

32% responded “Disagree” or “Strongly Disagree”, and almost 18% of participants replied to “Strongly Agree” or “Agree.”

### **Difference in Patients Needs**

Of the 26 of the respondents replied to Question 7 “Do you primary treat more patients with type 1 diabetes or type 2 diabetes.” Of those 25 respondents, the majority (24 respondents) reported they treat more type 2 diabetic patients than type 1 diabetic patients (1 respondent). The majority of the 25 respondents (71.4%) who answered Question 8, “Are there any differences between the psychosocial needs of type 1 and type 2 diabetics?” reported “Yes.” Those respondents that replied “Yes” were prompted to explain their response further; several themes were noted. The follow-up Question 9 that was asked was, “What are the differences you noticed?” regarding the differences in needs between patients with type 1 diabetes versus type 2 diabetes. However, responses indicated that age, managing weight, increased co-morbidities, greater life-threatening consequences, lifelong stressors, ongoing management and compliance may all be areas to investigate further.

### **Stress Among Patients**

Of the 25 respondents who answered Question 11, “Do you believe stress has a negative effect on your diabetic patients’ control?” 23 respondents answered “Yes” (82.1%) with the remaining respondents answering, “Somewhat.” The follow-up Question 12 asking, “Why do you believe that stress has negative effects on patients’ diabetic control?” provided 20 qualitative responses. Several themes were noted from these results including “management,” “increases blood sugars,” “overall daily habits for diabetes management,” and “distraction.”

**Management.**

First, “management” of patients’ medical regimens had the most number of responses amongst the four themes as something that is affected by stress among diabetic patients. This theme appears to look specifically at the patients’ decreased ability to manage day-to-day medical obligations. A few examples of this theme were captured in the following responses:

*“Stress affects adherence...”*

*“Harder to manage”*

*“In general, people who are stressed are less likely [sic.] to take care of themselves medically.”*

*“When patients feel stressed they may not take care of themselves as well as they do when under less stress.”*

*“It seems like patients with great stress have difficulty managing all of the parts of diabetes care”*

*“When life is stressful, they take less care of the DM2 [Diabetes Mellitus type 2]”*

**Increases blood sugars.**

A second theme that was identified among the responses was that stress “increases blood sugars.” The following responses are examples of this theme:

*“Stress increases blood sugar levels”*

*“[Stress] certainly leads to increases in blood glucose.”*

*“Stress affects self management and raises blood sugar”*



**Overall daily habits for diabetes management.**

A third theme found among respondents was that stress effects “overall daily habits for diabetes management.” Habits specifically identified among respondents encompassed eating and testing blood glucose. The following are responses that are examples of this theme:

*“Stress...directly related to eating/exercise habits”*

*“[Stress] has a huge impact on ability to deal with day to day tasks (ie testing/eating)”*

*“Less dietary control due to stress-related eating.”*

**Distraction.**

A fourth theme that emerged was “distraction” as a consequence of stress. The following are responses that are examples of this theme:

*“Distracts from focusing on healthy lifestyle”*

*“Difficult for them to focus on the disease and what they need to do.”*

*“They tend to care less about it because other matters are more immediately[ sic.] important”*

**Treatment of Stress**

Respondents were also asked Question 10, “Do you think conventional medicine should treat stress as part of typical approach to diabetes care?” The majority of the 25 respondents (53.6%) who answered this survey question, replied “Strongly Agree” to this question. The remaining respondents chose “Agree” (28.6%) or “Neither Agree nor Disagree” (7.1%). None of the respondents chose the “Disagree” or “Strongly Disagree” response options. When 25 respondents were asked Question 26, “How likely would you

be to refer a diabetic patient to providers to treat stress?", 10 reported "Likely," 9 stated "Undecided" and 6 replied "Unlikely."

### **Assessment of CAM**

Of the 25 respondents (89.3%) who replied to the Question 38, "Do you ask your diabetic patients about their use of CAM during office visits?" 57.1% replied "Yes" and 32.1% answered "No." Of the 24 respondents who answered Question 16, "How often are patient psychosocial needs discussed between yourself and non-diabetic patients?" 13 respondents replied "Most of the Time" (46.4%), 9 respondents reported "Sometimes" (32.1%), 1 replied "Never" (3.6%), and 1 replied "Always" (3.6%).

### **Referral to CAM Providers and Interventions**

When asked Question 25, "How often do you refer patients to Complimentary and Alternative Medicine providers for psychosocial needs specifically?," 14 replied "Rarely," 8 individuals stated "Sometimes," 2 respondents reported "Never" and 1 respondent reported "Often" as shown in Figure 2.

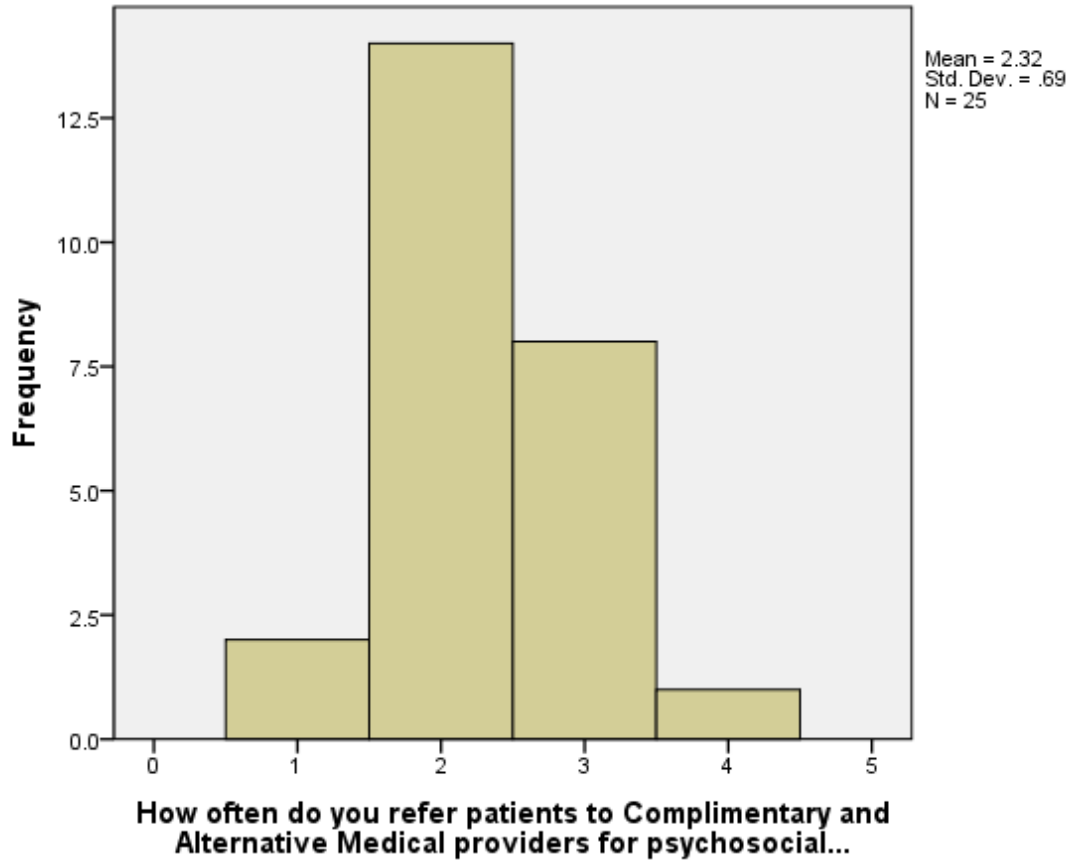


Figure 2. Frequency of CAM Referrals for Psychosocial Needs  
1=Never, 2=Rarely, 3=Sometimes, 4=Often

When asked Question 27, “If you do refer diabetic patients to CAM providers, please mark any of the possible interventions suggested?” respondents that do refer, 94% refer to “Mind/Body Interventions” (i.e. Yoga, Acupuncture, Meditation), 56% of respondents refer patients to “Manipulative and Body-Based Practices” (i.e. Massage, Spinal Manipulation), and 28% of healthcare providers refer patients to “Movement Therapies” (i.e. Feldenkrais method, Pilates, etc.). Additionally, 6% refer to “Energy Manipulation” (i.e. Magnet therapy, Qigong, Reiki, etc.), 6% refer to “Traditional Healers” (i.e. Native American healer/medicine man, etc.) and 11% refer to “Other.”

When respondents were asked Question 23, "How often do you refer patients to Complimentary and Alternative Medicine providers for additional care?" 11 respondents replied "Sometimes," 10 reported "Rarely", and 4 respondents replied "Never."

Of the 25 respondents who replied to Question 17, "How often do you include interventions for psychosocial needs on the treatment plan for your diabetic patients?", only 2 response options were chosen; 10 replied "Very Often" (35.7%) and 15 replied "Occasionally" (53.6%).

### **Implementation of CAM in primary care settings**

Respondents were asked their beliefs in Question 22, "Are Interventions ever implemented during an office visit by yourself or other medical health colleagues?" to determine if any factors were associated the implementation of Integrative Medicine and what, if any barriers prevent Integrative Medicine in healthcare settings.

#### **Factors affecting implementation of IM.**

Responses to Question 30 asking, "What factors play a role in implementing Integrative Medicine within healthcare settings?," displayed that 21 respondents (84%) endorsed "Funding Streams/Reimbursements," 19 respondents (76%) reported "Diversity of Staff Roles/Interdisciplinary Teams," 19 (76%) of participants acknowledged "Time," 10 respondents (40%) reported that "Administration" was a factor and lastly, 6 participants stated there were "Other" contributing factors affecting the implementation of Integrative Medicine.

#### **Barriers to IM.**

Responses to Question 31, asking "What, if any, of the following barriers prevent Integrative medicine in healthcare settings?" displayed that 21 respondents (84%)

endorsed “Cost,” 17 participants (68%) felt “Time,” 17 respondents (68%) felt “Accessibility,” 15 responded (60%) to “Provider Willingness/Openness,” and 13 respondents (52%) to “Lack of funding streams.” Twelve participants (48%) endorsed “Patient Willingness/Openness.” Eleven respondents (44%) responded to each of the following options including “Differences in disease models between patient and provider,” “Need for additional research/licensure,” and “Opposing beliefs between biomedical and CAM providers.” Lastly 1 respondent (4%) endorsed that there were “Other” barriers, and 0 respondents felt that “There are no barriers.”

Of the 25 respondents who answered Question 22, “Are Interventions ever implemented during an office visit by yourself or other medical health colleagues?” 15 respondents (53.6%) responded “Sometimes”, 5 respondents (17.9%) replied “Never” and 5 respondents (17.9%) responded “Rarely.”

Table 3. Chi-Square for Implementation of CAM and Factors Affecting Implementation and Barriers of IM

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Implementation of CAM in Primary Care Settings (Q22) AND			
Referral of CAM for Additional Care Needs (Q23)	11.273	4	.024*
Frequency of CAM Referral for Additional Care (Q25)	10.714	6	.098*
Likelihood to Refer Diabetic Patients to CAM for Stress (Q26)	1.963	4	.743*
Understanding IM Principles (Q29)	2.929	4	.416*
Agreement that IM is New Framework within Healthcare (Q32)	2.155	4	.707*
Similarity of Professional Values to IM (Q33)	2.575	4	.631*

Note: \* indicates that the cell count is less than 5.

As shown in Table 3, there was one significant association found between Question 22 and Question 23; which suggests an association between respondents' implementation of CAM in primary care settings and respondents' referral of CAM for patients' additional care needs. As Table 3 displays, there were also several insignificant findings in which we failed to reject the null hypothesis.

### **Educational Degree**

Associations were found between Question 14 asking, "What is the highest amount of education you have received?" and Question 22, "Are interventions ever implemented during an office visit by yourself or other medical health colleagues?"; Question 14 and Question 23, "How often do you refer patients to CAM providers for additional care?"; and Question 14 and Question 25, "How often do you refer patients to CAM providers for psychosocial needs specifically?"

Table 4. Chi-Square Tests for Educational Degree; CAM Office Implementation, Referral for Additional Needs and Referrals for Psychosocial Needs

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Educational Degree (Q14) AND			
Are CAM interventions implemented in office (Q22)	17.500	6	.008*
Frequency of Referring to CAM for Additional Needs (Q23)	15.949	6	.014*
CAM Referrals for Psychosocial Needs (25)	27.545	9	.001*
Frequency of Psychosocial Needs Assessment among Diabetic Patients (Q15)	5.769	9	.763*
Frequency of Psychosocial Needs Assessments among Non-Diabetic Patients (Q16)	13.928	9	.125*
Likelihood of CAM Referral to Treat Stress (26)	7.861	6	.248*
Understanding of IM Principles (Q29)	7.188	6	.304*
Frequency of Psychosocial Interventions on Treatment Plan (Q17)	5.000	3	.172*

Note: \* indicates that the cell count is less than 5.

#### **And CAM implementation.**

Question 14 asks, "What is the highest amount of education you have received?"

The response options for Question 14 included "Associate's Degree," "Bachelor's Degree," "Master's Degree," "Doctoral Degree," "Professional Degree (MD, DO, JD)" and "Other." Question 22 asks, "Are CAM interventions ever implemented during an office visit by self or colleague?" The response options for Question 22 included, "Never," "Rarely," "Sometimes," "Most of the time," and "Always." The 1 respondent

who identified as having an “Associate’s Degree” as the highest amount of education received, replied “Sometimes” to the question, “Are interventions ever implemented during an office visits by self or colleague?”. Of those individuals who identified their highest education received as “Bachelor’s Degree,” 100% replied “Never” to Question 22. Respondent’s who stated that their highest education was “Master’s Degree”, 100% replied, “Rarely” to Question 22. Lastly, respondents who identified “Professional Degree (MD, DO, JD)” as their highest education level received, 70% stated that they “Sometimes” implement CAM interventions during office visits, 15% stated “Rarely” and the remaining 15% stated “Never.”

The p-value for the chi square of the variables “Are interventions ever implemented during an office visit by self or colleague?” and “What is the highest amount of education you have received?” is .008, as shown in Table 4. Therefore, we reject the null hypothesis and conclude that there is a significant association between one’s implementation of CAM interventions during office visits and the amount of education received.

#### **And referrals for additional care.**

Respondents answered Question 23 which asked “How often do you refer patients to CAM providers for additional care? These findings in association with Question 14 showed that respondents who identified their highest level of education as “Associate’s Degree” responded “Sometimes” to “How often do you refer patients to CAM providers for additional care?” Additionally, of the participants who identified as having a “Bachelor’s Degree,” 50% stated that they “Never” refer patients to CAM interventions for additional care, and the other 50% reported that they “Rarely” refer patients to CAM



for additional care needs. Among respondents with a “Master’s Degree,” 100% of respondents within this education bracket reported that they “Never” refer patients to CAM interventions for additional care. Lastly, respondents who identified having a “Professional Degree,” displayed more variations across these questions more so than among other degrees. Of these respondents, they replied that 5% “Never” refer patient to CAM interventions for additional care, 45% “Rarely” refer for additional care, and 50% “Sometimes” refer for additional care.

The p-value for the chi square of the variables “How often do you refer patients to CAM providers for additional care?” and “What is the highest amount of education you have received” is .014. Therefore we reject the null hypothesis and conclude that there is a significant association between these two variables.

#### **And CAM referrals for psychosocial needs.**

Question 25 asks, “How often do you refer patients to CAM Medicine providers for psychosocial needs specifically?” The response options for Question 25 included “Never,” “Rarely,” “Sometimes,” “Often.” Several respondents who identified their highest level of education as an “Associates Degree,” consistently responded “Sometimes” to Question 25. Fifty percent of participants who identified having a “Bachelor’s Degree” reported that they will refer patients specifically for psychosocial needs “Rarely” and the other 50% reported that they will refer patients “Sometimes.” Among respondents with a “Master’s Degree,” 100% replied “Never” regarding referring patients to CAM for psychosocial needs. Regarding referrals for psychosocial needs among the respondents identifying with the “Professional Degree” response option, 65%

“Rarely” refer to CAM providers for psychosocial needs, 30% “Sometimes” refer and 5% reported they “Often” refer for psychosocial needs specifically.

The p-value for the chi square of the variables “How often do you refer patients to CAM providers for psychosocial needs specifically?” and “What is the highest amount of education you have received” is .001. Therefore, we reject the null hypothesis and conclude that there is a significant association between educational degree and frequency of referring patients to CAM providers for psychosocial needs.

#### **Additional findings.**

As shown in Table 4 there were several insignificant findings. We can conclude that there are no associations between Question 14 and Questions 25, 26, 29, 32, or 33 and we fail to reject these null hypotheses.

#### **Professional Identity**

As shown in Table 5, there were several insignificant findings associated with Respondents’ professional identity. Question 13 was not associated with Questions 15, 22, 25, 26 or 17. Therefore we fail to reject the null hypotheses for these variables.

Table 5. Chi-Square Tests for Professional Identity

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Professional Identity (Q13) AND			
Frequency of Psychosocial Needs Assessment among Diabetic Patients(Q15)	10.501	9	.311*
Implementation of CAM Interventions during Office Visit (Q22)	5.556	6	.475*
Frequency of CAM Referral for Psychosocial Needs (Q25)	11.830	9	.223*
Likelihood to Refer Diabetic Patients to CAM for Stress (Q26)	3.580	6	.733
Frequency of Psychosocial Interventions on Diabetic Patients' Treatment Plans (Q17)	1.620	3	.655

Note: \* indicates that the cell count is less than 5.

### Respondents who asked diabetic patients about CAM use

There were three associations found among Question 38, "Do you ask your patients about their use of CAM therapies during office visits?" and among Question 23 which asked "How often do you refer patients to CAM providers for additional care?," Question 22, "Are interventions ever implemented during an office visit by yourself or other medical health colleagues?, and Question 33, "How similar are your professional values to Integrative Medicine?" Response options for 38 included "Yes" and "No."

Table 6. Chi-Square Tests for Asking about CAM in Office, CAM Office

Implementation, Referrals for Psychosocial Needs, and Professional Values similar to IM

Variables	Pearson Chi-Square Value	Df	Asymp. Sig. (2-sided)
Asking about Use of CAM in Office (Q38) AND			
Freq of Referring to CAM for Additional Needs (Q23)	17.500	6	.008*
Are CAM interventions implemented in office? (Q22)	15.949	6	.014*
Professional Values and Similarity to IM (Q33)	27.545	9	.001
Personal CAM Practice (Q21)	4.364	3	.225*
Familiarity with CAM Interventions (Q20)	2.941	2	.230*
Should Conventional Medicine Treat Stress? (Q10)	.224	2	.894*
Frequency of CAM Referrals for Psychosocial Needs (Q25)	4.539	3	.209*
Likelihood to Refer Diabetic Patients to CAM for Stress (Q26)	1.900	2	.387
Understanding of IM Principles (Q29)	1.904	2	.386*
Frequency of Psychosocial Needs being Discussed with Diabetic Patients (Q16)	3.615	3	.306

Note: \* indicates that the cell count is less than 5.

#### **And referrals for additional care.**

Respondents that replied “Yes” to Question 38 which asked “Do you ask your patients about their use of CAM therapies during office visits?” also replied “Sometimes” to Question 23, “How often do you refer patients to CAM providers for additional care?” (36%). Respondents who replied “No” to Question 38 also responded “Sometimes” to Question 23 (8%). None of the respondents who stated “Yes” to asking patients about their use of CAM therapies during office visits, responded “Never” to Question 23

regarding referrals for additional care. However, of respondents who did not ask patients about CAM therapies during office visits, 16% responded that they “Never” refer patients to CAM for additional care. The p-value is .012 therefore; we reject the null hypothesis and conclude that there is a significant association between asking patients about CAM use during appointments and frequency of referring patients to CAM providers for additional care, as shown in Table 6.

**And implementing in office.**

Question 22 which asked, “Are intervention ever implemented during an office visit by yourself or other medical health colleagues?” has the following response options including “Never,” “Rarely,” “Sometimes,” “Most of the time,” and “Always.” Respondents, who replied “Sometimes” to Question 38, also replied “Sometimes” to Question 22. Those that asked diabetic patients about their CAM use also replied “Sometimes” to implementing CAM interventions with patients in office (81.3%) was significantly higher than those who denied asking patients about CAM (22.2% sometimes refer). The p-value is .012 therefore; we reject the null hypothesis and conclude that there is a significant association between these two variables.

**And similar professional values to IM.**

Question 33 asked, “How similar are your professional values to Integrative Medicine?” and included response options of “Not Similar,” “Somewhat,” and “Very Similar.” Of respondents who replied, “Yes” to Question 38, 18.8% reported that they have “Very Similar” values to IM, 50% responded “Somewhat” similar values and 18% reported “Not Similar” values. Of respondents who replied, “No” to Question 38, 0 respondents replied they had “Very Similar” values or “Not Similar” values however

100% of the total respondents replying “No” to Question 38 stated that they have “Somewhat” similar values to Integrative Medicine. The p-value is .037 therefore we reject the null hypothesis and conclude that there is a significant association between similarity of professional values to IM and asking about CAM use during office visits.

**Additional findings.**

As shown in Table 6, there were also several insignificant findings among Question 38 and displayed variables. We are unable to reject the null hypotheses with these variables.

**CAM Referrals for Additional care**

Associations were established between Question 23, “How often do you refer patients to CAM providers for additional care?” and Questions 13 which asked “What is your professional identity?”; and Questions 23 and Question 21 which asked “Do you practice Complimentary and Alternative Medicine personally?” were found within the analyses.

Table 7. Chi-Square Tests for Frequency of Referral to CAM for Additional Care; and Professional Identity, and Personal CAM Practice

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Freq of Referring to CAM for Additional Needs (Q23) AND			
Professional Identity (Q13)	15.398	6	.017*
Personal Practice of CAM (Q21)	16.425	6	.012*

Note: \* indicates that the cell count is less than 5.

**And professional identity.**

Table 7 shows that respondents who referred patients to CAM for additional care, 44% of the total respondents chose "Sometimes" to the question "Do you refer patients to CAM interventions for additional care?" Of the 18 respondents who identified as "Medical Doctors" and who responded to the Question 23, 5.6% responded "Never", 50% responded "Sometimes," and 44.4% "Rarely." There were 2 respondents who identified as "Doctor of Osteopathic Medicine" and both of these respondents replied "Sometimes" to "How often do you refer patients to providers for additional care?" Respondents who identified as a "Nurse" for Question 13 were equally split between "Never," "Rarely," and "Sometimes" in response to Question 23.

The p-value for the chi-square of the variables "How often do you refer patients to providers for additional care?" and "What is your professional identity?" is .017. Since the p-value is less than .05, we reject the null hypothesis. Therefore, we can conclude that there is a significant association between the frequency of referring patients to CAM providers for additional care and professional identity.

**And personal CAM use.**

Question 21 which asked, "Do you practice CAM personally?" and included response options "Yes, regularly," "Yes, sometimes," "Yes, but not currently," "No, I have never tried," "No, although I have tried I am not currently practicing" displayed an association with Question 23. Sixteen percent of respondents replied, "No, I have never tried" and of these respondents, 100% also reported that they "Never" refer patients to CAM for additional care. Additionally, of the respondents who identified with either "Yes, sometimes" or "Yes, however not currently" regarding personal use of CAM, none

of these participants replied “Never” to Question 23, “How often do you refer patients to providers for additional care? Of those respondents who replied, “Yes, sometimes” to Question 21, 24% replied “Sometimes” to Question 23. Of the respondents who stated “Yes, but not currently” to Question 21, 100% responded, “Sometimes” to Question 23 regarding referrals to CAM for additional care. The p-value for these two variables is .012; therefore we reject the null hypothesis and conclude that there is an association between respondent who practice CAM personally and respondents who refer patients to CAM for additional care.

### **Effects of Stress on Patients' Diabetic Control**

As seen in Table 8 there were no significant findings between the effects on stress regarding Diabetic Patients' control with the disease and the anticipated variables. We are unable to reject the null hypotheses between these variables.



Table 8. Chi-Square Tests Effects of Stress on Diabetic Control

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Effects of Stress on Diabetic Control (Q11) AND			
Frequency of Psychosocial Needs Assessment among Diabetic Patients (Q15)	.812	3	.847*
Frequency of Psychosocial Needs Assessment among Non-Diabetic Patients (Q16)	.280	3	.964*
Frequency of CAM Referral for Additional Care (Q23)	2.767	2	.251*
Frequency of CAM Referral for Psychosocial Needs (Q25)	4.620	3	.202*
Likelihood of CAM Referral for Diabetic Patients to Treat Stress (Q26)	1.449	2	.485*
Implementation of CAM Interventions during Office Visits (Q22)	1.449	2	.485*

Note: \* indicates that the cell count is less than 5.

### Similarity of Values to IM

Question 33, 'How similar are your professional values to Integrative Medicine?' has associations with both questions 15, "How often are patients' psychosocial needs assessed among your diabetic patients," and Question 29, "How well do you feel you understand the principles of Integrative Medicine?"

Table 9. Chi-Square Tests for Similarity of Professional Values to IM

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Similarity of Professional Values to IM (Q33) AND			
Frequency of Psychosocial Needs Assessment among Diabetic Patients (Q15)	14.867	6	.021*
Understanding of IM Principles (Q29)	11.366	4	.023*
Frequency of Psychosocial Needs Assessment among Non-Diabetic Patients (Q16)	2.997	6	.809*
CAM Interventions Implemented during Office Visits (Q22)	2.575	4	.631*
Frequency of Referral to CAM for Additional Care (Q23)	6.706	4	.152*
Frequency of Referral to CAM for Psychosocial Needs (Q25)	10.725	6	.097*
Likelihood of Referring Diabetic Patients to Treat Stress (Q26)	2.011	4	.734*

Note: \* indicates that the cell count is less than 5.

### **And asking about psychosocial needs.**

Question 15 response options included, “Always,” “Most of the Time,” “Sometimes,” “Rarely,” and “Never.” Respondents who responded “Not Similar” to Question 33, replied 4% as “Always,” 0% as “Most of the time,” 4% as “Sometimes,” and 4% as “Rarely” also to Question 15. Participants who replied that their professional values were “Somewhat” similar to Integrative Medicine replied 4% that they “Always” ask about psychosocial needs, 48% percent of responded “Somewhat” to Question 33,

16% replied “Sometimes,” and 0 respondents replied “Rarely.” Respondents who identified their professional values as “Very Similar” to Integrative medicine, 8% replied that they “Always” asked about psychosocial needs, 4% ask “Most of the Time, 8% “Sometimes,” and 0 “Rarely.”

As shown in Table 9, the p-value for these two variables is .021; therefore we reject the null and conclude that there is an association between how similar professional values are to Integrative Medicine and how often patients’ psychosocial needs are assessed among diabetic patients.

#### **And understanding of IM.**

Question 29, “How well do you feel you understand the principles of Integrative Medicine?” and response options included, “None,” “Little,” “Some,” and “A lot.” Respondents who replied “Little” for Question 29 also replied “Not Similar” to Question 33, “How similar are your values to Integrative Medicine?” 8% of the time and these respondents replied “Somewhat” 20% of the time. Participants who replied “Somewhat” similar to Question 29, replied “Not Similar” 4% of time, 44% replied “Somewhat and 8% replied “Very Similar” for Question 33. Lastly Respondents who identified “A lot” to Question 29 replied 4% “Somewhat” similar values to Integrative Medicine and 12% replied “Very Similar.” The p-value for these variables are .023; therefore we reject the null hypothesis and conclude that there is a significant association between variables measuring the understanding of the principles of Integrative Medicine and similarity between professional values with Integrative Medicine.

#### **Additional findings.**

As shown in Table 9 there were several insignificant findings among this subset of variables. Due to no associations being found, we are unable to reject any of the null hypotheses associated with these variables.

### **Ask Diabetic Patients about Psychosocial Needs**

Question 15, "How often are patient's psychosocial needs assessed among your diabetic patients?" showed associations with Question 17, "How often do you include interventions for psychosocial needs on the treatment plan for your diabetic patients?" and with Question 16, "How often are patient psychosocial needs discussed between yourself and non-diabetic patients?" Response options for Question 15 included "Always," "Most of the Time," "Sometimes," "Rarely," and "Never."

Table 10. Chi-Square Tests for Frequency of Psychosocial Needs Assessments with Diabetic Patients; and Psychosocial Interventions on Treatment Plan and Psychosocial Needs Assessment among Non-Diabetic Patients

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Frequency of Psychosocial Needs Assessment among Diabetic Patients (Q15) AND			
Inclusion of Psychosocial Interventions on Diabetic Patient's Treatment Plan (Q17)	8.413	3	.038*
Frequency of Psychosocial Need Assessment among Non-Diabetic Patients (Q16)	18.149	9	.033*
Frequency of CAM Referral for Psychosocial Needs (Q25)	8.567	9	.478*
Likelihood of CAM Referral to Treat Stress (Q26)	3.458	6	.750*
Understanding of IM Principles (Q29)	8.085	6	.232*
Agreement with IM Being New Framework in Healthcare (Q32)	10.251	6	.114*

Note: \* indicates that the cell count is less than 5.

**And include psychosocial interventions on treatment plan.**

The response options for Question 17 included “Very Often,” “Occasionally,” and “Never.” Of the respondents who replied “Always” to Question 15, 75% replied “Very Often” and 25% replied “Occasionally” to Question 17. Of those who replied “Most of the Time” to Question 15, 53.8% responded to “Very Often” and 46.2% “Occasionally” to Question 17. Those who replied to Question 15 as “Sometimes” and those who replied “Rare” to Question 15, replied “Occasionally” 100% of the time to Question 17. The p-value is .038 for these two variables therefore we can reject the null hypothesis and

conclude that there is a significant association between asking diabetic patients about psychosocial needs and respondents that include psychosocial interventions on treatment plans.

**And ask non DM about psychosocial needs.**

The response options for Question 16 included, “Never,” “Rarely,” “Sometimes,” “Most of the time,” and “Always.” Of the respondents who replied “Always” to Question 15, 75% replied “Most of the Time” to Question 16; and “Always” 25% of the time. Those that replied “Most of the Time” to Question 15, 8.3% replied “Never” to Question 16, 16.7% stated “Sometimes,” and 75% reported “Most of the Time.” Of the respondents who stated that they ask their diabetic patients “Sometimes” about psychosocial needs, 85.7% replied “Sometimes” and 14.3% replied “Most of the Time” to asking non-diabetic patients about their psychosocial needs. Lastly, of the respondents who replied “Rarely” to Question 15, 100% of the respondents also replied “Sometimes” to Question 16. The p-value for these two variables is .033 therefore we reject the null hypothesis and conclude that there is a significant association between respondents who ask diabetic patients about psychosocial needs and those who ask non-diabetic patients about psychosocial needs.

**Additional findings.**

As shown in Table 10, there were several additional findings; concluding insignificant associations between the variables displayed. Due to this, we fail to reject the null hypotheses of these variables.

**Familiarity of CAM Interventions and Personal CAM Practice**

Question 20, “ Professionally, how familiar are you with CAM?” and Question 21, “Do you practice CAM personally?” were analyzed. The response options for Question 20 were “Not Familiar,” “Somewhat,” and “Very Familiar.” The response options for Question 21 were “Yes Regularly,” “Yes, sometimes,” “Yes, but not currently,” “No, I have never tried.” “No, although I have tried bit I am not currently practicing,” and “Other.” As shown in Table 11, the p-value for these two variables was .039 which is a significant finding. Therefore we can reject the null hypothesis and conclude that there is an association between the familiarity of CAM interventions and personal practice of CAM.

Table 11. Familiarity of CAM Interventions and Personal CAM Practice

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Familiarity of CAM Interventions (Q20) AND			
Personal Practice of CAM (Q21)	13.284	6	.039*

Note: \* indicates that the cell count is less than 5.

**Understand IM Principles and Belief in Framework**

The response options for Question 29, “How well do you feel you understand the principles of Integrative Medicine?” are “None,” “Little,” “Some,” and “A lot.” The response options for Question 34, “Which of the following statement best fits with your beliefs on ?” included “ is fully aligned with how I believe health care should be conducted”; “I feel that some of the principles fit my beliefs while others do not”; “None of my values align with the beliefs of ”; an “Other.”

Of the respondents who replied “Little” to Question 29, 57.1% replied “Neither Agree nor Disagree” and 42.9% “Disagree” to Question 34. Of those who replied

“Some” to Question 29, 14.3% replied “Agree,” 42.9% responded “Neither Agree nor Disagree,” and 42.9% replied “Disagree.” Of the respondents who replied “A lot” 75% replied “Agree” and 25% “Neither Agree nor Disagree” to Question 34. The p-value for these two variables is .04; therefore we reject the null hypothesis and conclude that there is an association between understanding of Integrative Medicine principles and respondents’ belief in Integrative Medicine framework.

Table 17. Chi-Square Tests for Understanding IM Principles and Beliefs on CAM

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Understanding of IM Principles (Q29) AND Beliefs on CAM (Q34)			
Beliefs on CAM (Q34)	10.000	4	.040*
Familiarity of CAM Interventions (Q20)	2.227	4	.694*
Personal Practice of CAM (Q21)	6.247	6	.396*
CAM Implementations during Office Visits (Q22)	3.929	4	.416*
Frequency of Referral to CAM for Additional Care (Q23)	.548	4	.969*
Frequency of Referral to CAM for Psychosocial Needs (Q25)	3.874	6	.694*
Likelihood to Refer CAM to Treat Stress (Q26)	6.647	4	.156*

Note: \* indicates that the cell count is less than 5.

Table 17 also displays several insignificant Chi-Square analyses in which we fail to reject the null hypotheses for these variables.

### Years of Practice and CAM Curricula

Question 35 which asked respondents to reply numerically to “How many years have you been practicing your profession?” The response options were infinite.



Question 19, which asked respondents to assign a percentage to “To the best of your memory, while pursuing your education, what percentage of the time did the curricula focus on?” The possible response options were from 0-100%. The mean of Question 35 is 14.86 with a standard deviation of 12. The mean of Question 19 is 5.69 with a standard deviation of 4.63. This research question for this statistical analysis is: What is the relationship between the number of years of practice in profession and the percentage of time academic curricula was spent on CAM in academia. Table 18 shows us that the r value is .736 and p value is -.076 which indicates that we fail to reject the null hypothesis. There does not appear to be a statistically significant relationship between the two variables. There is a negative correlation between the variables suggesting that they are inversely related.

Table 18. Years of Practice and CAM Curricula

<b>Correlations</b>			
		How many years have you been practicing your profession? -# of Years of Practice	To the best of your memory, while pursuing your education, what percentage of the time did the curr...- Percentage of time spent on CAM in academia
How many years have you been practicing your profession? -# of Years of Practice	Pearson Correlation Sig. (2-tailed) N	1  22	-.076 .736 22
To the best of your memory, while pursuing your education, what percentage of the time did the curr...- Percentage of time spent on CAM in academia	Pearson Correlation Sig. (2-tailed) N	-.076 .736 22	1  23

In Figure 19, the Scatterplot has a negative slope as the dots are scattered high on the left and lower on the right. This Scatterplot shows that respondents who identified a low percentage on CAM taught in curricula, show a higher number of years in practice

and respondents who endorsed a higher percentage of CAM in curricula replied to having a lower number years in practice.

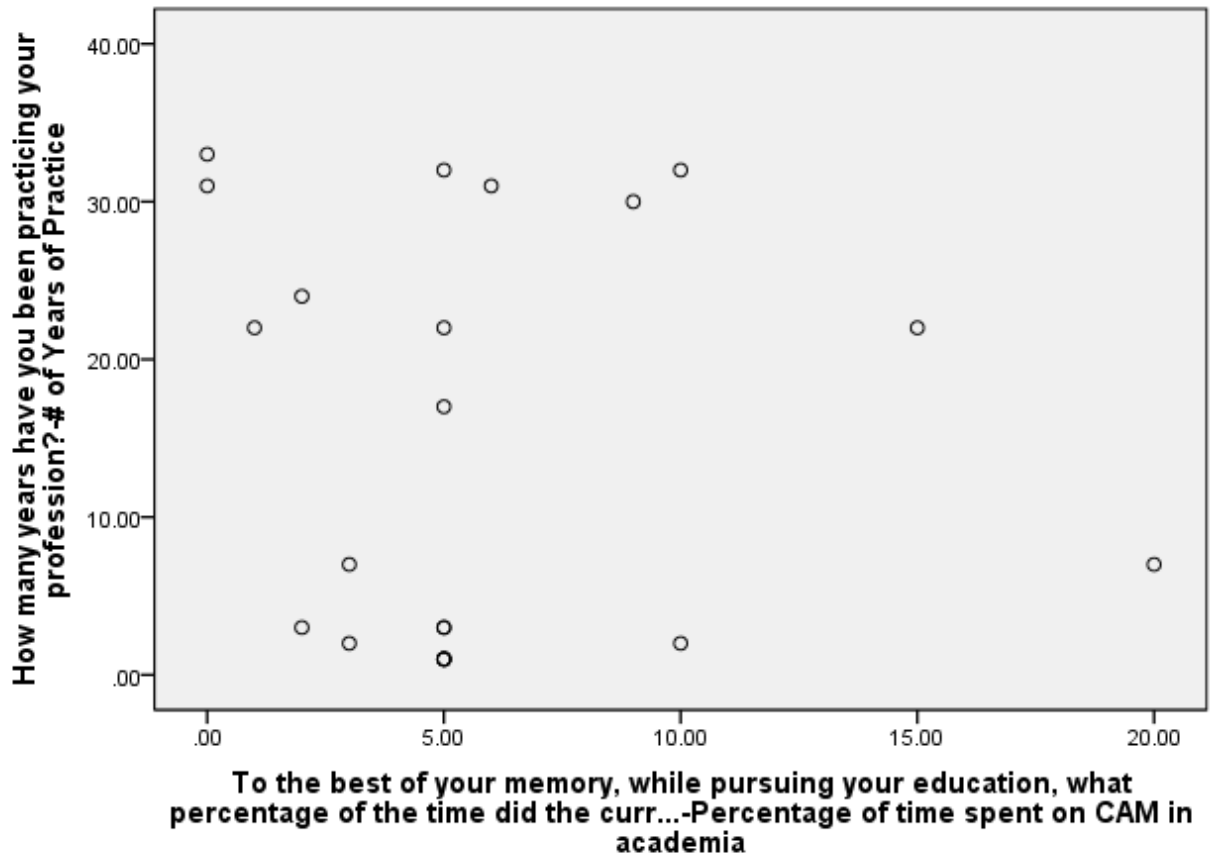


Figure 19. Number of Years in Practice and Percentage of CAM-focused Curricula in Education  
 p-value=.736, r=-.076

In conclusion although there is not a significantly statistical relationship between these 2 variables, there is a negative relationship.

For additional insignificant findings, refer to Appendix D for details.

### Discussion

This section will give an interpretation of the data, put the data in relation to the literature, and lastly will review implications and conclusions from findings.

### **Interpretation and Relation to Literature**

This section will interpret findings and review findings in relation to the literature in the following areas effects of stress, assessment of CAM use, assessment of psychosocial needs, referral and implementation of CAM, similarity of values and principles, barriers, and factors related to implementation of IM.

#### **Effects of stress.**

Just as the literature points to, respondents endorsed stress having negative effects on diabetics' health. Cox and colleagues (1984) reported that stress has a major influence on blood sugar control which is similar to our findings. Findings stated that respondents endorsed an increase in blood sugars as one result of stress diabetic patients.

Additionally, the findings indicated that poor diabetes control, decline in diabetes management, and distraction were also related to poor health with diabetes. These findings support literature which found that stress can lead to less medical self care among diabetic patients (Jack, 2003). The findings suggest that providers have not made connections between the effects of stress and the use of CAM to better manage stress among diabetic patients. Further research seems necessary to better understand this detachment.

#### **Assessment of CAM use.**

Respondents who asked diabetic patients about CAM use in clinic who replied "Sometimes" also stated "Sometimes" when asked about implementing CAM interventions within the office which was higher than the respondents who denied asking about CAM. This suggests that if respondents ask about CAM use in clinic they may be more likely to implement it with patients during office visits. The literature review did

not reveal any findings regarding a connection to in-clinic implementation according to assessment of CAM therefore this cannot be compared or contrasted accordingly.

However, regarding the assessment of CAM our findings also noted that CAM is only occurring occasionally with diabetic patients in the sample; which is higher than non-diabetic patients. This is similar to Egede and colleagues (2002), although survey scales were not identical between our findings and the literature.

Even those healthcare providers that do not ask about CAM use in clinic still stated they “Somewhat” identified with similarity between their values and IM. Respondents with “Somewhat” similar professional values to IM, replied “Always” asking about psychosocial needs. Those with very similar professional values to IM “Always”, “Sometimes” or “Most of the Time” asked about psychosocial needs; meaning that not one of these respondents replied “Never” . This is suggestive of two things. First, even those who do not ask about CAM use among diabetic patients still feel some similarity in professional values to IM; possibly due to the increase, albeit minimal, in exposure and education about IM.

Second, respondents who have similar values to IM also ask about CAM use while meeting with the diabetic patient. One way to increase assessment of CAM use among patients may be to provide education for providers on the benefits assessment including psychosocial needs and CAM interventions (Staples & Gordon, 2005). Additionally, continued research may increase comfort among conventional medical providers who are not in alignment with IM or CAM interventions. Our findings were encouraging of support for patient-centered care. This suggests that there may be a commonality between our respondents whether they have similar values to IM, to begin

collaboration between conventional and unconventional providers. If patient-centered practice can become the avenue to increase comfort with IM, this could broaden patient assessments to include CAM use.

One consideration on why it may be difficult to assess the effectiveness of CAM could be due to the fact that individuals who use CAM may incorporate multiple strategies; making it difficult to separate variables. This is an important point to consider and discuss among healthcare professionals that have distrust towards CAM research. Also, in future research it would be interesting to see if educating and better defining interventions that are included under the umbrella of CAM for patients, including prayer and supplements would lead to different outcomes in CAM assessment among diabetic patients.

#### **Assessment of psychosocial needs.**

The more participants assessed psychosocial needs among diabetic patients, the more they also put psychosocial interventions on the treatment plan. Those that sometimes or rarely assessed for psychosocial needs occasionally placed psychosocial interventions on the treatment plan. This clearly displays the importance of thorough assessment; particularly as it appears to be associated with patients receiving interventions to meet psychosocial needs on treatment plans. The literature would support the importance of proper assessment of psychosocial interventions (Peyrot, et al., 2005). Additionally, literature reported that the right screening tools for psychosocial needs need to help provide suggestions for referral (ADA, 2012). One implication to our findings is that respondents who are more comfortable screening may also become more familiar

with referral or psychosocial needs in general. Given that psychosocial assessment tools are not well defined for healthcare professionals, this is an area of needed exploration.

Respondents that “Always” asked diabetic patients about psychosocial needs, also do the same “most of the time” for their non-diabetic patients. Participants who replied, “Most of the Time” for diabetic patients stated also asking 75% of the time for non-diabetic patients. Those who said “Sometimes” for diabetic patients also said for non-diabetic patients the “Majority of the Time.” Respondents, who stated “Rarely” asking diabetic patients, said “Sometimes” for non-diabetic patients. The literature supports that diabetic patients speak more to their healthcare providers about CAM use more than non-diabetic patients (Pagan & Tanguma 2007). One possible reason behind this finding may be that if providers find importance in asking or make it a priority to assess for these needs, it could be likely done regardless of the disease. Essentially, this finding may have more to do with training and personal exposure to CAM than with the specifics of the patients.

Peyrot and colleagues (2005) reported that primary care physicians were not as aware of psychosocial concerns as nurses and like providers. Our findings did not include any associations between educational degrees and assessment of psychosocial interventions. One reason behind the disparity between our findings and literature may be due to variables among our sample; which are unknown, such as specific missions of the clinics. For example if a clinic places importance on evaluating psychosocial needs, then all professionals, regardless of role may have increased motivation to assess.

**Referral and implementation of CAM.**

Common recommendations for CAM interventions for diabetic patients according to the literature included biofeedback, herbal supplements, meditation, qigong and yoga (Ernst, 2001). Our findings were similar as “Mind-Body Interventions” received the most responses which includes meditation and yoga; which was followed by “Manipulated and Body-based Practices.” One respondent reported that “herbs/supplements research studies have shown little/no benefit to people with diabetes” which is in line with the literature (Birdee & Yeh, 2010).

Referral and implementation of additional needs presented some noteworthy findings. Overall, among our respondents it is rare to refer to CAM providers to manage additional care needs. According to the literature, providers recognize their lack of confidence and rarely refer patient to additional services (Peyrot, et al., 2005).

Respondents who never tried CAM personally, also never referred patients to CAM for additional care and of those who replied that they “Sometimes” participate in personal CAM practice or “Yes, but not currently,” none replied that they never refer CAM for additional care. This finding suggests that if a respondent has tries CAM they are more likely than those who have not personally practiced CAM to refer for additional needs. Staples and Gordon (2005) also found a significant increase in participants’ use of CAM with patients after receiving a mind-body skills training program. One implication for practice would be to consider that the more we train healthcare professionals about CAM, the more likely CAM interventions be used.

Findings show an association between those that implement CAM in office visits and those that refer to CAM for additional care. Respondents that ask about CAM during



visits, were more likely to refer to CAM for additional care. Respondents who do not ask patients about CAM interventions, still reported that they “Sometimes” referred to CAM providers for additional care. None of the respondents, who identified asking about CAM, replied “Never” regarding referring for additional needs however respondents who denied asking about CAM use among diabetic patients showed an increase of 16% of respondents also subsequently replied “Never” to CAM referrals for additional needs. This is suggestive that if you are not properly assessing there is a greater likelihood that referrals also will not be given; and patients may not receive care for psychosocial needs. Again this appears suggestive that the assessment and referral have a close relationship among providers; however literature reviewed did not highlight this finding.

A variation of referrals to CAM providers for additional needs was seen primarily with respondents who had a Professional Degree; defined as Medical Doctor, Doctor of Osteopathy or Juris Doctor. Moreover, of those with a Professional Degree, respondents rarely referred for psychosocial needs but were referring for other needs. One interpretation of this finding is that respondents with Professional Degrees’ might be more oriented to looking at additional needs within for medical health versus psychosocial needs. Additionally, it would be interesting to gain a better understanding of what patients are being specifically referred to CAM for.

Referral and implementation of CAM for psychosocial needs also presented findings. Among our respondents it is rare to refer to CAM providers to manage psychosocial needs. The education levels lower than Professional Degrees were more reserved with responses for referral. Respondents with Bachelor’s degrees were more willing to refer for psychosocial needs than for additional needs. This could be because

nurses were found to do more with psychosocial needs and an RN degree is a Bachelor's level degree (Peyrot, 2005). Respondents with Master's Degrees reported never referring for psychosocial needs. Unfortunately, it is unknown the role of respondents with a Master's Degree therefore it is hard to speculate on the finding. One consideration may be that respondents with Master's Degrees may have specific roles outside of the psychosocial spectrum.

One interesting finding is interventions for psychosocial needs are put on treatment plans either very often or occasionally; which suggests that healthcare professionals are assessing or noticing needs. However, respondents overall reported implementing CAM during office never, rarely or sometimes. Zero respondents reported implementing most of the time or always which suggests that implementing CAM in clinic is not a standard practice. Professionals notice the need but are not always implementing CAM and not always referring then there appears to be a gap in psychosocial needs being met which supports literature (Peyrot et al., 2005).

Another interesting point is that given that 15 of 25 respondents reported that they sometimes implement coupled with the fact a large amount of our respondents identified as a MD or DO does not support literature that suggests that physicians are not able to assist with self care management (Delmater et al., 2001).

### **Similarity of values and principles.**

Additionally, as respondents identified similarity of values with IM, there were also congruent responses regarding respondents' understanding of IM. Thus, the more aligned with IM values, the greater the understanding of IM principles. Those that understand IM principles a little are less likely to agree with the framework and

respondents that endorsed an understanding of the principles are more likely to agree that IM is new framework. Respondents in the middle are dispersed; often in middle or in disagreement. Findings support research that there are changes occurring between conventional and unconventional medicine (Barrett et al., 2003). Our findings suggest that there is miniscule movement, as 18% of respondents felt they strongly agreed or agreed with IM becoming the new framework within the healthcare industry.

### **Barriers and factors related to implementation of IM.**

There were several barriers and factors that supported that literature regarding the implementation of IM. Our findings are consistent with barriers identified in the literature (Barret, et al., 2003). First, the findings are congruent with the literature which suggests that a common dispute to CAM interventions by conventional healthcare professionals is due to the lack of research outcomes (Barnes, 2004). Our findings displayed that beliefs about lack of research remained a strong barrier for respondents among fully embracing the IM model. Second, respondents endorsed difficulties with funding streams to support IM. Third, being part of an interdisciplinary team was another factor that impacted the implementation of IM. There is an inability by insurance companies to have interdisciplinary teaming according to the literature (Barrett et al., 2004). Our findings endorse the literature surrounding the lack of research affecting conventional medicine's hesitation (Barrett et al., 2004).

Patient willingness and openness was a fourth barrier acknowledged by respondent. Loewe and Freeman (2000) reported that type 2 diabetic patients Astin (1998) found that individuals who turned to CAM typically were more educated, displeased with conventional healthcare and were in poorer physical condition.

Additionally, provider willingness and openness was endorsed as a barrier. Aside from the lack of scientific evidence commonly mentioned that often leads to provider unwillingness, one respondent commented on the distrust of the CAM community. Lack of resources was noted among respondents as another factor. Respondents endorsed that one barrier is that there is not enough time for providers to interact with patient or to assess psychosocial needs which is compatible with the literature. Maizes and colleagues (2009) reported that average appointment times make it difficult to assessment and meet psychosocial needs. Our findings also support the literature regarding another barrier to IM being lack of financial and insurance accessibility for patient. Bodeker and Kronenberg (2002) suggest that even if patients are insured, the out-of pocket expenses become unobtainable.

Additionally our findings also indicated accessibility, differences in models between patient and provider, all opposing beliefs between biomedical and CAM providers. Accessibility and opposition beliefs between biomedical and CAM providers were consistent with previous research about barriers (Barrett et al., 2003). The literature suggests that critical differences between how patients and doctors feel and reflect about diabetes. Unfortunately, our study did not allow for further understanding between these differences however respondents indicated that it remains to be a block towards IM implementation. Overall, every respondent identified at least one barrier which appears clear that there are factors in the way to putting IM into more common practice.

#### **Education and curricula.**

There was no association between years of practice and increase in CAM curricula. The literature similarly reported that while CAM is being included in medical

school curricula more frequently, it continues to remain modest (Staples & Gordon, 2005). This area needs continued research. It will be interesting in upcoming years to observe whether training programs and continuing education opportunities increase and if so whether there is a relationship between years of practice or simply just the exposure to IM. The other thing to note is that although the mean of the sample was 14.86 years of practice, the Scatterplot showed a large grouping of respondents on the lower end of the figure; this may have been skewed by a couple of extreme responses; therefore continued research is needed. One consideration when evaluating this data may be that the type or philosophy of the clinic(s) the respondents work in may put a high value on continuing education which could influence the respondents' answer despite the number of years in practice.

### **Implications and Conclusions**

The following section will discuss limitations of the study, implications for practice and areas for future research.

#### **Limitations.**

There are a couple points to consider when considering the methods and the sample within this study. First, the sample lacked diversity as there was an overrepresentation of women and of medical doctors among respondents that inhibits the generalization of the findings. Additionally, the low response rate alone would not allow for a generalization of the findings. Low response rate did not allow for a large enough variation in responses regarding the type of diabetes that was primarily seen. In future research, one recommendation would be to include a wider sample of providers to draw from. It would also be interesting to see if outcomes would change if there were more male respondents.

Second, given the exploratory nature of the study, it would seem more appropriate in the future to use a qualitative analysis to gain more information on questions asked within this study. Given the time constraints and the scope of this study a primarily quantitative study appeared most feasible; however the qualitative questions asked within this study were very useful in gaining insight from healthcare providers.

Third, as previously mentioned the majority of the Chi-Square analyses displayed have a low cell count; meaning there is a greater chance that the probability is not appropriate. It would be interesting to see if a larger sample would show differences in findings. Last, Questions 30 and 31 were unable to be included in the inferential data analyses due to the inability to run through statistical software. The questions responses were interpreted by the software to be independent questions versus options within the same question. Further research is needed within the areas of referral to specific CAM interventions and barriers to IM.

#### **Implications for practice.**

There are a couple of points that should be considered or pondered in social work practice. First, differences in needs between type 1 and type 2 diabetic patients were noted for the majority of the respondents despite there not being enough responses received to decipher themes. However, it was noted that in several of the codes (i.e. “not ‘self’ inflicted in type 1 [diabetes]” and “non-compliance”) there did appear to be some feelings that differences were due to motivation which if not assessed carefully, keeping psychosocial needs in mind and discussed empathically could result in shame. This is a wonderful opportunity for social workers to work collaboratively with both healthcare

providers and patients to ensure that empathy and self determination are key components used with diabetic patients.

A second area of interest are the findings surrounding the lack of associations between the effects of stress and other variables including frequency of psychosocial needs assessment among both diabetic patients and non-diabetic patients, frequency of CAM referral for additional care and for psychosocial needs, likeliness of CAM referral for diabetic patients to treat stress and the implementation of CAM interventions during office visits. This is particularly interesting because all respondents either answered, "Yes" or "Somewhat" when asked whether stress effects diabetic patients' control. Given that stress is seen at some level as having an effect on patients, it is interesting that assessment, implementation and referral were not more prevalent. The literature would suggest that it is due to healthcare professionals not being trained or having resources to help patients manage self care (Delmater, et al., 2001). Another thought might be related to the number of barriers that respondents acknowledged in implementation of mental health interventions (Klinkman, 1997). Regardless of reasons, there is an implication for social workers to help identify resources for healthcare professionals on where to refer patients for CAM providers and interventions.

#### **Future research.**

There were many areas that need additional research. First, although the majority of respondents agreed or strongly agreed that conventional medicine should treat stress as part of typical approach to diabetes care; the likeliness that they would refer to outside providers to treat the stress was incongruent. Only 10 of the 25 respondent reported they would likely refer accordingly; the remaining participants stated they were undecided or

it was unlikely they would refer. This discrepancy is very interesting. I wonder whether or not the barriers to implementation play a role in this incongruence or if there are other driving factors. One thought on the lack of referral to CAM may be the mere fact that providers do not know where to refer to. It would also be interesting to know if referrals would increase if there were internal referral sources within a larger healthcare organization versus referring outside a system. Future research should also focus on whether there is a difference in hospitals with integrative care units. It will be interesting to monitor how much research is informing work for healthcare professionals?

As policy related to the Affordable Care Act unfolds, it will be interesting to see if the legislation changes practice. Given this possibility, it will be important to continue research in this area. There is also an interest in determine which particular sector within the greater medical field are more accepting of CAM use. For example, it would be fascinating to determine if CAM was more accepted in areas like hospice and musculoskeletal departments versus other areas. Further research should also explore assessment referral and implementation with an increased education on mindfulness-based interventions.

Furthermore, there are areas to concentrate research on regarding assessment. It would be interesting to find out what physicians' understating of CAM is and whether they consider prayer or meditation for CAM. Additionally, it would be fascinating to know if there is a connection or relationship between age and assessment; specifically how much does the familiarity of assessment is based on age?



Lastly, it seems important to look at which mind-body modalities are effective in managing stress; continuing to explore research on treatment of both acute and chronic stress-related symptoms to the diabetic experiences,

In conclusion, assessing for psychosocial needs and CAM use appears vital to the management of diabetes however there is a continued need to bridge the gap between assessment and referral and implantation for diabetic patients. Given the lack of generalizability of this study and this area of research remaining in its infancy, there appears to be a continued need for exploration in this area of research. Additionally, if we are going to bridge the gap between providers, research will be essential to increasing holistic and integrative care. Social work's biopsychosocial and holistic lens can help ensure that all needs, particularly psychosocial needs are assessed and referred, if not implemented.

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Appendix A

[Redacted]

[Redacted]

December 7, 2012

To whom it may concern,

I have agreed to forward an email provided by Jennifer Ranallo to my professional contacts for the purposes of her GRSW 682 Clinical Research Project. This email will contain a link to the survey that all potential participants will use to access the survey if they choose to partake. Ms. Ranallo will not be given the email contact list at any time during the process.

Sincerely,

[Redacted signature]

[Redacted]



## **Appendix B**

### **Informed Consent Form**

#### **General Statement about the Research:**

Previous research has looked at complementary and alternative medicine (CAM) and conventional medicine regarding the medical care for individuals with diabetes. CAM use has been researched regarding health of diabetic patients in general however this study looks specifically at whether integrative medicine which incorporates both CAM and conventional medicine is being conducted specifically to meet psychosocial needs of diabetic patients.

#### **You were selected to be a participant in this survey because:**

You met the criteria of participants for this study which include: being a health care professional working in a family medicine or primary care clinic setting within the Twin Cities area.

#### **Purpose:**

The purpose of this study is to determine whether integrative medicine is being used within conventional primary care medical settings to address the psychosocial needs of diabetic patients.

#### **Confidentiality/Procedures:**

Participants will click on Qualitrics link received via email to access the consent form and survey. Participants will read and agree to the consent form if they so choose prior to beginning the survey. Once the consent form is completed then they will have access to complete the questions so long as they feel comfortable to do so. There are 27 quantitative and 4 qualitative questions to answer that should take approximately 10-15 minutes to complete. The principal investigator and research chair will have access to the data. No identifying data will be available to the principal investigator or research chair.

#### **Risks/Benefits:**

There are no risks involved with participating in this study. There are no direct benefits involved in participating in this study. Compensation will not be asked of or provided to any participant who agrees to take part in the study.

#### **Voluntary Nature of the Study:**

Your participation in this study is entirely voluntary. Your decision whether or not to participate or not affect current or future relations with any cooperating agencies or institutions. If you decide to participate you are free to withdraw at any time.

#### **Contact Information**

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**Do you understand what is being asked of you and do you give your full consent to participate in this study?**

## Appendix C

### Integrative Medicine Questionnaire for Healthcare Professionals

#### Integrative Medicine Questionnaire for Healthcare Professionals

**Q1 Informed Consent Form**      **General Statement about the Research:** Previous research has looked at Complementary and Alternative Medicine (CAM) and conventional medicine regarding the medical care for individuals with diabetes. CAM use has been researched regarding health of diabetic patients in general however this study looks specifically at whether integrative medicine which incorporates both CAM and conventional medicine is being conducted specifically to meet psychosocial needs of diabetic patients.      **You were selected to be a participant in this survey because:** You met the criteria of participants for this study which include: being a health care professional working in a family medicine or primary care clinic setting within the Twin Cities area.      **Purpose:** The purpose of this study is to determine whether Integrative Medicine is being used within conventional primary care medical settings to address the psychosocial needs of diabetic patients.      **Confidentiality/Procedures:** Participants will click on Qualitrics link received via email to access the consent form and survey. Participants will read and agree to the consent form if they so choose prior to beginning the survey. Once the consent form is completed then they will have access to complete the questions so long as they feel comfortable to do so. There are 27 quantitative and 4 qualitative questions to answer that should take approximately 10-15 minutes to complete. The principal investigator and research chair will have access to the data. No identifying data will be available to the principal investigator or research chair.      **Risks/Benefits:** There are no risks involved with participating in this study. There are no direct benefits involved in participating in this study. Compensation will not be asked of or provided to any participant who agrees to take part in the study.      **Voluntary Nature of the Study:** Your participation in this study is entirely voluntary. Your decision of whether or not to participate will not affect current or future relations with any cooperating agencies or institutions. If you decide to participate you are free to withdraw at any time.      **Do you understand what is being asked of you and do you give your full consent to participate in this study?**

Yes (1)

No (2)

If No Is Selected, Then Skip To End of Survey

Q2 Do you understand the purpose of this study

- Yes (1)
- No (2)

Q3 Do you understand how data will be collected in this study?

- Yes (1)
- No (2)

Q4 Do you understand the voluntary nature of this study

- Yes (1)
- No (2)

Q5 Do you treat diabetic patients in your practice?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Q6 What percentage of your patients are diagnosed with diabetes (type 1 or type 2)?

Q7 Do you primarily treat more patients with (pick 1):

- Type 1 Diabetes (1)
- Type 2 Diabetes (2)

Q8 Are there any differences between the psychosocial needs of type 1 and type 2 diabetics (i.e. more needs overall, greater intensity)?

- Yes (1)
- No (2)

Answer If Are there any differences between psychosocial needs of t... Yes Is Selected

Q9 What are the differences you notice?

Q10 Do you think conventional medicine should treat stress as part of its typical approach to diabetes care?

- Strongly Agree (1)
- Agree (2)
- Neither Agree nor Disagree (3)
- Disagree (4)
- Strongly Disagree (5)

Q11 Do you believe stress has negative effects on your patients' diabetic control?

- Yes (1)
- Somewhat (2)
- No (3)

Q12 Explain your response to the previous question (Do you believe stress has negative effects on your patients' diabetic control?)

Q13 What is your professional identity?

- Medical Doctor (1)
- Doctor of Osteopathic Medicine (2)
- Psychiatrist (3)
- Physician's Assistant (4)
- Nurse (Nurse Practitioner, RN, LPN) (5)
- Social Worker (6)
- Medical Assistant (7)
- Other (Please Specify) (8)

Q14 What is the highest amount of education you have received?

- Associate's Degree (1)
- Bachelor's Degree (2)
- Master's Degree (3)
- Doctoral Degree (4)
- Professional Degree (MD, DO, JD) (5)
- Other (Please Specify): (6)

Q15 Psychosocial needs are defined as individual's interrelated interpersonal and emotional necessities (International Organization of Migration, 2010). How often are patients' psychosocial needs assessed among your diabetic patients?

- Always (1)
- Most of the Time (2)
- Sometimes (3)
- Rarely (4)
- Never (5)

Q16 How often are patient psychosocial needs discussed between yourself and non-diabetic patients?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Most of the Time (4)
- Always (5)

Q17 How often do you include interventions for psychosocial needs on the treatment plan for your diabetic patients?

- Very often (1)
- Occasionally (2)
- Never (3)

Q18 Complementary medicine refers to the use of CAM together with conventional medicine and most Americans use CAM in this combination. Alternative medicine refers to use of CAM therapies in place of conventional medicine treatments (NCCAM, 2011). Types of CAM therapies are separated into groupings or domains including: natural products which includes supplements, herbs and probiotics mind and body medicine which includes meditation, yoga, and acupuncture, among others manipulative and body-based practices including massage and spinal manipulation movement therapies, traditional healers, and energy manipulation (NCCAM, 2011).

Q19 To the best of your memory, while pursuing your education, what percentage of the time did the curricula focus on Complementary and Alternative Medicine?

\_\_\_\_\_ Percentage of time spent on CAM in academia (1)

Q20 Professionally, how familiar are you with Complementary and Alternative Medicine interventions?

- Not Familiar (1)
- Somewhat (2)
- Very Familiar (3)

Q21 Do you practice Complimentary and Alternative Medicine personally?

- Yes, regularly (1)
- Yes, sometimes (2)
- Yes, but not currently (3)

- No, I have never tried (4)
- No, although I have tried I am not currently practicing (5)
- Other (6) \_\_\_\_\_

Q38 Do you ask your patients about their use of CAM therapies during office visits?

- Yes (1)
- No (2)

Q22 Are Complementary and Alternative Medicine interventions ever implemented during an office visit by yourself or other medical health colleague?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Most of the Time (4)
- Always (5)

Q23 How often do you refer patients to Complimentary and Alternative Medicine providers for additional care?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)
- All of the Time (5)

Answer If How often do you refer patients to Complimentary and Alte... Rarely Is Selected And How often do you refer patients to Complimentary and Alte... Sometimes Is Selected And How often do you refer patients to Complimentary and Alte... Often Is Selected And How often do you refer patients to Complimentary and Alte... All of the Time Is Selected

Q24 What are typical reasons that you would refer a patient to a CAM provider?

Q25 How often do you refer patients to Complimentary and Alternative Medical providers for psychosocial needs specifically?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

Q26 How likely would you be to refer a diabetic patient to Complimentary and Alternative Medicine providers to treat stress?

- Very Unlikely (1)
- Unlikely (2)
- Undecided (3)
- Likely (4)
- Very Likely (5)

Q27 If you do refer diabetic patients to Complementary and Alternative Medicine providers, please mark any of the possible interventions suggested?

- Manipulative and Body-Based Practices (i.e. Massage, Spinal Manipulation) (1)
- Mind/Body Interventions (i.e. Yoga, Acupuncture, Meditation) (2)
- Movement Therapies (i.e. Feldenkrais method, Pilates, etc.) (3)
- Energy Manipulation (i.e. Magnet therapy, Qigong, Reiki, etc.) (4)
- Traditional Healers (i.e. Native American healer/medicine man, etc.) (5)
- Other (6) \_\_\_\_\_

Q28 Definition of Integrative Medicine: Maizes and colleagues (2009, p. 55) defined integrative medicine as a way: “to treat the whole person, to assist the innate healing properties of each person, and to promote health and wellness as well as the prevention of disease; is an interdisciplinary, non-hierarchical blending of both conventional medicine and complementary and alternative health care that provides seamless continuum of decision-making and patient-centered care and support; employs a collaborative team approach guided by consensus building, mutual respect and a shared vision of health care that permits the practitioner and the patient to contribute their particular knowledge and skills within the context of a shared synergistically charged plan of care; and results in more effective and cost-effective care synergistically combining therapies and services in a manner that exceeds the collective effect of the individual practices.” Integrative Medicine Principles (Maizes, et al., 2009, pp. 6-8) include: Patient and practitioner are partners in the healing process All factors that influence health, wellness and disease are taken into consideration including mind, spirit, community as well as body Appropriate use of both conventional and alternative methods facilitates the body’s innate healing response Effective interventions that are natural and less invasive and should be used whenever possible Good medicine is based on good science It is inquiry-driven and open to new paradigms Ultimately, the patient must decide how to proceed with treatment based on values, beliefs, and available evidence Alongside the concept of treatment, the broader concepts of health promotion and prevention of illness are paramount Practitioners of integrative medicine should exemplify its principles, and commit themselves to self-exploration and self development

Q29 How well do you feel you understand the principles of Integrative Medicine?

- None (1)
- Little (2)
- Some (3)
- A Lot (4)

Q30 What factors play a role in implementing Integrative Medicine within health care settings? (Check all that apply)

- Administration (1)
- Funding Streams/Reimbursements (2)
- Diversity of Staff Roles/Interdisciplinary Teams (3)
- Time (4)
- Other (Please Specify) (5) \_\_\_\_\_



Q31 What, if any, of the following barriers prevent Integrative Medicine in healthcare settings? (Check all that apply)

- Time (1)
- Patient Willingness/Openness (2)
- Provider Willingness/Openness (3)
- Cost (4)
- Accessibility (5)
- Differences in disease models between patient and provider (6)
- Need for additional research/licensure (7)
- Lack of funding streams (8)
- Opposing beliefs between biomedical and CAM providers (9)
- There are no barriers (10)
- Not Applicable (11)
- Other (Please specify) (12) \_\_\_\_\_

Q32 How much do you agree with the following statement: Integrative Medicine is becoming the new framework within the healthcare industry?

- Strongly Agree (1)
- Agree (2)
- Neither Agree nor Disagree (3)
- Disagree (4)
- Strongly Disagree (5)

Q33 How similar are your professional values to Integrative Medicine?

- Not Similar (1)
- Somewhat (2)
- Very Similar (3)

Q34 Which of the following statement best fits with your beliefs on Complementary and Alternative Medicine?

- Complementary and Alternative Medicine is fully aligned with how I believe health care should be conducted. (1)
- I feel that some of the Complementary and Alternative Medicine principles fit my beliefs while others do not. (2)
- None of my values align with the beliefs of Complementary and Alternative Medicine. (3)
- Other (4) \_\_\_\_\_

Answer If Which of the following statement best fits with your beli... I feel that some of the Complementary and Alternative Medicine principles fit my beliefs while others do no. Is Selected

Q35 If you feel that Complementary and Alternative Medicine fits some values but not others, please explain what principle(s) fit your values in the space below.

Q36 How many years have you been practicing your profession?

\_\_\_\_\_ # of Years of Practice (1)

Q37 Which gender do you identify with?

- Male (1)
- Female (2)
- Transgendered/Do not identify (3)

## Appendix D

### Additional Insignificant Findings

Please refer to the following Tables to review findings that did not display any significance. Due to the p-value of the following variables being higher than .05; we can assume that there are no associations in the variables presented below.

Table 12. Inclusion of Psychosocial Needs on Treatment Plans for Diabetic Patients

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Frequency of Including Psychosocial Needs on Treatment Plans for Diabetic Patients (Q17) AND			
Personal Practice of CAM (Q21)	2.312	3	.510*
Frequency of Referral to CAM for Additional Care (Q23)	.227	2	.893*
CAM Implementations during Office Visits (Q22)	4.444	2	.108*
Frequency of Referral to CAM for Psychosocial Needs (Q25)	5.357	3	.147*

Note: \* indicates that the cell count is less than 5.

Table 13. Chi-Square Tests for IM as the New Framework in Healthcare

<b>Variables</b>	<b>Pearson Chi-Square Value</b>	<b>df</b>	<b>Asymp. Sig. (2-sided)</b>
Agreement with IM as New Framework in Healthcare (Q32) AND			
Frequency of Psychosocial Needs Assessment among Diabetic Patients (Q15)	10.251	6	.114*
Frequency of Psychosocial Needs being Discussed with Diabetic Patients (Q16)	5.651	6	.463*
Frequency of Psychosocial Interventions on Diabetic Patients' Treatment Plans (Q17)	1.650	2	.438*
Are CAM interventions implemented in office? (Q22)	2.155	4	.707*
Frequency of Referral to CAM for Additional Care (Q23)	1.751	4	.781*
Likelihood of CAM Referral to Treat Stress (Q26)	6.944	6	.326*
Frequency of CAM Referral for Psychosocial Needs (Q25)	3.302	4	.509*

Note: \* indicates that the cell count is less than 5.

Table 14. Chi-Square Tests for Stress as Part of Typical Approach to Treatment for Diabetics

<b>Variables</b>	<b>Pearson Chi-Square Value</b>	<b>df</b>	<b>Asymp. Sig. (2-sided)</b>
Stress as Typical Approach to Treatment for Diabetics (Q10) AND			
Frequency of Referral to CAM for Additional Care (Q23)	4.494	4	.343*
Frequency of CAM Referral for Psychosocial Needs (Q25)	3.709	6	.716*
Likelihood of CAM Referral to Treat Stress (Q26)	8.778	4	.067*
Are CAM interventions implemented in office? (Q22)	8.778	4	.067*

Note: \* indicates that the cell count is less than 5.

Table 15. Chi-Square Tests for Familiarity of CAM Interventions

<b>Variables</b>	<b>Pearson Chi-Square Value</b>	<b>df</b>	<b>Asymp. Sig. (2-sided)</b>
Familiarity of CAM Interventions (Q20) AND			
Frequency of Referral to CAM for Additional Care (Q23)	8.551	4	.073*
Likelihood of CAM Referral to Treat Stress (Q26)	7.882	4	.096*

Note: \* indicates that the cell count is less than 5.

Table 16. Chi-Square Tests for Personal Practice of CAM

Variables	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Personal Practice of CAM (Q21) AND			
Are CAM interventions implemented in office? (Q22)	10.171	6	.118*
Frequency of CAM Referral for Psychosocial Needs (Q25)	8.792	9	.457*
Likelihood of CAM Referral to Treat Stress (Q26)	9.371	6	.154*
Understanding of IM Principles (Q29)	6.247	6	.396*
Agreement with IM as New Framework in Healthcare (Q32)	4.225	6	.646*

Note: \* indicates that the cell count is less than 5.