

TEST OF A CULTURALLY SENSITIVE HEALTH EMPOWERMENT INTERVENTION ON
STRESS, HEALTH PROMOTING BEHAVIORS, BLOOD GLUCOSE AND BLOOD PRESSURE
AMONG DIVERSE ADULTS WITH TYPE 2 DIABETES FROM LOW-INCOME HOUSEHOLDS

By

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Type 2 diabetes has become a leading health disparity in the U.S., particularly among racial/ethnic minorities and non-Hispanic White Americans with low household incomes (ADA, 2007). The best defense for preventing type 2 diabetes is adopting a healthy lifestyle that includes physical activity and a healthy diet. Preliminary studies have shown that both patient-centered culturally sensitive health care and health promoting lifestyles are associated with positive health outcomes among patients with type 2 diabetes (Two Feathers et al., 2005).

The present research tested the impact of a Culturally Sensitive Health Empowerment Intervention (CS-HEI) that was informed by major aspects of the Patient-Centered Culturally Sensitive Health Care (PC-CSHC) Model developed by Tucker and colleagues (2007). The PC-CSHC Model explains how perceived provider cultural sensitivity, patient empowerment, stress, and health promoting behaviors are linked to health outcomes. Participants in this study were 94 adults with type 2 diabetes from low-income households. Sixty-eight participants were African Americans (74%), 24 were non-Hispanic Whites (24%), and two did not report their race.

Participants in this study were assigned to either an Intervention Group (IG) or a Wait-list Control Group (CG) using a stratified sampling procedure to ensure equal ethnic and gender representation per group. The IG experienced the CS-HEI, and after the research phase of the study to test the intervention, the CG was offered participation in an abbreviated CS-HEI. Findings from this study suggest that IG participants, but not CG participants, evidenced significant reduction in diastolic blood pressure at the 2-month post-intervention. Additionally, IG participants, but not CG participants, evidenced improvement in nutrition and decreases in physical stress at post-intervention that approached significance.

The results suggest that the tested CS-HEI may be an effective tool for improving nutrition, physical stress levels, and blood pressure of patients with type 2 diabetes. Thus, support is provided for future similar studies with larger and more diverse patient samples. An important implication of this study is that counseling psychologists can use their knowledge of cultural sensitivity, stress, and empowerment, to develop and test health empowerment interventions among diverse adults from low-income households who have type 2 diabetes.

CHAPTER 1 INTRODUCTION

Type 2 Diabetes: A Major Health Disparity in the United States

Type 2 diabetes is a disease characterized by progressive insulin resistance that is frequently caused by lifestyle factors, hereditary factors, and underlying health conditions such as obesity. In the U.S. this disease has become a leading health disparity among racial/ethnic minorities and non-Hispanic White Americans with low household incomes (ADA, 2007; CDC, 2010). The incidence of type 2 diabetes has doubled in the U.S. over the past two decades (CDC, 2008) and it is now one of the deadliest diseases facing Americans. Rates of type 2 diabetes are expected to continue to rise among Americans as its risk factors of obesity, high blood pressure, and high cholesterol become increasingly prevalent. The Centers for Disease Control and Prevention predicts that by 2050, 1 in 3 Americans will have type 2 diabetes and that African Americans, Latinos, and Native Americans will be among the groups at increased risk for developing this disease (CDC, 2010). The best defense for preventing and delaying the onset of type 2 diabetes is adopting a healthy lifestyle.

Health disparities refer to differences in disease prevalence, health care access, treatment outcomes, and health care quality between some racial/ethnic minority groups compared to non-Hispanic Whites, between members of lower socioeconomic groups and members of higher socioeconomic groups, and between people with lower levels of education and those with advanced levels of education (CDC, 2010; AHRQ, 2009). Minority persons and persons with low household incomes are almost twice as likely to be diagnosed with type 2 diabetes compared to people in higher socioeconomic groups and non-Hispanic Whites (CDC, 2007), respectively. This health disparity is partly due to limited access to preventative health care and health promoting resources by individuals with lower education and/or lower household incomes. Lack

of preventative health care often leads to delayed disease diagnosis, longer disease duration, and more severe disease related complications (CDC, 2005). Income and access to insurance have been identified as primary factors that explain the higher incidence of health problems among non-Hispanic Whites and persons from minority groups from low-income households (Beaudoin, 2009).

Generally speaking, minority persons are overrepresented in low-income socioeconomic groups at the national and state level. For example, in 2009 non-Hispanic Whites accounted for about 13% of the low-income population and African Americans accounted for 34% of the low-income population nationally (Kaiser Foundation, 2009). Low-income in this case is described as meeting the U.S. Department of Health and Human Services guidelines for poverty, which is an annual household income of \$21,200 or less for a family of four. Greater attention is being given to socioeconomic factors such as income, health insurance, and neighborhood SES (the environment and resources surrounding the person) with regard to health disparities because these factors account for many differences in disease prevalence, health outcomes, and access to health promoting resources such as parks, healthy food stores, etc. (Geraghty, Balsbaugh, Nuovo, & Tandon, 2010; Escarce, 2008; Beaudoin, 2009). Thus, when referring in general terms to the groups most at-risk for experiencing type 2 diabetes health disparities the phrase “persons from minority and majority groups with low household incomes and/or from low-income households” will be used except in instances when referencing studies that included specific racial/ethnic groups. This departure distinguishes from the commonly used phrase “low-income, racial/ethnic minorities” which fails to include non-Hispanic Whites with low household incomes who often experience similar rates of health disparities despite their majority status. This also acknowledges that many African Americans and members of other racial/ethnic minority groups

may be in middle to higher income brackets and are less likely to experience type 2 diabetes health disparities compared to persons with low household incomes from either majority or minority groups.

In addition to the detrimental effects health disparities have on patients' health and quality of life, health disparities have serious financial consequences for the entire nation due to the exorbitant costs of treating chronic diseases. These costs are particularly problematic among the many minority and non-Hispanic White persons from low-income households who cannot afford to pay for treatment.

With the aging and diversification of the U.S. population, it is imperative to develop interventions that reduce and eliminate the health disparities that plague our nation. A national level response to this reality was *Healthy People 2010*, an initiative launched by the U.S. Department of Health and Human Services, which aims to improve the health of the nation by 2010 through federally funded and grassroots intervention programs to increase health promoting behaviors among children, adults, and families. A specific objective outlined in *Healthy People 2010* that is being reiterated in the updated *Healthy People 2020* is to eliminate health disparities in type 2 diabetes outcomes for racial/ethnic minority groups and groups with low socioeconomic status and to better understand the factors that contribute to health.

Type 2 Diabetes and Hypertension: Two Major and Related Health Disparities

Hypertension is both a complication and commonly associated condition of type 2 diabetes. Hypertension, also known as high blood pressure, is a chronic condition characterized by increased arterial pressure of the blood vessels. When left untreated, hypertension increases the risk of myocardial infarction, stroke, and blindness. Like type 2 diabetes, hypertension also disproportionately affects people from low-income households and is overrepresented among

racial/ethnic minorities, especially African Americans. However, its rates are increasing among all Americans (Covington & Grisso, 2001; Bryant et al, 2010; Okosun, Glodener, & Dever, 2003). Both hypertension and type 2 diabetes have similar underlying causal risk factors, mainly stress, obesity, and having an unhealthy lifestyle.

According to the ADA, in 2007 75% of adults with type 2 diabetes had blood pressure greater than 130/80 mmHg, and 60% of people with type 2 diabetes had blood pressure of 140/90 mmHg. These measurements (i.e., 130/80 mmHg and 140/90 mmHg) refer to the clinical cutoffs for pre-hypertension and hypertension, respectively. Systolic blood pressure (the higher number) refers to the pressure exerted while one's heart is beating and diastolic blood pressure (the lower number) refers to the pressure exerted against the arterial walls (NICE, 2006). When individuals have both type 2 diabetes and hypertension, which frequently coincide, additional complications and health risks emerge.

Specifically, poor management of blood pressure in persons with type 2 diabetes increases the likelihood of experiencing micro-and macro-vascular complications (e.g., erectile dysfunction, stroke, blindness, amputations) by up to 40% (ADA, 2009). Recent findings released from the American Academy of Neurology in 2011 are linking poorly managed blood pressure and blood glucose to the development of Alzheimer's disease. Indeed, the complication of high blood pressure profoundly impacts quality of life and outcomes for people with type 2 diabetes. Racial/ethnic minority persons and non-Hispanic Whites from low-income households who have type 2 diabetes have been found to experience increased complications of diabetes due to poorer management of both blood pressure and blood glucose (ADA, 2007).

The Association between Stress and Type 2 Diabetes and Hypertension

Persons from low-income households are at risk for experiencing increased stressors including poverty and decreased access to health-promoting and stress-reducing activities/facilities (Rohm-Young et al., 2004). Racial/ethnic minorities from low-income households often face additional stressors related to experiencing oppression and racism (Thomas & Gonzalez-Prendes, 2009). Stress can be manifested as physical, emotional, and cognitive stress. Numerous theories have been proposed that expound on how stress leads to reduced immune functioning and increased risk of developing chronic illnesses (e.g., Lefebvre & Sandford, 1985; McEwan, 1998). Stress has been proposed as a contributor to health disparities because it operates as both a health risk factor and it interferes with engagement in protective health promoting behaviors.

In patients with type 2 diabetes, higher levels of reported stress are positively correlated with poorer health outcomes, namely higher fasting blood glucose and higher blood pressure, (Kim et al., 2009; Garay-Sevilla et al., 2000; Trovato et al., 2006). Stress is a predictor of poorer self-management behaviors for patients with type 2 diabetes, and stress specifically interferes in the areas of diet and physical activity adherence (Gonzalez et al., 2008) which are critical for maintaining healthy weight, blood pressure, and blood glucose levels. Patients with type 2 diabetes who have higher baseline stress levels have been found to have lower response/success rates to health-promoting and weight-loss interventions (Kim et al., 2009).

The Role of Health Promoting Behaviors in Treating Type 2 Diabetes

Health promoting behaviors refer to behaviors that persons with type 2 diabetes and other chronic illnesses can engage in to reverse or minimize the symptoms of the illness or delay the onset of illness related complications. Health promoting behaviors improve health outcomes.

Eating healthy foods and engaging in physical activity are two health promoting behaviors that are most frequently targeted in type 2 diabetes interventions.

Interventions focused on increasing engagement in health promoting behaviors, especially diet and physical activity, have produced powerful results in preventing and reversing symptoms of type 2 diabetes. Previous intervention studies have demonstrated that weight loss achieved through healthy dietary intervention can improve patients' lipoprotein profile, regulate blood glucose levels, and reduce blood pressure (Kelley, 1995). Physical activity interventions with patients who have a type 2 diabetes diagnosis have been credited with lowering blood pressure, regulating blood glucose levels, and preventing the onset of diabetes by up to 60% in at-risk populations (Sigal, 2006; Knowler et al., 2002).

Stress management is also a health promoting behavior/skill that is used in treating type 2 diabetes. Intervention studies conducted with patients who have a type 2 diabetes diagnosis have demonstrated that stress management and relaxation training have a positive effect on regulating blood glucose (Surwit et al., 2002).

Need for Patient-Centered Culturally Sensitive Interventions to Increase Health Promoting Behaviors among Patients with Type 2 Diabetes

There is growing acknowledgement in the U.S. that culturally sensitive health care interventions are necessary to encourage health promoting behaviors among racial/ethnic minority groups with low household incomes in order to reduce health disparities in the U.S. Given that cultural factors intersect with both internal and external factors (e.g., psychological, economic, environmental) to influence health status, health care quality, and health outcomes, patient-centered culturally sensitive approaches have much potential for guiding health promoting intervention efforts (Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003; Scisney-Matlock, 2009). Consequently, there are national calls for patient-centered culturally

sensitive health care to prevent and treat chronic health problems, such as type 2 diabetes, that are now overloading the U.S. health care system (AHRQ, 2009; CDC, 2005).

Tucker and colleagues (2007) offer the following definition of patient-centered culturally sensitive health care:

Patient-centered culturally sensitive health care (a) includes but extends beyond cultural competence, and thus we refer to it as cultural competence plus; (b) conceptualizes the patient-provider relationship as a partnership that emerges from patient-centeredness; (c) focuses on patient empowerment that includes providing patients with structured opportunities to give providers feedback regarding the quality of their health care provision; and (d) is evidenced by modifiable and measurable provider and staff member behaviors and attitudes and clinic environment characteristics as desired and identified by patients. (p.638)

Patient-centered culturally sensitive health care interventions are especially well suited for patients with type 2 diabetes given the high proportion of patients from low-income households and/or racial/ethnic minority groups who are diagnosed with this disease. Patient-centered culturally sensitive interventions are also ideal for type 2 diabetes management because this disease requires active involvement of patients in their treatment and patient-provider collaboration. However, there is a dearth of studies that have actually empirically tested the relationship between patient-centered culturally sensitive health care and health outcomes (Betancourt, Green, Carrillo, & Park, 2005), and even fewer studies have specifically focused on testing the effects of culturally sensitive patient-centered interventions on health outcomes among patients with type 2 diabetes. Preliminary studies have shown that both patient-centered culturally sensitive health care and health promoting lifestyles are associated with positive health outcomes among patients with type 2 diabetes. Specifically, the REACH (Racial and Ethnic Approaches to Community Health) Model (which is based on *Healthy People 2010*) and empowerment-based approaches have been used with non-Hispanic Whites, Hispanics/Latinos, and African Americans with type 2 diabetes and have yielded successful outcomes. Results from

these studies have demonstrated improvement in patients' dietary knowledge and behaviors, physical activity, body mass index (BMI) and HbA1C levels - a more stable and predictive measure of blood glucose over time (Two Feathers et al., 2005; Mayer-Davis et al., 2004). Patient-centered culturally sensitive health care interventions and models have been tested with non-Hispanic Whites and African Americans from low-income households and have demonstrated beneficial health outcomes for both racial/ethnic groups (Mayer-Davis et al., 2004). Indeed, the effects of culturally sensitive health care interventions can benefit both minority and majority patients with type 2 diabetes and are especially suited to meeting the needs of underserved groups from low-income households.

The Patient-Centered Culturally Sensitive Health Care (PC-CSHC) Model

The PC-CSHC Model was informed by qualitative research with non-Hispanic White, African American, and Latino primary care patients from low-income households who participated in focus group sessions. This qualitative research conducted by Tucker and colleagues sought to identify the characteristics of culturally sensitive health care from the perspective of primary care patients (Tucker et al., 2003). These diverse focus group participants specifically identified provider behaviors, office staff behaviors, and health care clinic characteristics and policies that enable patients to experience trust, respect, and comfort in their health care. This valuable information and existing health care literature informed Tucker and colleagues' definition of patient-centered culturally sensitive health care and lead to the development of the PC-CSHC Model.

The PC-CSHC Model, similar to the construct of PC-CSHC that was previously defined, emphasizes a collaborative partnership between patients and their providers that increases the power and control experienced by patients, and ultimately enables patients to experience greater

control over their health. Patients' feedback to their providers and participation in the health care process is encouraged and valued. In accordance with having a collaborative partnership, patients' perceptions of whether their health care is experienced as patient-centered and culturally sensitive are important, rather than solely relying on providers' self-evaluations of their cultural sensitivity/competence and patient-centeredness.

Implications of PC-CSHC for Counseling and Clinical Psychologists

Lastly, PC-CSHC underscores the role of psychological variables in the health care process; specifically, in this model, perceived cultural sensitivity, patient satisfaction, stress, and empowerment/interpersonal control are conceptualized as having significant influence on engagement in health promoting behaviors and treatment adherence, which in turn produce changes in health outcomes. A number of widespread health intervention models, such as the chronic care model and ecological model of behavior change, emphasize psychosocial variables in health outcomes (Scisney-Matlock et al., 2009). The importance of psychological health is increasingly being recognized as an important aspect of (physical) health care and as an antecedent to producing desired changes in physical health outcomes (Mayer-Davis et al., 2004). Awareness of the function of psychological variables in physical health behaviors and outcomes has expanded the roles for psychologists working with patients with chronic health conditions.

The founders of this model emphasize that counseling and clinical psychologists are especially well suited to train health care providers and patients in the behaviors and attitudes that encompass PC-CSHC, especially with their extensive training in and awareness of multicultural/diversity issues. Counseling and clinical psychologists are also trained in understanding the negative effects of stress on health and are trained in teaching clients/patients

healthier ways of coping with stress and specific techniques for reducing stress and anxiety (i.e., progressive muscle relaxation).

Stress plays a major role in the development and maintenance of type 2 diabetes. Health intervention studies that have included basic stress management as part of the tested interventions have produced positive long-term health outcomes (i.e. reduction of blood glucose; Surwit et al., 2002) and have predicted success in weight loss programs for people with type 2 diabetes (Kim, Bursac, DiLillo, White & West, 2009). Indeed, there are numerous opportunities for counseling and clinical psychologists to use their knowledge of stress and other psychosocial variables emphasized in the PC-CSHC Model to conduct interventions with underserved patients with chronic health conditions.

Pathways of the PC-CSHC Model

The following is a synopsis of the specific literature-based proposed pathways of the PC-CSHC Model. According to the Model, when patients perceive the health care they receive as culturally sensitive it increases their trust and comfort with their health care providers, which subsequently increases their satisfaction with their health care and the level of control they experience with regard to their health. Furthermore, according to this model, increased interpersonal control and patient satisfaction are associated with lower levels of perceived physical stress, and each of these three aforementioned variables (i.e., interpersonal control, patient satisfaction, and physical stress) has direct pathways to engagement in health-promoting behaviors and treatment adherence. Interpersonal control and patient satisfaction are positively correlated with engagement in health-promoting behaviors and treatment adherence; and physical stress is inversely correlated with engagement in health-promoting behaviors and treatment adherence. Engaging in health-promoting behaviors and adhering to treatment

recommendations are linked with more positive health outcomes, such as reduced blood pressure (Tucker et al., 2003). The following figure illustrates the main pathways of Tucker's Patient-Centered Culturally Sensitive Health Care Model.

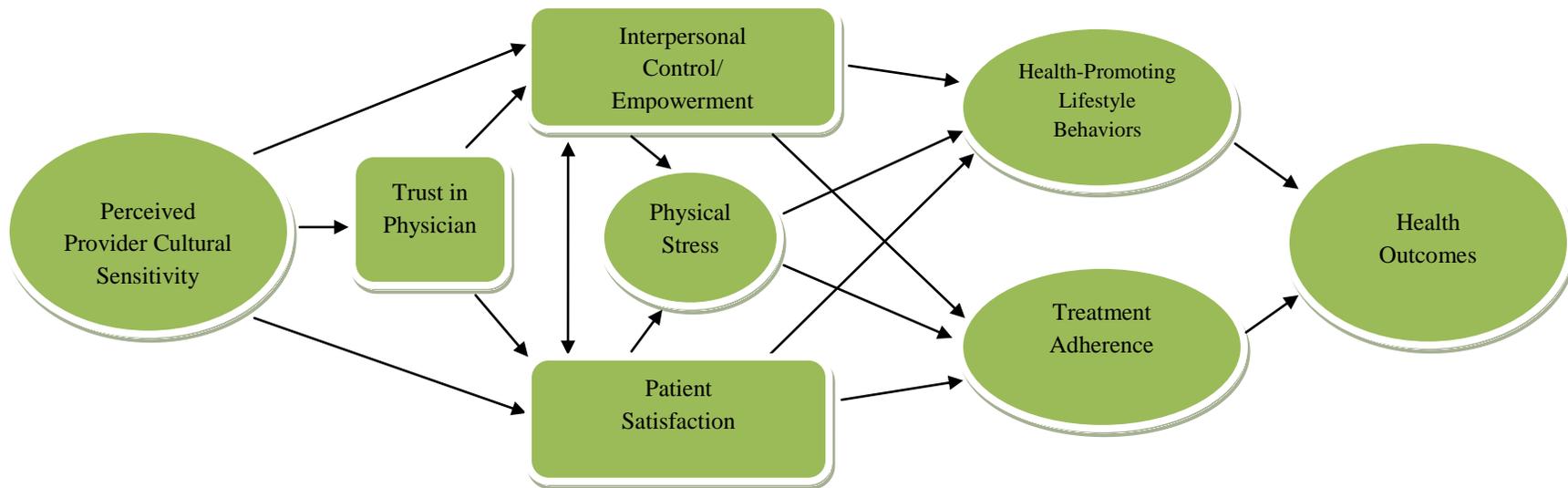


Figure 1-1. Tucker's patient-centered culturally sensitive health care (PC-CSHC) model

Support for the Patient-Centered Culturally Sensitive Health Care Model

Numerous research studies have documented that when patients experience greater control and satisfaction with their health care, they are more inclined to adhere to treatment recommendations, which ultimately leads to more positive health outcomes (Auerbach, Clore, Kiesler et al., 2002; Jahng, Martin, Golin, & DiMatteo, 2004). Other intervention studies have linked lower stress levels to type 2 diabetes self-management behaviors and outcomes, specifically blood glucose management and weight loss. It has been reported that increased levels of stress interferes with meeting weight loss objectives and deter maintaining a healthy diet and physical activity among people with type 2 diabetes (Kim et al., 2009; Gonzalez et al., 2008). Higher reported stress has repeatedly been associated with poorer health outcome measures, including higher fasting blood glucose levels and higher blood pressure (Skaff et al., 2009). In sum, there appears to be research support for the connection between stress and both engagement in health promoting behaviors and treatment adherence – a connection emphasized in the PC-CSHC Model.

Researchers have begun to examine the influence of perceived provider cultural sensitivity on patient health outcomes. One of the first documented studies to empirically test this relationship was conducted by Majumdar, Browne, Roberts, and Carpio (2004) who found that patients whose providers had received cultural sensitivity training demonstrated increases in overall functioning and use of social services without any increase in health care costs. More recently, studies have examined the influence of provider cultural sensitivity on patient outcomes for patients with type 2 diabetes. For example, one study focused on patient outcomes following a culturally and linguistically sensitive health intervention for Latinos with type 2 diabetes. Participants in this study demonstrated significant weight loss and significant improvement in

blood glucose levels (Metghalchi et al., 2010). Lastly, a culturally sensitive health care program known as the African American Wellness Village, created specifically as a diabetes resource for African Americans that attracts approximately 700-900 individuals with type 2 diabetes annually, has been found to increase self-reported patient satisfaction, trust, and preventative screenings for blood pressure, vision, and glaucoma (McKeever, Koroloff, & Faddis, 2006). However, these studies are limited by a lack of theoretical models guiding the research.

Partial support for the PC-CSHC Model was recently provided in a study by Tucker and colleagues (2010) that tested the links between primary care patients' level of perceived patient-centered provider cultural sensitivity and engagement in health promoting behaviors and treatment adherence among a skewed sample of African American and non-Hispanic White primary care patients from low-income households. Specifically, using a path analysis, it was found that perceived patient-centered cultural sensitivity of providers was positively linked to health promoting behaviors and treatment adherence of the participating patients through promoting patients' trust in providers, increasing patient satisfaction, increasing interpersonal control, and reducing stress. In the PC-CSHC Model, interpersonal control is a way of measuring patient empowerment because these concepts are closely related. It is assumed that patients who experience higher levels of patient empowerment also experience higher levels of interpersonal control regarding their health.

The model tested differed slightly for African American and non-Hispanic White participants. For African Americans, provider cultural sensitivity had both direct and indirect effects on dietary adherence and engagement in health promoting behaviors, but was not associated with medication adherence. For non-Hispanic Whites, on the other hand, provider cultural sensitivity was directly linked with engagement in health promoting behaviors and

medication adherence, but was not associated with dietary adherence. There were also differences in the pathways to health outcomes for African Americans and non-Hispanic Whites. For African Americans, trust in physician, interpersonal control, and patient satisfaction all had direct effects on health outcome behaviors (i.e., medication and dietary adherence). For non-Hispanic Whites only, trust in physician led to greater patient satisfaction with care, whereas lower levels of stress and increased interpersonal control had direct pathways to engagement in health promoting behaviors. This research suggests that interventions to promote patient-centered culturally sensitive health care may contribute to positive health outcomes and engagement in health promoting behaviors among African Americans and non-Hispanic Whites, albeit through slightly different mechanisms of change. The findings from preliminary tests of the PC-CSHC Model indicate that interventions to improve patients' health outcomes ideally should include a focus on increasing patients' interpersonal control (a variable used as an indicator of patient empowerment), reducing their stress, and increasing their engagement in health promoting behaviors.

CHAPTER 2 LITERATURE REVIEW

The purpose of this chapter is to present literature relevant to the focus of the present study. The following topics will be addressed in this chapter: (1) definition of type 2 diabetes, its prevalence, and cost in the U.S.; (2) the relationship between hypertension and type 2 diabetes; and (3) the American Diabetes Association standards of medical care for diabetes. Research on type 2 diabetes supporting each aspect of the PC-CSHC Model is also presented. Additionally, the importance of culturally sensitive interventions, patient empowerment, and health promoting behaviors in the treatment of type 2 diabetes is addressed. Previous studies that have addressed these critical variables in interventions for improving health outcomes among patients with type 2 diabetes are also discussed. This section will conclude with a description of the present study and the hypotheses set forth in this study.

Type 2 Diabetes: Definition, Prevalence, and Cost in the U.S.

Definition of Type 2 Diabetes

Type 2 diabetes, one of the nation's major health disparities, is a disease characterized by progressive insulin resistance that is frequently caused by lifestyle factors such as poor dietary habits and sedentary lifestyle. Underlying diseases including obesity and hereditary factors also contribute to the incidence of type 2 diabetes. Type 2 diabetes leads to elevated blood glucose levels, which in turn often lead to hyperglycemia, stroke, heart attack, amputations, kidney disease, and depression (ADA, 2007).

The incidence of type 2 diabetes has doubled over the past two decades (CDC, 2007) in the U.S., and it is now one of the deadliest diseases in the U.S. It is estimated that type 2 diabetes will increasingly be diagnosed. This is because of the increase in the risk factors for type 2

diabetes, which include obesity, high blood pressure, and high cholesterol. The best strategies for preventing and delaying the onset of type 2 diabetes are undoubtedly weight loss, maintaining a healthy diet, and participation in regular exercise.

A landmark study conducted by the Diabetes Prevention Program Research Group found that compared to the prescription drug metformin, which is commonly used to regulate and prevent diabetes, lifestyle intervention was more effective at preventing type 2 diabetes in a large sample of high-risk persons for developing the disease. The lifestyle intervention reduced the incidence of type 2 diabetes by an astonishing 58%, whereas metformin reduced the incidence of developing type 2 diabetes by 31% (Knowler et al., 2002). It should be noted that the authors recommend that although both metformin and lifestyle intervention were both effective at preventing diabetes, the lifestyle intervention had a higher success rate at preventing diabetes. However, the lifestyle intervention was particularly rigorous and could be cumbersome for those with low motivation or physical limitations. Specifically, the lifestyle intervention required 150 minutes of moderate to intense physical activity weekly and a target 7% weight loss from the initial weight over the course of the study. This study underscores that lifestyle intervention is highly effective at reducing the risk of developing type 2 diabetes for patients at-risk for developing this disease.

Prevalence of Type 2 Diabetes

As of 2011, 12.6% of African Americans, 11.8% of Latinos, 8.4% of Asian Americans, and 7.1% of non-Hispanic Whites had a diagnosis of type 2 diabetes. African Americans are 1.8-2.0 times as likely to be diagnosed with type 2 diabetes compared to non-Hispanic Whites (NIH, 2006; CDC, 2010). In total, 25.8 million people or 8.3% of the U.S. population have type 2 diabetes and many more unknowingly have the disease and thus remain undiagnosed (ADA,

2011). Specifically, it is estimated that seven million Americans have undiagnosed type 2 diabetes and 79 million Americans meet the classification for pre-diabetes based on fasting glucose and HbA1C levels (ADA, 2011). Type 2 diabetes accounts for 90-95% of all diabetes diagnoses, with the remaining percentage comprised of type 1 and gestational diabetes (CDC, 2008). According to the American Diabetes Association, it is estimated that one third of patients with type 2 diabetes remain undiagnosed because the disease is often not detected until complications emerge and treatment is sought (ADA, 2011).

New growth curve estimates have projected that by the year 2050, 1 in 3 Americans will have a diagnosis of type 2 diabetes. This dramatic increase was predicted by accounting for expected higher rates of type 2 diabetes diagnoses among racial/ethnic minorities and by factoring in estimates of undiagnosed type 2 diabetes cases and increases in childhood type 2 diabetes (CDC, 2010). In the past, African Americans had higher rates of four of the most serious complications of type 2 diabetes, which are heart disease, peripheral blindness, lower extremity amputations, and kidney failure (CDC, 2007). However, in recent years these statistics seem to have shifted in that the disparities related to type 2 diabetes complications are tied more closely to socioeconomic status, especially neighborhood SES and surrounding resources, rather than racial/ethnic minority status (e.g., Dubowitz et al., 2008).

Cost of Type 2 Diabetes

In 2007, type 2 diabetes cost the nation \$174 billion with an estimated \$116 billion of this amount for the direct costs of treatment, and \$58 billion of this cost for the indirect costs of lost productivity due to the disease. On average, it is estimated that it costs an individual with type 2 diabetes \$11,744 per year to manage their diabetes (CDC, 2007), which dramatically exceeds the annual cost of care for individuals without diabetes. Those who are uninsured or underinsured

have limited access to ongoing primary care and preventative health care. Lack of preventative and primary care is associated with increased risk of hospitalization, need for specialty care, and complications which create additional costs associated with treating type 2 diabetes (Philis-Tsimikas et al., 2004). Unfortunately, 15% of people with type 2 diabetes reported delaying or avoiding medical care that was needed due to the cost of this care (CDC, 2007).

The Role of Socioeconomic Status in Health Disparities

Socioeconomic status (SES) has increasingly come into focus as a predictor of health disparities, especially with type 2 diabetes. Socioeconomic status is described as a measure of one's financial, educational, and occupational status relative to others. Socioeconomic status includes income, health insurance, and neighborhood SES (the environment and resources surrounding the person). SES accounts for many differences in disease prevalence, health outcomes, and access to health promoting resources such as parks, healthy food stores, etc. (Geraghty et al., 2010; Dubowitz et al., 2008; & Escarce, 2008). Limited access to health care, a socioeconomic indicator, is associated with poorer diabetes control (Rubin et al., 2006). Lower level of education, another socioeconomic status indicator, is often associated with unhealthy behaviors such as smoking, consumption of sugar-sweetened beverages, sedentary lifestyle and lower levels of engagement in health-promoting behaviors (Schulze, Manson, & Ludwig, 2004). Some studies have shown that lower SES is associated with increased health disparities even when controlling for race. For example, in a longitudinal study examining insulin resistance over time in non-Hispanic White and African American adolescents, it was found that parent education (a SES factor) was a stronger predictor of insulin resistance than race (Goodman, Daniels, & Dolan, 2007). Despite the powerful influence of SES on health, there are some racial disparities in health that exist even when SES is similar across racial/ethnic groups, such as

higher rates of hypertension among African Americans (Office of Minority Health, 2010). However, SES is increasingly being recognized as a contributor to health disparities for all racial/ethnic groups.

Type 2 Diabetes and Hypertension: Two Major and Related Health Disparities

Hypertension, the most common comorbid disease and complication of type 2 diabetes, also disproportionately affects non-Hispanic White and racial/ethnic minorities from low-income households and is occurring at increasingly high rates among all Americans (Bryant et al., 2010; Okosun, Glodener, & Dever, 2003). Hypertension can exist independent of type 2 diabetes, meaning that simply because one has type 2 diabetes does not mean the person will also have hypertension and vice versa. However, since both of these chronic diseases have similar underlying causal risk factors, mainly stress, obesity, and having an unhealthy lifestyle, they often coexist.

According to the ADA, 75% of adults with type 2 diabetes had blood pressure greater than 130/80 mmHg, also known as pre-hypertension, or took prescription medication for blood pressure (ADA, 2007). Although not as severe as hypertension, pre-hypertension still has many negative health risk factors. In order to be diagnosed with hypertension, one must have a blood pressure of 140/90 or higher. Sixty-seven percent of people with type 2 diabetes meet this classification (ADA, 2011). Although there are not race-specific statistics on the rate of hypertension among African Americans with type 2 diabetes, African Americans consistently have higher rates of hypertension in non-diabetic samples. Specifically, 40% of African Americans have hypertension compared to 25% of non-Hispanic Whites, and as mentioned previously, 13% of African Americans have type 2 diabetes (CDC, 2010). One explanation for differences in the prevalence of hypertension by race is salt sensitivity. Sodium has a unique role

in regulating blood pressure for African Americans, but not for non-Hispanic Whites. There is a connection between salt sensitivity and insulin resistance, and research has shown that in young, healthy African Americans greater salt sensitivity is associated with blood glucose regulation (Faulkner, 2003).

Hypertension among people with type 2 diabetes is associated with more severe macro- and micro-vascular diabetic complications, such as stroke, coronary artery disease, neuropathy, retinopathy, and renal disease (ADA, 2007; ADA 2010). Diabetic neuropathy and retinopathy are two conditions that potentially lead to amputations and blindness, respectively. Neuropathy occurs when blood pressure is consistently high and blood flow becomes limited to certain regions of the body; with this condition circulation becomes poorer and there is an increased likelihood of sores, wounds, infection, and tissue death on the extremities. Past research has found a higher risk of retinopathy (blindness) among African Americans with type 2 diabetes compared to non-Hispanic Whites (Harris, Klein, Cowie, Rowland, & Byrd-Holt, 1998). High blood pressure and lower rates of eye examinations are potential causes of this disparity (Office of Minority Health, 2010). Across all racial/ethnic groups, people with type 2 diabetes from low-income households are more likely to experience the complications of diabetes due to poorer management of both blood pressure and blood glucose levels, and lack of access to health care and specialist care that promote effective management of type 2 diabetes. Currently, African Americans are 1.5 times as likely as other racial/ethnic groups to be hospitalized for type 2 diabetes complications (Office of Minority Health, 2010).

Underlying Risk Factors for both Type 2 Diabetes and Hypertension

There are a number of risk factors underlying type 2 diabetes and hypertension, including education level, racial/ethnic minority status, neighborhood SES, family history, age, geographic

region, and health behaviors. There are also modifiable risk factors that emerge repeatedly in the type 2 diabetes literature including obesity and stress.

Obesity as an Underlying Risk Factor

Obesity is an underlying risk factor that puts one at risk for developing both type 2 diabetes and hypertension and is generally caused by unhealthy behaviors, such as a sedentary lifestyle and a diet high in saturated fat, sodium, and sugar. Obesity accounts for 55% of the variance in type 2 diabetes cases and is repeatedly identified as the leading culprit for developing type 2 diabetes (CDC, 2007). Lifestyle behaviors that lead to obesity are often learned at a young age, may be tied to cultural and familial traditions, and can be difficult to change. Limited access to resources that protect individuals from becoming obese, such as access to natural food stores and parks and recreation, is undoubtedly tied to socioeconomic status (Barrera et al., 2008). Rates of obesity are exponentially higher among both minority and majority individuals from low-income households (Vines et al., 2007).

Non-Hispanic Whites and African Americans from low-income households who experience increased stressors may use eating as a form of coping. A very recent study by Jackson, Knight, and Rafferty (2010) examined the role of unhealthy behaviors, such as overeating, in physical and mental health disparities. Comparing non-Hispanic White and African American participants, the authors found that for both racial groups unhealthy behaviors (drinking alcohol, smoking, and overeating) were associated with increased risk for developing chronic health conditions. However, a surprising result emerged when looking at the role of unhealthy behaviors in mental health disparities. For African American women participants only, unhealthy eating (overeating for comfort) had a buffering effect between stress and developing major depression, suggesting that overeating was protective at preventing depression for these

participants (Jackson et al., 2010). Research has also demonstrated that increased BMI (body mass index) has differential effects on self-esteem for non-Hispanic Whites compared to African Americans, with higher BMI associated with higher reported self-esteem for African Americans and lower reported self-esteem for non-Hispanic Whites (Molloy & Herzberger, 2004). Regardless, higher BMI poses negative physical health risks for both groups and contributes to the development of type 2 diabetes.

Higher waist-to-hip ratios, which is indicative of obesity, has been correlated with low socioeconomic status, smoking, lower education, and less physical activity among African American women (Vines et al., 2007). These same risk factors overlap and contribute to type 2 diabetes and hypertension. Obesity is also a risk factor for type 2 diabetes and hypertension because it interferes with health promoting behaviors that one can engage in to prevent or reverse these diseases, such as exercise. Thus, many health interventions for type 2 diabetes and hypertension include a weight loss component (e.g., Mayer-Davis et al., 2004).

Stress as an Underlying Risk Factor

Persons from lower SES groups are at risk for experiencing increased levels of chronic stress vis a' vis the cumulative hardships of having limited financial resources and decreased access to health-promoting and stress-reducing activities/facilities (Rohm-Young et al., 2004). Stress has been proposed as a contributor to health disparities because majority and minority persons from lower SES groups report a higher incidence of chronic stress compared to persons in higher SES groups (Kim, Bursac, DiLillo, White, & West, 2009; Clark, Anderson, Clark, & Williams, 1999) and because stress is a health risk factor directly associated with the development of health conditions (Rahman, Hu, McNeely, Rahman, & Krieger, 2008).

Racial/ethnic minority persons from lower SES groups experience additional stressors beyond those experienced by non-Hispanic Whites from lower SES groups due to the additional stress of racism and oppression (Thomas & Gonzalez-Prendes, 2009). There is a direct link between perceptions of racism and hypertension risk for African Americans (Rahman et al., 2008). Racism-related stress has been found to influence distribution of body fat in African Americans (i.e., result in higher waist-to-hip ratios), which put one at greater risk for developing type 2 diabetes and cardiovascular disease (Vines et al., 2007).

There is now literature in the area of traumatic stress which explains how traumatic experiences and subsequent psychological sequela negatively impact physical health. Qureshi and colleagues (2009) did a systematic review of the physical health conditions associated with post-traumatic stress disorder (PTSD), a psychiatric condition that occurs in reaction to a traumatic event. This review included veterans and a general population of Medicaid recipients. Findings for the general population suggest that PTSD is associated with increased risk for developing arthritis, asthma, type 2 diabetes, eczema, and ulcers. Associations were not noted for heart diseases or thyroid functioning (Qureshi, Pyne, Magruder, Schulz, & Kunik, 2009). However, another study did find evidence of a link between PTSD and hypertension, stroke, and type 2 diabetes (Lauterbach, Vora, & Rakow, 2005).

A fascinating study by Smith and colleagues (2010) examined perceptions of stress and history of trauma in relationship to mental and physical health for two groups, women with fibromyalgia and women who served as healthy controls. Fibromyalgia is a chronic rheumatologic health condition characterized by fatigue, pain, depression, and anxiety. The underlying causes of fibromyalgia are not completely known, but there is a higher incidence of reported stressful life events, including child abuse, in people with this health condition. For this

study, women in both groups completed self-report measures on the variables of interest. Results yielded that perceived stress was negatively associated with both physical and mental health for the fibromyalgia group and not for the healthy control group. Interestingly, having experienced a traumatic event was associated with negative mental and physical health only for the women in the fibromyalgia group and not for women in the healthy control group who had experienced trauma. Perceived stress was found to be a partial mediating factor between trauma history and mental and physical health for women with fibromyalgia. Perhaps traumatic stress has more serious consequences in women who have preexisting chronic health conditions.

It is important to understand how stress affects health both in terms of the actual physiological consequences of stress, the psychological impact of stress, and the impact that stress has on engaging in health promoting behaviors. Numerous theories have offered explanations of the relationship between stress and chronic illness. Two of these theories, “the weathering theory” and “the allostatic load theory,” propose pathways through which stress leads to chronic illness (Geronimus, 2001; McEwan, 1998). According to the weathering theory proposed by Geronimus, people from underserved/underrepresented groups experience stressors such as oppression and limited access to resources which in combination decrease access to protective resources and increase the likelihood of developing stress-related illnesses (2001). Allostatic load theory developed by McEwan suggests that chronic stress results in reduced immune functioning, which leads to physical illness (1998).

Lastly, there are models explaining the link between stress and chronic health conditions that are specific to racial/ethnic minority groups. For instance, concepts such as the “Strong Black Woman” or “Sojourner Syndrome” have been developed to describe ways that African American women have coped with hardship – ways that have enabled these women to overcome

obstacles but also have detrimental psychological and physical health consequences (Lekan, 2009; Thomas & Gonzalez-Prendes, 2009). The biopsychosocial model, which posits that biological, psychological (thoughts, emotions, behaviors), and social factors, each significantly contribute to human functioning in the context of disease and illness, has also been used to explain how racism-related stress negatively affects the physical health of African Americans (Engel, 1977; Clark et al., 1999). Indeed, when a person is faced with social, environmental, and/or biological challenges, this may lead to the development of a chronic illness such as type 2 diabetes.

American Diabetes Association Standards of Medical Care in Diabetes

In 2007, the American Diabetes Association set forth standards of medical care for diabetes that included specific guidelines for adhering to various aspects of type 2 diabetes management. The primary areas of diabetes management covered in these guidelines include: (a) the initial evaluation; (b) developing a plan for diabetes management; (c) assessing and monitoring glycemic control (blood glucose); (d) nutrition therapy (monitoring and reducing intake of sugar, carbohydrates, sodium, etc); (e) diabetes self-management education; (f) physical activity; and (g) psychosocial assessment. These guidelines also address managing blood pressure to reduce the risk of the most devastating complications from diabetes – cardiovascular disease, nephropathy, retinopathy and neuropathy. For brevity, only the recommendations for managing diabetes most relevant to the present dissertation topic will be presented – namely, controlling blood glucose level, controlling blood pressure, eating a healthy diet, and engaging in physical activity.

The first guideline, controlling one's blood glucose level, encompasses the following: 1) self-monitoring levels of blood glucose daily; 2) having HbA1C tested as recommended; and 3)

striving for recommended blood glucose goals. It is recommended that patients with type 2 diabetes self-monitor their blood glucose level 3-4 times each day, even in circumstances where they are using diet or oral medication instead of insulin to manage their diabetes. Checking blood glucose levels this frequently enables people with type 2 diabetes to have a clearer understanding of fluctuations in these levels and gives them the opportunity to remedy glucose levels by self-administering medication when readings are out of the recommended range.

With regard to HbA1C, it is recommended that patients have their HbA1C level tested at a minimum of twice annually. This test provides an average measurement of blood glucose levels over the previous 2-3 months and can be used in conjunction with readings from self-monitoring blood glucose.

Lastly, the recommended blood glucose goal for patients with type 2 diabetes is an HbA1C measurement of less than 7%. The ADA Guidelines were revised in 2009 to use the HbA1C measurement to test for diabetes as well, which made testing and diagnosing more convenient. The following measurement parameters are used: 5% or less indicates absence of diabetes, 5.7-6.4% indicates pre-diabetes, and 6.5% or higher indicates the presence of diabetes (ADA, 2009). This change in the guidelines was intended to identify more cases of diabetes in people without symptoms because the test is very quick and easy and does not require fasting.

The ADA Standards also recommended that patients with type 2 diabetes regularly monitor their blood pressure and maintain a reading of less than 130/80 mmHg, the clinical benchmark for pre-hypertension. Controlling one's blood pressure reduces the risk of cardiovascular disease (heart disease or stroke) among persons with type 2 diabetes by 33% to 50%, and the risk of microvascular complications (eye, kidney, and nerve diseases) by

approximately 33%. It is estimated that for every 10 mmHg reduction in systolic blood pressure, the risk for any complication related to type 2 diabetes is reduced by 12% (ADA, 2007).

The nutrition related guidelines established in the ADA Standards for managing diabetes include the specific recommendation that patients with type 2 diabetes strive for modest weight loss if they are obese or overweight, and participate in a structured program geared toward promoting needed diabetes related knowledge, weight loss, and physical activity. In addition, the guidelines indicate that patients should limit saturated fat intake to less than 7% of the total calories they consume and reduce trans-saturated fat in their diet. Patients with type 2 diabetes are also encouraged to monitor and reduce their intake of carbohydrates, sugars, and alcohol. Reduction of sodium is also encouraged, particularly in patients with concomitant hypertension.

The guidelines regarding managing diabetes also include a focus on physical activity. Physical activity is important because it assists with weight loss and weight management and helps patients achieve greater blood glucose control. Physical activity has these effects possibly because it regulates physiological functioning and metabolism and possibly because of its stress-reducing benefits. It is recommended that patients with diabetes engage in 150 minutes of moderate intensity physical activity per week (ADA, 2007).

Patient Adherence to the American Diabetes Association Standards

As of 2004, only 7.3% of adults with type 2 diabetes had met the recommended goals regarding levels of blood glucose, blood pressure, and cholesterol. The recommended blood glucose (HbA1C) was only met by 37% of individuals examined and by a mere 17% of African Americans examined at that time (Saydah, Fradkin, & Cowie, 2004). Twenty percent of people with type 2 diabetes report never testing their blood glucose levels (Beckles et al., 1998). In fact, most patients do not even purchase enough supplies to test their blood glucose the recommended

3-4 times daily. A study by Adams and colleagues (2003) using data from a large HMO revealed that the most vulnerable patients at risk for poorer health outcomes are the ones with the greatest barriers to self-monitoring blood glucose. The factors that were found to predict lower levels of self-monitoring of blood glucose included living in a lower socioeconomic neighborhood, older age, African American racial status, poor blood glucose control, and fewer HbA1C tests and doctor visits over time. This study was also the first to examine if providing blood glucose self-monitoring materials at no cost impacted this particular behavior. Significant changes in self-monitoring of blood glucose were not observed for participants who were provided self-monitoring materials at no cost compared to those who were not provided free materials suggesting that cost of materials may not be a significant barrier in diabetes self-management of blood glucose (Adams et al., 2003). One possible explanation for the lack of observed behavior change after providing free materials for self-monitoring blood glucose is that other barriers associated with having limited financial resources, such as a lack of transportation or being too busy to self-monitor because of working long hours, may interfere with blood glucose self-management.

A recent meta-analysis found that out of 17 chronic diseases, type 2 diabetes had the second lowest rating of treatment adherence, only surpassed by sleep disorders (DiMatteo, 2004). A survey of over 2,000 patients with type 2 diabetes found that patients rated diet, then exercise, then blood glucose monitoring as the most challenging aspects of diabetes management, respectively (Glasgow, Hampson, Strycker, & Ruggiero, 1997). In a recent diabetes intervention study with low-income minorities, participants reported transportation, cost, and availability of healthy foods as barriers to engaging in healthier dietary behaviors (Metghalchi et al., 2007). Repeatedly, it has been found that the most common barriers identified

for diabetes management are in the areas of lifestyle intervention such as exercise, diet, self-monitoring of blood glucose, and stress management. These aspects of diabetes self-management are more arduous for patients compared to medication adherence, which requires less patient engagement in health promoting behaviors (Glasgow, Toobert, & Gillette, 2001). It is cumbersome to provide an accurate estimate of the percentage of patients consistently adhering to the recommended nutrition and physical activity guidelines set forth in the ADA Standards, but the aforementioned findings are not promising.

The ADA standards are indeed useful for helping patients understand the ideal health targets for effectively managing their diabetes and reducing the risk of commonly associated complications. It is imperative that patients have a bridge between cognitively knowing the ADA standards and emotionally and behaviorally taking the steps to achieve and adhere to them. The bridge that helps patients connect knowledge with taking action is lifestyle interventions that educate patients, empower them to overcome barriers, establish individualized health goals, and develop motivation to consistently engage in health promoting behaviors.

Health Promoting Behaviors and Type 2 Diabetes and Hypertension: Diet, Physical Activity, and Stress Management

As previously mentioned, health promoting behaviors have the potential to reverse the symptoms of type 2 diabetes, delay the onset of complications, and in some cases prevent the disease altogether. Health promoting behavior changes have produced positive health outcomes among culturally diverse patients with type 2 diabetes from low-income households and have thus become a major focus of interventions with such patients (Barrera, Stryker, MacKinnon, & Toobert, 2008). Health promoting behaviors have been successful at enabling patients with type 2 diabetes to lose weight, reduce blood pressure and perceived stress, and regulate blood glucose.

Adhering to dietary standards, engaging in physical activity, and stress management are the health promoting behaviors that are most frequently targeted in type 2 diabetes interventions. Empowerment-focused interventions can be used to encourage patients with type 2 diabetes to modify unhealthy behaviors and adopt a healthier lifestyle over time. Empowerment is a psychological shift that reduces feelings of powerlessness and increases perceived control. For patients with type 2 diabetes, empowerment can help patients take a more active role in health-promoting behaviors.

It is important to have a clear understanding of health behaviors that are socially and culturally normative that may be interfering with diabetes and hypertension management prior to applying the intervention. It may be useful to reframe healthy behaviors in a culturally appropriate manner, such as emphasizing healthy eating and exercise as a way of demonstrating love for family members, as an expression of self-care, and/or as a way of improving quality of life. Major health organizations are now advocating for health to be a “family reunion affair” for African Americans where discussions about preventing type 2 diabetes and hypertension occur (Office of Minority Health, 2010). Promoting the selection of recipes and activities that are culturally relevant is also culturally appropriate. Yet, people are more likely to maintain healthy behavior changes when motivation for these behaviors is intrinsic (Scisney-Matlock et al., 2009). Thus, it is important to encourage patients to identify culturally relevant reasons for living healthier that have personal meaning for them. Another key challenge when implementing health promoting interventions for patients with type 2 diabetes and/or hypertension is to promote health behavior changes that are sustainable over time.

Diet as a Health Promoting Behavior

People who eat an unhealthy diet high in saturated fats, processed foods, and sugar-sweetened beverages and low in vegetables and fruits increase their likelihood of becoming overweight and/or obese and developing type 2 diabetes and other chronic health conditions. Previous intervention studies have demonstrated that weight loss can improve patients' lipoprotein profile and blood glucose levels and reduce blood pressure (Kelley, 1995). Recent efforts to reduce and/or reverse type 2 diabetes and its cardiovascular complications have focused on encouraging increased consumption of fruits and vegetables, especially green, leafy vegetables high in nutrients.

Dubowitz et al. (2008) examined differences in dietary behaviors based on neighborhood socioeconomic status (SES) among non-Hispanic Whites and African Americans. Neighborhood SES was found to significantly influence vegetable and fruit intake. Notable baseline differences in vegetable and fruit intake were observed between non-Hispanic Whites and African Americans regardless of SES. Interestingly, the authors found that when they examined racial differences in fruit and vegetable intake between non-Hispanic Whites and African Americans, SES accounted for 50% of the observed differences. In higher SES groups African Americans consumed similar levels of fruits, but significantly less vegetables than non-Hispanic Whites in the equivalently high SES group.

Another study examined the association of consuming sugar-sweetened beverages with developing type 2 diabetes. The authors used questionnaires to examine consumption patterns of sugar-sweetened beverages over a six-year period among a large database of African American women participants (n=43,960) that was collected by researchers at Howard University. Sugar-sweetened soft drinks and sugar-sweetened juices were both assessed in the study because people often mistakenly think juices are healthy even though they have similarly high sugar content to

soda. Findings indicate that consumption of sugar-sweetened sodas and sugar-sweetened juices were both associated with increased risk of developing type 2 diabetes. Women who consumed two or more soft drinks daily had a 24% increase in incidence of developing type 2 diabetes compared to women who consumed less than one soft drink per month. Similarly, women who consumed two or more sugar-sweetened juices daily had a 31% increase in incidence of developing type 2 diabetes compared to women who consumed less than one sugar-sweetened juice per month. Consumption of diet soda, orange juice, and grapefruit juice was not associated with developing type 2 diabetes. Results from this study also suggest that consumption of sugar-sweetened soft drinks was positively associated with BMI, cigarette smoking, higher blood glucose levels, and intake of red meats and processed meats. Drinking soft drinks was negatively correlated with years of education and physical activity. However, consumption of sugar-sweetened juices was not correlated with BMI or education, but was positively correlated with physical activity and having a low blood glucose index. One of the health promoting behaviors advocated for in *Healthy People 2020* and most health promotion interventions for patients with type 2 diabetes is limiting sugar-sweetened beverages and soda.

Pawlak and Colby (2009) conducted a study examining the barriers and benefits of eating healthy foods among African Americans living in North Carolina, an area that has high rates of obesity, type 2 diabetes, and hypertension. The authors found that participants reported few barriers, other than the cost of purchasing healthy foods and vegetables, and reported high evaluations of the intrinsic benefits of eating healthy foods. Yet, despite these self-reports, participants consumed much lower amounts of healthy foods and vegetables than the recommended portion.

Acculturation, religiosity, and traditional values in African Americans are associated with higher intake of saturated fat and lower intake of vegetables and fruits (Ard et al., 2005). Food preferences have also been found to vary by region of the country (i.e., South versus North, rural versus urban) and by socioeconomic status (Cramer et al., 2007). Culturally sensitive health interventions are needed to effectively address cultural influences that contribute to unhealthy dietary behaviors among patients with type 2 diabetes and hypertension.

Physical Activity as a Health Promoting Behavior

Physical activity is undoubtedly important for diabetes self-management. It is the keystone of many lifestyle interventions for patients with type 2 diabetes. Yet, the role of physical activity in diabetes self-management has been understudied.

Often times, barriers to engaging in physical activity exist at the social-ecological level in addition to at the individual level. For example, a person with type 2 diabetes may understand the benefits of physical activity and may be motivated to engage in physical activity, but does not engage in physical activity because of not having access to safe walking trails, bike routes, and other physical activity resources. Studies are beginning to look at whether resources, such as social support, access to restaurants that serve healthier food options, shopping, and access to affordable gyms and parks are linked to engagement in physical activity and other health promoting behaviors (Barrera et al., 2008).

Most studies examining physical activity interventions for patients with type 2 diabetes recommend that patients exercise three times weekly, ideally every other day (Sigal, Kenny, Wasserman, Castaneda-Sceppa, & White, 2006) in order to achieve the 150 minutes of physical activity weekly that are recommended by the ADA standards. This recommendation differs from

the U.S. Surgeon General's recommendation for all Americans to engage in up to 30 minutes of moderate physical activity most days of the week. The rationale for this adjustment is that one single episode of aerobic exercise has been found to have a positive impact on glucose sensitivity for up to 72 hours (Walberg-Henriksson, Rincon, & Zierath, 1998), and it is generally more convenient and easier to adhere to physical activity regimens that are larger blocks of time fewer times a week.

There are several studies that have addressed the role of physical activity in managing type 2 diabetes. The first study is the landmark study comparing metformin to a lifestyle intervention. This study found that the lifestyle intervention was more effective at preventing the onset of type 2 diabetes in a high-risk population compared to the prescription drug metformin, which is a commonly prescribed drug to regulate/prevent type 2 diabetes (Knowler et al., 2002). What is notable about this study is that physical activity and dietary modifications were exclusively the focus of the lifestyle intervention. Many interventions add numerous psychosocial and behavioral components that make it difficult to interpret the most salient aspects of the interventions that contributed to changes in health outcomes. The simplistic design of this study required participants to engage in at least 150 minutes of moderate to intense physical activity weekly and to reduce their weight by 7%. The tested lifestyle intervention resulted in a 58% reduction in the onset of type 2 diabetes for people with glucose sensitivity (i.e., borderline diabetes). It is not clear whether dietary changes or physical activity contributed equally to the observed changes, but the results of this study provide a compelling argument for the potential importance of physical activity in preventing and managing type 2 diabetes.

A second study included both diet and physical activity in a diabetes lifestyle intervention program. In this study the authors created three distinct conditions – 1) one that focused on

eating a healthy diet, 2) one that focused on engaging in physical activity, and 3) one that focused on a combination of both of these health promoting behaviors. The authors of this study found that the combined intervention (diet plus physical activity) and the conditions of physical activity alone and diet alone were all equally effective in preventing the onset of type 2 diabetes in people with impaired glucose intolerance that generally leads to diabetes (Pan et al., 1997). These findings indicate that physical activity alone may be powerful enough to prevent and even reverse the effects of type 2 diabetes.

Lastly, Barrera and colleagues examined the effectiveness of the Mediterranean Lifestyle Program (MLP) on producing changes in physical activity and dietary behaviors among postmenopausal women with type 2 diabetes who were recruited from primary care clinics. The intervention was structured so that participants would initially participate in a 3-day retreat followed by 6 months of weekly meetings that included a healthy potluck dinner, one-hour of physical activity, and one hour of stress management as part of a support group. These authors were interested in understanding how social and ecological resources, including social support, family and friends, and neighborhood resources, might influence diabetes self-management behaviors. Example questions from surveys used included statements such as “Have you shared healthy, low-fat recipes with friends or family members?” Findings indicate that with adequate social-ecological resources, engagement in physical activity and diet were sustained for at least 6-months post intervention.

Stress Management as a Health Promoting Behavior

The American Diabetes Association advocates for stress and depression management in the psychosocial aspect of their standards of medical care for diabetes (ADA, 2007). Stress management is also a critical component of patient-centered culturally sensitive health care

because lower levels of perceived stress are associated with increased treatment adherence and increased engagement in a health-promoting lifestyle (Tucker et al., 2007). In fact, numerous type 2 diabetes interventions have begun to incorporate a stress management and/or stress reduction component to aid in maintaining a healthy lifestyle. In patients with type 2 diabetes, higher levels of reported stress are positively correlated with fewer years of education, higher rates of depression and negative affect, higher rates of obesity and hypertension, and poorer metabolic control of blood glucose (Kim et al., 2009; Garay-Sevilla et al., 2000; Trovato et al., 2006). Both stress and depression are predictors of poorer self-management behaviors for patients with type 2 diabetes, and they specifically interfere in the areas of diet and physical activity adherence (Gonzalez et al., 2008). The fact that stress interferes with engagement in health promoting behaviors that are protective factors for preventing and reversing type 2 diabetes and hypertension is profound. This fact emphasizes the importance of including stress management components and measuring stress in lifestyle intervention health promotion studies. Clearly, stress is a powerful predictor of engagement in health promoting behaviors and health outcomes in minority populations and non-Hispanic Whites from low-income backgrounds (Gonzalez et al., 2008; Tucker et al., 2010).

Intervention studies that have included a stress management component in diabetes lifestyle interventions have generated positive results. For example, one study examined stress management administered in the form of group counseling. The authors' rationale was that individual counseling for stress management is often time-consuming and demanding in terms of resources. The authors designed two 5-session diabetes education programs - one with and one without stress management for patients with type 2 diabetes. The patients randomly assigned to the stress management condition received training in progressive muscle relaxation, deep

breathing, and cognitive-behavioral skills to reduce stress. Although the intervention was time-limited, participants were encouraged to continue stress reduction strategies on a daily basis. Participants who received the stress management as part of the diabetes education intervention were found to have more improved blood glucose control one year following the intervention compared to participants in the intervention condition without stress management who demonstrated improvement following the intervention but not at the one-year follow-up (Surwit et al., 2002).

A fascinating church-based study that looked at coping styles among older African American women with type 2 diabetes found that a person's style of coping, whether it is emotive, passive, or active, can also influence diabetes self-management. Coping involves the cognitive and behavioral efforts used to manage internal and external demands that are considered taxing and exceed the resources of the individual (Samuel-Hodge, Watkins, Rowell, & Hooten, 2008). Essentially, coping is how a person responds to stress. Three types of coping were measured: emotive (characterized by worrying, crying, becoming angry), passive (characterized by learning to accept), and active (characterized by taking action or making plans to take action).

The above mentioned study found that older and less educated participants relied more frequently on passive coping. Results indicated that active and emotive types of coping were most advantageous for diabetes self-management. Specifically, the authors found that active coping led to better outcomes in dietary adherence, but did not predict physical activity adherence. Emotive coping and church involvement predicted more positive mental health among participants, whereas active coping was associated with negative mental health. Passive coping did not have a significant effect on outcomes in any of the areas measured (Samuel-

Hodge et al., 2008). These findings suggest that having an array of coping strategies as well as supportive resources such as church and spiritual/religious resources to draw from may be beneficial for patients in managing their type 2 diabetes.

Patient Empowerment and Type 2 Diabetes

Patient health empowerment is described as the process of enabling patients to take greater control of their health. Empowerment is a critical component of type 2 diabetes management given the high-level of patient engagement required in the daily management of the disease and health promoting behaviors. Specifically, in order to effectively manage type 2 diabetes, patients are required to monitor their blood glucose levels daily, monitor their blood pressure, take insulin either orally or by injection, maintain a careful diet and consistently engage in physical activity.

Empowerment theories, such as Health Self-Empowerment (HSE) Theory, suggest that in order for patients to feel capable of managing their disease, they need to feel motivated, experience control, have a sense of responsibility for their health, and use self-praise and coping to maintain engagement in health-promoting behaviors (Tucker, Butler, Loyuk, Desmond, & Surrency, 2009). New challenges arise when patients do not feel capable of managing their diabetes or when stress and other barriers undermine patients' perceived empowerment/control over their diabetes. Empowerment is also the cornerstone of the PC-CSHC Model that is the foundation of this study. When patients experience patient-centered culturally sensitive health care it increases their sense of empowerment (labeled "interpersonal control" in the PC-CSHC Model), and this contributes to reductions in stress and increased engagement in health

promoting behaviors, such as eating healthy, exercising, and adhering to type 2 diabetes treatment guidelines.

The self-care necessary for effective type 2 diabetes management calls for a paradigm shift from tertiary, acute health care interventions (i.e. responding to a hyperglycemic episode) to preventative health care and models that are health-promoting and produce lasting behavior changes. Thus, empowerment-based interventions and approaches that enable patients with type 2 diabetes to gain knowledge of their disease and to take control over their diet and physical activity level seem needed in order for these patients to achieve the benchmarks established by the American Diabetes Association Standards for effective type 2 diabetes management.

Models of Patient Empowerment used in Previous Diabetes Interventions

Comprehensive models of empowerment that highlight how empowerment of patients can lead to effective management of type 2 diabetes and hypertension have been proposed. Three specific comprehensive patient empowerment models that have been used with underserved populations with type 2 diabetes are discussed in the following section – the Chronic Care Model, the Ecological Model of Behavior Change, and the REACH Model. In addition to describing each model, findings from research interventions that used that particular model will be discussed. Each of these models supports the rationale of using empowerment-based models/theories to inform type 2 diabetes interventions.

Chronic Care Model

The Chronic Care Model (CCM) is a multifaceted diabetes care approach that is prevention-focused. The CCM focuses on patient education about diabetes management, patient support, and empowering patients to self-manage their diabetes by understanding and monitoring their lab readings. Most importantly, the CCM empowers patients within the context of their

interactions with the health care system. It is not merely focused on empowering the individual; rather it is focused on empowering patients to interact effectively with the health care system and providers. Having skills for effectively interacting with the health care system is important for encouraging health promotion and lifestyle changes among patients with type 2 diabetes because these patients will (1) have multiple encounters with the health care system as part of their diabetes management; and (2) will work collaboratively with their provider in decision-making and managing their diabetes (Scisney-Matlock et al., 2009).

Piatt and colleagues (2006) tested the effects of a Chronic Care Model (CCM) based intervention on clinical and behavioral outcomes of underserved primary care middle-aged adults with type 2 diabetes who live in rural Pennsylvania. Patient participants were randomly assigned to either the CCM condition, a provider education condition, or the usual care condition. Data collected 12 months following the 6-month intervention showed that patients in the CCM condition demonstrated declines in HbA1C and cholesterol levels and that these changes were not observed in the other two conditions. Patients in the CCM group reported higher diabetes-related knowledge scores and empowerment scores on measures of these variables compared to the patients assigned to the other two conditions.

Ecological Model of Behavior Change

The Ecological Model of Behavior Change has also been used as a basis for behavioral interventions for persons with type 2 diabetes. “The ecological model places the patient – the primary focus of therapeutic lifestyle changes – in the center of the model and acknowledges that other factors (e.g. family and peer networks, health systems/organizations, community, and social/public policy) have a compounding influence on the patient’s ability to successfully engage in therapeutic lifestyle changes” (Scisney-Matlock et al., 2009; p. 6). Similar to the CCM

framework, the Ecological Model approaches diabetes care from the perspective that numerous motivators, barriers, and environmental (i.e., family) influences affect the patient's health. Both CCM and the Ecological Model present support for empowerment-oriented health interventions that utilize a "multilevel" approach and address a variety of motivators and barriers that patients may experience with regard to their health. The Ecological Model strives to empower patients to develop intrinsic motivation for their health. For example, a self-statement such as "I want to be more careful with my glucose levels because I deserve to live a healthy life" versus "My doctor says I should watch my glucose levels better" reflects a more empowered, intrinsically motivated patient.

The REACH Model

The REACH Model, an acronym for racial and ethnic approaches to community health, was designed by the Centers for Disease Control and Prevention to eliminate and reduce health disparities in six areas that commonly affect minorities, two of them being type 2 diabetes and cardiovascular disease/hypertension. The REACH Model is an empowerment model that uses a community-based participatory approach to reduce unhealthy behaviors and complications of diabetes. The specific goals of REACH are to increase community members' "diabetes self-management understanding, self-efficacy, and autonomous motivation" (Two Feathers et al., 2005, p. 1553). This Model trains residents of the community to deliver healthy lifestyle interventions in lower-income and ethnically diverse areas. Community members are involved in the planning, and race/ethnic specific materials are used that are considered culturally and linguistically appropriate and that fit the needs of the area and population being served. There is a strong emphasis on providing knowledge about behaviors that improve health and blood glucose control because community members may not have access to regular health care visits

where they might otherwise obtain this knowledge. This model is geared toward individual and community empowerment rather than a systemic approach that involves the health care system.

The REACH Model has been tested nationally. The Detroit study conducted by Two Feathers and colleagues included 111 Latino (36%) and African American (64%) community participants with type 2 diabetes from low-income households. Baseline differences were observed between the two groups with African Americans having an average higher body mass index and lower HbA1C level. Consistent with the Model, a culturally tailored curriculum was administered to participants by community members trained in patient empowerment. The intervention consisted of five two-hour group meetings focused on topics including diet and exercise, stress reduction, and diabetes self-care. Following the intervention a statistically significant proportion of both African Americans and Latinos moved from the >7% HbA1C category to the <7% HbA1C category (this represents a shift in diabetes classification from diabetes to pre-diabetes), and both groups demonstrated increased knowledge in the areas of diet and physical activity. Whether increased knowledge mapped onto actual behavior changes in diet and physical activity was not tested. No changes were observed in blood pressure, cholesterol, or weight in this particular study.

Use of Technology to Promote Patient Empowerment

Although not a specific model of empowerment per se, technology-based interventions are increasingly being used to empower patients to be more active in their health care. Barnes and colleagues (2006) designed an intervention utilizing informatics to provide patients with a “road map” to be more empowered and motivated in their diabetes management. These authors argue that although patient education increases knowledge and self-monitoring of blood glucose and blood pressure, these programs are inadequate at producing changes in health outcomes.

There is a need for more empowerment-oriented programs that enable patients to overcome barriers such as lack of confidence, motivation, goal setting, and engaging in behaviors necessary to produce changes in health outcomes.

The “road map” intervention tested by Barnes and colleagues took place at Grady Memorial Hospital in Atlanta and was designed to provide interactive feedback to patients using technology so they have knowledge of their blood pressure, blood glucose, appointments, and other health information. Patients use the “road map” to make decisions about their health. This intervention makes patients have an active role in their health management. They also have assistance from a “coach” to help them understand and overcome barriers. Preliminary qualitative findings from the “road map” have shown that patients feel more in control and have a better understanding of their health using this technology.

The Patient-Provider Relationship and Type 2 Diabetes

The patient-provider relationship has been researched with regard to its effects on patient outcomes and is undoubtedly an important influence in promoting treatment adherence (Ciechanowski et al., 2004), positive health outcomes, diabetes self-management (Rubin, Peyrot, & Siminerio, 2006), and patients’ satisfaction with health care (Tucker et al., 2003). Studies have examined the effect of the patient-provider relationship on diabetes self-management and health outcomes and these studies have yielded encouraging results.

One such study is the DAWN (Diabetes Attitudes, Wishes, and Needs; Rubin et al., 2006) Study, which is an international study that examined factors in six areas of self-reported diabetes self-management – diabetes related distress, general well-being, lifestyle regimen adherence, medication regimen adherence, perceived diabetes control, and blood glucose symptoms. Eleven countries (including North America) and over 5,000 individuals participated

by completing the DAWN Study surveys. This study specifically focused on various aspects of health care to assess how they might influence the six factors of interest. The aspects of health care measured include access to health care, quality of the patient-provider relationship, and the use of a team care approach. Example survey questions/statements that were used to assess these aspects of health care include the following: “I have a good relationship with the people I see about my diabetes,” “My doctor spends enough time with me,” “I feel that I am fully involved in the treatment decisions.”

Findings from the DAWN Study suggest that a number of the examined health care influences affect patients’ self-reported diabetes self-management. Access to health care was associated with increased well-being and increased diabetes control. Results regarding the influence of the team care approach were inconsistent. The most influential health care variable measured was the patient-provider relationship. Having a collaborative, positive patient-provider relationship was associated with more favorable outcomes across all six target areas measured (Rubin et al., 2006).

Patient-provider communication has also been studied as an important aspect of understanding the patient-provider relationship. A study by Piette, Schillinger, Potter, and Heisler examined the effectiveness of general versus disease-specific communication and patient perceptions of communication among an ethnically diverse sample of veterans with type 2 diabetes (2003). The researchers were also interested in examining communication patterns of minority patients with type 2 diabetes compared to non-Hispanic White patients with type 2 diabetes. Slightly over 50% of participants were non-white and 18% had reported receiving less than a high school education. Three VA Hospital systems in Michigan and California were included in the study. The Interpersonal Processes of Care Questionnaire was used to assess

general communication, and a diabetes-specific scale was used to assess disease-specific communication. There are a number of subscales on the general communication measure, including explanations of self-care, emotional support, and inquiring about patient preferences. Example items measuring general communication include “Did your doctor ask how you felt about different treatments?” and “Did your doctor explain why a test was being done?” Example items measuring disease-specific communication include items like “Did your doctor explain how to prepare meals that are healthy for maintaining your blood sugar level?”

The researchers were interested in whether general or disease-specific communication was predictive of specific self-care behaviors for patients with type 2 diabetes. The self-care behaviors assessed included foot care, dietary adherence, physical activity adherence, and adherence to blood glucose recommendations. Findings suggest that the use of general and disease-specific communication between patient and provider were moderately correlated ($r = .35$). Generally, patients reported experiencing more of one type of communication in the provider-patient relationship. Both types of communication were independently associated with improved self-care in the four areas of diabetes self-management measured. General and disease-specific communication had the least association with changes in dietary adherence. Another important finding was that racial/ethnic minority patients from lower SES backgrounds and patients with language barriers reported the quality and frequency of patient-provider communication as equal or better to non-minority patients. Specifically, African American and Hispanic participants rated experiencing both types of communication at higher levels compared to non-Hispanic White participants (Piette et al., 2003). More effective communication of both types leads to improved self-care, which could potentially improve health outcomes.

Lastly, a very fascinating line of research by Ciechanowski and colleagues (Ciechanowski et al. 2001; Ciechanowski et al. 2004) examined how patients' attachment styles influence the patient-provider relationship and health outcomes for patients with type 2 diabetes. The researchers assessed patients' attachment styles, patients' perceptions of patient-provider communication, and treatment adherence. Treatment adherence included monitoring blood glucose and taking medication as recommended. Based on patients' responses on a measure of attachment, three dimensions of attachment were identified – secure, dismissive and fearful. Participants with a dismissive attachment style were more likely to report the patient-provider communication as poorer. Both poor communication and having a dismissive attachment style were associated with lower levels of treatment adherence in the areas of medication adherence and monitoring of blood glucose.

Previous Culturally Sensitive Interventions to Facilitate Health Promoting Behaviors Among Adults with Type 2 Diabetes

There are only a few studies that have evaluated the effectiveness of culturally sensitive or culturally tailored interventions to facilitate health promoting behaviors among patients with type 2 diabetes. One such study is a 12-month lifestyle intervention entitled “Pounds off with Empowerment” (POWER) for medically underserved African American and non-Hispanic White adults with type 2 diabetes living in rural areas (Mayer-Davis and colleagues, 2004). The intervention was based on the Diabetes Prevention Program, a structured, standardized diabetes intervention established by the NIH in 2002. Specifically, the researchers took the following steps to make the intervention culturally sensitive: (1) the intervention materials were reduced and simplified to an understandable level appropriate for the educational level and literacy of participants; (2) physical activity requirements were reduced to low-moderate intensity to meet the current physical ability levels of participants; and (3) regional and culturally appropriate

examples of how to prepare healthier foods (i.e., how to prepare grits and greens in healthier ways) and physical activity (easily accessible, safe parks) were used to make the intervention more relevant to participants.

In the POWER study, participants were randomly assigned to one of three intervention groups – intensive, reimbursable, or usual care. Usual care served as the control condition and the other two interventions involved different degrees of patient health empowerment. The intervention for the intensive group (who were exposed to the higher degree of patient empowerment) was structured so that participants took part in ongoing individual coaching/consultation sessions, a 16-session weight loss and physical activity curriculum, and additional behavioral strategies implemented in a culturally competent manner. Each of these intervention components were geared toward empowering participants to experience greater control in managing their diabetes. Participants in the intensive group demonstrated the most change, with significant reductions in weight and improved blood glucose control compared to participants in the reimbursable and usual care groups who demonstrated changes in blood glucose control but not weight loss (Mayer-Davis et al., 2004).

Cramer and colleagues (2007) tested the Diabetes Prevention Program for use with low-income African American patients living in urban areas. Their intervention, which also sought to empower minorities with type 2 diabetes, produced similar results to those in the previously described study by Mayer-Davis and colleagues. Namely, weight loss and positive dietary changes were observed for participants in the intervention group who received the culturally tailored version of the program, but these changes did not occur for the control participants. In this intervention, similar modifications to those in the Mayer-Davis study were made to make the intervention culturally sensitive, such as providing culturally appropriate recipes, written

materials that match the reading and educational level of participants, etc. A unique modification in this study involved the use of culturally sensitive food pyramids. For example, there are Southern and Northern food pyramids, as well as food pyramids appropriate for use with African Americans or Hispanics. Using culture-specific food pyramids to illustrate healthier diet choices helps participants identify realistic dietary goals that are complementary to traditional foods of their culture.

Lastly, a study by Metghalchi et al. (2008) assessed the effects of a culturally sensitive diabetes intervention with Hispanics. The intervention was delivered weekly over a 3-month period. Sessions were conducted in Spanish with a Spanish-speaking interventionist who could “connect” and “relate” with participants’ cultural background. Free materials were provided including blood glucose monitors and a log to record blood glucose. A 23% reduction in plasma glucose and an 82% reduction in HbA1C levels were reported. These reductions were reported to be clinically significant. However, this study did not include a control group.

Each of the aforementioned studies demonstrate how culturally sensitive interventions can produce positive changes in health behaviors and/or outcomes. However, these studies tested interventions that were based on models that have not discussed or shown the linkage between their culturally sensitive health interventions and health promoting behaviors, treatment adherence, or hard health outcomes (e.g., blood pressure). Thus, the present study tests a culturally sensitive health empowerment intervention for patients with type 2 diabetes that is based on a model that has explained these linkages – the Patient Centered Culturally Sensitive Health Care Model.

The Patient-Centered Culturally Sensitive Health Care (PC-CSHC) Model

The PC-CSHC Model explains the connections between a) experiences of patient-centered culturally sensitive health care by low-income, culturally diverse patients who are often receiving health care at community clinics and b) the health outcomes and statuses of these patients (Tucker et al., 2007). The construct/definition of patient-centered culturally sensitive health care which was previously defined in Chapter 1 of this dissertation is the basis of the PC-CSHC Model. The PC-CSHC Model explains the linkages underlying perceived culturally sensitive health care and changes in health behaviors and health outcomes for patients. The following section will include 1) examples of empirical research that contributed to the definition of patient-centered culturally sensitive health care, 2) qualitative research on culturally diverse patients' perspectives of what constitutes culturally sensitive health care, and 3) literature-based support for the pathways of the PC-CSHC Model.

Research that Lead to the Development of the PC-CSHC Model

Despite national calls for increased attention to health care that produces improved patient health outcomes among racial/ethnic minority and non-Hispanic White patients from lower SES groups, there is a dearth of research studies that have tested the relationship between cultural sensitivity of health care and patient health outcomes (Betancourt et al., 2005). Research that has attempted to examine the association of cultural sensitivity with health outcomes has been limited by a lack of theoretical models to guide the research. As previously mentioned, there are a number of culturally sensitive interventions that have been used with patients who have a diagnosis of type 2 diabetes. Results of these studies have yielded improved health outcomes, but the mechanisms underlying these observed changes remain unknown.

Knowing the specific connections between components of culturally sensitive interventions that are most critical for bringing about changes in health outcomes is financially

advantageous because many intervention programs have limited funding. Essentially, the question remaining is what are the most important aspects to include in culturally sensitive health interventions to produce desired health outcomes? The PC-CSHC Model provides a framework for understanding the specific linkages between culturally sensitive health care and changes in health outcomes and statuses. The PC-CSHC Model, if supported by empirical studies, will have clear implications for developing future health interventions that teach health care providers to foster cultural sensitivity, encourage patient health empowerment, and teach patients how to advocate for and reinforce desired provider behaviors that are culturally sensitive (Tucker et al., 2007).

Link between Perceived Cultural Sensitivity and Interpersonal Control, Health Care Satisfaction, Health Promotion, and Treatment Adherence

Research supporting the relationship between interpersonal control, health care satisfaction, health promotion, and treatment adherence comes from the culturally sensitive health care and patient-provider relationship literature. Early focus group studies conducted by Tucker and colleagues identified culturally sensitive provider and health care characteristics and policies that enable racial/ethnic minority and non-Hispanic White patients from low-income households to experience trust, comfort, and respect in the health care they receive (Tucker et al., 2003).

When patients report a high-quality patient-provider relationship where they experience trust and control in the relationship, the positive patient-provider relationship has been found to influence health outcomes as well as patient satisfaction, adherence, and motivation (DiMatteo, 2004; Rubin et al., 2006). Research findings from the DAWN study, which examined the patient-provider relationship in relation to health care outcomes and adherence, also support this link. Specifically, higher patient-reported ratings of the patient-provider relationship were correlated

with less diabetes-related distress, increased lifestyle and medication adherence, increased perceived diabetes control, and decreased blood glucose (Rubin et al., 2006).

Link between Health Promotion, Treatment Adherence, and Health Outcomes

The link between health promotion and health outcomes is supported by studies that have demonstrated a relationship between engaging in health promoting behaviors, such as diet and exercise, and improvements in blood pressure and blood glucose. The link between treatment adherence and health outcomes is supported by the literature on the beneficial effects of treatment adherence, often medication, on health outcomes. Specifically, previous studies have documented that diet and physical activity are effective at: 1) reducing and preventing chronic diseases such as type 2 diabetes, hypertension, and certain types of cancer; and 2) improving patients' lipoprotein profile, decreasing BMI and waist-to-hip circumference, regulating blood glucose levels, and reducing blood pressure (Sigal et al., 2006; Knowler et al., 1992; Kelley, 1995). A meta-analysis evaluating 63 studies on the impact of treatment adherence on health outcomes found that treatment adherence accounts for 26% of the variance in health outcomes (DiMatteo, 2002). Specifically, the results of the aforementioned meta-analysis found that treatment adherence has the greatest impact in the management of hypertension, type 2 diabetes, and gastrointestinal diseases compared to other health conditions (DiMatteo, 2002).

PC-CSHC Intervention Model

The PC-CSHC Model was used to develop an intervention to train providers and patients in the behaviors, attitudes, and environmental characteristics and policies that foster and/or reinforce PC-CSHC. The original intervention based on the PC-CSHC Model (Tucker et al., 2007) included three important components: 1) training of health care providers and office staff to engage in behaviors and attitudes that culturally diverse patients have identified as enabling

them to feel comfortable with, trusting of, and respected by their health care providers and office staff, and that enable them to perceive the health care they experience as culturally sensitive; 2) modifying the physical health care environment characteristics and policies to be more culturally inclusive and inviting to diverse patients; and 3) using empowerment strategies to motivate and train patients to adopt a health promoting lifestyle and to obtain desired behaviors and attitudes from health care providers and office staff..

There is a strong need for PC-CSHC interventions because the training available to physicians in the provision of PC-CSHC is quite limited. In a national survey of 2,047 physicians, 96% of the participating physicians responded that they felt it was important to address cultural issues when providing health care; yet, 50% of the physicians in this sample reported receiving little or no training in how to address cultural issues such as religious beliefs, medical decision-making, and mistrust (Weissman et al., 2005). Patients are even less likely to be aware of the behaviors they can engage in to advocate for PC-CSHC in their interactions with providers and the health care system.

Patients' Perspectives on Patient-Centered Culturally Sensitive Health Care

The PC-CSHC Model was informed by qualitative research with non-Hispanic White, African American, and Latino primary care patients recruited from the community who participated in focus group sessions. The majority of these participants reported low household incomes. This qualitative research was conducted by Tucker and colleagues (2003) and sought to identify the characteristics of culturally sensitive health care from the perspective of primary care patients (Tucker et al., 2003).

Approximately, 135 focus group participants were specifically asked to identify provider behaviors, office staff behaviors, and health care clinic characteristics that enable them to

experience trust, respect, and comfort in their health care. Questions used to elicit responses from participants included “What does/could your provider do to make you feel more comfortable with him/her?” (Similarly phrased questions were used to assess trust/respect/sensitivity) and “What can your doctor do to become better at helping patients from your racial, language, or cultural background?”

Hundreds of statements were generated by focus group participants that captured the behaviors, characteristics, and attitudes that they deemed important for patients like themselves to perceive health care as culturally sensitive. The themes that emerged from participants’ responses fell into three distinct categories – positive personal qualities, individual treatment, and technical competence. Example themes within these categories include “shakes hands and introduces him/herself” (personal qualities) and “not being treated as a guinea pig” or a number (individual treatment). There was considerable overlap (approximately 80%) in the themes across racial/ethnic groups, but there were some unique themes by racial/ethnic group. For example, Latino focus group participants identified more themes related to language barriers (Tucker et al., 2003). This valuable information and existing health care literature informed Tucker and colleagues’ definition of patient-centered culturally sensitive health care and led to the development of the PC-CSHC Model.

Literature-Based Pathways of the PC-CSHC Model

The underlying assumptions of the PC-CSHC Model are literature-based and clarify the process by which culturally sensitive health care influences patients’ engagement in health promoting behaviors, satisfaction with health care, and treatment adherence. Tucker et al. (2007) highlighted the specific linkages of the PC-CSHC Model which include the following: (a) provider and health care environment characteristics can promote patient-centered culturally

sensitive health care; (b) this care influences patients' perceived levels of provider cultural sensitivity, interpersonal control (empowerment), and satisfaction with health care, all of which impact patients' level of engagement in a health-promoting lifestyle and treatment adherence; (c) interpersonal control (empowerment) and level of health care satisfaction influences patients' level of stress which also impacts patients' level of engagement in a health-promoting lifestyle and treatment adherence; and (d) both level of treatment adherence and level of engagement in a health promoting lifestyle directly influence patients' health outcomes and statuses.

The PC-CSHC Model-Based Health Empowerment Intervention that will be Tested in the Present Study

The present research will test the impact of a Culturally Sensitive Health Empowerment Intervention (CS-HEI) based on the PC-CSHC Model on the health promoting behaviors, blood glucose levels, and blood pressure levels of African American and non-Hispanic White adults with type 2 diabetes from mostly low-income households who will be research participants. The present research extends beyond typical type 2 diabetes intervention studies which frequently do not include health outcomes, or if they do, strictly focus on blood glucose. The present research will test the effects of a PC-CSHC Health Empowerment Intervention on both blood glucose and blood pressure.

Very few existing intervention studies with patients who have a type 2 diabetes diagnosis emphasize changes in the way patients interact with their health care providers to improve health outcomes. Yet, the patient-provider relationship has an important function in type 2 diabetes management and has been found to influence health outcomes as well as patient satisfaction, adherence, and health motivation among patients with other chronic diseases (DiMatteo, 2004; Rubin et al., 2006). Clearly, there is a need for research to investigate a broad range of behaviors and outcomes following type 2 diabetes interventions that include an emphasis on the patient-

provider relationship and that assess intervention effects on multiple health outcomes that are relevant to living well with type 2 diabetes.

The design and implementation of the Health Empowerment Intervention that will be tested in the present research is based on the most proximal variables of the PC-CSHC Model. These proximal variables are patient empowerment (identified as interpersonal control in the PC-CSHC Model) and stress (measured as physical, cognitive, and emotional stress). Given that the patient-provider relationship has been documented as critical in the health behaviors and outcomes of patients, the present study will solely focus on the impact of patient-perceived provider cultural sensitivity rather than on other aspects (i.e., office staff, clinic environment characteristics) of patient-centered culturally sensitive health care.

Thus, the Health Empowerment Intervention that will be tested in the present research will involve empowering participants by teaching them assertiveness skills for obtaining desired patient-centered culturally sensitive provider behaviors and attitudes and increasing their ability to have desired control in the patient-provider relationship, skills for reducing stress, and strategies for engaging in health promoting behaviors.

Hypotheses

Using a pre-post, intervention-control group design, the impact of a Culturally Sensitive Health Empowerment Intervention informed by the PC-CSHC Model will be tested using a sample of African American and non-Hispanic White adult participants with type 2 diabetes from low-income households. The following six hypotheses will be tested:

Hypothesis 1: Participants in the IG, as compared to participants in the CG, will report greater increases in their perceived cultural sensitivity of their providers' behaviors and attitudes

(as measured by the Tucker Culturally Sensitive Health Care Inventory – Provider Form) from pre-intervention to post-intervention;

Hypothesis 2: Participants in the IG, as compared to participants in the CG, will report greater decreases in their reported physical stress (as measured by the Strain Questionnaire) from pre-intervention to post-intervention;

Hypothesis 3: Participants in the IG, as compared to participants in the CG, will report greater increases in their engagement in health-promoting behaviors (as measured by four subscales of the Health Promoting Lifestyle Inventory II -- the Health Responsibility, Exercise, Nutrition, and Stress Management subscales) from pre-intervention to post-intervention;

Hypothesis 4: Participants in the IG, as compared to participants in the CG, will report greater increases in self-reported patient empowerment (as measured by the Patient Empowerment Inventory) from pre-intervention to post-intervention;

Hypothesis 5: Participants in the IG, as compared to participants in the CG, will evidence greater decreases in their systolic and diastolic blood pressure (as measured by trained professionals using a standardized manual blood pressure cuff at the data collection sessions) from pre-intervention to post-intervention; and

Hypothesis 6: Participants in the IG, as compared to participants in the CG, will evidence greater decreases in their blood glucose (as measured by an average of three self-readings recorded one week prior to the data collection sessions) from pre-intervention to post-intervention.

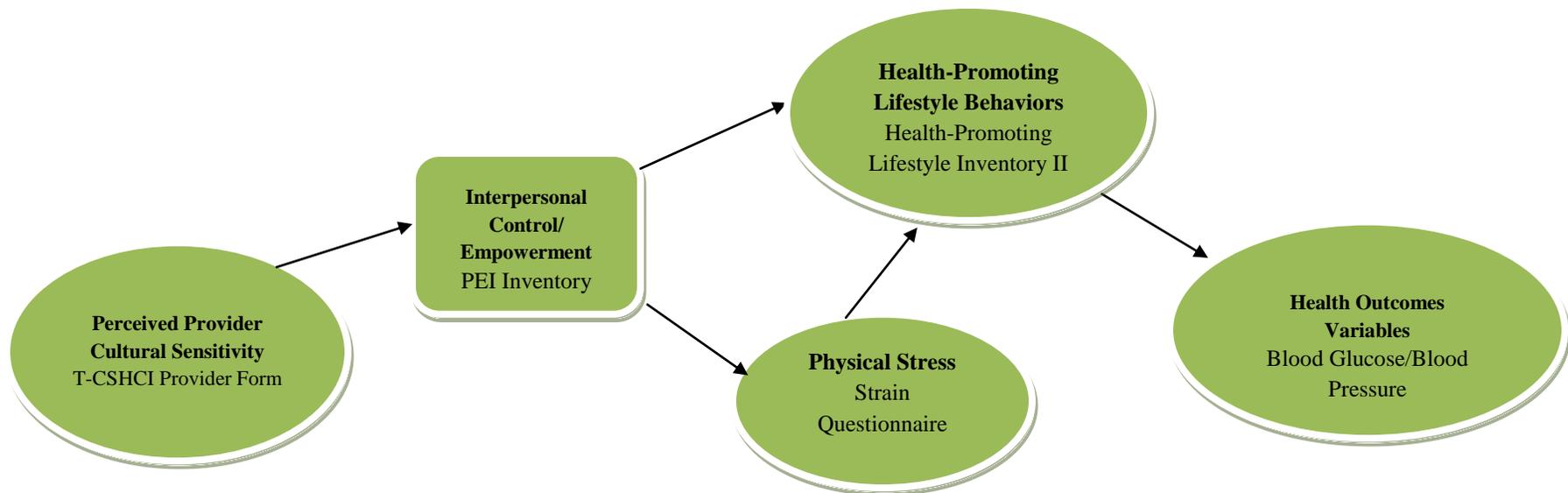


Figure 2-1. Most proximal pathways of Tucker's culturally sensitive health care (PC-CSHC) model that informed the culturally sensitive health empowerment intervention tested in the present study

CHAPTER 3 RESEARCH METHODOLOGY

Participants

The participant data for this study is from data collected as an independent part of a larger national study on Patient-Centered Culturally Sensitive Health Care and Health Promotion. The purpose of this larger national study was to 1) establish the reliability and validity and refine the properties of the Tucker-Culturally Sensitive Health Care Inventory (T-CSHCI) and 2) apply a health care intervention based on the PC-CSHC Model. This research program was funded by the Robert Wood Johnson Foundation and conducted in collaboration with the University of Florida Behavioral Medicine Research Team, for which the author of this study served as Director of Patient Intervention under the mentorship of the Principal Investigator of the overall project and grant, Dr. Carolyn Tucker.

The participants in this study were African American and non-Hispanic White American adults who self-reported having received a diagnosis of type 2 diabetes. The following participant inclusion criteria were used: (a) age 18 or older, (b) able to understand and speak English, (c) have a diagnosis of type 2 diabetes for at least six months, (d) have no apparent cognitive impairments, (e) have no known medical impairments that would prevent the ability to walk, and (f) do not self-report being pregnant. Participants were recruited from a small city in North Central Florida where mostly African Americans and non-Hispanic Whites from low household incomes reside.

A total of 127 adult participants with type 2 diabetes met all of the participant inclusion criteria and signed informed consent forms and completed the baseline Assessment Battery (AB) for this study. Of this total number, approximately 64 participants were originally assigned to the Intervention Group condition and 63 were assigned to the Control Group condition. Complete pre-post data is available for 94 of these original 127 participants; indicating a 26%

attrition rate for this study. However, a higher attrition rate was observed for participants in the Control Group condition (32%) compared to those in the Intervention Group condition (20%). Thus, the sample on which data analyses were performed to test the previously stated hypotheses and for which descriptive data are presented consists of 94 participants.

In terms of demographic characteristics, 74% of this sample identified as African American, 24% of this sample identified as non-Hispanic White American, and 2% did not report their race. Seventy-six percent of participants in this study were female and the remaining 24% were males. The vast majority of participants reported ages ranging from 45 years to 65 years or older. The mode age range for this sample was 65 years and older with 36% of participants in this age bracket, followed by 29% of participants in the 55-64 age range, and 28% of participants in the 45-54 age range. The remaining 7% of participants reported being less than 45 years of age. With regard to education, 11% of participants identified their highest level of education as middle school, 37% reported their highest level of education as receiving a high school diploma, 36% indicated that they had some college, and 14% of the participants in this sample had obtained a college degree or higher. Eighty percent of this sample reported that they do not work. Forty-two percent of this sample reported an annual household income of less than \$10,000; 31% reported an annual household income of \$10,000-\$20,000; and 12% reported an annual income of \$20,000-\$30,000. The remaining 15% of this sample reported an annual household income greater than \$30,000.

With regard to health characteristics of this sample, the most commonly endorsed response for years past since receiving a type 2 diabetes diagnosis was “0-5 years,” which was reported by 60% of this sample (n=57). Twelve percent (n=11) of participants were treating their diabetes solely through dietary adjustment; 23% (n=20) reported treating their diabetes with medication

only; and the remaining 65% (n=55) reported treating their diabetes with medication and some combination of diet and exercise. Approximately 42% of participants reported that they check their blood glucose levels daily (n=37). However, of the 58% who check their blood glucose less frequently, 14% reported checking their blood glucose somewhere between four and six times per week; 33% reported checking somewhere between one and three times per week; and 11% reported that they never check their blood glucose levels. Tables 3-1 and 3-2 display the demographic and health-related information for control and intervention participants. Demographic and health-related information is also presented separately by racial group in Tables 3-3 and 3-4.

Measures

As part of the larger national study, participants completed a comprehensive assessment battery (AB) consisting of 12 psychosocial and health assessment questionnaires/inventories in addition to providing the following self-report health related data: blood glucose data and daily steps walked. Additionally, trained professionals (i.e., nurses and pre-med students supervised by nurses) measured each patient's blood pressure using standardized blood pressure cuffs, and measured participants' waist-to-hip circumference, weight, and height (for use in calculating body mass index [BMI]). Five of the 12 psychosocial and health assessment questionnaires/inventories, the self-reported blood glucose levels, and the measured blood pressure data were used to test the hypotheses of the present study. The five psychosocial and health assessment questionnaires/inventories used in this study include: (1) the Health and Demographic Data Questionnaire, (2) the Tucker-Culturally Sensitive Health Care Provider Inventory-Patient Form, (3) the Health Responsibility, Exercise, Nutrition, and Stress Management subscales of the Health Promoting Lifestyle Profile II, (4) the Strain Questionnaire, and (5) the Patient-

Empowerment Inventory. Below are descriptions of these questionnaires/inventories and of the measures of blood pressure and self-reported blood glucose levels.

Patient Demographic and Health Data Questionnaire

The Patient Demographic and Health Data Questionnaire (Patient DHDQ; refer to Appendix A) was constructed by the researchers for the larger study of which the present study was an independent part. This questionnaire assesses basic demographic information, such as age, gender, race/ethnicity, educational level, employment status, and annual household income. Additionally, this questionnaire assesses information relevant to participants' health experiences with type 2 diabetes such as length of time since diagnosis, type of treatment (i.e. diet, medication, insulin), frequency of monitoring blood glucose levels, height, weight, information regarding the participant's health care provider, information about the health care clinic where the participant receives treatment, and the frequency of health care visits during the past year.

Tucker-Culturally Sensitive Health Care Provider Inventory

The Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form (T-CSHCPI-PF; refer to Appendix B) is a 27-item measure that instructs patients to rate their level of agreement that the listed provider behaviors and attitudes that are characteristic of the health care provider who they visit most often (Tucker, Nghiem, Marsiske, & Robinson, manuscript submitted for publication). An example item from the T-CSHCPI-PF is “I feel that my health care provider understands my culture.” Participants select responses using a four-point likert scale ranging from 4 indicating “Strongly Agree” to 1 indicating “Strongly Disagree.” The T-CSHCPI-PF is scored by averaging participants' responses on each of the items and then calculating a mean for each of its three subscales, which are 1) Competence/Confidence, 2) Respect/ Communication, and 3) Sensitivity/ Interpersonal Skill. The total measure and each

of these three subscales demonstrate high concurrent validity and excellent internal consistency reliability, with reliability estimates ranging from .94-.97. For the present study, the Cronbach alpha coefficient for the total T-CSHCPI-PF was found to be .97 and .95, .96, and .92 for the Competence/Confidence, Respect/ Communication, and Sensitivity/ Interpersonal Skill subscales, respectively.

The Health Promoting Lifestyle Profile II

The Health Promoting Lifestyle Profile II (HPLP II; refer to Appendix C) is a 52-item self-report measure of self-initiated behaviors and perceptions that serve to maintain or enhance the level of wellness, self-actualization, and fulfillment of the individual (Walker, Sechrist, & Pender, 1987). This measure uses a 4-point likert-scale with responses ranging from “Never” (1) to “Routinely” (4) to rate participants’ current health promoting behaviors. Subscale and Total scores are arrived at by calculating the mean of the items for each individual subscale and for the total inventory, respectively. Higher scores on the HPLP II are associated with higher levels of engagement in a health promoting lifestyle, whereas lower scores are associated with lower levels of engagement in a health promoting lifestyle. The HPLP was revised in 1996 to more accurately reflect current practice.

For the purposes of the present study, only four of the six subscales of the revised HPLP II were used. These four subscales are: Health Responsibility, Physical Activity, Nutrition, and Stress Management. The Cronbach's α coefficients for the total HPLP has been reported to be .94, and the coefficient alphas for each subscale range from .79 to .87 (Walker, Sechrist, & Pender, 1995). Test-retest reliability results showed stability for the HPLP II and for its subscales with test-retest reliabilities ranging from 0.81 to 0.91 (Walker et al., 1987). An example item on the HPLP II is, “Do you eat 6-11 servings of bread, cereal, rice, and pasta each day?” For the

present study, the Cronbach alpha coefficient for the total HPLP II was found to be .93 and .84, .89, .82, and .82 for the Health Responsibility, Physical Activity, Nutrition, and Stress Management subscales, respectively.

The Strain Questionnaire

The Strain Questionnaire (SQ; refer to Appendix D) contains 48 items and is a multi-component measure of stress (Lefebvre & Sandford, 1985). Participants are asked to rate how frequently they experienced stress in various areas over the past week with responses ranging from “not at all” (0 days) to “everyday” (7 days) on a 5-point likert scale. The SQ assesses different manifestations of stress and includes the following subscales: Behavioral Stress, Cognitive Stress, and Physical Stress. Subscale scores and a total score are achieved by summing item responses. Lower scores are indicative of lower levels of stress and higher scores are associated with higher levels of stress. The SQ has been reported to have good internal consistency with alpha coefficients ranging from .71-.94 as well as high concurrent validity (Main et al., 1987). A sample item from the SQ is “In the past week how often have you experienced”...“Inability to concentrate.” In the present study, only the Physical Stress subscale was used and the Cronbach alpha coefficient was found to be .93 for this subscale.

The Patient Empowerment Inventory

The Patient Empowerment Inventory (PEI; refer to Appendix E) contains 15 items using a 4-point likert scale to measure patients’ perceived interpersonal control in their interactions with their health care providers. Participants select responses ranging from 1 = “Strongly Disagree” to 4 = “Strongly Agree”. A mean score is calculated for the total measure; higher scores indicate less empowerment experienced by patients in the relationship and lower scores indicate greater perceived power by patients in the relationship. The PEI was developed by the

Principal Investigator (PI) of the overall research program from which this independent study was conducted. The PEI was developed due to the absence of measures within the health care context that allow patients to appraise their perception of interpersonal control and assertiveness in their relationship with their health care provider. A sample item from the PEI is “In my relationship with my health care provider, she or he has more control in the relationship than I do.” For the present study, the Cronbach alpha coefficient for the PEI was found to be .72.

Health Record Form

The Health Record Form (HRF; refer to Appendix F) refers to the document used to record and store participant information. The first part of this form was used to record the participant’s height, weight, BMI, blood pressure, hip circumference, and weight circumference. Some of this health data was used for the broader study only. Trained professionals and pre-med students obtained these health data, recorded it on the first part of the HRF, and filed this completed part of the HRF. The second part of the HRF was kept by the participant so that he/she could record or have someone other than the researchers record her/his steps walked, blood glucose level, and blood pressure.

Measurement of Blood Pressure and Blood Glucose

Blood pressure (BP) was measured on-site at the data collection sessions. Culturally diverse nurses and pre-med students trained in blood pressure measurement and supervised by the nurses worked together to measure participants’ blood pressure (BP) and record this information on the Health Record Form (HRF) at the Baseline and Post-Data Collection Sessions. Blood pressure was taken twice about 5 minutes apart for each patient using a standardized manual blood pressure cuff, and the average of these readings was recorded on the participant’s health record form. Blood glucose (BG) was measured and self-recorded by participants during two designated

weeks at the beginning (i.e., during the week prior to the Baseline Data Collection Session) and at the end of the study (i.e., during the week prior to the Post-Data Collection Session). Participants were asked to measure their BG in the morning prior to eating and to do so on three separate days of the designated week. Participants were also asked to self-record their blood pressure during the same time periods and to self-record this information as well in addition to the self-recorded blood glucose readings. The vast majority of participants reported using a personal glucometer to obtain their BG measurements. Testing strips were offered to participants, and local clinics that offer free blood glucose testing weekly on various days were also available to participants to get their BG measurements taken. Self-recorded BG and BP data were recorded by participants on the HRF.

Procedure

This research was conducted in four distinct phases—the Participant Recruitment phase, the Baseline Data Collection phase, the Culturally Sensitive Health Empowerment Intervention phase, and the Post-Data Collection phase. These four phases are described in the following sections. A description of the abbreviated version of the Culturally Sensitive Health Empowerment Intervention offered to participants in the Control Group condition is also described.

Participant Recruitment

Recruitment of participants was conducted by the UF Behavioral Medicine Research Team and the investigator of the present study. This team consisted of a culturally diverse group of four graduate students, 25 undergraduate students, 1 physician, 1 psychologist (i.e., the PI for the larger national study) and a community member. Recruitment strategies used included the flyer method, the snowball technique, and radio advertisements. In the flyer method, recruitment flyers were distributed at local health care clinics, churches, barbershops, and beauty shops. The snowball technique method involved having individuals who had agreed to be participants, local physicians,

and community members affiliated with the research team mention the project to and disseminate recruitment flyers to people known to have type 2 diabetes who might be interested in participating in the present study. Radio announcements were used to generate awareness of the present study and provide contact information for adults interested in participating in the study, which was described as a study that focuses on learning health promoting behaviors for living well with type 2 diabetes.

Individuals from the target community who received recruitment fliers about the present study and were interested in participating in it were instructed via the flyer to contact the research laboratory number listed on the recruitment flyer. Individuals who called to inquire further about the study were asked to attend a Recruitment Session where they received detailed information about the study. Prospective participants were encouraged to bring a support person, either friend or family member, to all study-related events. The rationale for inviting a support person is that previous research suggests that having social support is complimentary in health interventions because it reinforces engagement in health promoting behaviors (Barrera et al., 2008).

At the Recruitment Session, prospective participants were provided with information about the dates and times of the Health Empowerment Interventions and were then each asked to (a) sign an Informed Consent Form (ICF) if they decided to participate in the study and (b) complete a Patient Demographic and Health Data Questionnaire (Refer to Appendix G for a copy of the ICF). Participants were offered assistance in reading the Informed Consent Form and in completing the Patient Demographic and Health Data Questionnaire. The ICF outlined the study procedures and provided information on the potential benefits and risks of the study. Potential benefits listed included reduction in blood pressure, blood glucose, and weight, and learning skills to improve self-management of type 2 diabetes. Another specified benefit was learning skills and strategies for

obtaining and sustaining (reinforcing) desired health care provider behaviors in patient-provider interactions. Potential study participation risks listed included the everyday risks associated with exercise, and the possibility of accidental disclosure of their personal health information (PHI). Participants were informed of the steps taken to protect confidentiality of their PHI.

Participants were also offered \$60 for completing the program, with four separate \$15 payments disbursed at the Baseline Data Collection Session, at each of the two workshops constituting the Culturally Sensitive Health Empowerment Intervention, and at the Post-Data Collection Session. Participants were given payment in the form of \$15 money orders at the end of each of these scheduled events and were asked to sign a receipt indicating they received payment.

Baseline Data Collection

Two weeks prior to the implementation of the Culturally Sensitive Health Empowerment Intervention, Baseline Data Collection Sessions were held at various times at a local middle school (i.e., Lincoln Middle School in Gainesville, Florida) to accommodate the work schedules of the research participants. Participants who attended one of these sessions were asked to complete the Baseline Assessment Battery (AB) consisting of the five aforementioned questionnaires. Participants were offered individualized assistance in reading and writing responses to the five questionnaires. A small number (approximately 5) of participants accepted the invitation to have the AB administered verbally. Additionally, participants were offered the option of completing the AB at home, though the overwhelming majority of participants independently completed the AB at the data collection site.

At the Baseline Data Collection Session, participants were given a blank Health Record Form (HRF). Using the first part of the HRF, trained nurses and pre-med students supervised by the nurses measured participants' blood pressure and recorded this data, as well as other

information related to the broader study (i.e., height, weight, BMI, hip circumference, and weight circumference). Participants were then instructed to take the second part of the HRF home with them and to use this form to record their blood glucose on three random mornings during the week following the Baseline Data Collection Session and to return these data to the research team at the beginning of the first workshop of the two workshops constituting the Culturally Sensitive Health Empowerment Intervention (CS-HEI). Participants were also encouraged to self-record their blood pressure on the same form during the week between the Baseline Data Collection Session and the first workshop. A list of sites where blood glucose and blood pressure testing is offered at no-cost was provided.

Following the Baseline Data Collection Session, participants were randomly assigned to either the Intervention Group or Control Group using a stratified sampling procedure to ensure relatively equal ethnic and gender representation in each group. The Control Group did not have the opportunity to participate in the CS-HEI, but they were offered an ethical abbreviated version of the CS-HEI (which is described at the end of this chapter) following Post-Data Collection. Some participants expressed disappointment for not being assigned to the Intervention Group, but overall participants were understanding of the research design and appreciative of the financial compensation regardless of group assignment. Participants assigned to the Control Group were assured that they would eventually have access to the knowledge and materials provided to participants in the original Culturally Sensitive Health Empowerment Intervention.

Culturally Sensitive Health Empowerment Intervention (CS-HEI)

The CS-HEI (refer to Appendix H) consisted of two 5-hour workshops held approximately two weeks apart. Workshop 1 focused more on knowledge of health promoting behaviors and Workshop 2 focused more on reinforcing PC-CSHC in interactions with

providers. Although the curriculum of each workshop was distinct in terms of content, both workshops were implemented consistently with the PC-CSHC Model. Specifically, the underlying conceptual core theme and objective of both workshops involved teaching participants to identify and reinforce desired culturally sensitive provider behaviors, increasing patient empowerment/interpersonal control, reducing stress, and increasing knowledge of and engagement in health promoting behaviors. For example, when teaching participants about healthy eating behaviors, participants were: (1) provided with opportunities to express frustrations and barriers that prevent them from healthy eating; (2) encouraged to identify culturally sensitive options for overcoming these barriers; (3) taught strategies for effectively communicating with providers about healthy eating and nutritional barriers; and (4) encouraged to set individualized goals to improve their diet. This teaching/intervention strategy was guided by the key aspects of PC-CSHC (i.e., perceived cultural sensitivity, stress reduction, patient empowerment, and a focus on health promoting behaviors) rather than just strictly providing nutritional information.

Each workshop of the CS-HEI was conducted by a culturally diverse team of researchers among who were a physician, clinical and health psychologist, a faculty member in public health, graduate students, and undergraduate students with training in behavioral medicine and health psychology. The foci of the CS-HEI included: (a) identification of a set of Health-Smart Behaviors (HSBs; health-promoting behaviors) and promotion of knowledge, motivation, and skills for engaging in these behaviors, (b) training in stress, anxiety, and anger management and in assertiveness that promote engagement in health-smart behaviors for a healthy lifestyle, and (c) behaviors and strategies that enable patients to engage in positive interactions and effective

communication with health care providers, and to elicit/reinforce desired PC-CSHC behaviors from their providers.

Workshop I of the CS-HEI

Workshop I of the CS-HEI specifically emphasized the following: (a) the importance of engaging in HSBs each day, (b) the motivators of and barriers to engaging in these behaviors, and (c) specific health/nutrition information that support these behaviors. The HSBs emphasized include the following: (1) consuming foods low in sugar, fat, and sodium, (2) eating a healthy breakfast, (3) reducing fat consumption to less than 30% of one's diet, (4) drinking water and low-sugar beverages, (5) walking 10,000 steps or more each day, (6) restricting sedentary activities, such as watching TV, to no more than 2 hours per day, and (7) engaging in moderate to intense physical activity for at least one hour three days per week. These behaviors align with many of the recommendations set forth in the ADA Standards of Medical Care for type 2 diabetes and in *Healthy People 2020*. These behaviors are also typically recommended in treating other chronic diseases such as hypertension, cardiovascular disease, and obesity.

In addition to learning about HSBs, patients were taught by a nutritionist how to interpret nutrition labels on food, monitor portion sizes, and make healthy food choices. Consistent with the PC-CSHC Model, HSBs were taught in a culturally sensitive and relevant manner. For example, using simple and understandable language, participants were taught ways to understand the percents and serving size information on nutrition labels. The nutrition labels of culturally relevant foods (i.e., collard greens, sweet tea, and other common Southern foods) were used in this teaching process. Participants were also empowered to ask nutrition-related questions of dietitians and nutritionists present at Workshop I. Opportunities to discuss motivators and barriers to engaging in the HSBs in a small group with a group facilitator were included so that

participants could express emotions around the difficulty inherent in engaging in HSBs and share motivators and strategies for overcoming these barriers. This helped reduce stress and increase empowerment through the support, knowledge, and encouragement of others.

Two health panels were also incorporated into Workshop I of the CS-HEI. The first panel consisted of participants with type 2 diabetes who had successfully reduced the symptoms of their disease by incorporating the HSBs (i.e., healthy eating and exercise behaviors) and asking their providers for needed information/support. This panel also included support persons who were either spouses or family members of adults with type 2 diabetes and who were very supportive of their spouse/family member's engagement in HSBs. The panelists shared their experiences with managing type 2 diabetes and personal tips for incorporating HSBs into one's lifestyle and/or into the lifestyle of a family member with type 2 diabetes. It should be noted that all participants were encouraged to invite family members and spouses/partners to be support partners who experience the intervention workshops with them. Panel 1 helped facilitate patient empowerment by exposing participants to people like themselves who had successfully learned to manage their diabetes and the strategies that enabled them to improve their health.

The second panel consisted of health professionals with degrees or expertise in nutrition, psychology, endocrinology (diabetes), general medicine, nursing, and fitness. Each of these experts answered health-related questions from the audience and provided strategies and tips on how to manage type 2 diabetes and related diseases such as elevated blood pressure and pain in their limbs. This panel also addressed questions regarding how to have a successful health care visit. Providers even shared some of their own struggles with consistently engaging in HSBs and managing stress. Providers emphasized the importance of patients being engaged and empowered in the patient-provider relationship and in assuming responsibility for their own

health through engaging in HSBs. Panel 2 incorporated opportunities for participants to interact with health care providers and to learn effective communication and how to reinforce desired behaviors with regard to talking with providers about HSBs.

Workshop II of the CS-HEI

Workshop II of the Health Empowerment Intervention focused on empowering participants with skills for obtaining patient-centered culturally sensitive health care provider behaviors and attitudes, which are behaviors and attitudes that enable patients to feel comfortable with, trusting of, and respected by their health care providers (Tucker et al., 2007). Specifically, participants were trained in the following areas: (1) assertiveness skills, (2) anger management skills, and (3) stress and anxiety management skills. Each of these skills was taught using patient-provider interaction scenarios. For example, participants were taught how they can appropriately express health care dissatisfaction to their providers. Meichenbaum's (1977) cognitive modeling and self-instruction step-by-step training approach was used to teach these skills. Participants were also instructed on how to use self-praise to reinforce learned behaviors and skills. As with Workshop I, Workshop II was informed by the PC-CSHC Model. Specifically, this workshop focused on empowering patients to be assertive in their interactions with their providers and to manage experienced stress and anger that have the potential of impeding engagement in health promoting behaviors and of negatively impacting the patient-provider relationship.

For the assertiveness training component, participants were taught how to constructively express negative feelings and communicate with their providers when they (the participants) do not feel their questions are being answered, when they are not being treated as desired, or when experiencing their providers' behaviors and attitudes as culturally insensitive and/or

disempowering. Participants were taught strategies for ensuring an effective health care visit (e.g., having a list of prepared questions, bringing a note taker to record the provider's health care and health promotion recommendations). Specific statements and body language that are consistent with assertiveness versus aggressiveness were taught.

Participants were also taught anger management skills. This training involved normalizing anger as a healthy aspect of one's emotional repertoire, and educating participants about the potential negative health consequences of expressing anger in a hostile manner (e.g., consequences such as elevated blood pressure) and of not expressing it at all (e.g., increased somatic symptoms). Participants were taught cognitive-behavioral strategies, such as envisioning a stop sign and using deep breathing to regain emotional and behavioral control when feeling angry. Participants were empowered to (a) choose the extent to which they allow others to control their anger (e.g., "push their buttons") and (b) use assertion and "self-talk" to prevent others from "pushing their buttons" so as to elicit anger that can cause negative health consequences (e.g., elevations in blood pressure).

The stress and anxiety management training involved teaching participants that stress and anxiety are normal responses that in small amounts can have a productive value, but that when experienced over time can lead to many negative health consequences (e.g., reduced immune functioning, vulnerability to illness, and lapses in self-care and health-promoting behaviors). Participants were educated about the specific relationship between stress and health among individuals with type 2 diabetes and about the negative and immediate effect stress has on blood pressure and blood glucose levels. Participants were also taught how to take control of their stress and anxiety, and thus their health, by using relaxation techniques such as deep breathing, progressive muscle relaxation, and meditation and/or prayer. Approximately 51 (80%)

participants of the original 64 participants in the study who were assigned to the Intervention Group attended both Workshops of the CS-HEI.

During the two months following Workshop II of the CS-HEI, participants in the Intervention Group were contacted by phone and/or mail to encourage and praise their efforts to engage in healthy lifestyle behaviors they learned as part of the CS-HEI workshops. This was also an opportunity to provide support and suggestions for overcoming barriers that participants had encountered with incorporating HSBs into their lifestyle. Research has found that the use of such booster calls/contacts helps to reinforce and support engagement in health promoting behaviors, particularly among adults from low-income households (Hind et al., 2010).

Post-Data Collection

Two months following implementation of the second CS-HEI, both the Intervention Group and the Control Group participants attended a Post-Data Collection Session that involved the same data collection activities as those that occurred at the Baseline Data Collection Session. Participants were asked to fill out another Assessment Battery (AB) identical to the previously completed AB. An identical Health Record Form (HRF) for reporting self-recorded blood glucose (BG) was mailed to participants two weeks prior to the Post-Data Collection Session, and they were asked to record their blood glucose on three separate mornings during a specified week and to bring this form to the Post-Data Collection Session. Participants were also encouraged to self-record their blood pressure during the week prior to the Post-Data Collection Session. Research Assistants made reminder calls to provide the dates and times of the Post-Data Collection Sessions and to remind participants to self-record their blood glucose and blood pressure. Culturally diverse nurses and pre-med students trained in blood pressure measurement and supervised by the nurses

worked together to measure participants' blood pressure (BP) and record this information on the Health Record Form (HRF) at the Post-Data Collection Session.

Abbreviated CS-HEI for the Control Participants

Following the Post-Data Collection Session, participants who were assigned to the Control Group condition were contacted and invited to attend an abbreviated version of the CS-HEI so that they could access the health information and materials provided to participants in the Intervention Group. This abbreviated CS-HEI lasted approximately 2-3 hours, and provided Control Group participants with the core presentations of the full-length CS-HEI, resource materials, and an opportunity to have questions answered. Approximately, 25% of the Control Group participants (n=10) out of the 43 who participated in both Data Collection Sessions attended the abbreviated CS-HEI.

Table 3-1. Demographic Characteristics of Control and Intervention Participants

	Control		Intervention		Total	
	N	%	N	%	N	%
Race/Ethnicity						
African American	33	35.9	35	38.0	68	73.9
White American	10	10.9	14	15.2	24	26.1
Total	43	46.8	49	53.2	92	100
Gender						
Male	9	9.9	12	13.2	21	23.1
Female	33	36.3	37	40.6	70	76.9
Total	42	46.2	49	53.8	91	100
Age						
Age 25-34	1	1.1	1	1.1	2	2.2
Age 35-44	1	1.1	4	4.3	5	5.4
Age 45-54	13	13.9	13	14.0	26	27.9
Age 55-64	12	12.9	15	16.1	27	29
Age 65 or older	16	17.2	17	18.3	33	35.5
Total	43	46.2	50	53.8	93	100
Marital Status						
Single living without partner	13	13.8	14	14.9	27	28.7
Single living with partner	3	3.2	2	2.1	5	5.3
Married living with partner	12	12.8	23	24.4	35	37.2
Divorced or Separated	6	6.4	6	6.4	12	12.8
Widow/Widower	9	9.6	6	6.4	15	16.0
Total	43	45.8	51	54.2	94	100
Education (highest level)						
Middle School	7	7.6	3	3.3	10	10.9
High school diploma	16	17.4	18	19.6	34	37.0
Some college	13	14.1	20	21.7	33	35.8
College degree	5	5.4	7	7.6	12	13.0
Graduate School	1	1.1	2	2.2	3	3.3
Total	42	45.6	50	54.4	92	100
Employment						
Full-time Employment	3	3.3	6	6.5	9	9.8
Part-time Employment	4	4.3	4	4.3	8	8.6
Retired/Unemployed	35	38.1	40	43.5	75	81.6
Total	42	45.7	50	54.3	92	100
Annual Household Income						
Less than \$10,000	18	21.7	17	20.5	35	42.2
\$10,000 - \$20,000	14	16.9	12	14.5	26	31.4
\$20,001 - \$30,000	2	2.4	8	9.6	10	12.0
\$30,001 - \$40,000	3	3.6	2	2.4	5	6.0
\$40,001 - \$50,000	2	2.4	5	6.0	7	8.4
Total	39	47.0	44	53.0	83	100

Table 3-2. Health-Related Characteristics of Control and Intervention Participants

	Control		Intervention		Total	
	N	%	N	%	N	%
Years Diagnosed with Diabetes						
0-5 years	25	26.5	32	34.0	57	60.5
6-10 years	6	6.4	11	11.7	17	18.1
11-15 years	7	7.4	4	4.3	11	11.7
16-20 years	3	3.2	1	1.1	4	4.3
21-25 years	1	1.1	0	0.0	1	1.1
26+ years	1	1.1	3	3.2	4	4.3
Total	43	45.7	51	54.3	94	100
Type of Treatment						
Diet only	8	9.3	3	3.5	11	12.8
Medication only	7	8.2	13	15.1	20	23.3
Medication plus diet	6	7.0	10	11.6	16	18.6
Medication plus diet and	18	20.9	21	24.4	39	45.3
Total	39	45.4	47	54.6	86	100
Frequency of Blood Glucose						
Never	6	6.7	4	4.5	10	11.2
1 day per week	4	4.5	6	6.7	10	11.2
2 days per week	6	6.7	5	5.6	11	12.3
3 days per week	3	3.4	6	6.7	9	10.1
4 days per week	1	1.1	4	4.5	5	5.6
5 days per week	1	1.1	3	3.4	4	4.5
6 days per week	2	2.3	1	1.1	3	3.4
7 days per week	17	19.1	20	22.6	37	41.7
Total	40	44.9	49	55.1	89	100

Note: Due to missing responses some Ns are less than 94.

Table 3-3. Demographic Characteristics of Participants by Racial Group

	African		Non-Hispanic		Total	
	N	%	N	%	N	%
Gender						
Male	16	18.0	5	5.6	21	23.6
Female	49	55.1	19	21.3	68	76.4
Total	65	73.1	24	26.9	89	100
Age						
Age 25-34	1	1.1	1	1.1	2	2.2
Age 35-44	3	3.3	2	2.2	5	5.5
Age 45-54	18	19.8	8	8.8	26	28.6
Age 55-64	18	19.8	8	8.8	26	28.6
Age 65 or older	27	29.6	5	5.5	32	35.1
Total	67	73.6	24	26.4	91	100
Marital Status						
Single living without partner	22	23.9	5	5.4	27	29.3
Single living with partner	4	4.4	1	1.1	5	5.5
Married living with partner	22	23.9	13	14.1	35	38.0
Divorced or Separated	9	9.8	3	3.3	12	13.1
Widow/Widower	11	11.9	2	2.2	13	14.1
Total	68	73.9	24	26.1	92	100
Education (highest level)						
Middle School	8	8.9	2	2.2	10	11.1
High school diploma	26	28.9	7	7.8	33	36.7
Some college	22	24.5	11	12.2	33	36.7
College degree	10	11.1	2	2.2	12	13.3
Graduate School	1	1.1	1	1.1	2	2.2
Total	67	74.4	23	25.6	90	100
Employment						
Full-time Employment	8	8.9	1	1.1	9	10.0
Part-time Employment	7	7.8	1	1.1	8	8.9
Retired/Unemployed	53	58.9	20	22.2	73	81.1
Total	68	75.5	22	24.5	90	100
Annual Household Income						
Less than \$10,000	26	32.1	8	9.9	34	42.0
\$10,000 - \$20,000	21	26.0	4	4.9	25	30.9
\$20,001 - \$30,000	6	7.4	4	4.9	10	12.3
\$30,001 - \$40,000	2	2.5	3	3.7	5	6.2
\$40,001 - \$50,000	4	4.9	3	3.7	7	8.6
Total	59	72.8	22	27.2	81	100

Table 3-4. Health-Related Characteristics of Participants by Racial Group

	African		Non-Hispanic		Total	
	N	%	N	%	N	%
Years Diagnosed with Diabetes						
0-5 years	37	40.2	19	20.6	56	60.8
6-10 years	14	15.2	4	4.3	18	19.5
11-15 years	10	10.9	0	0.0	10	10.9
16-20 years	3	3.3	1	1.1	4	4.4
21-25 years	1	1.1	0	0.0	1	1.1
26+ years	3	3.3	0	0.0	3	3.3
Total	68	74.0	24	26.0	92	100
Type of Treatment						
Diet only	9	10.7	2	2.4	11	13.1
Medication only	18	21.4	2	2.4	20	23.8
Medication plus diet	11	13.1	5	6.0	16	19.1
Medication plus diet and exercise	28	33.3	9	10.7	37	44.0
Total	66	78.5	18	21.5	84	100
Frequency of Blood Glucose Testing						
Never	6	6.9	4	4.6	10	11.5
1 day per week	9	10.3	1	1.2	10	11.5
2 days per week	6	6.9	5	5.7	11	12.6
3 days per week	6	6.9	2	2.3	8	9.2
4 days per week	3	3.4	2	2.3	5	5.7
5 days per week	4	4.6	0	0.0	4	4.6
6 days per week	3	3.4	0	0.0	3	3.4
7 days per week	27	31.1	9	10.3	36	41.4
Total	64	73.6	23	26.4	87	100

Note: Due to missing responses some Ns are less than 94.

CHAPTER 4 RESULTS

This chapter presents the results of the intervention-control group design used to test the hypothesized effects of the Culturally Sensitive Health Empowerment Intervention (CS-HEI). The results are reported as follows: 1) the descriptive data for all of the variables in the study are reported for the entire sample and then separately for the control and intervention groups and separately by racial groups; 2) the preliminary data analyses and Pearson correlations for the control and intervention groups are presented; and 3) results from Repeated Measures Multivariate Analyses of Variance (MANOVAs) and follow-up Analyses of Covariance (ANCOVAs) used to examine Hypotheses 1-5 are presented. Statistical analyses were performed using the Statistical Package for Social Sciences (SPSS) Version 19.

Results of the Descriptive Statistics

Means and standard deviations for the psychosocial and health variables of interest (i.e., patient perceived PC-CSHC, stress, patient empowerment, health promoting lifestyle, and blood pressure and blood glucose) for participants in the control and intervention groups at pre-intervention and post-intervention intervals are presented in Tables 4-1 and 4-2. Means and standard deviations for the psychosocial and health variables of interest are also presented by racial group in Tables 4-3 and 4-4.

Demographic and descriptive characteristics of the “healthiest participants” at pre-intervention were identified to highlight characteristics of participants in this study who are meeting the recommended health targets espoused by the American Diabetes Association Standards for type 2 diabetes management (Refer to Table 4-5). Specifically, healthy participants are those who meet the recommended ADA (2007) standards in two main areas, namely blood pressure (as demonstrated by a reading less than 130/80) and blood glucose (as demonstrated by

a fasting blood glucose reading less than 126). The same demographic characteristics are provided for the least healthy participants in this study as well. The least healthy participants are those with blood pressure (as demonstrated by a reading higher than 130/80) and blood glucose (as demonstrated by a fasting blood glucose reading greater than 126) that is higher than the cutoff point recommended by the ADA (2007). Participants who are higher in one respective area, such as blood pressure, but are within the recommended range for blood glucose do not fit into this category. The decision to include characteristics of healthy participants in addition to those who are not meeting the recommended standards draws from Seligman's theory of positive psychology (Duckworth, Steen, & Seligman, 2005). This theory emphasizes what people are doing well to contribute to living healthier, such as successfully managing their type 2 diabetes, rather than solely focusing on deficits and differences between groups.

Demographic and psychosocial characteristics of participants who continued in this study compared to those who discontinued participation were also explored. As previously mentioned, there was approximately a 26% attrition rate for participants in this study with a markedly higher attrition rate for participants in the Control Group assignment (32%) compared to those in the Intervention Group assignment (20%). Although random assignment procedures were used and no significant baseline differences between participants in the control and intervention groups were identified, it seems valuable to explore the characteristics of participants who did not continue in this study. Three demographic characteristics differed for participants who discontinued participation compared to those who continued participation. The characteristics included relationship status, educational status, and employment status. Those who discontinued participation (N=32) more frequently reported being single (63%), more frequently reported less than a college education (96%), and more frequently reported being employed (46%).

Independent samples t-tests were performed to explore differences between those who eventually discontinued participation (i.e., “discontinuers”) compared to those who continued participation (i.e., “continuers”) at pre-intervention on the psychosocial measures used in this study. There were statistically significant differences in scores on the HPLP-II total score ($t(125)=-1.98, p=.049$), HPLP-II nutrition subscale ($t(125)=-2.49, p=.017$), and HPLP-II stress management subscale ($t(125)=-2.07, p=.045$). Examination of mean scores between the groups revealed that “discontinuers” ($N=32$) reported relatively lower levels of overall health promoting behaviors ($M=2.24, SD=.44$) compared to “continuers” ($N=94$) at pre-intervention ($M=2.45, SD=.50$). Similar differences in mean scores were also noted for nutrition for “discontinuers” ($M=2.35, SD=.46$) compared to “continuers” ($N=94$) at pre-intervention ($M=2.60, SD=.50$) and for stress management for “discontinuers” ($M=2.23, SD=.47$) compared to “continuers” ($N=94$) at pre-intervention ($M=2.46, SD=.56$).

Preliminary Analyses

Prior to the study’s major analyses, data from the patient-perceived provider cultural sensitivity, patient empowerment, stress, and health promoting lifestyle measures were examined through various SPSS programs for accuracy of data entry, missing values, outliers, distributional properties, multicollinearity, and other assumptions specific to the General Linear Model. The assumption of normality was met by verifying that skewness and kurtosis statistics were within an acceptable range.

The T-CSHCPI was the only measure with substantial missing items. Thus, a missing values analysis (MVA) was performed to determine the pattern of missing data and the appropriate step for addressing missing data. Results of the MVA determined that the percentages of missing data ranged from 3.8% of missing responses to 13.1% of missing

responses per item and spanned across all three subscales of the T-CSHCPI. As a follow-up to assess properties of the missing data, a Little MCAR test was performed which tests whether or not data are missing at random. Based on the results of the Little MCAR Test (Missing Completely At Random), it appeared that data were missing at random as evidenced by an alpha greater than .05, in this case $p=.100$.

There are no firm guidelines on what percentage of missing data constitutes the need to replace values, but it is suggested that 5-20% of missing data or less is adequate to proceed without replacing data (Pallant, 2004). However, the percentages of missing data would likely present challenges with statistical power given the small sample size for this study. According to Tabachnick and Fidell (2007), the Multiple Imputation method is considered the superior option for replacing missing values especially in complex cases, but it is not necessary when the data is randomly missing. In situations like this, Expectation Maximization (EM) Method is recommended (Tabachnick & Fidell, 2007). Thus, EM was applied to replace missing values for the T-CSHCPI. Descriptive data is provided for the original T-CSHCPI data with missing values and for the corrected version using EM in Tables 4-1 and 4-2.

Repeated measures multivariate analyses of variance (MANOVAs) with follow-up univariate analyses and analyses of covariance ANCOVAs were used to test the majority of the hypotheses. Assumptions for homogeneity of variance (Box's Test of Equality of Covariance Matrices and Levene's Test of Equality of Error Variances) and tests of sphericity were examined for the multivariate analyses. A p-value of .05 was used to determine statistical significance; however, given the relatively small number of participants in this study, p-values in the .05-.10 range were interpreted as approaching significance.

Preliminary independent samples t-tests were conducted to determine if there were any group differences between the intervention and control groups with regard to their scores on the measures administered at Baseline Data Collection despite stratified random assignment of participants to the Intervention Group or Control Group. Although, no significant differences were identified between these groups on the baseline measures, ANCOVAs with baseline scores as covariates were performed to test three of the hypotheses that had a single dependent variable (Hypothesis 2, 4, 6) and repeated measures MANOVAs with the appropriate follow-up univariate analyses were used to test the remaining hypotheses that had multiple dependent variables (Hypotheses 1, 3, 5).

ANCOVA was used in order to control for any systematic differences between the IG and CG that may have arisen due to unanticipated issues with using a stratified randomization procedure for assigning participants to these groups. An additional benefit of using an ANCOVA is that this statistical analysis allows for greater power and sensitivity in the F-test by accounting for substantial residual variance in the post-intervention score; furthermore, ANCOVAs are typically recommended for use in social science research involving small samples such as the sample in the present study (Pallant, 2004). In cases where follow-up univariate analyses or ANCOVAs were used, a Bonferroni adjustment (alpha divided by the number of subscales) was used for interpreting alpha in order to reduce the risk of type I error.

Correlational analyses were performed to identify the patient demographic and health variables to be entered as variables in the MANOVAs for each hypothesis. The correlations among pre-intervention measures for Control and Intervention Group participants are presented in Tables 4-6 and 4-7.

Results of Hypotheses 1-6

Hypothesis 1

Hypothesis 1 stated that participants in the IG, as compared to participants in the CG, would report greater increases in their perceived cultural sensitivity of their providers' behaviors and attitudes (as measured by the Tucker Culturally Sensitive Health Care Inventory – Provider Form) from pre-intervention to post-intervention. To test this hypothesis a repeated measures multivariate analysis of variance (MANOVA) was performed. This test was selected versus MANCOVA because there were not significant differences between groups at pre-intervention and scores were relatively equivalent. The dependent variables in this analysis were the following three subscales of the T-CSHCPI-PF: (1) Competence/ Confidence subscale, (2) Respect/ Communication subscale, and (3) Sensitivity/Interpersonal Skill subscale. The independent variables in the MANOVA were Group, (Intervention Group versus Control Group), Time, and Group x Time (from baseline to post-intervention). These analyses were performed on the original T-CSHCPI data with missing values and on the data correct using Expectation Maximization (EM) procedures.

Preliminary analyses were conducted to assess tests of assumptions for homogeneity of variance (Box's Test of Equality of Covariance Matrices and Levene's Test of Equality of Error Variances). Both of these tests generated non-significant results suggesting that assumptions of homogeneity of variance and equality of variance were satisfied. Mauchly's Test of Sphericity was not significant suggesting that the sphericity assumption was met. Estimates of skewness and kurtosis were within an acceptable range (i.e. < 1).

Using Wilks' Lambda, the results of the MANOVA performed on the original, uncorrected data did not generate statistically significant differences by Group (i.e., Intervention and Control)

($F[3,90] = .360, p = .782, \text{partial } \eta^2 = .012$); by Time ($F[3,90] = 1.00, p = .371, \text{partial } \eta^2 = .022$); or Time x Group ($F[3,90] = .244, p = .784, \text{partial } \eta^2 = .005$). This same procedure was repeated using the complete data adjusted by the EM procedure and significant differences were not found by Group (i.e., Intervention and Control) ($F[3,91] = .3728, p = .538, \text{partial } \eta^2 = .023$); by Time ($F[3,91] = .628, p = .599, \text{partial } \eta^2 = .020$); or Time x Group ($F[3,91] = .580, p = .629, \text{partial } \eta^2 = .019$). Hypothesis 1 was not supported. These results are summarized in Table 4-8.

Hypothesis 2

Hypothesis 2 stated that participants in the IG, as compared to participants in the CG, would report greater decreases in their reported physical stress (as measured by the Strain Questionnaire) from pre-intervention to post-intervention. The rationale for analyzing physical stress only is that it had the highest correlation with the SQ total score ($r=.96$); furthermore, physical stress is most frequently associated with engagement in health promoting behaviors and with health outcomes in the type 2 diabetes literature and in tests of the PC-CSHC Model (Tucker et al., 2007; Surwit et al., 2002). To test hypothesis 2, an analysis of covariance (ANCOVA) was performed. The dependent variable in this analysis was the physical stress post-intervention score, the independent variable was group assignment (Control versus Intervention), and the covariate was the physical stress pre-intervention score.

Preliminary analyses were conducted to assess tests of assumptions for homogeneity of regression slopes and linearity, and the assumptions of ANCOVA were met. Findings of the ANCOVA highlighted differences in physical stress between groups at post-intervention that were approaching significance ($F[1, 92] = 2.99, p = .087, \text{partial } \eta^2 = .032$). An eta value of .032 suggests that approximately 3% of the variance in physical stress is explained by group assignment. Examination of mean scores between the groups revealed that the participants in the

Intervention Group reported relatively lower levels of physical stress at post-intervention ($M=52.73$, $SD=17.65$) compared to those in the Control Group at post-intervention ($M=57.77$, $SD=18.48$). In sum, the findings for Hypothesis 2 do not support this hypothesis, but there is an indication that differences between groups for physical stress were approaching significance in the expected direction. These results are summarized in Table 4-9.

Hypothesis 3

Hypothesis 3 stated that participants in the IG, as compared to participants in the CG, would report greater increases in their engagement in health-promoting behaviors (as measured by four subscales of the Health Promoting Lifestyle Inventory (i.e., the Health Responsibility, Exercise, Nutrition, and Stress Management subscales) from pre-intervention to post-intervention. To test this hypothesis a repeated measures MANOVA was performed. This test was selected versus MANCOVA because there were not significant differences between groups at pre-intervention and scores were relatively equivalent. The dependent variables in this analysis were the four subscales of the HPLP-II and the independent variables were Group (Intervention Group versus Control Group), Time, and Group x Time.

Preliminary analyses were conducted to assess tests of assumptions for homogeneity of variance (Box's Test of Equality of Covariance Matrices and Levene's Test of Equality of Error Variances) and Mauchly's Test of Sphericity. Multivariate assumptions were met. Using Wilks' Lambda, the results of the MANOVA indicated a non-significant effect for differences on the HPLP-II subscales by Group (i.e., Intervention and Control) ($F[4, 89] = 1.12$, $p = .355$, partial $\eta^2 = .048$); by Time ($F[4, 89] = 2.36$, $p = .060$, partial $\eta^2 = .096$); and Time x Group ($F[4, 89] = .937$, $p = .447$, partial $\eta^2 = .040$).

Although the p-level for the key interaction is not significant, the eta-squared effect size was “noteworthy”. Examination of the univariate F tests for Time x Group interactions for the four subscales revealed differences on the nutrition subscale between groups that were approaching significance at post-intervention ($F[1, 92] = 3.59, p = .06, \text{partial } \eta^2 = .038$), but did not reach the Bonferroni adjusted alpha of .0125. Examination of mean scores between groups show that those participants in the Intervention Group ($M=2.63, SD=0.56$) reported higher (improved) levels of nutrition health promoting behaviors at post-intervention compared to those in the Control Group at post-intervention ($M=2.48, SD=0.51$). In sum, the findings for Hypothesis 3 do not support this hypothesis, but there is an indication that differences between groups for nutrition were approaching significance in the expected direction. These results are summarized in Table 4-10.

Hypothesis 4

Hypothesis 4 stated that participants in the IG, as compared to participants in the CG, would report greater increases in self-reported patient empowerment (as measured by the Patient Empowerment Inventory) from pre-intervention to post-intervention. To test this hypothesis an analysis of covariance (ANCOVA) was performed. The dependent variable in this analysis was the patient empowerment post-test score, the independent variable was group assignment (Control versus Intervention), and the covariate was the patient empowerment pre-test score.

Preliminary analyses were conducted to assess assumptions of ANCOVA with regard to homogeneity of regression slopes and linearity and these assumptions were met. Findings of the ANCOVA did not demonstrate differences in patient empowerment between groups at post-intervention ($F[1, 92] = 1.17, p = .283, \text{partial } \eta^2 = .013$). Hypothesis 4 was not supported by this finding. The results from the ANCOVA to test Hypothesis 4 are summarized in Table 4-11.

Hypothesis 5

Hypothesis 5 stated that participants in the IG, as compared to participants in the CG, would evidence greater decreases in their systolic and diastolic blood pressure (as measured by nurses and pre-med students trained in blood pressure measurement and supervised by the nurses using standardized manual blood pressure cuffs at the data collection sessions) from pre-intervention to post-intervention. To test Hypothesis 5, a repeated measures multivariate analysis of variance (MANOVA) was used to compare participants' blood pressure based on group assignment following the Health Empowerment Intervention. This test was selected versus MANCOVA because there were not significant differences between groups at pre-intervention and scores were relatively equivalent. The dependent variables in this analysis were diastolic and systolic blood pressure and the independent variables were Group (Intervention Group versus Control Group), Time (pre-intervention versus post-intervention) and Group x Time.

Preliminary analyses were conducted to assess tests of assumptions for homogeneity of variance (Box's Test of Equality of Covariance Matrices and Levene's Test of Equality of Error Variances). Both of these tests generated non-significant results suggesting that assumptions of homogeneity of variance and equality of variance were satisfied. Mauchly's Test of Sphericity was not significant suggesting that the sphericity assumption was met. Using Wilks' Lambda, the results of the MANOVA indicated significant differences in blood pressure by Group (i.e., Intervention and Control) ($F[2, 78] = 3.39, p = .039, \text{partial } \eta^2 = .080$). A significant effect was also identified for Time (i.e. pre-intervention and post-intervention) ($F[2, 78] = 4.11, p = .020, \text{partial } \eta^2 = .095$). Significant effects were not observed for Time X Group ($F[2, 78] = 2.13, p = .125, \text{partial } \eta^2 = .052$).

Examination of the univariate F tests for Time x Group interactions for the two blood pressure subscales revealed differences on the subscales between groups that were significant at post-intervention for diastolic blood pressure ($F[1, 79] = 4.24, p = .043, \text{partial } \eta^2 = .051$), but not for systolic blood pressure ($F[1, 79] = .361, p = .549, \text{partial } \eta^2 = .005$).

To further explore Hypothesis 5, ANCOVAs were performed to determine if there were group differences in diastolic and systolic blood pressure at post-intervention when controlling for pre-intervention diastolic and systolic blood pressure, respectively. Results from the ANCOVA with diastolic blood pressure as the dependent variable and pre-intervention diastolic blood pressure as the covariate revealed significant group differences in diastolic blood pressure at post-intervention even using a Bonferroni adjusted alpha of .025 ($F[1, 79] = 5.44, p = .022, \text{partial } \eta^2 = .066$). An eta value of .066 suggests that approximately 6.6% of the variance in diastolic blood pressure is explained by group assignment. Examination of mean scores between groups revealed that those participants in the Intervention Group ($M=74.41, SD=12.53$) reported significantly lower levels of diastolic blood pressure at post-intervention compared to those in the Control Group at post-intervention ($M=80.51, SD=13.67$). Results from the ANCOVA with systolic blood pressure as the dependent variable and pre-intervention systolic blood pressure as the covariate revealed no significant group differences in systolic blood pressure at post-intervention ($F[1, 79] = 2.58, p = .112, \text{partial } \eta^2 = .032$). In sum, the results from the ANCOVAs to test Hypothesis 5 provide partial support for this hypothesis. These results are summarized in Table 4-12.

Hypothesis 6

Hypothesis 6 stated that participants in the IG, as compared to participants in the CG, will evidence greater decreases in their blood glucose (BG), as measured by an average of three self-

readings recorded one week following the Baseline Post-Data Collection Sessions but prior to the first CS-HEI Workshop and one week prior to the Post-Data Collection Sessions (i.e., from pre-intervention to post-intervention). To test this hypothesis, an analysis of covariance (ANCOVA) was performed. The dependent variable in this analysis was the average blood glucose score at post-intervention, the independent variable was group assignment (Control versus Intervention), and the covariate was the average blood glucose score at pre-intervention. Preliminary analyses were conducted to assess tests of assumptions for homogeneity of regression slopes and linearity, and the assumptions of ANCOVA were met. Significant differences were not observed ($F[1, 65] = .259$ $p = .612$, partial $\eta^2 = .004$).

It was noted that participants in this study did not follow the instructions for recording blood glucose data, and many participants recorded this information anywhere from 1-7 days of the week instead of the requested three days per week. Given the relative inconsistency in recording the blood glucose data for three days of the week, non-parametric statistical procedures were pursued to explore this hypothesis. Another advantage to using a non-parametric procedure for analyzing blood glucose data is that these data are often skewed given the range of blood glucose measurements (i.e. anywhere from 75 to 250) that naturally occur with people with type 2 diabetes. In this study, the blood glucose data from the participants was slightly skewed in a positive direction.

To further explore Hypothesis 6, a Wilcoxon signed-rank test was performed. The Wilcoxon signed-rank test is used to compare two related samples (often repeated measurements) when a normal distribution cannot be assumed. It tests the null hypothesis that the difference between blood glucose at pre-intervention compared to post-intervention equals zero. Analyzing Intervention Group and Control Group participants separately, the null

hypothesis was retained for Control Group Participants and was rejected for Intervention Group Participants. Examination of mean scores for participants in the Intervention Group demonstrates a reduction in mean scores from pre-intervention (M=135.7, SD=33.38 to post-intervention (M=130.3, SD=34.23). However, group differences cannot be determined by this analysis. Overall, Hypothesis 6 was not supported by the findings. The results of the ANCOVA and Wilcoxon signed-rank test are summarized in Tables 4-13 and 4-14, respectively.

Table 4-1. Descriptive Data for Psychosocial Variables (Pre- and Post-Intervention)

Psychosocial Variables of Interest	Control Participants (PRE)			Control Participants (POST)			Intervention Participants (PRE)			Intervention Participants (POST)		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD
Strain Questionnaire												
Physical Stress	43	61.02	18.71	43	57.77	18.48	51	60.35	18.90	51	52.73	17.65
Perceived Cultural Sensitivity												
Competence/Confidence	40	3.48	0.47	36	3.53	0.47	46	3.48	0.60	46	3.50	0.58
Respect/Communication	40	3.41	0.48	40	3.44	0.47	39	3.31	0.55	44	3.39	0.58
Sensitivity/ Interpersonal Skill	31	3.28	0.50	31	3.45	0.50	36	3.17	0.54	39	3.10	0.54
T-CSHCI-PF Total Score	31	3.39	0.44	31	3.42	0.38	36	3.29	0.52	39	3.35	0.48
T-CSHCI-PF with EM Correction												
Competence/Confidence	43	3.48	0.47	43	3.56	0.48	51	3.41	0.61	51	3.48	0.57
Respect/Communication	43	3.39	0.49	43	3.44	0.48	51	3.29	0.59	51	3.38	0.59
Sensitivity/ Interpersonal Skill	43	3.28	0.55	43	3.39	0.55	51	3.19	0.58	51	3.20	0.69
T-CSHCI-PF Total Score	43	3.31	0.50	43	3.43	.052	51	3.28	0.51	51	3.32	.047
Health-Promoting Lifestyle												
Health Responsibility	43	2.67	0.58	43	2.71	0.62	51	2.59	0.53	51	2.66	0.56
Nutrition	43	2.62	0.48	43	2.48	0.51	51	2.59	0.53	51	2.63	0.56
Physical Activity	43	2.06	0.79	43	2.13	0.77	51	2.06	0.72	51	2.21	0.68
Stress Management	43	2.43	0.59	43	2.42	0.62	51	2.48	0.56	51	2.54	0.56
HPLP-II Total Score	43	2.46	0.51	43	2.44	0.52	51	2.44	0.51	51	2.52	0.51
Patient Empowerment												
PEI Total Score	43	46.84	6.45	43	48.91	5.79	51	46.94	6.93	51	47.69	7.17

Table 4-2. Descriptive Data for Health Variables (Pre- and Post-Intervention)

	Control Participants (PRE)			Control Participants (POST)			Intervention Participants (PRE)			Intervention Participants (POST)		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD
Blood Pressure (BP)												
Diastolic BP	41	81.41	8.24	35	80.51	13.67	49	80.43	9.63	43	74.41	12.53
Systolic BP	41	138.49	14.05	35	139.14	16.64	49	134.50	12.69	43	131.25	14.88
Blood Glucose (BG)												
Weekly average BG reading	35	134.16	32.51	32	135.03	25.12	43	135.70	33.39	43	130.34	34.23

Note: Means for the entire sample at pre-test are: Diastolic Blood Pressure (M=80.89, SD=8.99); Systolic Blood Pressure (M=136.34, SD=13.41); and Blood Glucose (M=138.81, SD=46.91).

Table 4-3. Descriptive Data for Psychosocial and Health Variables by Racial Group (Pre-Intervention)

Psychosocial Variables	African American Participants (N=68)				Non-Hispanic White Participants (N=34)			
	Control N=33		Int. N=35		Control N=10		Int. N=24	
	M	SD	M	SD	M	SD	M	SD
Strain Questionnaire								
Physical Stress	59.85	19.27	58.20	18.60	64.90	17.06	61.71	16.75
Cognitive Stress	11.52	4.02	10.82	5.42	15.30	5.08	14.79	6.76
Behavioral Stress	23.52	6.97	22.35	6.69	28.30	6.79	25.79	7.36
SQ Total Score	94.61	27.76	90.37	27.65	108.0	27.52	102.0	26.34
Cultural Sensitivity								
Competence/Confidence	3.53	0.46	3.47	0.56	3.33	0.48	3.22	0.68
Respect/Communication	3.41	0.46	3.31	0.56	3.39	0.56	3.17	0.51
Sensitivity/ Interpersonal	3.34	0.44	3.25	0.50	3.06	0.65	2.92	0.61
T-CSHCI-PF Total Score	3.43	0.41	3.34	0.50	3.26	0.54	3.10	0.58
Health-Promoting Lifestyle								
Health Responsibility	2.65	0.59	2.58	0.55	2.74	0.59	2.62	0.53
Nutrition	2.55	0.51	2.54	0.57	2.83	0.23	2.71	0.67
Physical Activity	2.11	0.75	2.12	0.67	1.90	0.94	2.05	0.82
Stress Management	2.44	0.61	2.49	0.49	2.41	0.54	2.52	0.52
HPLP-II Total Score	2.45	0.53	2.44	0.50	2.49	0.46	2.49	0.57
Patient Empowerment								
PEI Total Score	47.3	6.70	46.23	6.49	45.30	5.58	49.07	8.17
Health Variables	African American Participants				Non-Hispanic White Participants			
	Control N=30		Int. N=31		Control N=9		Int. N=13	
	M	SD	M	SD	M	SD	M	SD
Blood Pressure (BP)								
Diastolic BP	81.7	8.67	79.9	8.41	80.4	7.40	82.43	10.85
Systolic BP	137.5	12.7	135.4	13.3	141.6	18.1	131.0	9.57
Blood Glucose (BG)								
Weekly Average BG	130.2	28.6	137.9	34.2	152.6	35.7	128.5	29.51

Table 4-4. Descriptive Data for Psychosocial and Health Variables by Racial Group (Post-Intervention)

Psychosocial Variables	African American Participants (N=68)				Non-Hispanic White Participants (N=24)			
	Control N=33		Int. N=35		Control N=10		Int. N=14	
	M	SD	M	SD	M	SD	M	SD
Strain Questionnaire								
Physical Stress	54.88	18.41	51.54	16.66	67.30	16.02	54.57	18.85
Cognitive Stress	10.33	3.32	10.37	3.53	12.50	3.89	11.29	3.99
Behavioral Stress	20.85	6.35	20.29	4.72	27.30	6.39	22.36	7.74
SQ Total Score	86.06	25.89	82.20	21.29	107.1	23.99	88.21	27.94
Cultural Sensitivity								
Competence/Confidence	3.51	0.49	3.56	0.53	3.67	0.38	3.31	0.62
Respect/Communication	3.43	0.47	3.31	0.56	3.44	0.47	3.26	0.70
Sensitivity/ Interpersonal	3.34	0.44	3.25	0.50	3.06	0.65	2.92	0.61
T-CSHCI-PF Total Score	3.43	0.36	3.41	0.42	3.39	0.44	3.16	0.59
Health-Promoting Lifestyle								
Health Responsibility	2.65	0.59	2.66	0.49	2.93	0.69	2.68	0.76
Nutrition	2.35	0.48	2.59	0.53	2.92	0.35	2.73	0.67
Physical Activity	2.07	0.74	2.25	0.66	2.30	0.86	2.11	0.79
Stress Management	2.35	0.60	2.54	0.59	2.63	0.67	2.54	0.52
HPLP-II Total Score	2.36	0.52	2.52	0.48	2.71	0.47	2.53	0.61
Patient Empowerment								
PEI Total Score	48.91	6.37	48.20	6.48	48.90	3.48	46.36	9.22
Health Variables	African American Participants				Non-Hispanic White Participants			
	Control N=26		Int. N=33		Control N=9		Int. N=12	
	M	SD	M	SD	M	SD	M	SD
Blood Pressure (BP)								
Diastolic BP	81.04	14.78	76.00	12.93	78.75	9.56	71.36	11.28
Systolic BP	139.9	16.97	134.0	14.19	136.5	16.27	126.0	15.96
Blood Glucose (BG)								
Weekly Average BG	125.2	26.02	132.2	37.07	151.2	47.68	126.3	19.13

Table 4-5. Demographic Characteristics of the “Healthiest” (BP<130/80 and BG<126) and “Least Healthy” (BP>130/80 and BG>126) Participants at Pre-Intervention

	“Healthiest” Participants		Demographics of Total Sample		“Least Healthy” Participants	
	N	%	N	%	N	%
Race/Ethnicity						
African American	11	73.3	68	73.9	18	69.2
White American	4	26.7	24	26.1	8	30.8
Total	15	100	92	100	26	100
Gender						
Male	1	6.7	21	23.1	7	27.0
Female	14	93.3	70	76.9	19	73.0
Total	15	100	91	100	26	100
Age						
Age 25-34	0	0.0	2	2.2	1	3.8
Age 35-44	1	6.7	5	5.4	2	7.7
Age 45-54	4	26.7	26	27.9	7	26.9
Age 55-64	6	40.0	27	29.0	8	30.8
Age 65 or older	4	26.7	33	35.5	8	30.8
Total	15	100	93	100	26	100
Marital Status						
Single living without	3	20.0	27	28.7	9	34.6
Single living with partner	0	0.0	5	5.3	1	3.8
Married living with	6	40.0	35	37.2	9	34.6
Divorced or Separated	3	20.0	12	12.8	2	7.7
Widow/Widower	3	20.0	15	16.0	5	19.3
Total	15	100	94	100	26	100
Education (highest level)						
Middle School	2	13.3	10	10.9	2	7.7
High school diploma	3	20.0	34	37.0	11	42.3
Some college	6	40.0	33	35.8	10	38.5
College degree	3	20.0	12	13.0	2	7.7
Graduate School	1	6.7	3	3.3	1	3.8
Total	15	100	92	100	26	100
Employment						
Full-time Employment	1	7.1	9	9.8	1	3.8
Part-time Employment	1	7.1	8	8.6	2	7.7
Retired/Unemployed	12	85.8	75	81.6	23	88.5
Total	14	100	92	100	26	100
Annual Household Income						
Less than \$10,000	6	42.9	35	42.2	11	50.0
\$10,000 - \$20,000	5	35.8	26	31.4	5	22.7
\$20,001 - \$30,000	1	7.1	10	12.0	2	9.1
\$30,001 - \$40,000	1	7.1	5	6.0	2	9.1
\$40,001 - \$50,000	1	7.1	7	8.4	2	9.1

Table 4-5. Continued

	“Healthiest”		Total Sample		“Least Healthy”	
	N	%	N	%	N	%
Years Diagnosed with Diabetes						
0-5 years	9	60.0	57	60.5	20	77.0
6-10 years	1	6.7	17	18.1	4	15.4
11-15 years	1	6.7	11	11.7	1	3.8
16-20 years	3	20.0	4	4.3	0	0.0
21-25 years	0	0.0	1	1.1	1	3.8
26+ years	1	6.7	4	4.3	0	0.0
Total	15	100	94	100	26	100
Type of Treatment						
Diet only	0	0.0	11	12.8	3	12.5
Medication only	5	35.7	20	23.3	9	37.5
Medication plus diet	3	21.4	16	18.6	5	20.8
Medication plus diet &	6	42.9	39	45.3	7	29.2
Total	14	100	86	100	24	100
Frequency of BG Testing						
Never	0	0.0	10	11.2	2	8.3
1 day per week	4	26.6	10	11.2	2	8.3
2 days per week	1	6.7	11	12.3	6	25.0
3 days per week	0	0.0	9	10.1	5	20.8
4 days per week	2	13.3	5	5.6	0	0.0
5 days per week	0	0.0	4	4.5	1	4.2
6 days per week	1	6.7	3	3.4	1	4.2
7 days per week	7	46.7	37	41.7	7	29.2
Total	15	100	89	100	24	100
Religiosity						
Not at all religious	0	0.0	3	3.3	1	4.0
Somewhat religious	1	6.7	15	16.7	6	24.0
Religious	8	53.3	40	44.4	8	32.0
Very religious	6	40.0	32	35.6	10	40.0
Total	15	100	90	100	25	100
Spirituality						
Not at all spiritual	0	0.0	1	1.1	0	0.0
Somewhat spiritual	3	20.0	17	18.7	5	20.0
Spiritual	6	40.0	33	36.3	9	36.0
Very spiritual	6	40.0	40	43.9	11	44.0
Total	15	100	91	100	25	100
Frequency of Provider Visits						
1 time annually	0	0.0	1	1.1	0	0.0
2-5 times annually	9	64.3	52	56.5	11	44.0
6-10 times annually	2	14.3	23	25.0	9	36.0
Over 10 times annually	3	21.4	16	17.4	5	20.0
Total	14	100	92	100	25	100

Table 4-6. Pearson Correlations among Major Variables for Control Participants (N=43)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. HPLP Total	1.00	--	--	--	--	--	--	--	--	--	--	--	--	--
2. Health Responsibility	.826*	1.00	--	--	--	--	--	--	--	--	--	--	--	--
3. Physical Activity	.874*	.567*	1.00	--	--	--	--	--	--	--	--	--	--	--
4. Nutrition	.746*	.487*	.543*	1.00	--	--	--	--	--	--	--	--	--	--
5. Stress Management	.897*	.718*	.736*	.558*	1.00	--	--	--	--	--	--	--	--	--
6. Patient Empowerment	.330*	.452*	.272	-.014	.365*	1.00	--	--	--	--	--	--	--	--
7. Stress Total	.304*	-.233	-.197	-.303*	-.315	-.257	1.00	--	--	--	--	--	--	--
8. Physical Stress	-.288	-.221	-.168	-.323*	-.290	-.203	.963*	1.00	--	--	--	--	--	--
9. Behavioral Stress	-.211	-.165	-.138	-.208	-.220	-.226	.885*	.747*	1.00	--	--	--	--	--
10. Cognitive Stress	-.342*	-.250	-.296	-.191	.411*	-.431*	.800*	.661*	.777*	1.00	--	--	--	--
11. Prov. Cultural Sensitivity	.331	.162	.251	.312	.408*	.070	-.227	-.172	-.236	-.333	1.00	--	--	--
12. Competence/ Confidence	.233	.163	.130	.191	.311	.129	-.234	-.187	-.198	.346*	.911*	1.00	--	--
13. Respect/ Communication	.216	.201	.100	.144	.300	.168	-.173	-.125	-.184	-.259	.929*	.812*	1.00	--
14. Sensitivity/ Interpersonal	.388*	.217	.316	.297	.489*	.049	-.107	-.047	-.125	-.281	.933*	.761*	.799*	1.00

Table 4-7. Pearson Correlations among Major Variables for Intervention Participants (N=51)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. HPLP Total	1.00	--	--	--	--	--	--	--	--	--	--	--	--	--
2. Health Responsibility	.894*	1.00	--	--	--	--	--	--	--	--	--	--	--	--
3. Physical Activity	.862*	.660*	1.00	--	--	--	--	--	--	--	--	--	--	--
4. Nutrition	.869*	.732*	.623*	1.00	--	--	--	--	--	--	--	--	--	--
5. Stress Management	.904*	.787*	.710*	.724*	1.00	--	--	--	--	--	--	--	--	--
6. Patient Empowerment	.315*	.379*	.191	.271	.284*	1.00	--	--	--	--	--	--	--	--
7. Stress Total	-.177	-.063	-.132	-.191	-.248	-.158	1.00	--	--	--	--	--	--	--
8. Physical Stress	-.130	-.015	-.114	-.115	-.224	-.154	.942*	1.00	--	--	--	--	--	--
9. Behavioral Stress	-.244	-.141	-.178	-.268	.287*	-.003	.853*	.687*	1.00	--	--	--	--	--
10. Cognitive Stress	.287*	-.226	-.135	.320*	.364*	-.149	.747*	.548*	.714*	1.00	--	--	--	--
11. Prov. Cultural Sensitivity	.179	.128	.250	.118	.109	.130	-.143	-.149	-.025	-.212	1.00	--	--	--
12. Competence/ Confidence	.166	.108	.107	.140	.237	.148	-.285	-.275	-.258	-.226	.953*	1.00	--	--
13. Respect/ Communication	.060	.045	.114	.028	.000	.223	-.119	-.068	-.083	-.075	.953*	.849*	1.00	--
14. Sensitivity/ Interpersonal	.153	.166	.190	.096	.064	.132	-.074	-.076	-.028	-.113	.975*	.876*	.907*	1.00

Table 4-8. Multivariate Analysis of Variance Results for Provider Cultural Sensitivity

Repeated Measures MANOVA (Dataset including missing values)					
Independent Variable	Wilks' Lambda	F	df	p	Partial η ²
Group (Control/Intervention)	.988	.360	3	.782	.012
Time (Pre- to Post-Intervention)	.978	1.00	3	.371	.022
Time X Group	.995	.244	3	.784	.005

Repeated Measures MANOVA (Dataset corrected using EM Method)					
Independent Variable	Wilks' Lambda	F	df	p	Partial η ²
Group (Control/Intervention)	.977	.3728	3	.538	.023
Time (Pre- to Post-Intervention)	.980	.628	3	.599	.020
Time X Group	.981	.580	3	.629	.019

Tests of Between Subjects Effects					
Independent Variable	Dependent	F	df	p	Partial η ²
Group	Comp/Conf	.354	1	.553	.004
	Resp/Comm	.785	1	.378	.008
	Sens/Int	.957	1	.330	.010

* $p < .05$

Table 4-9. Analysis of Covariance Results for Physical Stress

One-way ANCOVA						
Ind. Variable	Dep. Variable	Covariate	F	df	p	Partial η ²
Group	Physical Stress (Post)	Physical Stress (Pre)	2.99	1	.087*	.032

* $p < .10$

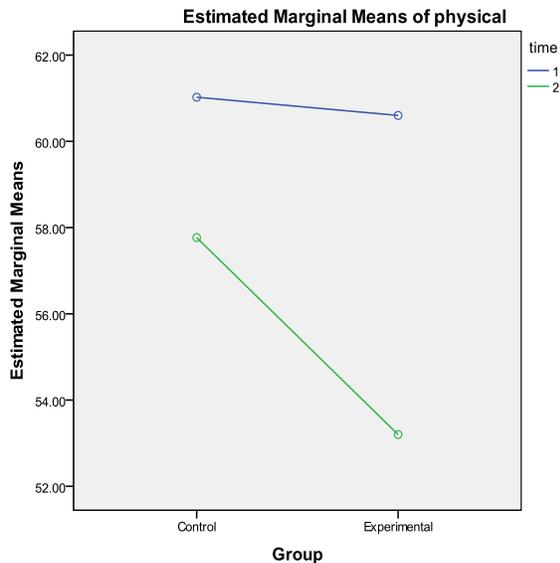


Table 4-10. Multivariate Analysis of Variance Results for Health Promoting Behaviors

Repeated Measures MANOVA						
Independent Variable	Wilks' Lambda	F	df	p	Partial η^2	
Group (Control/Intervention)	.952	1.12	4	.355	.048	
Time (Pre- to Post-Intervention)	.904	2.36	4	.060*	.096	
Time X Group	.960	.937	4	.447	.040	

Tests of Between Subjects Effects						
Independent Variable	Dependent Variable	F	df	p	Partial η^2	
Group	Physical Activity	.578	1	.449	.006	
	Nutrition	3.59	1	.061*	.038	
	Stress Management	.761	1	.385	.008	
	Health Responsibility	.000	1	.982	.000	

* $p < .10$

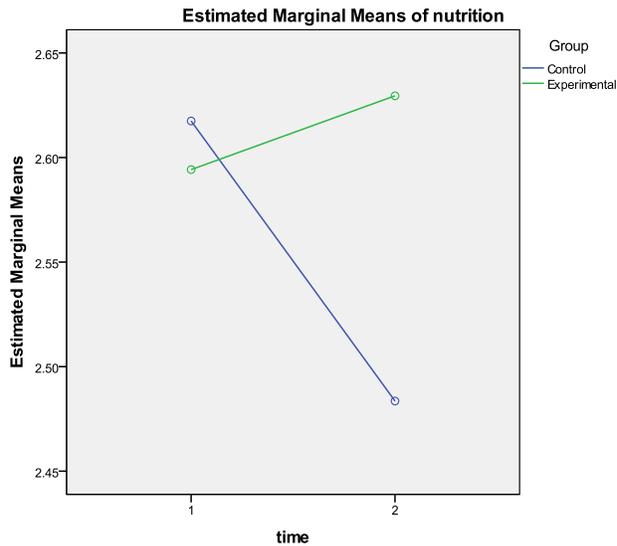


Table 4-11. Analysis of Covariance Results for Patient Empowerment

One-way ANCOVA						
Ind. Variable	Dep. Variable	Covariate	F	df	p	Partial η^2
Group	PEI Total (Post)	PEI Total (Pre)	1.17	1	.283	.013

* $p < .10$

Table 4-12. Multivariate Analysis of Variance Results for Blood Pressure

Repeated Measures MANOVA						
Independent Variable	Wilks' Lambda	F	df	p	Partial η^2	
Group (Control/Intervention)	.929	3.39	2	.039*	.080	
Time (Pre- to Post-Intervention)	.905	4.11	2	.020*	.095	
Time X Group	.948	2.13	2	.125	.052	

Tests of Between Subjects Effects						
Independent Variable	Dependent	F	df	p	Partial η^2	
Group	Systolic (Post)	.369	1	.549	.005	
	Diastolic (Pre)	4.23	1	.043*	.051	

One-way ANCOVA						
Ind. Variable	Dep. Variable	Covariate	F	df	p	Partial η^2
Group	Systolic (Post)	Systolic (Pre)	2.58	1	.112	.032
	Diastolic (Post)	Diastolic (Pre)	5.44	1	.022*	.066

* $p < .05$

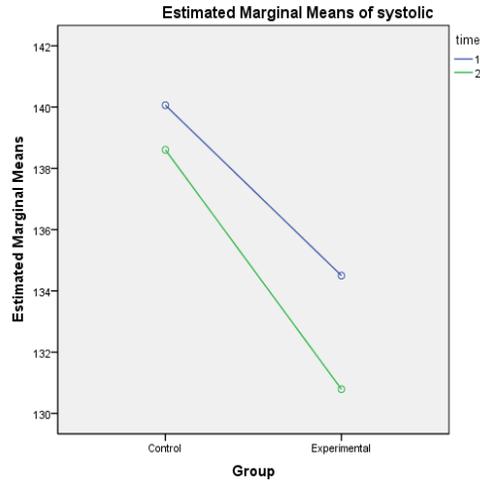
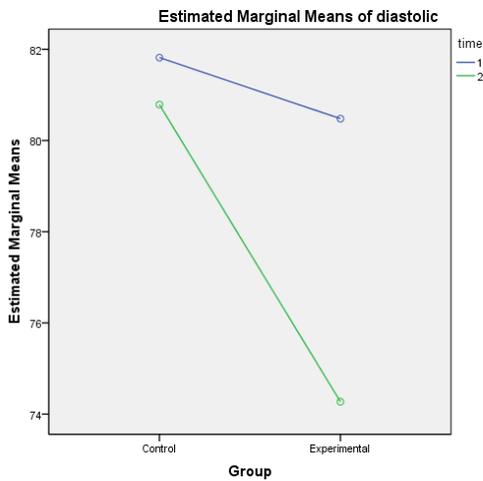


Table 4-13. Analysis of Covariance Results for Blood Glucose

One-way ANCOVA						
Ind. Variable	Dep. Variable	Covariate	F	df	p	Partial η^2
Group	BG Average (Post)	BG Average (Pre)	2.59	1	.612	.004

Table 4-14. Non-Parametric Test Results for Blood Glucose

Wilcoxon Signed-Rank Test			
Group	Null Hypothesis	Significance	Decision
Intervention	The median of differences between BG-Pre and BG-Post equals zero.	.033*	Reject the null hypothesis.
Control	The median of differences between BG-Pre and BG-Post equals zero.	.063	Retain the null hypothesis.

* $p < .05$

CHAPTER 5 DISCUSSION

The present study tested the impact of a Culturally Sensitive Health Empowerment Intervention (CS-HEI) informed by major aspects of the Patient-Centered Culturally Sensitive Health Care (PC-CSHC) Model. This study specifically sought to test the effects of the CS-HEI on the most salient aspects of the PC-CSHC Model, namely perceived provider cultural sensitivity, patient empowerment, physical stress, health promoting behaviors, blood glucose levels, and blood pressure levels. This intervention was tested with adult patients who have type 2 diabetes. This chapter presents the summary and interpretation of results from this study, limitations of the study, directions for future research, implications for counseling psychologists, and conclusions.

Summary and Interpretation of Results

This study is one of the few studies that have sought to explore the impact of a health empowerment intervention on the psychosocial and health outcomes of patients with type 2 diabetes. The intervention tested, which is called the Culturally Sensitive Health Empowerment Intervention (CS-HEI), is novel in that it is informed by major aspects of a culturally sensitive health care model, the Patient-Centered Culturally Sensitive Health Care Model. The CS-HEI is specifically designed to reduce physical stress, increase perceived provider cultural sensitivity, promote patient empowerment, and increase health promoting behaviors as well as improve health outcomes among patients with type 2 diabetes. Importantly, the sample of patients with type 2 diabetes included in this study was racially diverse and from lower income households, and is highly representative of the demographic characteristics of those most at risk for developing type 2 diabetes in the United States (CDC, 2010). The specific hypotheses tested, the

results from the analyses to test each of the hypotheses, and interpretations of these results are presented in the following sections.

Hypothesis 1

Hypothesis 1 stated that participants in the IG, as compared to participants in the CG, would report greater increases in perceived cultural sensitivity of their providers' behaviors and attitudes (as measured by the Tucker Culturally Sensitive Health Care Inventory – Provider Form) from pre-intervention to post-intervention. This hypothesis was not supported by the findings. Significant group differences in the scores on the three T-CSHCPI subscales used as measures of perceived cultural sensitivity (i.e., Competence/Confidence subscale, Respect/Communication subscale, and Interpersonal Skill/Sensitivity subscale) were not found.

There are a few possible explanations of this finding. Perhaps, learning about what constitutes PC-CSHC in the CS-HEI enabled Intervention Group participants to be informed consumers of their health care and be more evaluative (and critical) of their health care experiences. After all, PC-CSHC emphasizes a shift from providers being the experts and self-reporting their cultural sensitivity to patients being the experts with regard to determining whether or not they experience their health care as culturally sensitive (Tucker et al., 2003). Educating participants and providing them with an opportunity for dialogue about their health care experiences at the workshops may have helped participants in the IG clarify their own definition and expectations of what constitutes culturally sensitive health care, and perhaps realize that the care they are receiving is not culturally sensitive.

Lastly, patient-centered culturally sensitive health care and perceptions of provider cultural sensitivity are only beginning to be empirically studied, thus it remains unclear if the lack of findings are consistent with previous studies. Theoretical research has highlighted the

pathways between perceptions of provider cultural sensitivity and important health behaviors and outcomes (Tucker et al., 2010), but more research is needed in this area. Previous type 2 diabetes studies have demonstrated positive associations between satisfaction with health care providers and improvements in diabetes management (Rubin et al., 2006).

Hypothesis 2

Hypothesis 2 stated that participants in the IG, as compared to participants in the CG, would report greater decreases in their reported physical stress (as measured by the Strain Questionnaire) from pre-intervention to post-intervention. Physical stress was the primary subscale of the Strain Questionnaire that was hypothesized to change because it had been identified in previous studies testing the pathways of the PC-CSHC Model (Tucker et al., 2010). The present study investigated whether the physical stress among the IG as compared to the CG would be significantly lower among the IG at post-intervention. The overall findings from the analysis of covariance (ANCOVA) to test this hypothesis approached significance ($p=.087$) and showed that self-reported physical stress was lower for IG participants as compared to the CG at post intervention. This finding provides tentative support for Hypothesis 2.

Many of the items on the physical stress subscale of the Strain Questionnaire pertain to somatic (physical) manifestations of stress, so it is reasonable to expect that there is a link between these symptoms of stress and engagement in health promoting behaviors. In fact, being more physically active and eating healthier may contribute to reductions in symptoms of physical stress. Recent research conducted in 2011, highlights the shift in medical attitudes to the attitude that reducing stress may be more influential for preventing obesity than physical activity and diet (Foss & Dyrstad, 2011). The complimentary relationship between health promoting behaviors, health outcomes, and stress management is being increasingly studied in health interventions.

Previous diabetes interventions have demonstrated success in modifying stress in patients with type 2 diabetes and that teaching patients stress management is associated with sustaining positive changes in blood glucose over time (Surwit et al., 2002) and improved coping related to diabetes management (Samuel-Hodge et al., 2008). With regard to the PC-CSHC Model, physical stress has been associated with treatment adherence and engagement in health promoting lifestyle behaviors. The CS-HEI interventions aimed to reduce physical stress by providing psychoeducation, offering small group discussions of the motivators/barriers of engaging in health promoting behaviors, and instructing participants in progressive muscle relaxation and visualization. The findings from the present study are consistent with previous studies that have demonstrated success in reducing stress in patients with type 2 diabetes. However, in the present study the reduction in physical stress in association with the CS-HEI was approaching significance ($p = .05-.10$ range), but not statistically significant. Another possible explanation for the lack of statistically significant findings for differences in physical stress is the small sample size in this study.

Hypothesis 3

Hypothesis 3 stated that participants in the IG, as compared to participants in the CG, would report greater increases in their engagement in health-promoting behaviors (as measured by four subscales of the Health Promoting Lifestyle Inventory II (i.e., the Health Responsibility, Exercise, Nutrition, and Stress Management subscales) from pre-intervention to post-intervention. Hypothesis 3 was partially supported by the findings. The overall multivariate analysis of variance (MANOVA) did not yield significant differences by Group; however, there were significant effects for Time. This finding is probably best explained by the Hawthorne Effect. The Hawthorne Effect is a phenomenon that occurs when participants change a particular

behavior because they know they are being studied, even prior to any intervention that would explain the behavior change. The Hawthorne Effect has been studied in relation to health interventions and has been found to produce changes in health behaviors (McCarney et al., 2007).

A group difference in nutrition at post-intervention was approaching significance; that is, the participants in the IG, but not for participants in the CG suggesting improvement in nutrition following the CS-HEI. Although not impressive in statistical terms, changes in self-reported lifestyle intervention behaviors, such as nutrition, are quite cumbersome to modify. Previous studies have found that patients with type 2 diabetes report that changes in lifestyle behaviors (specifically diet and exercise) are the most challenging aspect of diabetes management, compared to medication adherence and blood glucose monitoring (Glasgow et al., 2001; DiMatteo, 2004).

Physical activity means on the HPLP II were consistently lower than the other HPLP II subscale means in this study, which is consistent with previous research on the difficulty associated with engaging in physical activity (Glasgow et al., 1997, 2001). Other type 2 diabetes studies have found that patients with type 2 diabetes from low-income households identify transportation, access to safe parks and recreation, and cost of purchasing healthy foods as barriers that frequently prevent them from eating a healthy diet and exercising regularly (Metghalchi et al., 2007). Yet, research has demonstrated that changes in health promoting behaviors, specifically diet and exercise, are the most effective at preventing complications of type 2 diabetes (ADA, 2011) and have been found to reduce the rate of developing type 2 diabetes by 58% in people who have borderline/pre-diabetes (Knowler et al, 2002).

The findings for group differences approaching significance for nutrition are likely due to the emphasis placed on this behavior in the CS-HEI. There was an hour-long presentation on how to read nutrition labels, demonstrations on how to prepare healthy meals, and nutritionists and physicians spoke on panels regarding nutrition. This material was presented in an understandable and simple manner with demonstrations on easy ways to apply fractions to understand serving sizes and the calories, sodium, fat, and cholesterol per serving. Other type 2 diabetes studies have found that modifying food pyramids and nutritional information in ways that are culturally and educationally relevant produces changes in dietary behaviors and weight (Cramer et al., 2007).

The findings that emerged are consistent with previous intervention research that have had some success in modifying nutritional behaviors in patients with type 2 diabetes (Cramer et al., 2007; Mayer-Davis et al., 2004). However, in the present study the differences in nutrition following the CS-HEI were approaching significance ($p = .05-.10$ range), but not statistically significant. One explanation for the lack of statistically significant findings for differences in nutrition is the small sample size in this study and the difficulties in modifying health promoting behaviors mentioned earlier.

Hypothesis 4

Hypothesis 4 stated that participants in the IG, as compared to participants in the CG, would report greater increases in self-reported patient empowerment (as measured by the Patient Empowerment Inventory) from pre-intervention to post-intervention. There were no group differences observed for patient empowerment at post-intervention. Both groups had non-significant but slightly increased ratings of patient empowerment from pre-intervention to post-intervention. The Hawthorne effect may be applied here to explain why participants in both

groups may have reported slightly improved empowerment (McCarney et al., 2007). Specifically, as a result of participating in a Culturally Sensitive Health Empowerment Intervention and rating patient empowerment items when completing the PEI, participants in both groups may have changed some behaviors to take greater control in patient-provider interactions. This may have led to external influences such as visiting one's health care provider more frequently.

Another possible explanation for the lack of findings is that this measure was constructed by the research team and has not been rigorously tested and refined compared to other measures in this study. For the present study, the Cronbach alpha coefficient of the PEI was found to be .72 which was lower than the internal consistency estimates of the other measures used in this study and is on the cusp of what is considered acceptable for reliability standards (Pallant, 2004).

Much of the research that has been conducted on patient empowerment with type 2 diabetes has involved testing intervention models that are empowerment-oriented such as the Chronic Care Model (Mayer-Davis et al., 2004). These previous empowerment models have been successful with regard to modifying health outcomes (such as blood glucose), but empowerment was not measured as a variable in these studies. Thus, it is unclear whether the lack of observed changes in patient empowerment in the present study is consistent with findings in past research or is due in part to the PEI not being a reliable and valid measure of empowerment.

Hypothesis 5

Hypothesis 5 stated that participants in the IG, as compared to participants in the CG, would evidence greater decreases in their systolic and diastolic blood pressure (as measured by a trained professional using a standardized manual blood pressure cuff at the data collection sessions) from pre-intervention to post-intervention. Hypothesis 5 was partially supported.

Compared to CG participants, IG participants had significantly lower diastolic blood pressure following participation in the CS-HEI. However, such group differences were not found for systolic blood pressure.

Since systolic and diastolic blood pressure readings are measuring slightly different functions, it is important to interpret these findings with this in consideration. Systolic blood pressure (the higher number) refers to the pressure exerted while one's heart is beating; diastolic blood pressure (the lower number) refers to the pressure exerted against the arterial walls. Generally speaking, it is a better indicator of health to have diastolic blood pressure in a normal range with high systolic blood pressure versus having normal systolic blood pressure and high diastolic readings. Lower diastolic blood pressure typically suggests there is less plaque accumulated in the arteries, and thus less arterial pressure (NICE, 2006).

Following participation in the CS-HEI, IG participants were shown to have significantly reduced average diastolic blood pressure as indicated by a change in diastolic blood pressure scores from 80 to 74. This represents both a statistical change and a meaningful clinical change from the pre-hypertensive category to a normal range (NIH, 2011). In patients with type 2 diabetes, a significant decrease in diastolic blood pressure often results from reductions in sodium-intake, adopting a healthier diet, and reductions in stress (NICE, 2006). These findings are consistent with the observed improvements in nutrition self-reported by IG participants in this study.

The reductions in physical stress reported by IG participants in this study may be related to the observed reductions in diastolic blood pressure because stress influences diastolic readings as well. There is a well-documented literature on the relationship between stress and blood

pressure in people with type 2 diabetes and cardiovascular disease (ADA, 2007). Blood pressure can fluctuate as a result of more temporary changes, such as elevated stress (NIH, 2011).

The finding of reduced diastolic blood pressure in the present study highlights the importance of including blood pressure as a health outcome variable in type 2 diabetes intervention studies because it is a valuable indicator of type 2 diabetes management and an indicator of the risk for developing cardiovascular complications (ADA, 2007). Many studies do not include blood pressure as a health outcome in type 2 diabetes studies and solely focus on blood glucose (Mayer-Davis et al., 2004), but those studies that have included this variable have found positive results especially when there is a stress reduction/stress management component included (Surwit et al., 2002).

Hypothesis 6

Hypothesis 6 stated that participants in the IG, as compared to participants in the CG, would evidence greater decreases in their blood glucose (as measured by an average of three self-readings recorded one week prior to the data collection sessions) from pre-intervention to post-intervention. Hypothesis 6 was not supported by the findings in this study. It is noteworthy that participants self-recorded their blood glucose readings inconsistently and did not follow instructions for recording their BG levels three times per week.

The lack of observed changes for blood glucose are not entirely consistent with previous type 2 diabetes intervention studies which often do find changes in this health outcome (Mayer-Davis et al., 2004; Cramer et al., 2007). However, the lack of observed changes in blood glucose is consistent with national findings that only 7.3% of adults with type 2 diabetes have met the ADA Standards for blood glucose management (ADA, 2007). Specifically, the recommended

blood glucose (HbA1C) was only met by 37% of individuals examined and by a mere 17% of African Americans examined at that time (Saydah, Fradkin, & Cowie, 2004).

Previous research examining type 2 diabetes management in people from low-income backgrounds have found that financial resources often are a barrier to blood glucose monitoring and management (Abrams et al., 2003). Specifically, many adults with type 2 diabetes from low-income households do not purchase enough blood glucose monitoring supplies to enable them to test their blood glucose as recommended by the ADA Standards. Factors that previous research studies have found to predict lower levels of self-monitoring of blood glucose include living in a lower socioeconomic neighborhood, older age, African American racial status, and poor blood glucose control (Abrams et al., 2003). These research findings and the lack of follow-through in recording blood glucose levels as requested in the present study underscore the importance of having on-site measurement of blood glucose by trained professionals in future similar research.

Limitations of the Present Study

This research had several limitations which must be factored into the interpretation of the findings. This study was conducted using a pre-post intervention data collection design, with post-data collection occurring two months after the CS-HEI, and is therefore not a longitudinal study that could determine the presence of long-term effects of the intervention on health behaviors and outcomes.

The attrition rate in this study is also a limitation as it was 30%. However, attrition is often a limitation in research studies with racially/ethnically diverse community members and with persons from low-income households (Janson, Alioto, & Boushey, 2001) with attrition rates typically over 40% for African Americans and non-Hispanic Whites from low-income groups (Jansen et al., 2001). The attrition rate in this study may have been influenced by the fact that all

of the participants had a diagnosis of type 2 diabetes. Living with diabetes poses additional challenges with mobility, transportation, scheduled health care visits, and unanticipated periods of feeling ill. In this study, those who continued in participation differed at pre-intervention from those who discontinued participation in the study. Specifically, participants who continued reported better health promoting lifestyle behaviors overall as well as better nutrition and stress management at pre-intervention compared to those who discontinued participation. Future studies may want to address characteristics that may contribute to attrition, such as baseline stress scores or current health promoting behaviors. It may be useful to interview participants who discontinue participation to learn about the barriers that prevented them from continuing with the study. Although such interviews were not conducted in this study, future health intervention studies may benefit from including an exit interview.

Limited generalizability of the findings from this study is also a study limitation. Diversity of participants in this study was restricted to primarily African Americans and non-Hispanic Whites, and did not include Latinos, Native Americans, and Asian Americans, which are other groups that experience high rates of type 2 diabetes and are increasingly affected by our nation's health disparities (CDC, 2007). There was also a higher proportion of women in this study compared to men. The educational and socioeconomic characteristics of this sample were relatively homogenous with most participants reporting lower-household incomes (i.e. < \$20,000) and only a high school level of education, so it is unclear if these findings apply to people with higher socioeconomic status and education. Geographic diversity was restricted to the Southeast region of the United States.

The psychosocial and health outcome variables emphasized in this study were selected because they correspond to the most important aspects of Tucker's PC-CSHC Model. Using the

PC-CSHC Model was one approach to designing and testing the effectiveness of a theoretically-based Culturally Sensitive Health Empowerment Intervention for adults with type 2 diabetes. Yet, there are myriad other variables that are also important to explore in future diabetes intervention studies. For example, cholesterol, weight loss, depression, attachment style, self-efficacy, fruit and vegetable consumption, social support and health-related knowledge and attitudes are supported by the diabetes research literature as important areas of intervention.

The structure and delivery of workshop content of the PC-CSHC-based Culturally Sensitive Health Empowerment Interventions may be considered a study limitation because of the breadth of the workshop materials, activities, and topics covered. For example, the breadth of the CS-HEI Workshops may have covered more than the most necessary elements of the intervention needed to produce behavior changes. Findings from this study are a preliminary step in identifying and narrowing the effects of this type of intervention.

Lastly, some might argue that it is unclear which aspect of the CS-HEI (Workshop I or Workshop II) is more important for producing health behavior changes given that each workshop focused on distinct content, albeit both were delivered in a patient-centered culturally sensitive manner that emphasized patient empowerment and the key elements of the PC-CSHC Model. The research design (i.e. by delivering health information in a culturally sensitive manner and empowering participants to be more active in the patient-provider interaction and in engaging in health promoting behaviors) did not include a mechanism for distinguishing the intervention effects attributed to receiving a culturally sensitive intervention compared to the intervention effects of receiving health-related knowledge, if such a distinction exists. For example, the research design does not clarify if similar results would have occurred if the health knowledge was simply presented in a traditional manner. It also remains unclear if there is a dosage effect;

specifically, whether participants who attended only one workshop experienced similar results because all 51 of the IG participants included in the data analyses for this study attended both Workshops of the CS-HEI. Specifically, post-intervention data is not available for participants who dropped out of the study.

Future Directions for Research

The findings of this research underscore the potential benefits of conducting culturally-sensitive health empowerment interventions with low-income African American and non-Hispanic White adults with type 2 diabetes. These potential benefits include possibly improving blood pressure, physical stress, and nutrition. Future research is needed to identify cost-effective, intervention strategies for targeting modifiable health behaviors and outcomes for people with type 2 diabetes. This study did not entirely support the use of the PC-CSHC Model in future studies with patients with type 2 diabetes. The study tested the most important aspects of the PC-CSHC Model including perceived provider cultural sensitivity, physical stress, empowerment, engagement in health promoting behaviors, and health outcomes. Yet, many of the hypothesized changes were not supported by the findings. For instance, the crux of the model (perceived provider cultural sensitivity) did not change following the intervention. Thus, it is unclear why some aspects of the model, such as reduction in physical stress and improvement in nutrition were noted in the absence of changes in perceived cultural sensitivity and empowerment. More research is needed to determine the usefulness of the PC-CSHC Model in informing such future research, and more refined measurement instruments for empowerment and cultural sensitivity are needed to accurately assess the PC-CSHC Model.

Future research on the role of physical stress in the development and maintenance of type 2 diabetes is also needed. Based on the findings from this study, there is potential for reducing

physical stress through health empowerment interventions based on the PC-CSHC Model. There is also a need for increased understanding of the role of physical stress in the maintenance and development of type 2 diabetes. Research is beginning to highlight how stress contributes to obesity (Foss & Dyrstad, 2011). It would be interesting to explore the relationship between physical stress and blood pressure, two variables that did change following the intervention tested in the present study. It would also be fascinating to see if baseline stress affects health outcomes in other areas important for patients with type 2 diabetes (i.e., weight, exercise).

Lastly, more research is needed in the area of understanding the significance of culturally sensitive health care in promoting health behaviors and positive health outcomes among patients with type 2 diabetes. Preliminary studies have found that cultural competence/sensitivity influences trust, patient satisfaction, patient-provider communication, and treatment adherence (Tucker et al., 2010). These variables may be critical for successful type 2 diabetes management. Tucker's PC-CSHC Model offers a preliminary explanation of the potential links between provider cultural sensitivity and health outcomes; yet, research is needed to test this model with various patient groups, particularly patient groups with type 2 diabetes.

Future research in culturally sensitive health care may need to distinguish what is deemed culturally sensitive by persons of different racial/ethnic minority and socio-economic groups. Tucker and colleagues in their original study of low-income African American, non-Hispanic White, and Hispanic focus group participants found that many (i.e., 80%) of the themes identified as culturally sensitive by participants overlapped across racial/ethnic groups (Tucker et al., 2003). Twenty percent of themes varied by racial/ethnic group; for example, Hispanic participants emphasized items related to being sensitive to language barriers. It may also be fruitful to investigate if educating participants about PC-CSHC has any effect in producing

changes in how participants actually interact with providers or experience their health care. Perhaps, education is a positive step in the direction of empowering patients to identify and communicate their health care expectations to providers.

It may be useful to design minority-specific interventions based on racial/ethnic and gender-specific health theories, such as the Sojourner Syndrome and Strong Black Women Syndrome previously described in chapter 2 to explain health risks for African American women (Lekan, 2009). Designing health interventions based on these theories provides a framework for testing race-specific theories versus more broad, inclusive culturally sensitive health care theories. This study was not able to test race-specific hypotheses and race-specific differences were not noted at pre-intervention between participants on the measures. However, some studies have identified different mechanisms of change in health behaviors and outcomes based on racial/ethnic status (Tucker et al., 2010). For example, in a path analysis testing the pathways of the PC-CSHC Model, Tucker and colleagues found that trust was a more important predictor of engagement in a health promoting lifestyle and medication adherence for African Americans compared to non-Hispanic Whites. Future studies might want to explore and test interventions based on specific racial/ethnic theories.

Implications for Counseling Psychologists

This study has important implications for counseling psychologists. A particularly important implication of this study is that counseling psychologists can use their knowledge of cultural sensitivity, stress, empowerment, and research to develop and test interventions to foster health promoting behaviors and health outcomes among diverse adults from low-income households who have type 2 diabetes.

Fortunately, counseling psychologists have already begun to redefine their professional identity to include specializations in working with people with chronic health conditions. Since the early 1990's counseling psychologists have begun to explore the application of counseling psychology to better understand physical health. Specific health issues that have been studied include psychological features of chronic back pain, cancer, HIV/AIDS, and gastrointestinal diseases (Werth et al., 2008; Tallman, Altmaier, & Garcia, 2007). Counseling psychology research programs have also expanded to apply principles of counseling psychology to improve patient-provider communication and to define patient-centered culturally sensitive health care (O'Halloran & Altmaier, 1995; Tucker et al., 2003). The benefits of using counseling psychology to help people adjust to living with a chronic health condition are becoming increasingly recognized and more valued in our society and profession. APA's Division 17 now has a section devoted to Counseling Health Psychology with the following mission:

The Counseling Health Psychology Section is dedicated to the science and practice of counseling psychology in health related contexts either through research with medical, rehabilitation, or related populations, direct service to individuals across their lifespan (e.g., prevention, adjustment to and recuperation from illness, healthy lifestyle changes, psychological concomitants of medical illnesses), teaching and training of graduate students or the education of other health care professionals, or involvement with health policy. (APA, 2011 retrieved from www.apa.org)

Counseling psychologists are well suited to use their knowledge of cultural sensitivity and other psychological principles to” (a) design and implement culturally sensitive health interventions; and (b) apply their understanding of PC-CSHC, stress, depression/anxiety, and suicide to people with chronic health issues (often in hospital and health care facilities) whose psychological needs are sometimes overlooked/underemphasized.

The research findings of this study specifically highlight how counseling psychologists can use their knowledge of cultural sensitivity, competence, and awareness in addition to their

knowledge of stress management and empowerment to help adults with type 2 diabetes possibly improve their reported nutrition, reduce their blood pressure, and reduce reported physical stress. Specifically, counseling psychologists can design health interventions based on PC-CSHC or can apply parts of PC-CSHC in their individual and/or group clinical work.

To demonstrate what this might look like in practice, Tucker, Daly, and Herman (2010) coined the term “customized multicultural health counseling” (CMHC). The traditional definition of multicultural counseling is using knowledge, skills, awareness, and experiences for effectively counseling culturally diverse clients (Sue et al., 1998). In CMHC, the traditional definition of multicultural counseling is broadened and it involves using multicultural counseling principles to address the physical health problems of clients with the recognition that physical and psychological issues are often intertwined. CMHC is very useful with culturally and socioeconomically diverse persons where cultural barriers may impede communication, trust, and adherence to the recommendations of providers. For example, it may involve a counseling psychologist talking openly with a client about his/her frustration of feeling disempowered and/or discriminated in the health care process, and working to build a trusting and collaborative relationship to help the client become more empowered in managing his/her health condition.

Conclusions

By the year 2050, it is projected that 1 in 3 Americans will be diagnosed with type 2 diabetes, and many of these individuals will likely be from racial/ethnic minority and/or low-income backgrounds (CDC, 2010). It is imperative for the health and financial stability of our nation that interventions are identified to reduce the incidence of type 2 diabetes. The importance of culturally sensitive health interventions to reduce type 2 diabetes related health disparities are increasingly being designed and implemented (Mayer-Davis et al., 2004; Tucker et al., 2007).

Identifying ways to increase engagement in health promoting behaviors and improve health outcomes is essential for improving the quality of life of people living with type 2 diabetes. Patient-Centered Culturally Sensitive Health Care offers a framework for intervening with culturally diverse adults with type 2 diabetes from low-income households. Culturally sensitive health empowerment intervention efforts offer promise in reducing complications associated with type 2 diabetes by reducing diastolic blood pressure, reducing physical stress, and improvements in self-reported nutrition. Counseling psychologists have a wide repertoire of skills and multicultural awareness that is well suited to empower clients and patients with type 2 diabetes to live healthier lives.

APPENDIX A:
PATIENT DEMOGRAPHIC AND HEALTH DATA QUESTIONNAIRE (PATIENT DHDQ)

Directions: Please answer the questions below by filling in the blank or shading in the circle next to the answer you choose like this: ●

1. What is your gender?

- Male
- Female

2. What is your age?

- Age 18-24
- Age 25-34
- Age 35-44
- Age 45-54
- Age 55-64
- Age 65 or older

3. Which of the following best describes you?

- Single, living without a partner
- Single, living with a partner
- Married, living with a partner
- Married, not living with a partner
- Divorced or separated
- Widow/Widower

4. Please shade in one or more of the circles below that best describes your race/ethnicity:

- African American/Black American
- White/European American
- American Indian/Native American
- Asian/Asian American/Pacific Islander
- Hispanic/Hispanic American/Latino(a)
- Other
(please specify: _____)

5. If Hispanic/Latino or Asian/Asian American, please shade in one or more of the circles that best describes your ethnicity:

If Hispanic/Latino (a) Shade Below:

- Cuban/Cuban American
- Mexican/Mexican American/Chicano(a)
- Puerto Rican
- Other Hispanic/Latino(a)
(please specify: _____)

If Asian/Asian American Shade Below:

- Chinese/Chinese American
- Vietnamese/Vietnamese American
- Filipino/Filipino American
- Other Asian
(please specify: _____)

6. What is the highest level of education that you have completed?

- Elementary School
- Middle/Junior High School
- High School
- Some College/Technical School
- College
- Graduate School

7. What is your employment status?

- Work Full Time
- Work Part Time
- Do Not Work

8. What is your yearly household income?

- Less than \$10,000
- \$10,000 – 20,000
- \$20,001 – 30,000
- \$30,001 – 40,000
- \$40,001 – 50,000
- \$50,001 – 60,000

9. How religious are you?

- Not At All Religious
- Slightly Religious
- Somewhat Religious
- Religious
- Very Religious

10. How spiritual are you?

- Not At All Spiritual
- Slightly Spiritual
- Somewhat Spiritual
- Spiritual
- Very Spiritual

11. How often do you pray/meditate?

- Never
- Rarely
- Sometimes
- Often
- Very Often

12. Where do you usually receive your health care services?

- Health Care Center/Clinic
- Hospital
- Health Department
- Private Practice
- Other
(please specify: _____)

13. What is the gender of the primary health care provider that you see most often?

- Male
- Female

14. What do you think is the age of the health care provider that you see most often?

- Age 18-24
- Age 25-34
- Age 35-44
- Age 45-54
- Age 55-64
- Age 65 or older

15. What is the race/ethnicity of the health care provider that you see most often?

- African American/Black American
- White/European American
- American Indian/Native American
- Asian/Asian American
- Hispanic/Latino(a)
- Other
(please specify: _____)

16. How many times each year do you see the health care provider that you see most often?

- 1 time
- 2 to 5 times
- 6 to 10 times
- Over 10 times

17. Where were you born?

- In the United States
- In Another Country

18. Where were your parents born?

- In the United States
- In Another Country

19. Do you have children?

- Yes (How many? _____)
- No

20. If you do NOT have children, please move on to Question 21. Do your children live with you?

- Yes
- No

21. Where in the United States is your community located?

- Northeast (Pennsylvania to Maine)
- Midwest (Ohio to Kansas)
- Southeast (West Virginia to Texas)
- West (New Mexico to California, including Hawaii and Alaska)

22. In general, how would you describe your health?

- Excellent
- Very Good
- Good
- Fair
- Poor

23. What is your height?

_____ feet and _____ inches

24. What was your weight the last time you were weighed? _____ pounds

25. What type of Diabetes have you been diagnosed with?

- Type 1 Diabetes
- Type 2 Diabetes
- Gestational Diabetes (Diabetes that develops during pregnancy)

26. When were you told that you have diabetes? _____ years and _____ months ago

27. How is your diabetes treated?

- Diet Only
- Medication Only
- Medication Plus Diet
- Medication plus Diet *and* Exercise

28. How often (if ever) per week do you check your blood glucose level?

- One Day Per Week
- Two Days Per Week
- Three Days Per Week
- Four Days Per Week
- Five Days Per Week
- Six Days Per Week
- Seven Days Per Week
- Never

APPENDIX B:
TUCKER CULTURALLY SENSITIVE HEALTH CARE PROVIDER INVENTORY –
PATIENT FORM (T-CSHCPI-PF)

Directions: Please fill out the survey using the following steps: Take a moment to think about your experiences with the provider you see most often at your health care center or office. This provider might be a doctor, a nurse practitioner, or some other health care provider. Now please rate how much you agree that this provider shows each health care characteristic or behavior listed below. Please use a rating of 1, 2, 3, or 4, where 1 = “Strongly Disagree”, 2 = “Disagree”, 3 = “Agree”, and 4 = “Strongly Agree”. Please shade in the circles below like this: ●

	Strongly Disagree	Disagree	Agree	Strongly Agree
THE HEALTH CARE PROVIDER I SEE MOST OFTEN WHEN I VISIT MY HEALTH CARE CENTER OR OFFICE:				
1. Is honest and direct with me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is dedicated to her or his work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Enjoys what he or she is doing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is well educated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is knowledgeable about medicine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Knows what he or she is doing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is confident in his or her abilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is right about why I am sick.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Seems interested in my problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Takes my concerns seriously.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Does not question the truth or accuracy of what I am feeling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Does not try to diagnose all my problems as psychological or “in my mind”.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Does not talk down to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Tries to communicate with me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Tries to educate me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Takes all my concerns seriously even if he or she does not consider	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

them to be serious.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 17. Does not embarrass me in private or public. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Prescribes medicine only when he or she is sure of my illness. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Does not make me wait long. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Follows up on my visits. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. Lets me know about illnesses and diseases common among people of my race/ethnicity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. Prepares me for the next steps in treating my illness. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. Understands my financial situation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. Shows appreciation for me and all of his or her other patients. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. Shows care and concern for my child/children. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. Is respectful of my religious beliefs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. Understands my culture. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Please list any additional comments or suggestions about your experience regarding the cultural sensitivity of your health care experience on the lines provided below:

APPENDIX C:
HEALTH PROMOTING LIFESTYLE PROFILE II (HPLP II)

Directions: This questionnaire contains statements about your present way of life or personal habits. Please respond to each item as accurately as possible and try not to skip any item. Indicate how often you engage in each behavior by shading in the circle beneath the response you choose like this: ●

	Never	Sometimes	Often	Routinely
1. Choose a diet low in fat, saturated fat, and cholesterol.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Report any unusual symptoms to a physician or other health professional.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Follow a planned exercise program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Get enough sleep.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Limit use of sugars and food containing sugar (sweets).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Read or watch TV programs about improving health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Take some time for relaxation each day.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Eat 6-11 servings of bread, cereal, rice, or pasta each day.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Question health professionals in order to understand their directions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes five or more times a week).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Accept those things in my life which I cannot change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Eat 2-4 servings of fruit a day.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Get a second opinion when I question my health care provider's advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| 16. Concentrate on pleasant thoughts at bedtime. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 17. Eat 3-5 servings of vegetable each day. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 18. Discuss my health concerns with health professionals. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 19. Do stretching exercises at least 3 times per week. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 20. Use specific methods to control my stress. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 21. Eat 2-3 servings of milk, yogurt, or cheese each day. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 22. Inspect my body at least monthly for physical changes/danger signs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 23. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking my car farther away from destination, and walking). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 24. Balance time between work and play. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 25. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 26. Ask for information from health professionals about how to take good care of myself. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 27. Check my pulse rate when exercising. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 28. Practice relaxation or meditation for 15-20 minutes daily. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 29. Read labels to identify nutrients, fats, sodium content in packaged food. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 30. Attend educational programs on personal health care. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 31. Reach my target heart rate when exercising. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 32. Pace myself to prevent tiredness. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 33. Eat breakfast. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 34. Seek guidance or counseling when necessary. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

APPENDIX D:
STRAIN QUESTIONNAIRE (SQ)

Directions: Please read the following list and shade in the circle of the letter that most closely corresponds to how often in the past week you have experienced or felt each of the items listed. Please shade in the circle below the response you choose like this: ●

	Not at All (0 Days)	Rarely (1-2 days)	Sometimes (3-4 days)	Frequently (5-6 days)	Everyday (7 days)
1. Backaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Muscle soreness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Numbness or tingling in body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Heaviness in arms or legs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Weakness in body parts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Tense muscles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Pain in neck	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Nausea or upset stomach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Diarrhea or indigestion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Tight stomach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Loss of or excessive appetite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Pain in heart or chest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Shortness of breath	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Racing heart	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Light headedness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Headaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Hot or cold spells	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Lump in throat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 19. Dryness of throat and mouth | <input type="radio"/> |
| 20. Teeth grinding | <input type="radio"/> |
| 21. Trembling or nervous tics | <input type="radio"/> |
| 22. Sweating | <input type="radio"/> |
| 23. Sweaty hands | <input type="radio"/> |
| 24. Itching | <input type="radio"/> |
| 25. Cold or warm hands | <input type="radio"/> |
| 26. Frequent need to urinate | <input type="radio"/> |
| 27. Spent more time alone | <input type="radio"/> |
| 28. Irritability | <input type="radio"/> |
| 29. Impulsive behavior | <input type="radio"/> |
| 30. Easily startled | <input type="radio"/> |
| 31. Stuttering/other speech
impairment | <input type="radio"/> |
| 32. Insomnia | <input type="radio"/> |
| 33. Inability to sit still | <input type="radio"/> |
| 34. Smoking | <input type="radio"/> |
| 35. Use of prescription drugs | <input type="radio"/> |
| 36. Use of alcohol | <input type="radio"/> |
| 37. Accident proneness | <input type="radio"/> |
| 38. Believe the world is against you | <input type="radio"/> |
| 39. Feeling out of control | <input type="radio"/> |
| 40. Urge to cry or run away | <input type="radio"/> |
| 41. Feeling of unreality | <input type="radio"/> |
| 42. Feeling that you are no good | <input type="radio"/> |

- | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 43. Inability to concentrate | <input type="radio"/> |
| 44. Nightmares | <input type="radio"/> |
| 45. Think things can't get any worse | <input type="radio"/> |
| 46. Faintness or dizziness | <input type="radio"/> |
| 47. Used recreational drugs | <input type="radio"/> |
| 48. Premenstrual tension or missed cycles | <input type="radio"/> |

APPENDIX E:
THE PATIENT EMPOWERMENT INVENTORY (PEI)

Directions: Please carefully read each statement below and rate how strongly do you agree or disagree with the statement about your relationship with the health care provider that you see most often. Please shade in the circle you choose like this: ●

	Strongly Disagree	Somewha t Disagree	Somewha t Agree	Strongly Agree
1. In my relationship with my health care provider, she or he has more control in the relationship than I do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. If I felt that my health care provider did not treat me with respect, I would express this feeling to her or him.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I feel powerless in discussions with my health care provider about my health problem(s) and what must be done in treatment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I tell my health care provider what I want her or him to know about my health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I ask my health care provider the questions I want answered even when she or he is rushing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Most things that I want to say to my health care provider are not worthwhile.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I have as much control or power as I want in my relationship with my health care provider.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. If I think that my concerns are being ignored or overlooked, I discuss this with my health care provider.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. If the medicines recommended by my health care provider did not help me feel better, I would contact her or him.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. I often leave a visit with my health care provider feeling that my questions were not answered.
11. I tell my health care provider what I want her or him to do as part of my health care.
12. If I did not trust my health care provider, I would not feel comfortable expressing this to him or her.
13. I am comfortable telling my health care provider that I disagree with the treatment that she or he is recommending.
14. If I felt that my health care provider is not making a correct conclusion about my health problem, I would express this feeling to her/him.
15. When my health care provider provides me with great health care, I compliment him or her for providing this great care.

APPENDIX F:
HEALTH RECORD FORM (HRF)

Section 1: Health information we will record today.

Instructions: Please visit the following stations today at the pre-workshop session to obtain a measurement of each health variable listed below. Nurses and research assistants will be available to assist you and answer any questions. Please keep this form and return it to the research team today with your completed assessment battery.

Health Variable	Measurement
Height	
Weight	
Body Mass Index	
Blood Pressure	
Hip Circumference	
Waist Circumference	

Section 2: Health information you will record this week.

Instructions: Please visit the following stations today to learn about how you can record the following health variables over the course of this week before beginning the workshop. You will need to record the number of steps walked each day, and blood glucose and blood pressure will need to be recorded at three times during the week. Please keep this form and return it to the research team at the first health workshop.

Health Variable	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Steps Walked							
Blood Glucose*							
Blood Pressure*							

*Need to be measured at least three times during the week.

APPENDIX G:
INFORMED CONSENT FORM (ICF)



*INFORMED CONSENT FORM
to Participate in Research, and
AUTHORIZATION
to Collect, Use, and Disclose Protected Health
Information (PHI)*

INTRODUCTION

Name of person seeking your consent:

This is a research study of health promotion and promotion of desired health care among patients with type 2 diabetes.

Could participating in this study offer any direct benefits to you? Yes, as described in Section 11a (page 5).

Could participating cause you any discomforts or are there any risks to you? No, as described in Section 10 (page 5).

Please read this form, which describes the study in some detail. I or one of my co-workers will also describe this study to you and answer all of your questions. Your participation is entirely voluntary. If you choose to participate you can change your mind at any time and withdraw from the study. You will not be penalized in any way or lose any benefits to which you would otherwise be entitled if you choose not to participate in this study or to withdraw. If you have questions about your rights as a research subject, please call the University of Florida Institutional Review Board (IRB) office at (352) 846-1494. If you decide to take part in this study, please sign this form on page 11.

GENERAL INFORMATION ABOUT THIS STUDY

1. Name of Participant ("Study Subject")

2. What is the Title of this research study?

Patient-Centered Culturally Sensitive Health Care and Health Promotion Project

4. Who do you call if you have questions about this research study?

Carolyn M. Tucker
Distinguished Alumni Professor
Joint Professor of Psychology
Professor of Community Health and Family Medicine
Professor of Pediatrics (Affiliate)
(Toll-free) 1-866-290-5770

4. Who is paying for this research study?

The sponsor of this study is the Robert Wood Johnson Foundation.

5. Why is this research study being done?

The purpose of this study is to determine the effects of two 5-hour workshops on health behaviors and health care experienced by adults with type 2 diabetes. These workshops are designed to help workshop participants to improve their relationships with their doctors and increase their health-promoting behaviors. These workshops are also designed to help participants improve their diet and medication adherence, blood glucose levels, and health related quality of life. You are being asked to be in this research study because you are an adult with type 2 diabetes who identifies as African American, Asian, Hispanic, or White.

WHAT CAN YOU EXPECT IF YOU PARTICIPATE IN THIS STUDY?

6. What will be done as part of your normal clinical care (even if you did not participate in this research study)?

If you choose not to participate in this study, you will continue with your present diabetes management care.

7. What will be done only because you are in this research study?

You will participate in one of two groups. One group will be an Immediate Participation Group who will (a) attend two meetings one month before and one month after two 5-hour health and health care workshops to complete a set of questionnaires, provide health data, and learn how to use a pedometer and record steps walked and other health data; (b) attend

two 5-hour workshops (which will be 2 to 3 weeks apart) within three months after agreeing to be a research participant. The other group will be a Delayed Participation Group who (a) will attend the two meetings mentioned above, but will not attend the two 5-hour workshops, and (b) will attend a 2-hour health session after the two 5-hour workshops occurred for the other group. In this health session, the participants in the Delayed Training Group will learn the most important information covered in the two 5-hour workshops. The two workshops and the health session will be videotaped and those videotapes will be used to train others how to conduct similar workshops and sessions. These videotapes may be available to the public in the future.

Regardless of the group you are in, you will be asked to (a) attend the two meetings mentioned above, and (b) complete some questionnaires and provide some health data such as your weight, height, blood pressure, and a record of your glucose levels. During the first meeting all patient participants will be taught how to (a) use the Health Record Form, (b) use a pedometer (which is a steps walked counter that will be provided for you), and (c) record steps walked daily. Volunteer nurses will also obtain your weight, height, blood pressure, and your waist size. You will record this information in your Health Record Form and will be instructed to keep it with you and record the number of steps walked daily (by using a pedometer), and your blood glucose levels and blood pressure levels three times over one week. This first meeting should last about 1 ½ hours. During the second meeting you will be asked to complete another set of questionnaires and provide health data.

One of the questionnaires will ask how much you agree or disagree with the statements that describe certain behaviors and attitudes of your health care provider and office staff or describe your health care center or doctor's office. Other questionnaires will ask about your lifestyle and culture, your relations with health care providers, your stress and depression levels, and your health behaviors. You will also be asked to complete a questionnaire about yourself which asks about your age, gender/sex, race, years of having any long-term health problems, any communication problems you may have, how you pay for your health care, your telephone number, your address, your phone number, your current health care clinic or doctor's office, and the number of visits that you have made to your current health care clinic or doctor's office in the past year.

Two months after the Immediate Participation Group attended the two 5-hour workshops, the Delayed Training Group will participate in the 2-hour health session to learn the most important information covered in the two 5-hour workshops. During this session, you will receive information about health promotion and health care for patients with type 2 diabetes, and you will learn skills for obtaining desired health care behaviors from your health care providers and desired family support to help you engage in the behaviors to be healthy with diabetes.

Additionally, during the two months between the end of the second 5-hour workshop and the 2-hour health session, only the Immediate Participation Group will be contacted by phone and mail to provide them with a brief review of the information that they covered in the workshops and to encourage and praise their efforts to meet the behavioral goals that they set as part of the workshops.

All research participants are welcome to bring an adult family member to all research activities; however, the family member will not be a research participant and thus will not be asked to provide any research data and will not be paid for their participation in any research activities unless he/she has been officially enrolled in the study and has completed an informed consent form.

All research participants will be called or mailed letters or post-cards to inform them that they are in the study, to answer questions that they may have when deciding whether or not to participate in the study, and to remind them of the study related meetings, workshops, and health sessions. They will also be called or mailed a letter to determine their food choices for the free meal that they will be provided at the workshops and health session.

You will be paid for your participation. To see how much money you will be paid for participation in each part of our study, please see Section 15 of this form.

If you have any questions now or at any time during the study, please contact Dr. Carolyn M. Tucker who is identified in Question 3 (page 2) of this form.

8. How long will you be in this research study?

Participation in this study will begin when you are enrolled in the study. Your participation will end before the month of April. As mentioned in Question 7 (page 3) depending on which group you are assigned to, the time commitment that is required may vary but will not exceed eight months.

9. How many people are expected to take part in this research study?

A total of 750 patient participants are expected to be enrolled in this study.

WHAT ARE THE RISKS AND BENEFITS OF THIS STUDY AND
WHAT ARE YOUR OPTIONS?

10. What are the possible discomforts and risks from taking part in this research study?

Researchers will take appropriate steps to protect any information they collect about you. However there is a slight risk that information about you could be accidentally revealed. Depending on the nature of the information such a release could upset or embarrass you, or possibly even affect your insurability or employability. Question 17 in this form discusses what information about you will be collected, used, protected, and shared. There are no known other risks to participating in our study. However, this study may include risks that are unknown at this time.

Participation in more than one research study or project may cause risks to you. If you are already enrolled in another research study, please inform the PI or contact person listed on the front page of this form or the person reviewing this consent form with you before enrolling in this or any other research study or project.

Throughout the study, the researchers will notify you of new information that may become available and might affect your decision to remain in the study. If you wish to discuss the information above or any discomforts you may experience, please ask questions now or call the PI or contact person.

11a. What are the potential benefits to you for taking part in this research study?

We anticipate that you will learn health information, behaviors, and skills to help you (a) live a healthier life with diabetes, (b) reduce or prevent stress and depression, and (c) inspire health care providers and staff to engage in behaviors, display attitudes, and create health care environments and policies that respect cultural differences.

11b. How could others possibly benefit from this study?

Others with type 2 diabetes and providers of patients with type 2 diabetes may learn information, behaviors, and skills for better managing diabetes and for improving the health care quality and health outcomes of these patients.

11c. How could the researchers benefit from this study?

In general, presenting research results helps the career of a scientist. Therefore Dr. Tucker and her research team may benefit if the results of this study are presented at scientific meetings or

in scientific journals. Otherwise, there are no conflicts of interest for Dr. Carolyn Tucker or her research team.

12. What other choices do you have if you do not want to be in this study?

The other option to taking part in this study is doing nothing. If you do not want to take part in this study, tell the Principal Investigator or Research Participation Recruiter and do not sign this Informed Consent Form.

13a. Can you withdraw from this study?

You are free to withdraw your consent and to stop participating in this study at any time. If you do withdraw your consent, you will not be penalized in any way and you will not lose any benefits to which you are entitled. However, you will only receive financial compensation for the portion of the project that you have completed.

If you decide to withdraw your consent to participate in this study for any reason, please contact Dr. Carolyn M. Tucker, or a member of her research team who she appoints at 1-866-290-5770, ext 255. You will be told how to safely stop your participation. If you have any questions regarding your rights as a research subject, please call the Institutional Review Board (IRB) office at (352) 846-1494.

13b. If you withdraw, can information about you still be used and/or collected?

If you withdraw from this study, the information that you have already provided to the researchers can still be used. The confidentiality of this information will still be protected as it will be identified by a code number rather than by your name. The list that links your name with your code will be kept in a separate locked file away from the information that we obtain from you. This file will be kept in the research lab of the PI (Dr. Carolyn Tucker) to further protect your confidentiality.

13c. Can the Principal Investigator withdraw you from this study?

You may be withdrawn from the study without your consent for the following reasons:

- 1) You become pregnant
- 2) You are unable to obtain and provide us with the earlier described health data, or attend the meetings and workshops or health promotion session that were described above
- 3) We have already enrolled the maximum number of participants of your gender or race/ethnicity

WHAT ARE THE FINANCIAL ISSUES IF YOU PARTICIPATE?

14. If you choose to take part in this research study, will it cost you anything?

The study will not cost you anything as a participant other than the cost of transportation for yourself so that you can attend the earlier described meetings and workshops that participation in this research study require.

15. Will you be paid for taking part in this study?

All participants who complete participation in this research project will receive a total of \$60 as research participation compensation, and this amount will be pro-rated across three payments in the form of money orders. These three payment installments will vary depending on whether or not the individual is assigned to the Immediate Training Group or the Delayed Training Group. For participants in the Immediate Training Group, the first payment amount will be \$15, which will be paid at the end of the first workshop. The second payment amount will be for \$15, which will be paid at the end of the second workshop. The third payment amount will be for \$30, which will be paid at the end of the second meeting (i.e., the meeting where all data collection that occurred in meeting 1 will occur again). The money orders for the stated amounts will be directly given to participants at the end of each stated activity. For participants in the Delayed Training Group, the first payment amount will be \$15, which will be paid at the end of the first meeting. The second payment amount will be for \$15, which will be paid at the end of the second meeting (i.e., the meeting where all data collection that occurred in meeting 1 will occur again). The third payment amount will be for \$30, which will be paid at the end of the 2-hour health promotion training session. Thus, all participants who have completed their participation requirements will have received \$60 research participation compensation by the end of their participation.

16. What if you are injured because of the study?

Before making any health behavior changes as a result of participating in this study, please consult your health care provider before you engage in those behaviors. The study sponsor and the researchers will not be responsible for medical services incurred by research participants for injuries directly related to their participation in this research study. If you are injured as a direct result of participating in this research, only professional consultative care that you receive at the University of Florida Health Science Center will be provided without charge. However, hospital expenses will be billed to your insurance provider. You will be responsible for any deductible, co-insurance, or co-payments. Some insurance companies may not cover costs associated with research studies. Please contact your insurance company for additional information.

No additional compensation is offered. The Principal Investigator and most of the others involved in this study may be University of Florida employees. As employees of the University, they are protected under state law, which limits financial recovery for negligence.

Please contact the Principal Investigator listed in question 3 of this form if you experience an injury or have questions about any discomforts that you experience while participating in this study.

17. How will your health information be collected, used and shared?

If you agree to participate in this study, the Principal Investigator will create, collect, and use private information about you and your health. This information is called Protected Health Information or PHI. In order to do this, the Principal Investigator needs your authorization. The following section describes what PHI will be collected, used and shared, how it will be collected, used, and shared, who will collect, use or share it, who will have access to it, how it will be secured, and what your rights are to revoke this authorization.

Your protected health information may be collected, used, and shared with others to determine if you can participate in the study, as part of your participation in the study, and to evaluate the effects of the workshops and health sessions. This information can be gathered from you or your past, current or future health records, from procedures such as physical examinations, x-rays, blood or urine tests or from other procedures or tests. This information will be created by receiving study treatments or participating in study procedures, or from your study visits and telephone calls. More specifically, the following information may be collected, used, and shared with others:

Demographic information

Results from questionnaires that you will complete as part of this study

Body mass index determined by obtaining your weight and height

Waist and hip measurements

Blood pressure readings

Blood glucose readings

The above listed information will be stored in locked filing cabinets or in computers with security passwords. It will be identified by a code number. The names and addresses matching the code numbers will be kept in a separate locked file or computer folder away from the health information questionnaire responses that you provide in order to protect your confidentiality. Some of the information collected could be included in a "limited data set" to be used for other research purposes. This information will be stored in locked filing cabinets or in computers with security passwords. If so, the limited data set will only include information that does not directly identify you. For example, the limited data set cannot include your name, address, telephone number, social security number, or any other information that link you to the information in the limited data set. If limited data sets are created and used, agreements between the parties creating and receiving the limited data set are required in order to protect your identity and confidentiality and privacy.

Your PHI may be collected, used, and shared with others to make sure you can participate in the research, through your participation in the research, and to evaluate the results of the research study. More specifically, your PHI may be collected, used, and shared with others for the following study-related purpose: to examine the effects of two 5-hour Health Care and

Health Promotion Model Program Workshops. Once this information is collected, it becomes part of the research record for this study.

Only certain people have the legal right to collect, use and share your research records, and they will protect the privacy and security of these records to the extent the law allows. These people are as follows:

- The study Principal Investigator, Dr. Carolyn M. Tucker and research staff associated with this project.
- other professionals at the University of Florida or Shands Hospital that provide study-related treatment or procedures
- The University of Florida Institutional Review Board (IRB; an IRB is a group of people who are responsible for looking after the rights and welfare of people taking part in research).

Your PHI may be shared with:

- The study sponsor the Robert Wood Johnson Foundation
- Dr. Keith Herman at the University of Missouri at Columbia, who will help with data analyses
- United States and foreign governmental agencies who are responsible for overseeing research, such as the Food and Drug Administration, the Department of Health and Human Services, and the Office of Human Research Protections
- Government agencies who are responsible for overseeing public health concerns such as the Centers for Disease Control and federal, state and local health departments

Otherwise, your research records will not be released without your permission unless required by law or a court order. It is possible that once this information is shared with authorized persons, it could be shared by the persons or agencies who receive it and it would no longer be protected by the federal medical privacy law.

You are not required to sign this consent and authorization or allow researchers to collect, use and share your PHI. Your refusal to sign will not affect your treatment, payment, enrollment, or eligibility for any benefits outside this research study. However, you cannot participate in this research unless you allow the collection, use and sharing of your protected health information by signing this consent and authorization.

You have the right to review and copy your protected health information. However, we can make this available only after the study is finished. You can revoke your authorization at any time before, during, or after your participation in this study. If you revoke it, no new information will be collected about you. However, information that was already collected may still be used and shared with others if the researchers have relied on it to complete the research. You can revoke your authorization by giving a written request with your signature on it to the Principal Investigator.

SIGNATURES

As an investigator or the investigator's representative, I have explained to the participant the purpose, the procedures, the possible benefits, and the risks of this research study; the alternative to being in the study; and how the participant's protected health information will be collected, used, and shared with others:

Signature of Person Obtaining Consent and Authorization

Date

You have been informed about this study's purpose, procedures, possible benefits, and risks; the alternatives to being in the study; and how your protected health information will be collected, used and shared with others. You have received a copy of this Form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask questions at any time.

You voluntarily agree to participate in this study. You hereby authorize the collection, use and sharing of your protected health information as described in section 17 above. By signing this form, you are not waiving any of your legal rights.

Signature of Person Consenting and Authorizing

Date

Name, Telephone Number, and Mailing Address:

Please write your name, telephone number, and address.

Name: _____

Telephone: _____

Mailing address: _____

Email address: _____

APPENDIX H:
WORKSHOP AGENDAS FOR CULTURALLY SENSITIVE HEALTH EMPOWERMENT
INTERVENTIONS

*Ways of Saying I Love You: Engaging in and
Encouraging Health Smart Behaviors*

9:00 a.m. – 3:30 p.m.

Time	Activity/Task	Presenter/Organizer
9:00-9:30 am	Registration	BMED Team
9:30-9:50	General Group Session I - Welcome and Workshop Overview	Ms. Katie Daly Dr. Carolyn Tucker
9:50-10:35	General Group Session II – Health-Smart Behaviors that Express Love for Ourselves and Those We Love	Dr. Carolyn Tucker
10:35-11:15	General Group Session III – Patient Panel on Living Well with Diabetes	Panelists
11:15-12:25	Small Group Session – Tips for Engaging in Health-Smart Behaviors and for Overcoming Related Barriers	Health Empowerment Coaches
12:25-1:15	Lunch	BMED team
1:15-2:20	General Group Session IV - Expressing Family Love Through Health-Smart Grocery Shopping, Meal Planning, and Eating	Dr. Carolyn Tucker
2:20-3:20	General Group Session V – Expert Panel on Living Well with Diabetes	Ms. Katie Daly Ms. Laura Reid
3:20-3:50	General Group Session VI - Closing Comments and Fun Closing Activities	Dr. Carolyn Tucker BMED Team

*Obtaining the Health, Happiness, and Health Care
You Desire and Deserve*

9:00 a.m. – 3:30 p.m.

Time	Activity/Task	Presenter/Organizer
9:00-9:30	Registration	BMED Team
9:30-10:00	General Group Session I - Welcome and Workshop Overview	Ms. Katie Daly Dr. Carolyn Tucker
10:00-11:00	General Group Session II – Skills for Overcoming Stress and Depression and for Obtaining the Health, Happiness, and Health Care You Desire and Deserve	Dr. Carolyn Tucker
11:00-11:50	General Group Session III – Mental Health Provider Panel on Situations that Cause Stress, Depression, and/or Frustration	Dr. Carolyn Tucker Ms. Stephanie Pollard
11:50-12:40	Small Group Session – Tips and Strategies for a Successful Health Care Visit; Information to give Your Doctor; and Questions to Ask Your Doctor	Health Empowerment Coaches
12:40-1:25	Lunch	BMED Team and participants
1:25-2:15	Individual Meetings – Situations that Cause Stress, Depression, and/or Frustration and Review of Goals and Commitment Forms	Health Empowerment Coaches
2:15-3:15	General Group Session IV – Health Care Provider Panel: Comments on Patients’ Rights and Responsibilities, and Responses to Patients Questions	Dr. Nancy Hardt Dr. Rene Campbell Ms. Stephanie Pollard
3:15-3:30	General Group Session V - Closing Comments and Fun Closing Activities	Dr. Carolyn Tucker BMED Team

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BIOGRAPHICAL SKETCH

Katherine Diane Daly was raised in Muskegon, Michigan on the Great Lakes. She graduated with a Bachelor of Arts degree in psychology from St. Mary's College of Maryland in 2004 and continued on to pursue a Master of Arts degree in Counseling Psychology from the University of Missouri-Columbia in 2006. Katherine received her Ph.D. in Counseling Psychology from the University of Florida in 2011. During her doctoral studies, Katherine served as Director of Patient Intervention on several of Dr. Carolyn M. Tucker's community-based health projects. Katherine's research interests focused on culturally sensitive healthcare with low-income, diverse community members and the application of counseling for individuals and families affected by chronic health issues. The objective of this research is to combat health disparities in the United States and to expand the roles of Counseling Psychologists to work with individuals and families faced with chronic illnesses. Katherine was able to apply her interest in counseling individuals and families with chronic health issues in a number of clinical settings during her doctoral training, including the Malcolm Randall VA Hospital, the Gainesville Healthcare Center, and the Alachua County Crisis Center. Katherine completed an American Psychological Association accredited pre-doctoral psychology internship at the University of Tennessee-Knoxville. Katherine accepted a position as Staff Psychologist at Cherokee Health Systems in Lenoir City, Tennessee where she will continue to focus on helping clients and families adjust to the psychological issues associated with living with chronic health conditions.