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Hassles of African Americans with Type 2 Diabetes

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2017

Abstract

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by

Sharon Hall Teele Murff

MSN, Northwestern State University, 1997

BSN, East Carolina University, 1976

Dissertation Submitted in Partial Fulfillment of the

Requirements for the Degree of

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Abstract

There has been a steady increase in the incidence of diabetes in the United States. The purpose of this study was to determine whether there was a difference in the daily hassles of African American adults with a self-reported diagnosis of type 2 diabetes compared to those of African American adults without a self-reported diagnosis of type 2 diabetes. The theoretical underpinning for this quantitative, descriptive study was the cognitive appraisal theory (CAT), but the concept of stress and the effects stress has on the body was the broad framework that connected all the variables. The CAT was used to develop the central research question designed to investigate if there was a difference in the hassles total, frequency, and severity between the 2 research groups. There were 54 persons without type 2 diabetes (59.3%) and 37 with type 2 diabetes (40.7%). The hassles portion of the Combined Hassles and Uplifts Scale was used for data collection and interpretation. A *t* test for independent means was used to determine the differences in hassles between the 2 groups. Data analysis indicated that those with a self-reported diagnosis of type 2 diabetes reported more total hassles (*p* .005), frequency of hassles (*p* .003), and severity of hassles (*p* .006) than those without a self-reported diagnosis of type 2 diabetes. The study will contribute to positive social change by facilitating creation of opportunities by healthcare providers, to develop client-specific, culturally-sensitive programs and best practice interventions that underscore daily hassles that affect the lived experiences of persons with type 2 diabetes. Legislators on all levels may also use the findings of this study to inform health policy decisions that affect people with type 2 diabetes in their daily experiences.

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Dedication

I dedicate my dissertation work to Miller Murff Jr., my loving and supportive husband, Anica Danyelle Teele (daughter), Arreon D'Shawn Teele (granddaughter), and Myron Rashon Teele (grandson) for enduring the "ups" and "downs" in the past several years. I also have immeasurable feelings of gratitude and love for all my family members who are the offspring of the following families: Hall, Forney, Young, Murff, Hughes, and other relatives, for their support, encouragement, and understanding during this tedious journey.

I also dedicate this dissertation work to some special people. Without the "behind the scene" work by Alma Britt I might have never began my doctoral journey. Also, to my Mentor, Dr. Mary Joe-Stoglin, I dedicate this dissertation work, because of her constant and untiring assistance, and her tenacious reassurance that I could arrive to the doctoral destination with success and sanity.

This work is also dedicated to Mama and Papa Pugh for their untiring love and fervent prayers for my success. A huge thank you goes out to all of my friends who understood why I could not attend numerous functions and gala affairs.

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I wish to thank the Administrators at Grambling State University, Administrators of the School of Nursing (both past and present) for their unparalleled support, encouragement, and their confidence in me during my professional journey. I also wish to acknowledge my fellow colleagues in the school of nursing, university-wide colleagues, the school of nursing staff, and the nursing students at Grambling State University for their understanding and encouragement as I traveled the doctoral pathway.

I also acknowledge the Pastor and members of the congregations who completed the surveys for this study. Without the support of the participants, completion of this dissertation would not have been possible.

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Chapter 1: Introduction to Study

Diabetes is a chronic disease for which continued quantifiable objectives and goals need to be developed in order to improve quality of life and to decrease health disparities (Healthy People 2020, 2013). According to Healthy People 2020 (2013), there is a need for data collection and evaluation to identify priorities for improvements in health, and a need to generate environments that focus on both physical and social determinants to promote optimal health for every individual. Over the past decade there has been progress toward quality of healthcare and reduction in health disparities in the United States; however, the need to hasten improvements in such areas as the quality of diabetes care is crucial (U.S. Department of Health and Human Services [HHS], 2013).

Nurses and social scientists view chronic disease as something that is complex and affects all dimensions of humans. Humans have multiple domains that require attention, such as physical, psychological, emotional, and interpersonal dimensions. *Psychosocial* is a more generalized term that researchers use to name the interaction of these multiple dimensions (Larsen, 2016). In the realm of care for those with chronic disease, emphasis is often placed on physical needs while psychosocial needs are neglected (Larsen, 2016). Individuals with chronic illnesses have to make adjustments within their environment to cope with the experience of living with a chronic illness (Larsen, 2016). Included in the concerns for improvements in healthcare quality for all has been the call from the Institute of Medicine (IOM, 2012) for more effective programs designed to improve quality of life for individuals with chronic diseases such as

depression and type 2 diabetes. The IOM Report (2012) indicated that healthcare providers engage in a more holistic approach to care of those with chronic illnesses.

In this study, I explored differences in hassles of African Americans with and without type 2 diabetes The chief question was: Is there a difference in the hassles of adults with a diagnosis of type 2 diabetes compared to hassles of adults without a diagnosis of type 2 diabetes.

The implications for positive social change include opportunities to design client-specific programs that identify daily hassles, which are stress-provoking experiences (Lazarus & Folkman, 1984) that can potentially disable effective diabetes self-management. Also, both researchers and practitioners will be afforded opportunities to create best practice interventions for diabetes education based on psychosocial-related factors, which are tailored to the needs of African American/Black adults with type 2 diabetes. Given that psychosocial issues are often not a priority in the care of persons with chronic diseases (Larsen, 2016), another implication for social change is that policy makers could use this study's findings at the local, state, regional, or national level to influence legislation to address the psychosocial strains involved in living with a chronic disease such as diabetes.

In this chapter, I present the background for the study and a statement of the problem I worked to address. I then discuss the purpose, hypotheses, theoretical framework, and nature of the study, and provide definitions of terms. Further, I discuss the assumptions, scope and delimitations, significance of the study, limitations, and conclude with a summary.

Background

Diabetes Mellitus (DM) is a chronic condition that results from the pathophysiologic process characterized by inappropriate utilization of a monosaccharide called glucose; it is the seventh leading cause of death in the United States (Centers for Disease Control and Prevention [CDC], 2013). The global prevalence of chronic disease is at the pandemic stage (World Health Organization [WHO], 2013). Harris (2013) reported that diseases such as heart disease, DM type 2, cancer, stroke, and renal disease were responsible for more than 62% of deaths globally. Shaw, Sicree, and Zimmet (2010) identified type 2 diabetes as the most common metabolic disorder affecting people worldwide. Attention has been given appropriately to the number of persons worldwide who have type 2 diabetes. Shaw et al. (2010) also provided global projections for diabetes for 216 countries for the year 2030. These projections indicated that among persons between the ages of 20-79, diabetes currently (as of 2010) affected 285 million (6.4%) globally, but by the year 2030 it will affect approximately 440 million (7.7%). On a global scale the United States was listed as one of the top 10 countries/territories with the greatest number of people between the ages of 20 and 79 who had diabetes (Guariguata et al., 2014).

There are several forms of diabetes (e.g. type 1, type 2 and gestational), but according to Spellman (2007), type 2 diabetes has been referred to as a global epidemic, and type 2 DM is the most common form of the disease among African Americans (CDC, 2011b). Healthcare professionals have been continually concerned that diabetes is at an epidemic level (Albright & Gregg, 2013; Spellman, 2007). Diabetes affects 29.1

million individuals in the United States (CDC, 2014a), and statistics reported by the CDC (2011a) indicated that there was a group of approximately 7 million persons who were unaware that they had diabetes in 2011. By 2014, this number had increased to 8.1 million (CDC 2014b). According to CDC (2011a), by the time those who are unaware that they have diabetes are actually diagnosed, severe complications are already evident (CDC, 2011a).

The prevalence of diabetes has increased at a rapid rate. In 2008, the CDC reported that there were 25 million persons in the United States living with diabetes; that number increased to 25.8 million in 2010 (CDC, 2011b). Data from 2014 showed that the number of Americans with a diagnosis of diabetes reached 29.1 million, or 9.3% of the population. The number of persons unaware of their diabetes diagnosis was 8.1 million (27.8%; CDC, 2014a). The number of persons who were unaware of a diagnosis of diabetes in 2010 was 7 million, with an additional 79 million people with prediabetes in 2010 (CDC, 2011b). by 2014, the number of adults with prediabetes was 86 million (CDC, 2014a). Statistics from CDC (2011b) indicated that the cost to care for Americans with DM was approximately $174 billion in 2007 (CDC, 2011b), and the CDC (2014b) reported that in 2012, $176 billion was spent for direct medical care. That same year, the total cost to care for persons with diabetes had increased to $245 billion (CDC, 2014a). Caring for persons with prediabetes presents challenges. The CDC (2014a) has reported that individuals in the prediabetes group are at risk of developing type 2 diabetes and cardiovascular diseases. Of the 37% of the U.S. population who have prediabetes, 11% do not know that they have the condition (CDC, 2014a).

Complications associated with diabetes have also proliferated. Diseases of the eyes, kidneys, heart, and lungs are prevalent among those with diabetes. Peripheral neuropathy frequently manifests itself with numbness and tingling in the hands and feet of those with diabetes. Often diabetics experience lower limb amputations (American Diabetes Association [ADA], 2017; CDC, 2014b), due to a decrease in circulation and nerve integrity (Lewis, Dirksen, Heitkemper, & Bucher, 2014).

Limited access to health care has been another major problem that has had a great impact on the diabetes epidemic. According to the HHS (2000) and Broaddus and Park, (2012) before 2010, more than 40 million people in the U.S. lacked health insurance and this variable decreases a person's ability to obtain adequate care and management of chronic diseases such as diabetes. The fact there have been millions of Americans without adequate health insurance or limited access to health care has been well-publicized over the past decade (Broaddus & Park, 2012). Since the inception of the Patient Protection and Affordable Care Act (ACA) in 2010, the number of people who were uninsured decreased over 8.5%. According to CDC (2016a) there were approximately 35.7 million people, under the age of 65, who were uninsured. The latest statistics from CDC (2017) indicated that currently there are about 28 million Americans under age 65 that have no health insurance coverage. Even though the number of uninsured persons has decreased, the millions that are in need of health care but have no coverage might prove to be problematic for the healthcare system of the United States.

Chronic disease, such as diabetes, produces problems in a person's life beyond the physiological domain. According to van Dooren et al. (2013) adults with type 2 diabetes

experience psychological problems more than persons without a diagnosis of diabetes. A one and one-half fold greater risk of having comorbid depression has been found among people with type 2 diabetes (van Dooren et al., 2013). Specifically, researchers (Spencer et al., 2006) have observed more emotional distress among African Americans and Hispanics than among Whites. Lopes et al. (2016) likewise found that there was a strong association between major depression and type 2 diabetes.

Addressing the importance of mental health to individuals' total wellbeing, Healthy People 2020 (2013) included a goal to "improve mental health through prevention and by ensuring access to appropriate, quality mental health services" (para. 1). The Healthy People document includes the following definitions of mental health and mental disorders:

> Mental health is a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with challenges. Mental health is essential to personal well-being, family and interpersonal relationships, and the ability to contribute to community or society (para 2).
>
> Mental disorders are health conditions that are characterized by alterations in thinking, mood, and/or behavior that are associated with distress and/or impaired functioning. Mental disorders contribute to a host of problems that might include disability, pain, or death (para. 3).

It is important to remember that the Healthy People Initiative was designed to encourage the improvement or maintenance of health for all Americans. There is a need to examine

psychosocial issues that plague adults with type 2 diabetes in general, and African Americans in particular (Spencer et al., 2006). There is an ongoing need for studies to explore factors related to psychological issues associated with people with diabetes (Chew, Shariff-Ghazali, & Fernandez, 2014). Emotional distress has been associated with poor glycemic control among African Americans. Wagner, Abbott, Heapy, and Yong (2009) found that symptoms related to depression factor into the worse diabetes-related complications, thereby impeding adequate blood glucose control, especially among African Americans.

Along with the day to day challenges of people with type 2 diabetes, depression and poor mental health can compound their problems, thereby adding to the burden of health care (Chew et al., 2014). Murff (1997) indicated that there is an association between stressful experiences and the development of disease, and that the stress-provoking experiences can be of a physiological or psychological nature. The burden of diabetes has also been compounded by circumstances that foster negative symptomatology related to stress such as babies with low birth weight and the resurgence of dormant viruses like cytomegalovirus and herpes simplex (Karim et al., 2014). Sexual dysfunction in women has also been observed in those who were said to experience chronic stress to a great degree (Hamilton & Meston, 2013). Whether stress occurrences are short-lived and intermittent or of a persistent nature, they put the individual at risk for the development of a chronic disease, like diabetes (Mendenhall, Seligman, Fernandez, & Jacobs, 2010).

Holmes and Rahe (1967) provided a rationale that linked chronic stress to illness. They developed the Social Readjustment Rating Scale (SRRS) as a self-reporting tool to measure the level of stress experienced in association with certain events among various groups (e.g. males and females, married and single individuals). Once the stressfulness of an event was identified, the researchers measured the degree to which individuals had to make modifications in their life to adjust to the particular life (Holmes & Rahe, 1967). Larsen (2016) referred to psychosocial adjustment as being multidimensional and inclusive of every sector of an individual's life (e.g. mental, emotional, and interpersonal).

Selye (1974) was also among the first investigators to identify a connection between stress and disease. Selye (1974) stated that stress could be defined as physiological factors or psychological threats that challenged a person's well-being. Stress can also be interpreted as both positive and negative occurrences that can produce feelings that can be pleasant or unpleasant (Selye, 1974).

Researchers have found a relationship between depression and chronic illness, which compelled me to conduct a literature search for studies related to depression. There is evidence that there is a Researchers have also found a connection between mortality rate and depressed patients with diabetes. As reported by Bogner, Morales, Post, and Bruce (2007), diabetic, depressed patients who were followed by their general physician, as opposed to being provided with specific interventions related to mental health, had an increased mortality rate. Van Dooren et al. (2013) also found a link between depression, diabetes, and an increased risk of mortality.

Gurka et al. (2016) found that African American women with more depressive symptoms had more severe cases of the chronic endocrine condition known as metabolic syndrome. Ford et.al. (2016) indicated that there is an exchange between a person's psychological development and their social environment, and the interface of the two spheres produce psychosocial factors that are part of the composite of the stress experience. Psychosocial factors such as cynicism, anger, having a spirit of mistrust, and occurrences that were stress-provoking were associated with a progressive increase in blood pressure (Ford et al., 2016).

In addition to an association between depression, increased mortality, and diabetes, researchers have also found an interconnection between obesity, depression, and chronic disease (i.e. diabetes) among African Americans (Stecker, Fortney, Steffick, & Prajapati, 2006). As the number of obese people increases the prevalence of chronic diseases is projected to escalate, thereby placing a financial burden on the already strained healthcare system (The Obesity Society, 2010). Obesity is a major problem among Americans, and it contributes to the development of chronic diseases such as diabetes and heart disease (CDC, 2016b). Currently, the epidemic of obesity plagues women of African American descent (Dingfelder, 2013). African American women are nearly twice as likely to be obese compared to White women (Dingfelder, 2013). Although there is an association between obesity and diabetes the focus of this investigation is on daily hassles and the association with people with type 2 diabetes.

In this study, I explored the concept of hassles as stressful experiences, and whether there was a difference in the experiences between African Americans/Blacks

with type 2 diabetes compared to those of individuals without type 2 diabetes. According to Lazarus and Folkman (1984), hassles are elements that often cause one to incur negative feelings or have a negative physiological outcome. Alternately, uplifts are positive factors that cause one to feel happy or satisfied with their environment or circumstances, or they might produce positive health outcomes (Lazarus & Folkman, 1984). Although uplifts are positive occurrences that tend to safeguard a person against negative influences, they can also be a source of stress. For example, suppose a woman is engaged to be married: this is often seen as a positive experience. However, with the plans to wed there are time constraints such as securing the venue for the wedding and the reception, deciding on the number of people to invite, addressing and mailing invitations, identifying the wedding party, finding the right dress, and the list continues. So, even though the wedding or marriage is a positive experience, the responsibilities are sometimes enormous, and can invoke a great deal of stress. Kanner, Coyne, Schafer, and Lazarus (1981) presented the notion that there was an association between the severity of the hassles and the intensity of the uplifts. In other words, as the hassles severity score increased the uplifts intensity score increased (Kanner et al., 1981). However, in this study I explored differences and similarities in hassles between two groups (diabetics and non- diabetics) rather than using both variables of hassles and uplifts.

Type 2 diabetes is a disorder with many complexities that require major adjustments in a person's life in order to maintain or achieve a sense of normalcy or control of the disease. One adjustment or method of coping with the challenges related to daily experiences and chronic disease is to engage in religious activities such as praying and religious service

attendance (Reeves et al., 2012). According to Collins-McNeil et al. (2012), African Americans share a common environment for social support, which is the church. Larsen (2016) reported a connection between spirituality and health, and Schnall et al. (2012) identified a correlation between weekly religious service attendance and the likelihood of experiencing depression. In other words, individuals who attend religious services weekly are less likely to experience depression. Religiosity and spirituality are both related to positive health outcomes such as a decrease in consumption of alcoholic beverages, and a decrease in smoking over a person's lifetime (Reeves et al., 2012). Reeves et al. (2012) indicated that interventions related to health promotion within the religious setting have been effective; therefore, I determined that the church was a plausible setting for recruitment of study participants and data collection for the study.

Venues other than acute care facilities, clinics, and primary care offices that care for people with diabetes should be explored, including venues such as faith-based organizations and community clinics (Collins-McNeil, et al., 2012). Additionally, Collins-McNeil et al. (2012) reported that church-based culturally targeted (CBCT) diabetes education might serve to increase positive health outcomes among African Americans with type 2 diabetes.

There is a gap in knowledge with regard to the hassles for African Americans/Blacks with type 2 diabetes compared to those of individuals without a diagnosis of diabetes. My literature search produced a number of articles related to stress and major stressful life events (SLEs), but literature related to the daily, nagging occurrences (hassles and uplifts) and African Americans with type 2 diabetes within a

church setting, is limited. There has been a link found between stress and illness (Holmes & Rahe, 1967; Lazarus & Folkman, 1984; Selye, 1974). Researchers have also found an association between hassles and uplifts, and adverse health conditions such as coronary artery disease (Murff, 1997), viruses, and infectious diseases (Karim et al., 2014). In the literature search, I found studies on diabetes management and diabetes education, but I did not find information that compared the daily hassles of African American adults with and without a diagnosis of type 2 diabetes. Even though programs have been initiated in the past several decades to prevent diabetes and to care for those with diabetes, both the incidence and amount of money spent for diabetes care has increased (CDC, 2014a). However, in my research, I did not find a specific curricula on psychosocial stress tailored to African Americans with type 2 diabetes.

In this investigation, I used the overarching framework of stress to examine hassles and the comparative differences in African Americans with and without type 2 diabetes. I used the hassles portion of the Combined Hassles and Uplifts Scale (Mind Garden, 1989) to identify the daily annoying occurrences of the study participants. Since the prevalence and incidence of diabetes continues to rise (CDC, 2014a), insight on the role hassles play with regard to illness might be beneficial in the design of culturally-sensitive diabetes education programs. Also, development and critical evaluation of diabetes education that incorporates hassles and their relationship to disease might be beneficial to help decrease the incidence of diabetes, to improve diabetes control, or to stimulate further investigations.

Background and Problem Statement

DM affects about 29.1 million individuals annually in the United States (CDC, 2014a), and the number of persons diagnosed with diabetes has increased by 3 million in a short period of time (CDC, 2011c). The disease also is responsible for complications such as heart disease, renal failure, blindness, and lower limb amputations (CDC, 2014b). Over the past 2 decades, the number of complications associated with diabetes has declined including incidences of myocardial infarctions, mortality from hyperglycemic crisis, lower limb amputations, and renal failure (Gregg et al., 2014). Although there has been a decline in diabetes-related complications, the cost to care for those with diabetes continues to present a challenge (Gregg et al., 2014), and African Americans continue to be affected at a high rate (CDC, 2012a; CDC, 2014a).

The 2014 Diabetes Report Card (CDC, 2014a) showed that in 2012 the state of Louisiana had one of the highest prevalence rates of diabetes among adults 18 years or older. The prevalence of diabetes in Louisiana was 11.1%, a rate comparable to that of Mississippi (11.7%), Alabama (11.1%), and West Virginia (11.1%). The number of individuals with a diagnosis of prediabetes in Louisiana is 8.3%, or 1, 272,000 (ADA, 2016). Louisiana had the second highest prevalence rate in the country (CDC, 2014a). According to the ADA (2016) there are more than 550,000 residents with diabetes in the state of Louisiana. Of the 550,000, approximately 124,000 are unaware of a diagnosis of diabetes (ADA, 2016). Diabetes ranks as the fifth leading cause of death in Louisiana, with a death rate of 26.9 compared to the U.S. average of 21.2 (CDC, 2015). The number of people with prediabetes in Louisiana places an added burden on the state to care for

these individuals: the cost of care for diabetes in Louisiana is approximately $5.4 billion annually (ADA, 2016a).

The ADA (2016) reported that in 2014, millions of dollars were invested in diabetes-related research and educational and preventative interventions in Louisiana. The National Institute of Diabetes and Digestive and Kidney Diseases provided $4,896,703 for research related to diabetes, the Division of Diabetes Translation at the CDC gave $312,618 to prevention and diabetes education programs, and the ADA provided Louisiana with $6,092,887 in 2005 for various diabetes-related programs and scholarships (ADA, 2016). The Louisiana Department of Health and Hospitals indicated that even though only 32% of Louisiana residents are African Americans, they have the highest prevalence of diabetes, diagnosis rate, and deaths from diabetes than any other group in the state (HHS, 2016).

Psychosocial issues complicate the chronic illness experience (Larsen, 2016). Some of the psychosocial issues people with chronic disease have include financial instability, family and marital stress, and social isolation (Larsen, 2016). Healthy People 2020 (2013) framed depression as a mental disorder that is associated with distress. There are certain symptoms that are associated with depression, and there is an association between these symptoms and chronic ailments. Stecker et al. (2006) found that depression had a significant impact on both the psychological and physiological aspects of humans. According to Kalsekar et al. (2006) there is a correlation between type 2 diabetes and depression; people with type 2 diabetes and a diagnosis of depression are seen more often by physicians and have an increased number of medication prescriptions

compared to those diabetic patients without a diagnosis of depression (Kalsekar et al. 2006). In 2013, in addition to diabetes, depression was one of the chronic conditions that Louisiana residents were affected by, which again increases the health expenditure for the state (HHS, 2015). The problem of diabetes is magnified in the state of Louisiana and this adds to the uniqueness of this quantitative investigation.

Purpose of the Study

The purpose of this descriptive, comparative study was to examine whether there is a difference between the hassles of African American/Black adults with self-reported type 2 diabetes and those of African American adults without a self-reported diagnosis of type 2 diabetes. Data generated from this study will serve to enlighten researchers, program developers, and policymakers on the daily challenges experienced by persons with chronic disease.

The church, as a faith-based institution, may help curtail the epidemic of diabetes among African Americans if culturally-sensitive educational programs are designed and implemented. The church often plays a vital role in education of African Americans, and this arena deserves attention for design of diabetes interventions (Aaron, Levine & Burstin, 2003; Collins-McNeil et al., 2012; Proctor & Williams, 2007; Simmons, Voyle, Fout, Feot, & Leakehe, 2004). African Americans have a high incidence of diabetes (CDC, 2011c; CDC, 2014a) and many have high esteem for their religious institutions (Debnam et al., 2012); therefore, diabetes interventions that take place within faith-based institution might prove to be effective. Reeves, Adams, Dubbert, Hickson, and Wyatt

(2012) suggested that religiosity and spirituality have a positive impact on members who select healthy lifestyle choices designed to augment well-being.

Proctor and Harris (2007) agreed that faith-based organizations such as the church maintain an environment that supports health education with subsequent positive outcomes, especially among African American populations. In addition, Schnall et.al. (2012) found that women who reported frequent church attendance had a decreased likelihood of being depressed, while Resnicow et al. (2002) indicated that the church was a suitable environment for programs related to nutrition and physical activity. The main point of the discussion on religion is that past and current research has indicated that activities at the church have been effective in the promotion of healthy behaviors. Therefore, in this study, I examined the variables of hassles of diabetics and non-diabetics within the environment of religious institutions (churches) where primary recruitment for participants of this study took place.

Research Questions and Hypotheses

I developed the following research questions and null and alternative hypotheses. Research Question 1: Is there a difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes?

$H_0$1**:** There is no difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes.

$H_1$1**:** There is a difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes.

Research Question 2: Is there a difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes?

H_0 2: There is no difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes.

H_2 2: There is a difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes.

Research Question 3: Is there a difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles of persons without a self-reported diagnosis of type 2 diabetes?

H_0 3: There is no difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles of persons without a self-reported diagnosis of type 2 diabetes.

H_3 3There is a difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes.

Theoretical Framework

I used Lazarus and Folkman's (1984) Cognitive Appraisal Theory (CAT) as the theoretical framework for this study. The CAT acknowledges that individuals have numerous transactions throughout their lives within their particular environment. Some of the transactions are not as stressful as others, but nevertheless, they can be annoyances that occur on a daily basis. The daily annoyances are hassles that have the potential to cause anxiety, frustration, and over time, can have a negative effect on one's health (Lazarus & Folkman, 1984; Mind Garden, 1989). The overall premise of CAT is that the individual assesses each transaction or event they encounter to determine the stressfulness of the transaction. Once the appraisal is completed, the individual engages in the appropriate coping strategy for that particular transaction, and then reexamines the transaction and makes adjustments for future events (Lazarus & Folkman, 1984). Inherent in the CAT is the supposition that there are a number of personal, situational, and timing factors that influence the appraisal process. I used the hassles portion of the Combined Hassles and Uplifts Scale for the self-report of hassles; this is a common practice according to the copyright holder of the scale (Mind Garden, 1989).

Although the CAT is the specific theoretical framework that I used for this study, I used the concept of stress as a broad framework that connects the suppositions of CAT to the variables I examined. Since stress (both psychological and physiological) is linked to disease (Selye, 1974), hassles are considered stressful elements (Lazarus & Folkman, 1984), and chronic stress is linked to illness (Karim et al., 2014; Hamilton & Meston, 2013; Holmes & Rahe, 1967; Murff, 1997), the CAT is relevant for this study. Also, the

CAT and the concept of stress were fitting frameworks for this study since mental disorders such as depression produce emotional distress and have an association with diabetes (Bogner, Morales, Post, & Bruce, 2007; Musselman et al., 2014; Semenkovich, Brown, Svrakic, & Lustman, 2015; Wagner, Abbott, Heapy, & Yong, 2009). Further, there is a greater risk of mental health disorders among African Americans with type 2 diabetes (Spencer et. al, 2006). I discuss stress and the CAT in more detail in Chapter 2.

Nature of the Study

This was a quantitative, descriptive study with comparison groups. Descriptive studies merely describe differences and associations that might exist between variables (Houser, 2013). According to Burns, Grove, and Gray (2012), descriptive comparative studies express differences between or among various groups. Another characteristic of descriptive comparative designs is that there is no intervention; rather the differences and similarities are simply described (Grove, Burns, & Gray, 2012).

Group A for this investigation was adults without a self-reported diagnosis of type 2 diabetes. The variable measured for Group A was hassles (total, frequency, severity). Alternately, adults with a diagnosis of type 2 diabetes (self-reported) were placed in Group B. The variable measured for Group B was also hassles. I used a *t* test to identify differences between the two study groups.

Definition of Terms

Adult, for the purposes of this study, was defined as an individual 18 years or older (CDC, 2014a). Although CDC (2015) reported statistics for diabetes as affecting

adults aged 18 or older, statistics provided by CDC (2014b) showed positive and negative outcomes for diabetics over age 20, which is suggestive of an individual who is an adult.

African Americans, in this study, are defined as non-Hispanic Blacks living in the United States. All African Americans who are living in the United States who are neither of Hispanic descent, nor Caucasian will be known as African Americans or Blacks. CDC (2014b) makes reference to non-Hispanic Blacks as African Americans.

Depression is a psychological stressor (Herclides et al., 2009) that is defined as having a diagnosis of minor or major depression (Katon et al., 2005). Musselman, Betan, Larsen, and Phillips (2003) reported that a connection between depression and diabetes exists. Specifically, depression is a chief contributing factor for the development of type 2 diabetes and might be responsible for the rapid rate at which complications of diabetes occur. The definitions of depression by Katon et al. (2005), and Musselman, Betan, Larsen, and Phillips (2003) are congruent. However, the definition in the Diagnostic and Statistical Manual of Mental Disorders ([DSM-V], 2013) is slightly different in that depression is categorized by major depressive episode, major depressive disorder-single event, and major depressive disorder, recurrent events. These criteria warrant different treatment modalities. The Jackson Heart Study (JHS, 2008d) researchers reported that there is a connection between stress and depression. Researchers for the Jackson Heart Study (2008c) referred to depression as feelings or symptoms of depression that were self-reported by participants, including sadness, anxiety, and changes in mood. Participants in the JHS completed a self-report questionnaire that was developed by Center for Epidemiological Studies (CES; JHS, 2008c). Symptoms on the depression

questionnaire used by the JHS were numerically identified and ranged from a score of 1 – 47. A numerical value equal to or greater than 15 represented probable depression, as measured by the "Hassles and Moods B," Form Code: CES, Version A, used by researchers in the JHS (2008c). Therefore, it should be noted that depression is a psychological stressor that can lead to negative health outcomes, and people with diabetes are more likely to be depressed (van Dooren et al., 2013) so more attention should be placed on assessment and intervention related to depression.

Diabetes Mellitus or *diabetes* refers to type 2 diabetes, a condition in which carbohydrates are abnormally metabolized and the cells are desensitized to existing insulin supply (ADA, 2015). According to the CDC (2011b), type 2 diabetes is the most common form of diabetes.

Hassles are daily annoyances that cause a feeling of anxiety or frustration associated with such things as dealing with a spouse, children, or other family members, job insecurity, workload on the job, or news events (Mind Garden, 1989). Hassles are indicators of stress and the stresses of life that occur on a daily basis (Kanner, Coyne, Schaefer, & Lazarus, 1981). Hassles are also referred to as *stressors* (Neuman, 1989).

Religious, spiritual or faith-based setting is defined as a place to attend church for some type of religious service (Powell, Shahabi, & Thoresen, 2003) or health-related program such as diabetes education (Williams, Glanz, Kegler, & Davis, 2012). *Religious institution* refers to an environment where individuals gather for religious activities such as prayer or Bible study (Reeves, Adams, Dubbert, Hickman, & Wyatt, 2012).

Stress is described as a physiological or psychological condition that causes a person to experience strain. Stress is also related to a daily hassle or uplift (Lazarus & Folkman, 1984). Stressors, a component of stress, are tension-producing forces that can be positive or negative and have the potential to produce positive or negative outcomes (Neuman, 1989; Lazarus & Folkman, 1984).

Assumptions, Scope, Delimitations and Limitations

Assumptions

My assumptions in this study were as follows:

- Diabetes is a chronic condition in which the incidence and prevalence is growing rapidly, and therefore warrants attention (HP 2020, 2013).
- Hassles are related to stress and have an association with chronic conditions such as diabetes (Lazarus & Folkman, 1984).
- Each hassle identified by the study participant is self-appraised and therefore represents reality (Mind Garden, 1989).
- All information that will be documented on the questionnaire is accurate.
- The results of the study can be generalized to African American adults with a self-reported diagnosis of type 2 diabetes or African American adults without a self-reported diagnosis of type 2 diabetes, within a faith-based setting.

According to Polit (2010), assumptions are suppositions that the researcher believes to be true facts. The supposition statements are made for the purpose of statistical analysis. In other words, researchers might make a conjecture statement that will facilitate the analysis of data: without theses conjecture statements the results of the

study might be invalidated. Moreover, it is more difficult to understand what the numerical values indicate, and to interpret the values, if the basic suppositions are not thoroughly identified and comprehended (Trochim & Donnelly, 2008).

Scope

The scope of a study often presents information with regard to the magnitude or extent of the study. Another perspective of the scope of a study would be the presentation of a specific variable, but taking a look at the variable on a broader level (Creswell, 2014). This investigation is a quantitative descriptive study that compared self-reported indicators of stress between two groups. According to Grove, Burns and Gray (2012) the purpose of a descriptive comparative design is to measure variables in the natural state, to describe variable differences between the groups, and then to provide meaning or to interpret the results. The results of the study cannot be generalized to the global population due to the specificity of the sample (Grove, Burns & Gray, 2012). The scope of this study is to specifically look at the affect that stress, in the form of daily hassles, has on African Americans with type 2 diabetes.

Delimitations

Delimitations, according to Creswell (2014), refer to presentation of the study the variables on a more narrow level compared to the scope. Delimitations might focus on specific characteristics of participants in a study rather than the variable being investigated (Creswell, 2014). I have set the delimitations for this study to include African Americans with and without type 2 diabetes. Also, delimitations included people

associated with churches in the state of Louisiana. Subjects for the study were single, married, separated, widowed, and divorced.

Limitations

I identified the following limitations of this study:

- The findings of this study are generalizable only to African American adults with type 2 diabetes within a religious setting.
- Participants from the comparison group were from one ethnic group.
- There was a comparison group of those without a diagnosis of diabetes, but it was possible that members of this group might actually have had type 2 diabetes for which they had not received a diagnosis. Currently there are 29 million Americans with diabetes, but surprisingly, there are over 7 million who do not know they are living with diabetes (CDC, 2014a).
- The findings of this study are generalizable only to the geographical confines of where data were obtained in northern Louisiana.
- The study participants engage in self-appraisal as part of the CAT.

According to Fain (2013), limitations are those factors that are perplexing with regard to the study variables. Limitations are stated by an investigator so that there is knowledge about factors that can potentially influence the study results. In other words, if there is something that can impact the study results, it should be identified (Fain, 2013). For example, if a survey is being collected and the study participant has not slept for forty-eight hours, the information documented on the survey might not be reliable.

Creswell (2014) stated that the purpose of a statement of limitations in a study is to present factors that possible could be a shortcoming of the study.

Significance of the Study

The study contributes to the body of knowledge related to hassles and diabetes, and the need for formal diabetes education. In the United States, the prevalence of diabetes has greatly increased and has been referred to as an epidemic by several researchers (Albright & Gregg, 2013; Spellman, 2007). in Healthy People 2010 Goal 5.1, the U.S. Department of Health and Human Services (2000) noted that by 2010, at least 60% of the diabetic population will receive formal diabetes education. This goal related to diabetes education for 2010 was continued without revision for Healthy People 2020 (HP, 2011). Therefore, it is apparent that there remains significant concern with regard to what should be included in diabetes education for those individuals with diabetes.

Although the target percentage for an increase in diabetes education among diabetics was identified in the Healthy People objectives, no specific curriculum was distinguished. In spite of the fact that a specific diabetes education curriculum to follow was not acknowledged by the U.S. Department of Health and Human Services (2000), or articulated in the Healthy People 2020 (HP 2011) document, there are a few agencies and organizations that developed diabetes education programs. The ADA (2008a), the CDC (2008), National Institutes of Health (NIH, 2008), National Standards for Diabetes Self-Management Education (DSME; Funnell, Brown, Childs, & Haas, 2009), and the United States Preventive Services Task Force (U.S.PSTF, 2008) are agencies that have developed comprehensive diabetes education programs. The National Diabetes

Education Program (NDEP) is an intervention that has been endorsed by governmental agencies. In 1997, NDEP was instituted by the U.S. HHS to increase the number of people that benefit from effective diabetes management, thereby realizing a decrease in the burden of care for those with diabetes and prediabetes (U. S. HHS, 2011).

A group of experts on the subject of diabetes joined together in 2011 to review the national standards on diabetes self-management education—a review that occurs approximately every 5 years (Haas et al., 2013). Experts from the American Association of Diabetes Educators (AADE) and the ADA spearheaded the taskforce to review the standards, and they agreed to change the name of the standards to National Standards for Diabetes Self-Management Education and Support. The name change was significant to indicate the importance of the continual support that is needed for persons with diabetes and those at risk for diabetes to positively impact the incidence rate of the disease (Haas et al., 2013).

Another potential, positive result with respect to the Healthy People 2020 (HP, 2011) goals is that this study might identify key elements that are essential for uniquely designed diabetes interventions for African Americans. Since the prevalence of diabetes among Blacks is high (CDC, 2011c), complications related to diabetes are numerous (ADA, 2017), and diabetes care significantly contributes to national health expenditures, strategies that maximize positive health outcomes are needed. In order to prevent complications of diabetes such as heart disease, stroke, and limb amputations, diabetes control is necessary. Therefore, it is possible for the results of this study to facilitate a decline in the national healthcare costs for diabetes and diabetes-related complications.

My initial literature search led me to information related to diabetes risk factors, Complications, and the effects of diabetes on African Americans. In this study, I sought to determine if there was a difference in the hassles of those persons with a diagnosis of type 2 diabetes compared to those of individuals without a diagnosis of type 2 diabetes.

The results of this study will contribute to comprehensive diabetes education and best practices for diabetes, which will subsequently promote effective diabetes self-management. Since there is a steady increase in the incidence of diabetes in the United States, it is imperative that the public and policy makers are thoroughly educated about all the circumstances and challenges inherent in the chronic disease experience. Optimal diabetes control can be achieved through better diabetes self-management, thereby adding to a reduction in the incidence of diabetes.

Diabetes education is a major key to diabetes self-management. The National Standards for Diabetes Self-Management Education (DSME) provides criteria for diabetes education in order to facilitate improvement in patient outcomes (Funnell et al., (2009). The DSME standards were developed through a collaborative effort of several agencies and groups (American Association of Diabetes Educators, ADA, American Dietetic Association, CDC, Veteran's Health Administration, American Indian Health Service, American Pharmaceutical Association, registered nurses, dieticians, and other persons with diabetes), and they are revised every 5 years (Funnell et al., 2009). The latest revision of the standards occurred in 2011, and the taskforce voted to add the word *support* to the formal title of the standards to highlight the importance of

collaborative support in improving education and management of persons with diabetes (Haas et al., 2013).

The number of African Americans with diabetes has dramatically increased in the United States (CDC, 2011c; CDC, 2014a). Hence, it is necessary to identify priorities related to diabetes to local, state, regional, and federal governments, as well as professional organizations and community agencies. Further, it is vital to communicate that culturally-sensitive interventions are imperative. Because of the financial burden placed on governments to care for those with diabetes, alternative mechanisms that provide quality interventions related to disease prevention, management of chronic diseases, and health promotion should be examined.

In this study, I sought to add to the body of knowledge with regard to daily hassles and differences between groups. Currently, there are approximately 29 million Americans with diabetes, and another 7 million people who are unaware they have diabetes (CDC, 2014a). The number of individuals with diabetes has increased by about 3 to 4 million since the 2008 data was released (CDC, 2008). Continued research is needed to pinpoint the factors that contribute to the development of diabetes and the complications related to diabetes. With regard to social change, further exploration related to the incidence and prevalence of diabetes should facilitate changes in policies and protocols on the local, regional, state, and national levels with respect to best practice for diabetes education and diabetes management.

Summary

In this chapter, I provided information on the background of the study. The purpose of the study was to explore the differences in hassles for African American adults with type 2 diabetes compared to those of African American adults without a diagnosis of diabetes. I discussed Lazarus and Folkman's (1984) CAT, and presented the research questions and hypotheses. Finally, I discussed the assumptions, limitations, scope, and delimitations. In Chapter 2 I offer a review of the literature.

Chapter 2: Literature Review

Introduction

According to CDC (2014a), DM is a serious condition that affects about 29.1 million Americans annually; its prevalence is highest among African Americans (12.6%) (CDC, 2011c). DM is responsible for a number of unwanted complications (ADA, 2017): The CDC (2014a) has shown that caring for persons with diabetes is costly. The United States spends over $244 billion each year to care for persons with diabetes and diabetes-related diseases such as heart disease (USPSTF, 2008) and renal disease (U.S. HHS, 2000; CDC, 2014a). A more specific delineation of the health care costs for diabetes is that $116 billion dollars is spent on providing direct medical care, which includes education and treatment (CDC, 2011b). Added to the cost of direct medical care is $58 billion for indirect costs, which includes lost compensation for sick days, disability, and premature death (CDC, 2011b).

The problem is that there is an increase in the number of individuals with type 2 diabetes, especially among African Americans (CDC, 2012a). The purpose of this study was to question the differences in hassles among African American adults with and without a self-reported diagnosis of type 2 diabetes.

With regard to diabetes, Healthy People 2020 (HP, 2011) preserved the goals of prevention of diabetes, diabetes education, and diabetes control from Healthy People 2010 (U.S. HHS, 2000). The fact that the goals related to diabetes prevention, education, and control are included in HP 2020 demonstrates that there is an ongoing problem. Further investigation of the pattern of disease development in African Americans is

necessary to develop strategies to reduce the incidence of diabetes and to manage clients with diabetes-related complications. One of my goals in this study was to determine if daily hassles, which are stressors and stress, are concepts that might be beneficial to emphasize in diabetes educations programs. Diabetes education is important for diabetes management (Haas et al., 2013) that subsequently leads to diabetes control (HP 2020, 2011), which is often measured by the glycosylated hemoglobin (HbA_1c, A_1C, A1C; ADA, 2014).

In past decades, researchers have examined the association between stress and health. To date, there have been no studies of the connection between daily hassles of African American adults with a self-reported diagnosis of type 2 diabetes compared to the daily hassles of African American adults without a self-reported diagnosis of type 2 diabetes. Ultimately, this investigation will serve as a mechanism to influence the quality of educational interventions for African Americans. Knowledge generated from this study might also influence best clinical practices, and policy and protocol development on local, state, regional, and national levels.

In Chapter 2, I present my literature search strategies, a discussion of the stress response, and a discussion of the theoretical frameworks of stress and CAT. In the literature review, I synthesized information related to type 2 diabetes and African American adults in terms of physiological factors associated with diabetes (three main types of diabetes, risk factors, and diabetes-related complications), and psychological factors (daily hassles and depression) within the context of the religious experience. I also offer a detailed discussion of depression, since even minor depression is associated with

cardiovascular complications in people with diabetes (Lin et al., 2010) and people with diabetes have a greater likelihood of being diagnosed with depression (van Dooren et al., 2013). Because diabetes is a complex disorder and a wealth of knowledge is needed for management (LeMone, Burke, Bauldoff, & Gubrud, 2015), I have also offered a thorough review of the risk factors and complications of diabetes.

Even though researchers have been inspired to develop effective diabetes interventions, best practices, and recommendations that have been beneficial to society, the incidence of diabetes continues to rise. A quotation by Sir Isaac Newton (1676) indicates why I believe it is important for past research to be remembered, "If I have seen further, it is by standing on the shoulders of giants" (p.1, para. 1). Past research findings on diabetes have resulted in new discoveries and the creation and strategic design of innovative interventions. Therefore, in this chapter I provide a glimpse of the volumes of past and more current research related to diabetes in terms of risk factors, complications, diabetes education, mental health issues, and religious settings.

Literature Search Strategy

Empirical studies related to diabetes, depression, stress, and stressors, appear in peer reviewed healthcare journals. I performed electronic searches using EBSCO HOST, PROQUEST, and PROQUEST CENTRAL search engines to identify literature from medical, nursing, and other healthcare fields. I also used databases such as MEDLINE, CINAHL, PUBMED, and Medscape, and Google Scholar, as well search resources available from Walden University and Grambling State University libraries. Keywords I used for the literature search included *chronic disease, diabetes, type 2 diabetes, hassles*

and uplifts, depression, despair, stress, stress response, stressor, hopelessness, psychological stress, stressful life experience, psychosocial stress or stressors, church attendance and illness, spirituality and disease, religiosity, worship, glycosylated hemoglobin, African American (Black, Blacks, non-Hispanic Blacks), cardiovascular disease and diabetes, and *adult (mature, grown-up).* I retrieved professional journal articles electronically, but reviewed them after printing their pdf versions. I also reviewed several books, which added clarity to the subject. In order to obtain a broad perspective on the variables in the study, I reviewed certain articles and books published between 1967 and 2017.

Theoretical Foundations

Stress, Stressors, and Stressful Life Experience

The belief that stressful experiences lead to disease has existed for a number of years. Selye (1976) suggested that normal life experiences can produce stress, and described stress as "the nonspecific response of the body to any demands made upon it" (p. 27). As demands are made on an individual or as certain precarious situations arise, there is an increase in the need for the body to adjust to the situation in an effort to reestablish normalcy (Selye, 1974). Selye (1974) also reported that a set of physiological reactions occurred in response to environmental demands, or noxious stimuli, which are called stressors. Specifically, stressors are pleasant or unpleasant factors that can produce both pleasant and unpleasant consequences; it is the unpleasant stress that is more damaging in that it has a harmful effect on the body and is therefore called *distress*

(Selye, 1974). *Eustress*, on the other hand, is described as pleasant experiences or feelings like joy and happiness that are positive and satisfying (Selye, 1976).

Over the past several decades, several researchers have presented the idea that there is a relationship between stress and disease. According to Heraclides, Chandola, Witte, and Brunner (2009), long-standing contact with psychosocial stress can have a cumulative effect on the body, thereby leading to physiological problems. In other words, as an individual endures more situations related to conflict, there is a greater likelihood that signs of physiological strain will become evident. The ADA's Position Statement on Psychosocial Care for People with Diabetes (PWD) indicated that diabetes is a complex disease with complex challenges for care on a daily basis. Also, people with diabetes experience distress, as well as comorbid psychological conditions (Young-Hyman, 2016). In other words, psychosocial issues are a regular component in the life of people with diabetes, and since diabetes and distress are associated, healthcare providers should be knowledgeable on how to effectively intervene. If psychosocial issues did not present a challenge in the management of chronic diseases like diabetes, then a position statement might not have been needed.

Since stress or stressors are a pervasive part of an individual's environment, especially one with a chronic disease, and a critical assessment of the stressors that affect the individual should be considered in the development of a health management plan. Humans are viewed as open systems who are in constant contact with their environment, according to Neuman (1989). Neuman (1989) developed the open-systems model in which the client, a group, or other entity is a system that is in constant contact with their

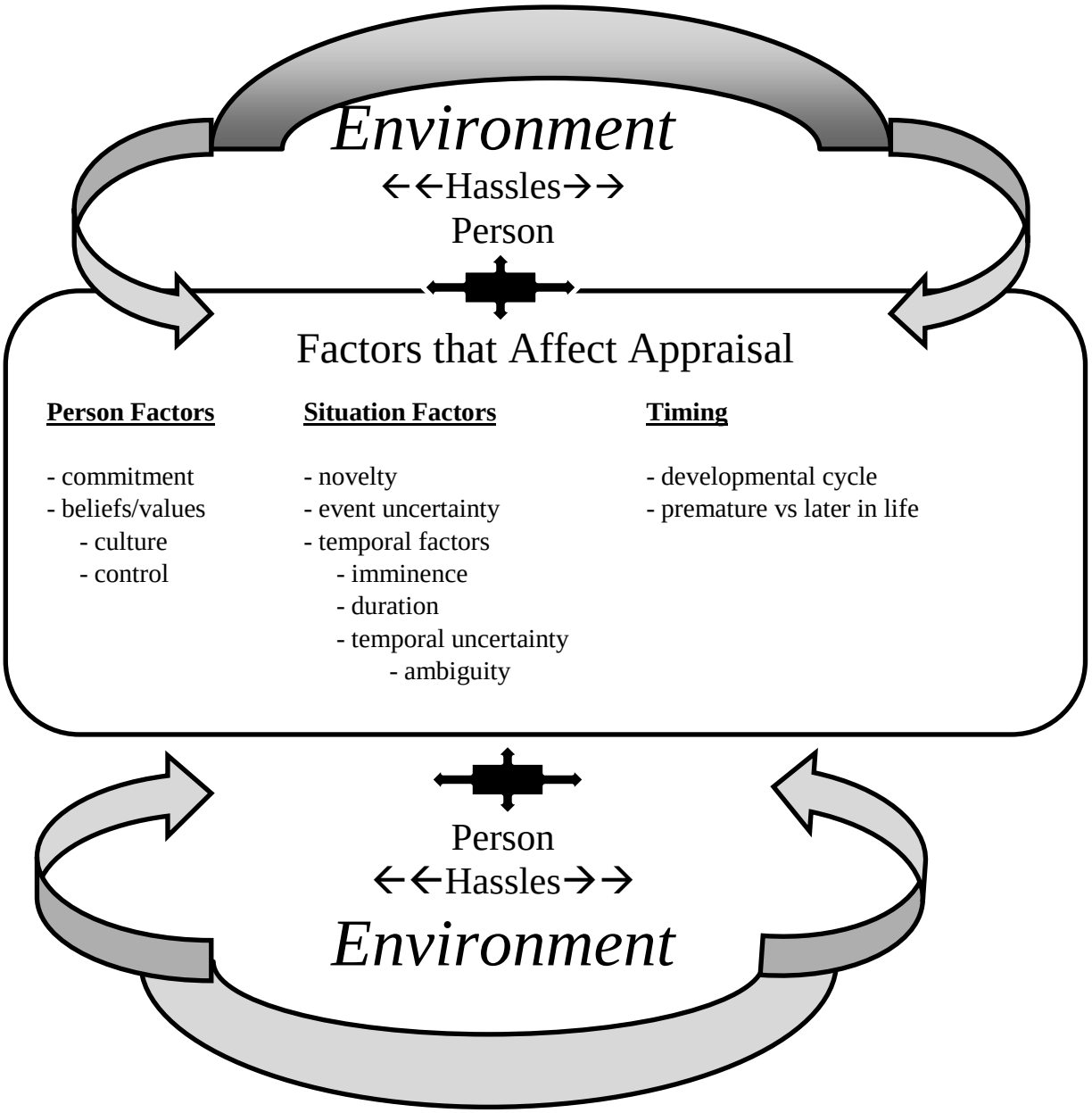
environment. The systems model is dynamic in that the transactions that involve the open system occur on a continual basis (Neuman & Fawcett, 2011). Health care providers that subscribe to the systems model are concerned with achievement of ultimate wellness for the client-system. As the client-system interacts with their environment, there are factors that can disrupt the equilibrium of the system, and it is possible that detrimental reactions can occur (Neuman & Fawcett, 2011). The tension-producing agents that potentially produce stress or stressful situations, or disharmony for the client-system are defined as stressors (Neuman, 1989; Neuman & Fawcett, 2011). Neuman (1989) further described stressors as disrupting forces that operate within or upon an individual, and these stressors have power to splinter or enhance the person's level of wellness.

Holmes and Rahe (1967) were among the mid-twentieth century researchers who identified a relationship between an increased number of stressors, or stressful experiences, and disease. Holmes and Rahe (1967) focused on the correlation between major stressful life events and the onset of illness as modifications to one's life were made. Holmes and Rahe (1967) also categorized stressors as acute or chronic. An example of an acute stressor could be an experience of personal danger.
Examples of chronic stressors could be related to changes in work status, bereavement, or daily hassles (Holmes & Rahe, 1967). Chronic stressors were identified as experiences that occur regularly or on a daily basis, and are just annoyances. The SRRS was developed by Holmes and Rahe (1967), who placed an emphasis on the degree of readjustment a person had to make to be able to handle the stressful events. They proposed that physiological illness was directly related to the readjustments to major

changes in one's life. In other words, the more stressful the changes in one's life, the more modifications to events that had to be made and the greater the risk for the person to succumb to negative health outcomes.

Cognitive Appraisal Theory

A more modern explanation of stress was presented by Lazarus and Folkman (1984), in that it was recorded that stress is not merely a response to environmental demands, but rather stress is related to environmental and personal factors. The theory of Cognitive Appraisal of Stress is an evaluative process (Figure 1). Situations are stressful if the event is perceived as stressful by the individual. In turn, the situation might be threatening, harmful, or have the potential for harm or loss, or is a challenge, if the person is vulnerable to the negative effects produced by the stressor. The stressors in the evaluation of transactions are the daily hassles that occur on a continual basis (Lazarus & Folkman, 1984). Daily hassles are also can result in chronic stress (Kanner, Coyne, Schafer & Lazarus, 1981). On the contrary, uplifts have been described as pleasant or satisfying occurrences that seem to buffer the negative effect of the irritating hassles (Kanner et al., 1981). Even though uplifts seem to negate the negative effects of hassles the current investigation will only focus on hassles.



Primary Appraisal

- irrelevant
- benign positive
- stressful
  - harm/loss
  - threat
  - challenge

Secondary Appraisal

Evaluation of Coping Strategies
- recall coping resources from past experiences
- assess coping strategy for effectiveness for past transactions
- implement strategy

Reappraisal

Evaluate and Modify
- review the initial transaction and coping strategy
- reevaluate entire transaction
- employ modifications

Figure 1. Application of hassles to cognitive appraisal theory.

As an individual navigates through the cognitive appraisal process, each transaction is assessed for its' value: there are three types of appraisals. Each environmental transaction is evaluated as an irrelevant, benign, or stressful event. Once the significance of the encounter is established, the individual then mobilizes the coping strategies necessary for the interaction. Typically, individuals engage in the cognitive appraisal process continually during the wakeful hours (Lazarus & Folkman, 1984).

primary appraisal. During primary appraisal a person determines the transaction is irrelevant, a positive and benign experience, or if it is a stressful encounter. Irrelevancy of a transaction denotes that the encounter neither positive nor stressful. Transactions benign and positive mean that outcome of the encounter has the potential to gain or maintain for opulence. Examples of emotions associated with a benign-positive transaction include joyfulness, happiness, love, and peace. Alternately, if the future outcome of the transaction is unwelcomed, the person might have feelings of frustration, anxiety, or guilt (Lazarus & Folkman, 1984).

A transaction might also be appraised as a stressful encounter in that it might be associated with harm, loss, a threat, or a challenge. Stressful appraisal occurs when a person has lost something that was previously cherished, or if the person experienced harm as a result of the loss: the valued element might be a relationship or something that is tangible. Emotions associated with loss or harm includes anxiety, anger or fear. In making the determination whether a transaction is a threat, during primary appraisal, there is the potential for the experience of loss or harm in the future. If the transaction poses a future threat the individual might anticipate effective coping strategies.

The primary appraisal process also incorporates assessment of the transaction as a challenge. If a transaction is identified as a challenge the individual might be eager or excited about the potential for personal growth, and as a result, necessary coping strategies are organized (Lazarus & Folkman, 1984).

secondary appraisal. In cognitive appraisal theory secondary appraisal refers to how the person copes with their encounters. During secondary appraisal the individual recalls their available coping resources: this recollection can be from past personal experiences or from their knowledge of coping strategies. Each coping strategy is then assessed for its' effectiveness. Once effective coping strategies are identified the individual then will implement the strategy if necessary. The individual might take seconds or minutes to process the secondary appraisal (Lazarus & Folkman, 1984).

reappraisal. During reappraisal the individual engages in evaluation of the entire transaction. Reappraisal incorporates review of the interaction and the coping strategies that were used. Also, the person will determine whether or not the coping strategy or strategies used were effective. Reappraisal requires the individual to modifications in their reactions to the event so as to lessen any damages that might have resulted from the whole interactive process (Lazarus & Folkman, 1984).

factors that influence appraisal.

person factors. Person factors relate to one's personal commitment, beliefs, and values. Commitment represents those personal factors that are of value or worth to an individual. For example, if a person values their health and they receive a diagnosis of a disease or disorder that limits their ability to engage in healthy behaviors such as jogging

or walking, then the person might experience anxiety or frustration. According to Murff (1997), a person might be drawn to encounters that might be beneficial, or led away from transactions that have the potential to pose a threat or challenge. Also, personal beliefs represent reality for the individual. A person's belief stems from cultural background and innate characteristics and behaviors that relate to culture (Lazarus & Folkman, 1984). Another element related to person factors is control. Control refers to self-assessment for the knowledge and skills to manage stressful transactions. In other words, the concept of control includes self-assessment in terms of the ability to examine the entire appraisal process, identify coping resources, utilize effective coping strategies, and continue the plan through reappraisal and modification (Lazarus & Folkman, 1984).

situation factors. Situation factors include novelty, event uncertainty, temporal factors, and ambiguity. Situation factors represent specific characteristics of the transactions identified as harmful, threatening, or those that present a challenge during the primary appraisal process. The concept of novelty implies that an individual is presented with an encounter that is unfamiliar, either from personal experience, or has not observed another person's experience with the same transaction. Event uncertainty is another situation factor that suggests there is a possibility that the transaction will or will not occur. Therefore, the individual might experience anxiety and frustration due to the unpredictability of the transaction (Lazarus & Folkman, 1984).

Temporal factors are categorized into imminence, duration and temporal uncertainty. Imminence denotes the time prior to the encounter that is anticipated by the individual. If there is a perception of danger with an encounter, imminence might be

more intense and the time for elaborate appraisal will be shortened. Duration, with regard to temporal factors, refers to the time frame in which the encounter covers: it refers to how long the lasts. The concept of temporal uncertainty denotes that an encounter is going to occur, meaning it is imminent, but the individual does not know the exact time that it will occur (Lazarus & Folkman, 1984).

Ambiguity is a factor that causes one to raise the question what are the ramifications involved in the transaction entail? The individual might have a fundamental knowledge of the encounter, but there is a lack of comprehensive understanding about the whole encounter. Ambiguity often produces stress because vital information about the encounter is unavailable; therefore, feelings of helplessness might be experienced (Lazarus & Folkman, 1984).

timing. The final factor that influences appraisal is timing. Timing is concerned with the point in the life cycle that encounter occurs. An encounter that occurs prematurely in life might be extremely stressful. On the contrary, an encounter that usually occurs early in the developmental life cycle but now it has been incurred later than normally anticipated, can also produce severe stress (Lazarus & Folkman, 1984). For example, the unexpected pregnancy of a 50 year old woman has the potential to result in severe stress.

Relevance of Cognitive Appraisal Theory to the Study

The CAT is relevant to the present study. There is a tie between stress, stressful situations, and illness (Selye, 1974). Stress of a chronic nature has a close connection to the onset of disease, according to Holmes and Rahe (1967). Diabetes is a chronic disease

with costly consequences (CDC, 2014a), and the cost to care for persons with chronic diseases increases because there is no cure (Larsen, 2016). So, stress that is experienced daily can be considered chronic, which can further exacerbate an adverse physiological condition. CAT is a process that takes place in the mind of an individual as they appraise their daily encounters. In the appraisal of daily encounters a person is engaged in decision-making to determine whether encounter has no relevance, is a benign encounter or, if the encounter poses and immediate threat. If the encounter poses a threat to the individual, further appraisal is necessary (Lazarus & Folkman, 1984).

For example, suppose a person with diabetes has an insulin pump (a battery-powered device that distributes insulin on a continual basis), which means that they are dependent on insulin to survive. If the battery power of electronic device was low or no more power was left in the battery, the individual would have to decide on the steps to be taken to prevent a severe, hyperglycemic reaction. As a result of the failure of the battery, the individual engages in the cognitive process to determine the best coping strategy to handle the serious transaction. The individual will have to consider the availability of a new battery, the travel time to obtain a new battery, whether nutrition intake can be altered to prevent an increase in the blood glucose level, to check the blood glucose level immediately, or not to intervene.

People with chronic illnesses must consider each daily transaction to ensure there is no exacerbation of the condition. Larsen (2016) offered a definition of chronic illness that is comprehensive in that it is a lived experience that encompasses individual and family beliefs and values that impact their health-seeking and health promotion

behaviors. In addition, there are variables that affect the individual's and family's lived experience. The variables that shape the values are demographics, socioeconomic status, technological factors, cultural and environmental variables (Larsen, 2016). Therefore, healthcare providers must consider all facets in the life of those with chronic conditions for effective management, and to educate patients for effective self-management of the chronic condition.

Diabetes requires that adjustments are made in a person's daily living experience. Mendenhall, Seligman, Fernandez and Jacobs (2010) indicated that people with chronic illness are faced with challenges related to treatment and management of the disease that has interrupted functions of their everyday life. People with diabetes are concerned with daily activities that produce distress, such as blood glucose monitoring, taking medicine which might include the injection of insulin, finding the time to engage in exercise, and personal nutrition therapy: these activities equate to daily hassles (Polonsky et al., 1995). Byers, Garth, Manley, and Chlebowy (2016) confirmed that difficulty with adherence to dietary constraints, an effective physical activity regime, and medication are tasks that are barriers to effective diabetes self-management. There is also an association between diabetes, chronic stress, emotional pressures, and social distress (Mendenhall et al., 2010). According to CAT, a person's commitment to engage in effective coping strategies for each transaction depends on their personal beliefs and values, and also depends on their cultural practices. On the other hand, if a transaction is unimportant to a person, then there is no need to mobilize or modify coping strategies (Lazarus & Folkman, 1984). If there are constant barriers related to emotional disturbances, issues

related to ineffective nutrition, physical inactivity, and medication adherence, the solutions and coping strategies employed might impede progress toward effective diabetes self-management.

Stress, stressors, distress, emotional distress, and hassles all have an association with diabetes. According to Kanner, Coyne, Schaefer and Lazarus (1981) the Hassles Scale provided a better quality of prediction of psychological symptoms rather than scores related to major life events. Daily annoyances or hassles affect all humans both physically and mentally, and as suggested by Kanner, Coyne, Schaefer and Lazarus (1981) the frequency and severity of hassles are interconnected to adaptation and coping. With respect to Lazarus & Folkman's CAT (1984), psychological variables can potentially result in harm or loss, or they can present a threat or a challenge. A person with diabetes must appraise all encounters within their lived experience, and then make a determination as to how the encounter will be handled.

Depression is also associated with a diagnosis of diabetes and there is a connection between stress, depression, and poor health outcomes (Mendenhall et al., 2010). The Healthy People 2020 (2013) document also indicated a correlation between depression and distress. Additionally, Musselman, Betan, Larsen and Phillips (2003) reported that depression is a chief contributing factor for the development of type 2 diabetes. Therefore, to ensure adequate management of persons with diabetes health care providers should make provisions for assessment and interventions related to depression for their diabetic patients.

In the cognitive appraisal of stress, as an individual goes through the processes of primary, secondary, and reappraisal, coping resources and strategies have to be examined. According to Larsen (2016) persons with chronic disease must learn to make adjustments in their lived experience with chronic illness. As individuals engage in appraisal and reappraisal of transactions, psychosocial adjustments are made (Larsen, 2016), and Kanner et al. (1981) referred to adaptation or adjustment as coping: these propositions are in line with CAT.

Physiological Factors Associated with Diabetes

Stress Response

In order to gain an understanding of the effect of stress on health there must be a discussion of the stress response. The stress response is multidimensional and begins with activation at the level of the Hypothalamic-pituitary-adrenal (HPA) axis. When a person perceives stress the central nervous system (CNS) is stimulated and the hypothalamus releases corticotropin-releasing hormone (CRH). CRH connects to specific receptors embedded in the pituitary gland. The joining of CRH to the receptors causes the release of adrenocorticotropic hormone (ACTH) from the anterior pituitary gland into the circulatory system, and ACTH then binds to specific receptors on the adrenal glands. The chief glucocorticoid hormone, cortisol, is released following the ACTH-adrenal gland receptor site event and cortisol affects multiple body tissue, organs, and systems (Seeley, VanPutte, Regan & Russo, 2014). Briefly, cortisol secretion results in the breakdown of protein and fat, prevents the utilization of glucose thereby causing an increase in blood glucose levels, and it prevents the effective functioning of the immune system (Seeley et

al., 2014). According to Clayton, McCance and Forshee (2012), cortisol normally causes an increase in the blood pressure and cardiac output. Also, CRH causes the release of antidiuretic hormone (ADH) from the posterior pituitary gland: the normal response of ADH is to cause sodium and water retention (Seeley et al., 2014).

The sympathetic nervous system (SNS) causes a release of catecholamines, epinephrine and norepinephrine, from the adrenal medulla, at the same time the central nervous system is stimulated. Epinephrine increases the heart rate and the force of contraction of the heart during the stress response. Also in a response to stress insulin production by the pancreas is reduced and glucagon secretion increases, with the eventual increase in the blood glucose level (Clayton, McCance & Forshee, 2012). During stressful times norepinephrine causes and increase in the blood pressure, sweat production, and pupillary dilation. Piloerection (goose bumps) also occurs as a result of the secretion of norepinephrine (Clayton et al., 2012).

Psychologic, emotional, physiologic stressors, through a complex process, cause dysfunction of the immune system. With the release of glucocorticoids and catecholamines, there is a decrease in innate immunity which leads to immunosuppression and an elevated risk for infection (Clayton et al., 2012). The stress response can also cause a release of histamine from mast cells with resultant acute inflammation and an allergic response. Other chemical mediators such as interleukin 6 and tumor necrosis factor alpha (linked to obesity and type 2 diabetes) can lead to a heightened inflammatory process (Clayton et al., 2012).

Pathophysiology of Hyperglycemia

There are various endocrine hormones that are responsible for metabolic processes, and utilization of carbohydrates, proteins, and fats by the body. Insulin is a hormone that is secreted from the beta cells located in the Islets of Langerhans, found in the pancreas. When a person's blood glucose level increases, insulin is secreted, travels to the liver first, via the portal circulation, and then into the blood stream. On the cell membrane of mainly muscle and fat, there are special receptor sites for which insulin binds to allow an interaction to take place with insulin. Insulin enables glucose (product of carbohydrate metabolism) to enter into the cell to be used body (Lewis, Dirksen, Heitkemper & Bucher, 2014).

On each cell in the body there are receptor sites for specific hormones, medications and other elements. Insulin attaches to the specific insulin receptor site on the cell to enable glucose to enter the cell where it is used for energy to fuel the numerous metabolic processes performed by the body (Lewis et al., 2014). A person might produce a sufficient amount of insulin, but in the initial stages of the disorder the insulin receptors might be resistant to the hormone.

In type 2 diabetes, the receptor sites are often resistant to insulin. As a result of insulin resistance, glucose circulates freely because it cannot enter the cell, and then causes an increase in the blood glucose level. As glucose freely circulates it builds up in the intravascular circulation, with resultant hyperglycemia (LeMone et al., 2015). The elevated glucose levels are related to serious complications of diabetes as well as increased death rates (CDC, 2011b). The effective use of insulin by the body can thwart

complications of diabetes such as retinopathy and blindness, disorders of the kidneys, and peripheral nerve damage that can result in loss of limbs (Daniels & Nicoll, 2012).

Types of Diabetes

prediabetes. There is a relatively new term, prediabetes, that is used to describe a person whose blood glucose level is high enough to them at risk for the complications associated with DM, but it is not high enough to make an actual diagnosis of diabetes. In other words, the blood glucose level for persons with prediabetes is not low enough to be considered within the normal range for a person without a diagnosis of diabetes (CDC, 2012a). A normal range for the eight-hour fasting plasma glucose level is less than 100 mg/dl (ADA, 2014). In general, a diagnosis of prediabetes is made when the fasting blood glucose (FBG) level is 100mg/dl to 125mg/dl. The use of the FBG as the diagnostic parameter for DM is a measurement of 126 mg/dl or greater (ADA, 2014).

type 1 diabetes. When the pancreas is unable to produce insulin to metabolize carbohydrates in the body, a diagnosis of type 1 diabetes is made. As a result of the body's inability to produce insulin, those with type 1 diabetes require a constant amount of exogenous insulin to perform metabolic processes (Lewis et al., 2014). Type 1 diabetes is more prevalent among children and adolescents and is linked with a congenital problem in which the islet cells (beta cells) malfunction and are no longer able to produce insulin (Lewis et al., 2014). Costacou, Chang, Ferrell and Orchard (2006) identified a genetic predisposition for complications related to diabetes, such as cardiovascular disease, among type 1 diabetics with a low risk for complications.

type 2 diabetes.

The most commonly diagnosed form of diabetes is type 2 (CDC, 2012a). Type 2 diabetes was formerly called adult onset diabetes because it affected adults age 45 and older more than any other age group (CDC, 2008). According to ADA (2015), type 2 diabetes is usually observed in adults whose cells are desensitized to insulin, and these individuals are usually obese. In other words, there is an increase in the amount of circulating insulin because of the decrease in tissue sensitivity to insulin. Consequently, the term insulin resistance is used to describe type 2 diabetes due to the desensitization of the cells to insulin (ADA, 2015). When the body is resistant to insulin glucose cannot enter the cell to be used as energy (Lewis et al., 2014). Insulin resistance is responsible for abnormal carbohydrate metabolism as well as abnormalities related to protein and fat metabolism (Musselman, Betan, Larsen & Phillips, 2003).

There is a close relationship between type 2 diabetes and insulin resistance, and the metabolic syndrome since the body's tissue are desensitized to circulating plasma insulin and cannot adequately facilitate the necessary metabolic processes (e.g. allowing glucose to be used for energy) (ADA, 2005). Ford, Giles and Dietz (2002) described the characteristics of the metabolic syndrome as glucose intolerance, elevated plasma triglyceride level, hypertension, and abdominal adiposity. The American College of Endocrinologists ([ACE], 2003), affirmed in their position statement that clinical conditions related to the insulin resistance syndrome include such conditions as atherosclerotic cardiovascular disease, hypertension, and polycystic ovary syndrome (PCOS). Also, ACE (2003) stated that glucose intolerance, elevated triglyceride and

cholesterol levels, and an increase in plasma and renal uric acid levels can contribute to insulin resistance. Insulin resistance is also associated with an increase in markers of inflammation, such as C-reactive protein, and white blood cells (ACE, 2003).

Also in addition to insulin resistance and metabolic syndrome, there are other hormones that are released during the stress response. Other stress-related hormones include epinephrine, norepinephrine, glucagon, and cortisol (Clayton et al., 2012). Since there is sympathetic nervous system activity that is associated with insulin resistance, stress hormones can be released and cause negative health outcomes (ACE, 2003).

Glycosylated Hemoglobin (A_1C) Measurement

The A_1C is a measurement used to assist in the diagnosis of diabetes and to determine if a person's diabetes is being controlled (Kee, 2009). The glycosylated (process whereby glucose binds to hemoglobin A_1) hemoglobin is a diagnostic blood test that determines the blood glucose level, averaged over the past one to three months (Kee, 2009). The process of glycosylation is insidious and occurs over approximately 120 days: 120 days is the lifespan of healthy red blood cells. Once hemoglobin A is 70% saturated with glucose, a measurement value which indicates glucose control, can be obtained (Kee, 2009). The results of the A_1C can demonstrate how well a diabetic person has managed there disease within the previous months (Kee, 2009).

According to Kee (2009), the desired A_1C in a person without diabetes is 2% - 5%. The value for an adult with diabetes that indicates diabetes control is 2.5% - 6%. If an adult with diabetes has an A_1C measurement of 6.1% - 7.5%, this is considered high average. On the other hand, if a diabetic adult has an A_1C greater than 8.0%, their

diabetes is uncontrolled (Kee, 2009). The American Diabetes Association (2012a; 2013) stated that the glycated hemoglobin for a diabetic should be less than 7%, which indicates diabetes control.

According to ADA (2014), a normal A_1C should be less than 5.7% and if the A_1C ranges between 5.7% and 6.4%, the individual is said to have prediabetes, and a diagnosis of diabetes is usually made when the A_1C is 6.5% or greater. The fasting plasma glucose (FPG) is also used to diagnose diabetes. An FPG less than 100 mg/dl is considered a normal measurement, a FPG between 100mg/dl to 125mg/dl is a prediabetes range, and when the FPG that measures 126mg/dl or greater, a diagnosis of diabetes is made (ADA, 2014). The ADA (2012b) indicated that the glycated hemoglobin provides the patient and healthcare provider with an idea of the effectiveness of the diabetes therapy, in that it provides an average of the glucose levels for the past two to three months. ADA (2012b) reported that a newer method to convey the A_1C is called the estimated average glucose (eAG). The estimated average glucose is described in terms of milligrams per deciliter (mg/dl). By providing a description in terms of mg/dl, the values coincide with the values measured on the glucose meters used for glucose testing on a daily basis. For example, if the A_1C measures 5%, the eAG is 97 mg/dl, or if the A_1C is 6, the eAG is 126 mg/dl (ADA, 2012b). Although the A_1C will not be measured in this study it is important to understand its' significance for diabetes care, education, and management.

Kirk et al. (2006) found that the A_1C between African Americans and Non-Hispanic White adults with diabetes was disproportionate. A primary meta-analysis was conducted on eleven studies. Initially Kirk et al. (2006) reviewed 391 studies however,

only 11 studies met the inclusion criteria in that there was a comparison between ethnic groups. The results of the study demonstrated an increase (approximately 0.65%) in the A_1c of African Americans when compared to the A_1C of the non-Hispanic White participants. An elevated A_1C was indicative of poor glycemic control. According to Kirk et al. there is a possibility that the increase in the A_1C might partially explain why there are more African Americans with microvascular complications.

Saydah, Tao, Imperatore and Gregg (2009) extracted information from the Third National Health and Nutrition Examination Survey (NHANES) which was from 1988-1994: the subjects were followed until the end of 2000. Approximately 20,000 data cases were examined for a self-report of diabetes or no diabetes, information on nutrition and health, physical examination, laboratory tests, glycosylated hemoglobin, and the mortality rate: other demographic information was also collected. The purpose of the study by Saydah et al (2009) was to explore the associations between the glycosylated hemoglobin and mortality among adults who were age 20 years and older: the investigators looked at data from those with and without a diagnosis of diabetes. Four groups of glycosylated hemoglobin measurements were developed based on those referenced by the American Diabetes Association. The classifications for the glycosylated hemoglobin were less than 6%, between 6% and 7%, between 7% and 8%, and greater that 8% (Saydah et al., 2009).

Following analysis of the research data Saydah et al. (2009) asserted that those in the overall population with glycosylated hemoglobin measurements that were greater than 6%, between 7% and 8%, and greater than 8% had a greater chance of

cardiovascular disease. The more likely risk for cardiovascular disease was due in part to a higher systolic blood pressure reading, greater waist circumference and BMI measurements, and a lower level of high density lipoprotein, compared to those in the group with a glycosylated hemoglobin that measured less than 6%. The participants whose blood level was between 7-8% and > 8% also had a greater likelihood of death from all causes when compared to the <6% group. Also Saydah et al. (2009) found that there was a greater risk of cancer mortality in the > 8% group. Among those with diabetes there was no cancer mortality association.

For individuals with a self-reported diagnosis of diabetes the risk for death from all causes (68%) was greatest among the > 8% group, along with a greater likelihood of death from heart disease when compared to the < 6% group. Among the participants who did not have a self-reported documentation of diabetes the risk of death from all causes was not increased. However, those individuals without diabetes in the 6-7% and the 7-8% groups had a higher mortality rate than those in the > 8% group. The investigators (Saydah et al., 2009) provided a possible explanation for the disparity related to lower risk of death in the > 8% group without diabetes, to a smaller sample size. Saydah et al. 2009) concluded that as the glycosylated hemoglobin level increased (equal to or greater than 8%) among those in the overall population there was a greater risk for all-cause mortality: a two-fold likelihood. Among those with a diagnosis of diabetes with higher glycosylated hemoglobin there was a significant increase in both all-cause mortality and heart disease mortality.

Pai et al. (2013) indicated that even though the A_1C was typically used for the diagnosis and management of people with diabetes, there is an association between cardiovascular risk and the A_1C of people without a diagnosis of diabetes. Pai et al. (2013) suggested that there might be a more complex explanation, other than that related to abnormal lipid profiles and inflammation, as to why both men and women with decreased A_1C levels and no diagnosis of diabetes are at increased risk for adverse cardiovascular events. Findings from the investigation by Pai et al. (2013) support the notion that the A_1C might be a biomarker that is suggestive of coronary heart disease risk among relatively healthy men and women without a diagnosis of diabetes.

The A_1C level is used to determine glycemic control and the target goal for those with diabetes is < 7.0% (Casagrande, Fradkin, Saydah, Rust & Cowie, 2013). Datasets of 3,965 participants who reported a diagnosis of diabetes and were 20 years or older were analyzed from the National Health and Nutrition Examination Survey (NHANES). The participants were placed in three age categories (20-39 [7.9%], 40-59 [38.3%], and $\geq$ 60 [53.8%]). The aim of the study by Casagrande et al. (2013) was to identify the number of people with diabetes that met the goals related to A_1C (< 7%), blood pressure ([BP] < 130/80), and low density lipoprotein cholesterol ([LDL] < 100 mg/dL) during the years of 1988 to 2010. According to Casagrande et al. (2013), the target goals for A_1C, BP and LDL were from the 2011 ADA recommendations. With respect to the glycosylated hemoglobin, there were increases in the number of persons that achieved the < 7% goal. Data from NHANES indicated that an increase in A_1C goal attainment occurred among people with diabetes from the period of 1988 to 1996 (44%) to 57% for the period of

2003 to 2006 (Casagrande et al., 2013). From 2007 to 2010, 52.5% of the respondents achieved the goal for the glycosylated hemoglobin. The 2007-2010 NHANES data indicated that the goal for glycemic control was achieved mostly by those 75 years and older compared to the 20 to 49 age group. Also, non-Hispanic whites and non-Hispanic blacks in comparison to those with Mexican American ethnicity (Casagrande et al., 2013). One chief finding by Casagrande et al. (2013) was that among those with diabetes, significant increases were made with regard to attainment of all three target goals for most of the study period (1988-2010), especially those who were placed on a medication regimen with a statin. However, over 80% of Americans with diabetes were unsuccessful in the achievement of all three target goals (A_1C, BP, and LDL) (Casagrande et al., 2013).

Diabetes Risk Factors

cardiovascular disease. Clark et al. (2001) pointed out that there was a connection between cardiovascular diseases and diabetes. Among diabetics, there is an increased morbidity and mortality rate due to cardiovascular disease. Estimation of mortality is that two-thirds of those persons with diabetes die from some type of cardiovascular event (Clark et al., 2001).

Hypertension (sustained blood pressure of 135/80 mm Hg or greater) and hyperlipidemia (elevated triglyceride and cholesterol levels) are risk factors for heart disease and are associated with type 2 diabetes (USPSTF, 2008). Joseph and Golden (2014) affirmed that cardiovascular disease is the chief cause of death among persons with a diagnosis of diabetes.

Pradham, Manson, Rifai, Buring & Ridker (2001) presented data that indicated a connection between type 2 diabetes, an increase in serum inflammatory markers (CRP and interleukin 6), and an increased incidence of atherosclerosis. Atherosclerosis is a condition in which fatty deposits accumulate in the intimal layer of arteries, mainly arteries within the heart (coronary arteries), thereby causing cardiac complications (Daniels & Nicoll, 2012). Libby, Ridker and Maseri (2002) asserted that elevated serum markers are associated with an increase in atherosclerosis and subsequently contribute to increased cardiovascular disease among persons with diabetes.

There is a disproportionate risk of cardiovascular disease indicated by data generated from the Jackson Heart Study. Findings from the Jackson Heart Study indicated that African American men and women had a greater risk of cardiovascular disease when compared to Caucasian men and women. Cardiovascular disease is the major cause of morbidity and mortality in America, and cardiovascular disease affects more African Americans than Caucasians (Knight & Sumner, 2011).

There are several terms used interchangeably with cardiovascular disease (CVD). Coronary artery disease CAD), arteriosclerotic heart disease (ASHD), coronary heart disease (CHD), and cardiovascular heart disease (CVHD) are some terms used to refer to cardiovascular disease (Daniels & Nicoll, 2012). As previously stated, atherosclerosis is responsible for a number of cardiovascular complications associated with diabetes. When there is injury to the intimal layer of the coronary blood vessel, the process of atherogenesis, or plague formation, begins. Injury to the endothelial layer of the vessels can occur as a result of an increased amount of lipids in the circulation, or an

increase in the force of blood flow, caused by hypertension, and this subsequently causes shearing of the vessel. Toxins present in cigarette smoke and certain infections, such as chlamydia, which is transmitted sexually, can also begin the process of plaque formation (Daniels & Nicoll, 2012).

Initially, the fatty deposits are soft, but with continued accumulation, and as the person ages, the fatty deposits become hard or fibrous: this hardened fatty deposit is often referred to as plaque (Daniels & Nicoll, 2012). Generally, when a person is in their second or third decade of life, the plaque becomes a more tenacious and calcified lesion. Consequently, as calcified lesions develop, the inner lumen of the blood vessel becomes narrow, causing a decrease in blood supply to the heart. Sometimes unstable lesions can rupture, thus causing aggregation of platelets, and subsequently a blood clot is formed thereby further impeding blood flow to the heart. Also, vessels that supply the brain with blood can become occluded and a stroke ensues (Daniels & Nicoll, 2012).

Several risk factors for heart disease are associated with the pathogenesis of diabetes mellitus. One example of a risk factor related to cardiovascular disease is insulin resistance. Knight and Sumner (2011) stated that if insulin resistance is identified early, interventions can be initiated to avert cardiovascular disease. In order to avert cardiovascular disease diagnostic evaluation at regular intervals might be beneficial.

As stated by Qi et al. (2006), inflammation causes a rise in serum inflammatory markers that are linked to the development of both heart disease and diabetes mellitus (Libby et al., 2002; Pai et al., 2013; Pradham et al., 2001). Atherosclerosis and platelet aggregation result in narrowed blood vessel passageways which cause a decrease in

circulatory blood flow, with a reduction in blood flow to the extremities. Subsequently, reduced peripheral blood flow can lead to the rise of ulcerations in the legs and feet, thus amputation of a limb might be required (LeMone, Burke, Bauldoff & Gubrud, 2015).

Two prospective nested case control studies were conducted simultaneously on women from the Nurses' Health Study (NHS) and men from the Health Professionals Follow-Up Study (HPFS). Pai et al. (2013) followed participants over a decade, women for 14 years and men for 10 years. The purpose of the studies was to observe whether there was a risk for coronary heart disease among individuals with A_1C levels that are within a relatively normal range (< 6.5%). The investigators measured the A_1C of both women and men with and without diabetes. Over the course of the study 468 women and 454 men experienced a myocardial infarction that was not fatal, or fatal coronary heart disease. The results of the study by Pai et al. demonstrated that there was an increase in the risk for coronary heart disease among women and men with A_1C levels < 6.5%, and these participants were relatively healthy at baseline and without a diagnosis of diabetes. Pai et al. concluded that the A_1C measurement might be beneficial as a marker for heart disease.

ethnicity and age. Ethnicity and obesity are often related to physical inactivity and are major risk factors that are related to the development of type 2 diabetes (Jacobs-Van Der Bruggen et al., 2007). According to the CDC (2011a), the incidence of type 2 diabetes is greatest among Native Americans, African Americans, and Latino/Hispanic Americans, respectively. According to the (2000) and CDC (2012a) African Americans are two times more likely to die from DM than White Americans. African Americans

have the second highest (Native Americans have highest incidence) incidence of diabetes when compared to other ethnic groups (ADA, 2017; CDC, 2011b). Fitzner, Dietz and Moy (2011) also acknowledged that there was a greater prevalence of diabetes among Blacks in the United States. Facts reported by the ADA (2015) indicate that in the U.S., 12.8% of Hispanic/Latino adults and 13.2% of non-Hispanic Black adults have a diagnosis of diabetes.

Gucciardi, Chan, Manuel and Sidani (2013), evaluated studies related to diabetes education and self-management of adult Black women of African and Caribbean descent and among women of Hispanic and Latin American ethnicity. In the studies that were analyzed by Gucciardi et al. (2013) the subjects were 18 years or older and had a diagnosis of type 2 diabetes. A literature review was conducted by Gucciardi et al. (2013) and 13 studies met the inclusion criteria. The goal of the study by Gucciardi et al. (2013) was to uncover interventions that had successful outcomes for diabetes self-management in the target population. One main criterion for inclusion in the literature review was that the study had to be an experimental controlled trial: comparative studies also were analyzed. Some of the data extracted from the analysis by Gucciardi et al. (2013) related to the intervention setting, format, the manner in which the information was presented, the actual content presented, and the design and duration of the intervention. Study analysis indicated that there were successful outcomes with regard to the A_1C, diet, physical activity, and anthropometrics. Also, education sessions that were presented in the hospital setting were more successful than those programs presented in community settings (Gucciardi et al., 2013).

A two-year randomized controlled trial was conducted to evaluate the effectiveness of a diabetes education program that was specifically tailored to African Americans with diabetes; the study was conducted in a rural, community setting (Williams et al., 2014). Twenty-five subjects, 80% which were female, participated in the randomized study. The outcome variables for the study were A_1C values, risk factors related to cardiovascular disease, general health, and mental health: these were the chief outcome measures. Alternately, intermediate outcome measures included facts related to diabetes, appropriate self-management behaviors, self-efficacy concerned with diabetes management, problem-solving skills, ability to be successful in the achievement of personal goals, and knowledge related to utilization of the healthcare system (Williams et al., 2014). Baseline measurements were taken prior to the 8-week, Monday through Friday intervention and three and twelve months post intervention.

Williams and colleagues (2014) reported that three months following the intervention the participants' average A_1C decreased from 8.0% to 7.6%; however, there was no significant difference when compared to the baseline level. After 12 months the average A_1C measurements decreased as low as 7.4%. With regard to the cardiovascular risk factors, the participants' systolic blood pressure, waist circumference, body mass index, and behaviors related to routine diabetes self-management (i.e. exercise) were reduced from baseline, three months, and twelve months, but the reduction was not significant.

Williams et al. (2014) reported significant increases in knowledge of diabetes ($p=.001$), foot care inspection ($p=.013$ at three months and $p=.001$ at 12 months) at three

and twelve month intervals. Subjects in the study by Williams et al. (2014) also had improved scores for self-efficacy, general health and well-being, and mental health well-being during the three and twelve month study period. However, minimal improvement in physical health of the subjects was seen at three months following the intervention, but there was a significant decline when measured at twelve months. Williams et al. (2014) recommended further evaluation of diabetes interventions for African Americans in a rural community setting, with a larger sample size. Also, since Williams and colleagues (2014) conducted their investigation during weekdays and winter months, it was suggested that in replication of the study, investigators consider holding the class sessions on alternate days (i.e. weekend) and during alternate seasons (spring and summer) that might have fewer holidays in order to deter the temptation to overeat.

Age and gender are a matter of interest with respect to diabetes risk. In 2000, the mortality rate for Black Americans with diabetes was two times that of White Americans, especially among older adults (HHS, 2000). Fletcher, Gulanick and Lamendola (2002) affirmed that Black females, 55 years and older have an even greater risk for the development of type 2 diabetes in that there is an age-matched comparison between Black and White females. A comparison of the prevalence rate among Black females indicated that one of four are diabetics compared to White females (Fletcher et al., 2002). In 2003, it was reported that there was a high prevalence of type 2 diabetes among older adults in the United States (Zimmet, 2003). Geiss et al. (2010) concurred with Zimmet (2003) that older Americans contribute to the rise in type 2 diabetes. The CDC (2014b) reported that gender was also a factor to consider in diabetes care. In 2012 more men

(15.5 million) than women (13.4 million) were diagnosed with diabetes, as reported by CDC (2014b).

Being an older adult is a risk for type 2 diabetes. Investigators that conduct studies on diabetes continue to agree that there is an increase in the prevalence rate among older adults with diabetes. According to CDC (2014b), older adults in the age group of 45-64 years comprised the largest number with diabetes in 2012 (13.4 million): there were 11.2 million people over the age of 65 with diabetes (CDC, 2014b).

Participants in the study by Williams et al. (2014) were between the ages of 37 to 81; however the mean age for participants were 62. Likewise, State of Obesity (2015) indicated that there was an increased number (25%) of persons 65 years and older diagnosed with diabetes. Albright and Gregg (2013) reported that approximately 50% of Americans 65 and older had a diagnosis of prediabetes. Also, it has been predicted that as many as one in three people could have diabetes by the year 2050 (State of Obesity, 2015). The information from the State of Obesity (2015) supports the claims made by Kahn and Anderson in 2009, that as aging occurs, more co-morbid conditions and complications related to diabetes can be expected. Also, along with the increase in the prevalence of DM that was predicted, the cost of care for older persons with diabetes is likely to escalate.

The premise that the cost to care for older diabetic patients is likely to increase was supported by Chiu and Wray (2010), in that both middle-aged (51-64 years) and older adults (65 years and older) have poor glycemic control as measured by the A_1C. Fitzner et al. (2011) reported that the number of older adults living in the U. S. will reach

approximately 71.5 million by 2030 and as the older population increases the incidence for those with diabetes and complications of diabetes will likely increase. Subsequently, the healthcare costs for persons with diabetes will escalate beyond the current dollar amount (Fitzner et al., 2011). Likewise, Powers and colleagues (2015) indicated that there should be a comprehensive plan for diabetes management. The diabetes management plan should include ongoing education and support, which will provide a better experience for those with diabetes, and there should be a subsequent decrease in the financial burden to healthcare (Powers et al., 2015).

Type 2 diabetes is also on the increase among individuals age 20 and younger (CDC, 2011b). In the past several years the incidence of type 2 diabetes has increased among children and adolescents (CDC, 2012a). Adams and Lammon (2007) observed a significant increase in type 2 diabetes in children and adolescents in a rural community. A study was conducted (Adams & Lammon, 2007) to determine if children in a rural setting presented with risk factors for type 2 diabetes. The identified risk factors for type 2 diabetes included obesity, high blood pressure, high blood glucose, an elevated total cholesterol level, and belonging to a high risk ethnic group. The presence of acanthosis nigricans (darkened and thickened skin folds in the axillary area, the inner aspects of the thighs and the back of the neck) was identified as a type 2 diabetes risk factor (Adams & Lammon, 2007). Forty percent of the children in the study by Adams and Lammon (2007) presented with at least two risk factors for diabetes.

The results of the study by Adams and Lammon (2007) indicated that there was a need for interventions to prevent the development of type 2 diabetes during the early

developmental stages of childhood, and during adolescence. Also, Adams and Lammon (2007) reported that the epidemic of diabetes is perpetual in that persons are being diagnosed at a younger age: therefore, the adult population of diabetics will continually increase. Early interventions to reduce type 2 diabetes risk factors in the younger age group should decrease the number of persons diagnosed with type 2 diabetes in adulthood and a subsequent decline in the incidence of type 2 diabetes should be achieved.

Type 2 diabetes among children and youth continues to be problematic. The Mayo Clinic (2017) expressed that the incidence rate of type 2 diabetes in children is increasing and for the most part the increase is related to the rise in obesity among children. In addition to the rise in obesity, White et al. (2016) pointed out that childhood obesity is on the rise especially in African American communities and thus, there is a risk for health outcomes that are less than positive: an increase in type 2 diabetes. A study was conducted using a mixed method design (White et al., 2016). There were 433 African American youth in a rural community in Mississippi, between 15 and 19 years of age, and the students were registered as freshman, sophomores, juniors, and seniors in high school (White et al., 2016)..

One chief aim of the study by White et al. (2016) was to explore such health risk indicators as alcohol consumption, tobacco usage, non-engagement in regular exercise, and poor eating patterns. Other aims of the study were to identify risks (hypertension and obesity) because of their link with negative health outcomes (i.e. cardiovascular disease) and to explore the relationship between health risk behaviors, development of obesity and

abnormally high blood pressure, and optimistic bias. Optimistic bias is when an individual does not perceive their risk or vulnerability (White et al., 2016).

Study results indicated that the female (15.2%) students were more overweight than males (10.3%), and more males (29.1%) were more obese than the females (24.8%). Also, 19.4% of the youth had pre-hypertension, 3.0% had hypertension, and more males (21.5%) than females (17.1%) were pre-hypertensive: there was no significance between genders with regard to hypertension (White et al., 2016). With regard to optimistic bias, approximately 66% of the students possessed optimistic bias. In other words, even though the students were at risk for negative health outcomes such as heart disease, there was no perception of vulnerability (White et al., 2016).

Another study was conducted with young people as the target population. Mayer-Davis et al. (2017), analyzed data obtained from the SEARCH for Diabetes in Youth (SEARCH) study: the data that were analyzed was from the years 2002 to 2012. The major purpose of the study was to ascertain the incidence trend of youths between 10 and 19 years, with type 1 and type 2 diabetes. The states in which youths were identified were California, Colorado, Arizona, New Mexico, South Carolina, and Washington. The total number of youths identified with type 1 diabetes was 11,245, and there were 2846 with type 2 diabetes. Overall, in both groups (type 1 and type diabetes) the incidence rates increased, especially among Hispanic, non-Hispanic white, and non-Hispanic black young people.

inadequate nutrition. Poor nutrition can also result in negative health outcomes for persons with chronic conditions. A balanced diet has been referred to as one that is

rich in fruit, vegetables, and foods low in fat (Lawal, 2006). In addition, it was reported by ADA (2013) that in order to manage type 2 diabetes, fiber, whole grains, and a low fat diet may be eaten to maximize overall health. In order to manage diabetes, the diet should be low in cholesterol, saturated fat, and trans-fatty acids to reduce the risk of complications related to heart disease (ADA, 2013).

Plescia, Herrick and Chavis (2008) indicated that poor nutrition played a pivotal role in the association between diabetes and heart disease. Plescia et al. (2008) used a community-participatory approach, in an African American community in North Carolina to evaluate the effects of an intervention on risk factors for diabetes and heart disease. Negative health behaviors in the African American community were replaced with more positive health behaviors in terms of increased consumption of fruit and vegetables, increased physical activity and smoking cessation (Plescia et al, 2008).

During the years of 1999 to 2007, in a number of regions throughout the U.S., the Centers for Disease Control and Prevention (CDC) funded programs to examine health disparities in minority communities. These interventions were part of the Racial and Ethnic Approaches to Community Health (REACH) 2010 program. The Charlotte, North Carolina REACH intervention used telephone surveys, conducted annually, to determine health behaviors of residents in a specified region, compared to African Americans across the entire state. A well-documented fact presented was 89% of the residents (19, 670) within the fourteen communities in the northwest corridor of Charlotte, NC were African Americans (Plescia et al., 2008). The survey extracted information such as access to health care, intake of fruit and vegetables, physical activity level, history of hypertension,

cardiovascular disease and diabetes, diabetes care, cholesterol level and cigarette smoking. Questions on the annual telephone survey were taken from the Behavioral Risk Factor Surveillance System (BRFSS) survey because of its' proven, moderate to high level of reliability and validity (Plescia et al., 2008).

Statistical significance was examined using a 2-tailed t-test for independent samples. Plescia et al. (2008) reported that there was an increase in the amount of fruit and vegetables consumed from $< .001$ in 2001 to $p = .38$ in 2005. The results of the investigation by Plescia et al. (2008) also indicated that the intervention program was effective in reducing risk factors for heart disease and diabetes in the African American community. One conclusion reported by Plescia et al. (2008) was that the lifestyle choice of the inclusion of more fruits and vegetables the diet was a contributor to effective management or control of diabetes. Also, persons who increase their intake of fruit and vegetables can lower their risk for heart disease and diabetes. Along with the adoption of other healthy lifestyles, such as smoking cessation and an increase in physical activity level, a significant difference can be made in the reduction of cardiac disease and diabetes (Plescia et al., 2008).

A study was conducted on 902 women with diabetes who participated in the Nurse's Health Study by Qi et al. (2006). The Nurses' Health Study was a prospective study which was initiated in 1976, and greater than 121,000 female registered nurses (RNs) were recruited for the study. The study participants were between the ages of 30-55, self-reported diabetics, and 95% of them were Caucasian. The purpose of the study was to examine the relationship between dietary intake of food high in cereal fiber, bran

and whole grains, and the plasma content of biologic inflammatory markers. Information that was analyzed for the prospective study was gathered from the 1989 and 1990 datasets from the Nurse's Health Study. The inflammatory markers assessed were C-reactive protein (CRP), and tumor necrosis factor – alpha receptor 2 (TNF-R2): these inflammatory markers have been associated with cardiovascular diseases (Qi et al., 2006).

Qi et al. (2006) reported inverse associations between diets high in whole grains, bran, and cereal fiber, and biologic inflammatory markers. In other words, those participants who ate more whole grains, bran and cereal fiber had lower percentages of inflammatory markers. Also, there were no significant associations between biologic inflammatory markers and fiber found in fruit and vegetables (Qi et al., 2006). The fiber found in whole grains, bran and cereal fiber are of a higher quality, and have the ability to decrease a person's cardiovascular risk, as evidenced by a reduction in plasma inflammatory markers (Qi et al., 2006). Program planners of diabetes interventions should consider placing more emphasis on ingestion of high quality cereal, whole grains, and bran fiber, in order to capture the nutritional benefit of a decrease in inflammatory makers associated with risk of cardiovascular disease.

There is also an association between obesity and type 2 diabetes (CDC, 2012), and poor nutrition and diabetes (ADA, 2013). According to ADA (2013), medical nutrition therapy (MNT) entails the ingestion of food that has the ability to manage diabetes, prevent complications of diabetes, or slow processes that lead to complications of diabetes. Based on the information about the associations between poor nutrition,

obesity, and diabetes, there is a conjecture that obesity can be offset by the ingestion of adequate nutrition, which can prevent damaging effects on the body. Researchers from the ADA (2013) recommended that all persons with diabetes be seen by a health professional who is knowledgeable and has current information on dietary management, such as a Registered Dietician. Dietary management for diabetics should also include quality nutrients comprised of carbohydrates, fat, protein, and other nutrients to meet the individual's metabolic needs. The goal in nutrition therapy is to optimize the person's well-being while their individualized goals for diabetes management are met (ADA, 2013).

Nutrition therapy should be of such quality that the goal for glycemic control is met. Evert et al. (2013) noted that everyone with diabetes should have a nutritional plan of care that is individualized according to personal and cultural preferences, and religious beliefs. An individual's metabolic status is the foundation for management of diabetes (Evert et al., 2013). The point to be emphasized with regard to nutrition therapy is that healthy eating plans should promote glycemic control (A1C < 7%), blood pressure control (< 140/80mmHg), reduced low density lipoprotein cholesterol (<100), and a triglyceride level (<150 mg/dL). Also, a healthy eating plan should promote an increase in high density lipoprotein (> 40 mg/dL for men and > 50 mg/dL for women), enable the individual to attain and maintain goals for body weight, and to avert complications (Evert et al., 2013).

limited access to care. Limited access to health care is another problem that predisposes an individual to negative challenges related to diabetes care. Persons with

inadequate or inefficient resources for care might be forced to seek, help from healthcare providers who do not have the expert knowledge, skills, training and experience to manage care of clients with specific needs, such as diabetes (HHS, 2000). Being uninsured, holding to cultural values, and language barriers might be barriers that prevent high risk minority groups from receiving care from culturally-competent healthcare providers (HHS, 2000).

The ACA of 2010 made provisions for improvements in access to care among the underserved population. Through the ACA provisions were made to increase services and access to primary care for Medicaid and Medicare recipients. Preventive services related to chronic diseases such as type 2 diabetes have also received attention and funding with the introduction of the Affordable Care Act (CDC, 2012b).

According to Broaddus and Park (2012), there was a decrease in the number of Americans that had no health insurance coverage: a decrease by six percent from 2010 to 2011. However, the U. S. Census Bureau (2012) reported that even though health insurance coverage was made more affordable, 48.6 million Americans remained without health insurance in 2012. Even though it is a well-known fact that health insurance is more affordable today, the National Center for Health Statistics ([NCHS], 2015) indicated that in 2015, there were still approximately 36 million Americans in all age categories who were without health insurance.

obesity. In the United States, the number of people who are considered to be overweight and obese has greatly increased over the past several decades. Flegal, Carroll,

Kit and Ogden (2012) noted an increase in the obesity rate over the past five decades from 13.4% to 35.7% among adults 20 years and older.

One of the main concerns with being overweight and obese is that it leads to the development of, and possibly the exacerbation of chronic diseases (Flegal et al., 2010), more namely, diabetes (Stecker et al., 2006). According to Fletcher et al. (2002), the prevalence of type 2 diabetes is not entirely due to ethnicity, family history, or genetic factors, but obesity and physical inactivity are also chief risk factors for the development of diabetes. A diagnosis of type 2 DM is closely linked to obesity and physical inactivity (Jacobs-Van DeBruggen et al., 2007), and both obesity and diabetes has been liked to inadequate nutrition (World Health Organization [WHO], 2006).

Obesity is a chief predisposing factor for the development of type 2 diabetes (CDC, 2012b). According to Hedley et al. (2004), about two-thirds of persons in the U.S. twenty years old or greater, are obese. Eyre, Kahn and Robertson (2004), reported that poor nutrition, which often leads to obesity and being overweight, and physical inactivity, are strong contributors to the development of type 2 diabetes. An inactive lifestyle among Americans is also a major environmental factor that prevents changes in health behaviors and predisposes to unhealthy conditions. Statistics dated back to 2001 indicated that a large majority of the U.S. population was physically inactive. Schneiderman et al. (2001, p. 43) reported that according to the 1996 HHS report, approximately 60% of the American public is physically inactive. Consequently, physical inactivity can lead to obesity and obesity can lead to the development of type 2 diabetes.

The invention of new technologies such as television, computers, computer games, online shopping, bill paying and banking, have allowed Americans to exist with limited movement, thus contributing to a sedentary lifestyle. Since physical inactivity leads to being overweight or obese (National Heart Lung and Blood Institute [NHLBI], 2010), and obesity is associated with the development of chronic diseases such as type 2 diabetes (Eyre et al., 2004), public health programs should focus on initiatives that encourage regular physical activity and weight loss or weight management.

Geiss et al. (2010), attested that obesity is a key factor in the development of type 2 diabetes. Statistics from CDC (2012c) indicated that there were approximately one third of Americans who were obese (35.7%). Approximately one-half of American adults were overweight, and women weighed more than men. One interesting fact indicated by CDC (2012b), was that there was a significant increase in obesity among women in the low-income bracket, and as previously stated, obesity is one of the main predisposing factors for the development of chronic diseases such as diabetes. Research is needed to further explore the association between obesity among women in the low-income bracket and diabetes. The HHS (2000) recognized that being overweight as well as being obese, was linked to a diagnosis of type 2 diabetes, and CDC (2012) reported that obesity continues to be a predisposing risk factor for diabetes. Additionally, one of the negative consequences of obesity is a decrease in life span and quality of life.

An economic burden is also associated with being overweight and obese. Obesity has an impact on economic productivity in the U.S., according to Braveman, (2009). In 2008 medical problems related to obesity cost the American public about $147 billion

(CDC, 2012). Therefore, efforts directed toward decreasing the number of Americans who are overweight and obese should lower the U. S. medical expenditure. It is important to reiterate the association between increased body mass and chronic diseases because indications are that care for these target groups will increase the financial burden on the healthcare system. In 2008 statistics indicated that the economic burden to care for persons with chronic disease was nearly $180 billion annually (CDC, 2008).

In order to design programs to manage the problems related to increased body size, standards for weight measurement must be identified. If an individual has a body mass index (BMI) between 25 and 29.9 kg/m^2, that person is considered to be overweight. On the other hand, if the BMI is greater than 30 kg/m^2, the persons labeled as obese (CDC, 2009). Approximately one of every three adults in the United States is obese, which can potentially increase the incidence of diabetes (Hedley et al., 2004). Another one of the main concerns with being overweight and obese is that it can lead to the development of, and possibly the exacerbation of other chronic diseases (Flegal et al., 2010).

One of the chronic conditions linked to obesity is the insulin resistance syndrome. Insulin resistance is a metabolic condition in which the body's tissue is unable to utilize insulin properly. In other words, the tissue is desensitized to circulating plasma insulin, and as a result, insulin cannot adequately facilitate the necessary metabolic processes (e.g. allowing glucose to be used for energy) (LeMone et al., 2015). The pathophysiology related to the insulin resistance syndrome is not fully comprehended, but two of the main

determinants of the syndrome are obesity and physical inactivity (Kendall & Harmel, 2002).

Kendall and Harmel (2002), presented a case of a fifty year old male, referred to an endocrinologist with hyperglycemia, angina pectoris, hypertension, and a paternal family history of coronary artery disease and type 2 diabetes. Additionally, the patient had no history of using tobacco, and had a positive history for physical inactivity. Five months following the initial evaluation, the patient was admitted to the hospital and underwent coronary artery bypass surgery because of two stenotic lesions that were more than 70% occluded.

As reported by Kendall and Harmel (2002), the patient's physicians conducted an extensive review of the records of the 50 year old male, focusing on diagnostic values one year prior to cardiac surgery. The physicians found that the patient was obese (central obesity) with a weight of nearly three hundred pounds and a BMI of 34 kg/m^2. Also, the patient's blood pressure was consistently elevated (i.e. above 144/92 mm Hg, on occasion), even though he was on antihypertensive medication therapy, and the patient had consistent elevations in his fasting and postprandial blood glucose levels. In addition, the patient had abnormal cholesterol and triglyceride levels (Kendall & Harmel, 2002). During the follow-up consultation, after cardiac surgery, the patient was placed on a low-dose of thiazide diuretic because of microalbuminuria, was provided instruction on glucose self-monitoring, and was provided with information related to weight loss (i.e. increased physical activity). Also during the follow-up, the patient was advised to loose

about 38 pound (10% of his body weight), and to exercise at least 100 minutes weekly (Kendall & Harmel, 2002).

The records of the three-month follow-up visit to the patient's physician showed that the patient had lost 21 pounds, and there was a decrease in his low-density lipoprotein (LDL-C) and reduced albumin in his urine. Although there were improvements in the patient's diagnostic profile, his fasting and postprandial blood glucose levels remained elevated, as well as his hemoglobin A_1C. Also, even though there was an improvement in his A_1C it still remained at 6.2% (Kendall & Harmel, 2002). An abnormally elevated A_1C indicates that blood glucose levels are not well-managed, and there is a risk for complications to occur. A continuation of therapy and monitoring of the patient resulted in improvements in clinical outcomes especially his fasting and postprandial blood glucose levels (with the addition of medication therapy).

Despite the perils of obesity, such as the insulin resistance syndrome and its' negative clinical consequences, positive outcomes are attainable, if there is weight loss, an increase in physical activity, and control of hypertension, blood glucose, cholesterol, and triglyceride levels. As indicated by the case presentation by Kendall and Harmel (2002), lifestyle modifications with regard to smoking cessation, adequate nutrition, exercise, and weight loss show promise in the prevention of type 2 diabetes. The obesity epidemic is implicated in the development of insulin resistance, which can lead to a diagnosis of type 2 diabetes (ACE, 2003; Kendall & Harmel, 2002) so astute management of people who are obese is imperative.

According to Cossrow and Falkner (2004), there has been a continual, upward spiral of obesity rates among all racial and age groups in America. There is great concern for obese individuals because of the negative health consequences associated with obesity. Consequences of obesity include adverse outcomes such as diabetes, hypertension, atherosclerotic heart disease, abnormal sleep patterns, arthritis, depression, and cancer (Cossrow & Falkner, 2004).

Data were compared from the National Health and Nutrition Examination Survey (NHANES) from 1988-1994 and 1999-2000. Following analysis of NHANES data by Flegal et al. (2012), the incidence of obesity increased among both adult men and women among various racial groups. However, African American women had the highest increase in obesity, then Hispanic women, followed by White women (Flegal et al., 2012).

Although there is an increase in obesity among all racial groups in the United States, African Americans are at great risk for development of, and exacerbation of chronic diseases (Cossrow & Falkner, 2004). Since hypertension, heart disease and diabetes rates are increased among African Americans emphasis should continue to be directed toward a reduction in chronic disease risk factors among this racial group.

Taylor et al. (2010) compared data with regard to body size of African Americans who participated in the Jackson Heart Study (JHS) with data of Caucasians who were in the Framingham Heart Study. The findings from the study by Taylor et al. (2010) demonstrated that with an increase in body size, specifically related to body mass index, diabetes, hypertension and high cholesterol levels were more

prevalent among African Americans. Additionally, Caucasians from the Framingham Heart Study with a greater body mass index had an accelerated risk for cardiovascular disease (Taylor et al., 2010).

Investigators with the Jackson Heart Study measured 5,292 persons during the exam 1 time frame. The mean BMI for persons during exam 1 was 31.8 kg/m^2 with a standard deviation (*SD*) of 7.2 (JHS, 2008d). Analysis of the BMI of 4,069 JHS participants for exam 2 has shown that the mean BMI increased to 32.0 kg/m^2, with a standard deviation of 7.1 (JHS, 2008d). The JHS investigators also observed differences between females (3,355) and males (1,937) with regard to the BMI, and between various age groups. The mean BMI during exam 1 for females was 32.84 kg/m^2 with a SD of 7.60. The mean BMI for males during exam 1 was 29.86 kg/m^2 and a SD of 6.13. Women in the 21 – 34 age range (N = 146) had a higher mean score for BMI (34.26 and SD 10.54). The BMI for men in the 21 – 34 age (N = 104) group also had a higher mean BMI (30.65/SD 7.88), although it was less when compared to women (JHS, 2008d). The Jackson Heart Study investigators reported that type 2 diabetes was the most common form of the disease observed in persons who had a higher BMI measurement. Both men and women with the higher BMI measurements had a greater likelihood of type 2 diabetes in the Jackson Heart Study (JHS, 2008d).

Approximately 33% of the American population are obese (Mechanick, Garber, & Garvey, 2012). The 2012 Position Statement on Obesity and Obesity Medicine was disseminated by the American Association of Clinical Endocrinologists' (AACE). The primary writers for AACE's Position Statement (Mechanick et al., 2012) reported that

obesity is labeled as a disease rather than a condition and the label of obesity as a disease was identified by some physicians for over 250 years ago.

In summary, being overweight or obese increases an individual's risk for development of chronic diseases (Stecker et al., 2006). As the incidence of obesity continues to increase the prevalence of chronic diseases is projected to escalate, thereby placing a financial burden on the already strained healthcare system (The Obesity Society, 2010). In other words, as the obesity rate increases and the prevalence of chronic diseases such as diabetes increases among the population, more healthcare dollars will be needed to manage the care of those affected by obesity.

The consequences of obesity include a decrease in life span and quality of life, and a negative impact on economic productivity (Braveman, 2009). Other consequences of obesity include adverse outcomes such as hypertension, atherosclerotic heart disease, abnormal sleep patterns, arthritis, depression, cancer, and diabetes (Cossrow & Falkner, 2004). In 2008 medical problems related to obesity cost the American public about $147 billion (CDC, 2012b), and the cost has continued to escalate (CDC, 2012a). Efforts that are directed toward decreasing the number of Americans who are overweight and obese should lower the U.S. medical expenditure.

In spite of the perils of obesity, such as the insulin resistance syndrome and its' negative clinical consequences, positive outcomes are attainable, if there is weight loss, an increase in physical activity, and control of hypertension, blood glucose, cholesterol, and triglyceride levels. As indicated by the case presentation by Kendall and Harmel

(2002), lifestyle modifications with regard to smoking cessation, adequate nutrition, exercise, and weight loss (adequate nutrition, exercise and weight might have a positive impact the obesity epidemic), show promise in the prevention of type 2 DM.

The research and statistics presented in the section related to obesity have clearly indicated that the condition has posed problems for several decades. Current statistics from the CDC (2016b) indicated that greater than 36% of U.S. citizens are obese, and that the condition is common and also adds to the financial burden that the healthcare system faces. The Obesity Society (2015) indicated that obesity is a growing problem that is expected to increase, and thus, the prevalence of diabetes among Americans will increase. A shift in the manner in which obesity is modeled is needed in order to address social, political, economic, and transcultural issues, and to transform collaborative management of the disease (Mechanick et al., 2012).

physical inactivity. A study conducted by Jacob-van DER Bruggen et al. (2007) focused on strategies to delay the onset of diabetes. The purpose of the study was to examine the long-term health benefits and cost effectiveness of a 5-year community-based program compared to a 3-year, intensive lifestyle intervention in a healthcare setting. The community intervention focused on nutrition and exercise and the general population (those with low risk for diabetes development) was targeted. The healthcare intervention focused on diet and exercise for obese adults with moderate risks for development of diabetes. The results of the study demonstrated that there were fewer new cases of diabetes among the healthcare intervention group (7-30 per 20 years), when compared with the community intervention group (300-1500). The cost to prevent one

new case of diabetes in the community intervention group was lower ($2,000-$9,000), than in the healthcare intervention group ($5,000-$21,000). Jacob-van DER Bruggen et al. (2007) concluded that both community and healthcare interventions were cost-effective.

Lorig and Gonzalez (2000) conducted a study on 109 individuals with diabetes to determine the effect of a community-based diabetes management program. The participants were divided into small groups and diabetes education was provided by peers that were trained to provide the education. The participants in the study by Lorig and Gonzalez (2000) were placed into small groups for the community intervention. The educational sessions took place once per week for approximately two hours. The education points included how to communicate with the healthcare provider, regular examination of the feet, diet and nutrition, and benefits of physical activity. Lorig and Gonzalez (2000) reported in their conclusions that there were significant improvements in eating more fruits and vegetables, more effective communication with healthcare providers, and an increase in those who engaged in physical activity. According to U.S. HHS (2008), an increase in physical activity can decrease the risk of premature death, and can lower the risk for diabetes, coronary heart disease, stroke and hypertension. Since an increase in physical activity can lower the risk of the development of diabetes as well as decrease the risk for complications of diabetes, the study by Lorig and Gonzalez (2000) demonstrated that small, community group diabetes education, led by trained peers, is effective in terms of an increase in physical activity.

Dutton et al. (2009) found improvements in physical activity following nine hours of diabetes education facilitated by certified diabetes educators. The program included education related to the cause of diabetes blood glucose testing, diabetes treatment regimens, dietary modifications and recommendations for physical activity. The main purpose of the study was to explore the relationship between physical activity and self-efficacy. Conclusions by the investigators (Dutton et al., 2009), were that with an increase in self-efficacy, there were increases in engagement in physical activity. The results of the study indicated that well-tailored diabetes education contributes to self-efficacy, which in turn is related to improvements in physical activity.

The ADA (2013) indicated that regular physical activity is essential in the management of diabetes. Both moderate intensity activity as well as muscle strengthening exercises were recommended to incorporate in the plan of care for people with diabetes. Regular physical activity contributes to diabetes management in terms of glycemic control, weight loss and maintenance, to decrease the risk of cardiovascular disease, and to enhance an individual's general well-being (ADA, 2013).

smoking. Information disseminated by Ford and Newman (1991) indicated that smoking was more prevalent among the 18 to 34 year age group. Zhu, Giovino, Mowery and Eriksen (1996) reported that people without a high school education and those with a lower socioeconomic status had a greater affinity for heavy smoking more so than their counterparts.

Haire-Hoshu, Glasgow and Tibbs (1999) found that nicotine had a mood-altering effect like other substances that are associated with addictions. In the Executive

Summary of the Surgeon General's Report (HHS, 2014) it was suggested that there might be an association between smoking and neurobehavioral disorders in children (i.e. attention deficit hyperactivity).

According to the CDC cigarette smoking has been related to cancer of the bladder, pancreas, stomach, mouth, and esophagus. Also, there has been documentation that those who smoke can develop acute myeloid leukemia (HHS, 2006a), abdominal aortic aneurysms, and gum disease (HHS, 2004). Bacterial growth in the oral cavity following exposure to cigarette smoke increased the chance of periodontal problems, observed by Zonuz, Rahmati, Mortazavi, Khashabi, & Farahani (2008).

Use of tobacco has been identified as a global public health issue, especially among persons with diabetes. Globally, about five million people die each year from problems that stem from smoking (Miziak, 2013). The year 2014 was when the 50th Surgeon General's Report (2014) was released. In the United States over 20 million people have succumbed to death since the release of the first Surgeon General's Report in 1964. Out of the 20 million deaths caused by smoking 2.5 million deaths were from secondhand smoke exposures (Surgeon General's Report, 2014). Women who are smokers have as great a chance as men to die from smoking-related diseases (HHS, 2014). Although the use of cigarettes has decreased over the past 50 years cigarette smoking continues to be the number one contributor to premature disability, disease, and death, that can be prevented (Surgeon General's Report, 2014).

In terms of the health expenditure in the United States, approximately $130 billion annually is spent to care for adults with problems related to smoking. Also, in

terms of lost productivity from premature death, the economic cost to the U.S. is about $150 billion. Also, secondhand smoke increases the economic burden in the U.S. due to $5.6 billion spent for lost productivity from premature death (HHS, 2014).

In past Surgeon General Reports indications were that smokers with diabetes had a greater likelihood of complications in the treatment of diabetes and had a greater chance of being diagnosed with kidney disease and blindness. Also, smokers with diabetes had a greater chance of cardiovascular problems that led to limb amputations. However, a direct link has been identified between smoking and development of type diabetes. Also, the risk of development of diabetes among smokers has been between 30-40% (HHS, 2014).

Smoking contributes to respiratory diseases, lung cancer, colorectal and liver cancer, and death from coronary heart diseases. There is also evidence that smoking not only is a cause of diabetes but also causes rheumatoid arthritis, and smoking weakens the immune system. Erectile dysfunction and age-related macular degeneration has also been linked to cigarette smoke, and persons exposed to secondhand smoke are at risk for strokes (Surgeon General's Report, 2014).

In 2014 there were close to 42 million adults who smoked. and middle school and high school age youth who smoked accounted for 5.3 million Americans (HHS, 2014). Smoking cessation for those with diabetes is manifested by a reduction in the risk for cardiovascular disease (i.e. hypertension), decrease in microvascular complications, and premature death. Smoking and use of tobacco products are contraindicated for effective diabetes management (ADA, 2013). Additionally, smoking and the use of tobacco

products are negative health behaviors that often result in a reduction in well-being, especially for persons with diabetes (ADA, 2013). According to the Standards of Medical Care in Diabetes (ADA, 2013), smoking cessation for persons with diabetes should be a high priority.

Complications Associated with Diabetes

Diabetes is a complex condition that affects a number of body systems and in reference to complications each person responds differently. Uncontrolled diabetes leads to a myriad of complications (LeMone et al., 2015). Complications of diabetes such as retinopathy leading to blindness and disorders of the kidneys present a management challenge to the individual and to the health care system. Also, peripheral neuropathies, especially in the legs and feet can result in limb amputations (Daniels & Nicoll, 2012), that is often associated with a poor quality of life. Complications related to diabetes mellitus are categorized by microvascular and macrovascular disorders (Daniels & Nicoll, 2012). Microvascular complications are defined as such because of the damage to the small blood vessels that occur with diabetes. The smaller blood vessels affected with microvascular complications are those of the eyes, leading to retinopathy, and the kidneys, leading to nephropathy. Diabetes is the chief cause of new cases of blindness annually, and in 2005, DM was the main cause of renal failure (ADA, 2017). The complication of end-stage renal disease has been 2.5 times greater among African Americans when compared to the Hispanic population (HHS, 2000).

Damage to peripheral nerves, associated with the smaller blood vessels of the limbs (hands and feet), causes a decrease in sensation, which is greatest among three

quarters of the population with diabetes. Peripheral nerve damage can also result in numbness and pain in the hands and feet (ADA, 2017). Many times diabetic individuals experience ulcerations in the feet and legs that can result in limb amputations due to loss of sensation that begins in the toes and moves up toward the feet and legs (Daniels & Nicoll, 2012).

According to ADA (2017), there is a high incidence of non-traumatic, lower limb amputations (greater than 60%) among those with DM. Conversely, macrovascular complications are termed as such due to changes in the larger blood vessels that result in diseases of the heart, brain, and peripheral vascular disorders. For example, coronary artery disease is often the result of changes in the larger vessels in the heart. On the other hand, changes in larger vessels in the brain can lead to a cerebral vascular accident or stroke (Daniels & Nicoll, 2012). Kendall and Bergenstal (2001) reported that cardiovascular disease was the most common, clinically significant complication of diabetes (80% of cases with DM have cardiovascular disease). Approximately 70% of those with diabetes die from a cardiovascular event (Kendall & Bergenstal, 2001; CDC, 2011b; CDC, 2014b).

Diabetes also affects the gastrointestinal system and the pulmonary system. Diabetics are often plagued with delayed digestion of food (ADA, 2017), which leads to constipation, abdominal distention, and bloating. Pneumonia and influenza are common respiratory infections that are experienced by persons with diabetes. All in all, diabetes and complications related to diabetes are responsible for increases in healthcare expenditures (CDC, 2011b).

Psychological Factors Associated with Diabetes

Hassles, Uplifts, and Stressful Experiences

Kanner et al. (1981) conducted an investigation to determine whether the hassles and uplifts or major life events tool was the better predictor of psychological symptoms. The sample size was 100 (52 women, men 48) and these individuals self-reported their experience with stress coping and, feelings of emotions each month for nine months. The study participants reported different types of hassles and uplifts from one month to the next. The suppositions made by Kanner et al. (1981) were that with an increase in hassles there was also an increase in uplifts, as the severity of the hassles increased so did the intensity of the uplifts. Also, the conclusion by Kanner et al. (1981) was that because of the increase in uplifts as the hassles increased, the hassles and uplifts tool displayed mechanisms for adaptation.

Stressful experiences are associated with both physiological and psychological factors (Lazarus & Folkman, 1984). Persons with diabetes are more likely to be confronted with psychological distress including mental illness (Spencer et al., 2006). Spencer et al. (2006) administered a comprehensive survey to African Americans (N = 109) and Hispanics (N = 71) who were associated with the Racial and Ethnic Approaches to Community Health (REACH) Detroit Family Intervention. The REACH study was an initiative of the CDC that was designed to explore how racial disparities in health could be eradicated. The chief health disparities related to disease were identified as diabetes, heart disease, infant mortality, and breast and cervical cancer. The survey was designed to extract specific information related to socio-demographic, biological, and psychosocial

variables, and information with regard to quality of health care services and emotional distress that was specifically related to diabetes (Spencer et al., 2006). Overall in comparison to Hispanics, African Americans had a greater likelihood of possessing a high school diploma (71.6% and 19.7% respectively), had more complications from diabetes (95.4% and 75.7% respectively), and there were fewer African Americans with a glycosylated hemoglobin value greater than 7.0 (65% vs 75% respectively). African Americans also reported more dissatisfaction with their health care services. Among Hispanic participants, those with a glycosylated hemoglobin measurement greater than 7.0 reported more emotional distress than did their counterparts. Additionally, there was a positive correlation between emotional distress and daily hassles, the personal perception of stress, and the seriousness of diabetes in both ethnic minorities. Spencer et al. (2006) concluded that investigators, health care providers, and legislators need to become more aware about the psychological and emotional distress that is inherent with a diagnosis of diabetes, for more effective management of patients. Spencer et al. (2006) also suggested that environmental stressors such as living arrangements and educational status were related to poor diabetes self-management among ethnic minorities.

A qualitative study was conducted by Byers, Garth, Manley and Chlebowy (2016) to determine factors that would enhance self-management of diabetes and barriers that prevented self-management. Study participants were African American adults (22) with type 2 diabetes from a rural setting. Participants were recruited from three churches, three focus groups were created to discuss facilitators and barriers to self-management of diabetes. Byers et al. (2016) identified the barriers to self-management of diabetes as fear

of complications, personal health status perceptions, and challenges in making necessary lifestyle changes. Alternately, the key factor that enhanced diabetes self-management was support from family, friends, social support groups (i.e. the church focus group), and health care providers (Byers, et al., 2016). The participants in the study by Byers et al. (2016) reported that support systems were beneficial to encourage them to make healthy lifestyle choices related to meals, physical activity, and taking their medicine. Also, according to participants in the study, talking and interaction with others helped to dispel the psychologic stressor of fear of diabetes-related complications and other anxiety-producing factors associated with diabetes. The chief conclusion drawn by Byers et al. (2016) was that those responsible for management of persons with diabetes must have a comprehensive knowledge of the barriers and facilitators of self-management in order to design culturally-sensitive education programs and management interventions.

Depression and Diabetes

Anderson, Freedland, Clouse, and Lustman (2001) conducted a meta-analysis of studies using the MEDLINE and PsycINFO search engines. The search for studies that related to the prevalence of depression in adults with diabetes included studies that were published prior to January 1, 2000. Several key terms were used to locate studies (i.e. *depression, minor depressive disorder, depressive disorder, diabetes, and diabetes mellitus*). Some studies included in the meta-analysis were controlled and uncontrolled from both clinical and community settings. The objective of the study by Anderson et al. (2001) was to determine the possibilities of the existence of depression in type 1 and type 2 diabetic adults. The investigators of the meta-analysis concluded that the possibility of

a comorbid diagnosis of depression among diabetes was double that of nondiabetics: this conclusion was generated from thirty-nine studies that included 20,218 subjects. The odds of depression in people with diabetes were greater regardless of the specific type of diabetes, assessment method, or source. There were more women (28%) with diabetes and comorbid depression than there were men (18%) in the meta-analysis. In the clinical setting the investigators found that the prevalence of diabetes was greater than in the community setting (32% and 20% respectively), and greater in the uncontrolled studies (30%) than in the controlled studies (21%) (Anderson et al., 2001).

In addition, a link between depression and diabetes has been identified (Kalsekar et al., 2006). Patients with a diagnosis of depression and type 2 diabetes visit the emergency room and the doctor's office more frequently, and have more prescriptions than those without a diagnosis of depression (Kalsekar Amonkar et al., 2006).

Bogner, Morales, Post and Bruce (2007) conducted a longitudinal cohort study of 110 depressed patients with diabetes. The patients were followed for fifty-two months to examine relationships between the mortality rates of depressed patients with diabetes, treated in mental health interventional programs compared to those treated by primary care providers. Bogner et al. (2007) found that depressed patients with diabetes in interventional mental health programs had a decreased mortality rate (68.2/1,000 person-years, 95% CI 41.0-106.5) compared to depressed patients with diabetes, who were followed in usual, primary care settings (103.4/1,000 person-years, CI 63.2-159.7). Based on the findings of the study by Bogner et al. (2007), more attention should be placed on identification of patients with a diagnosis of both depression and diabetes, so that

programs can be developed to address the special needs of this population. Bogner et al. (2007) implied that there were problems that existed among the population of depressed patients with diabetes that might be overlooked in the usual primary care setting, and the problems might be crucial to the reduction of mortality rates (Bogner et al., 2007).

The Center for Epidemiological Studies (CES) designed a survey in which persons documented whether they experienced feelings or behaviors that were closely associated with depression (CES-D) (JHS, 2008d). The self-report questionnaire for depressed feelings was used by the landmark Jackson Heart Study (2008d).

The investigators associated with the JHS measured total depressive symptoms for 3,158 participants during exam one. The depressive symptoms for females and males were compared when data were analyzed. The comparison results of the total depressive symptoms indicated that the females (N = 2,032) reported more depressive symptoms (mean = 11.53/SD = 8.44), compared to men (N = 1,126) who had a mean score of 9.72 and SD of 7.33 (JHS 2008d). Women in the age group of 21-44 years had feelings that equated to mild to severe depression (30%), more so than men (20%) in the same age group. As women aged, over 65 years, there was only a slight difference between the percentages of women to men (21 %, 17% respectively) who experienced feelings of depression (JHS, 2008d). Some of the subjects experienced myocardial infarction (a complication associated with coronary artery disease (CAD) during the study period Lewis et al., 2014) during the study period. The overall conclusion of the JHS investigators was that there were gender differences with regard to the self-report of feelings of depression, and that depressive symptoms were linked to illness.

In a study by Katon et al. (2005), the patients that were surveyed had type 2 diabetes, minor or major depression, and some had a sole diagnosis of diabetes. There were greater than 4,000 persons in which data were examined (Katon et al., 2005). Following analysis of the data, Katon et al. (2005) concluded that persons with a diagnosis of diabetes and depression, whether minor or major, had an increased mortality rate, more so than those with diabetes and no diagnosis of depression. The study participants were followed for a period of three years in order to determine mortality rates. A final determination of a diagnosis of minor versus major depression was made following evaluation of results from The Patient Health Questionnaire-9 (Katon et al. 2005). Among the study participants with a diagnosis of diabetes and no diagnosis of depression (N = 3,303), there were 275 (8.3%) deaths, compared to 48 (13.6%) deaths among those with diabetes and a diagnosis of minor depression (N = 354). In addition, there were 59 deaths (11.9%) among those patients with diabetes and a diagnosis of major depression (N = 497). The overall conclusion by Katon et al. (2005) was that those persons with a diagnosis of diabetes should be screened for depression, since there was a significant correlation between diabetes, depression and mortality. Those with diabetes and minor depression had a 1.67 fold ($p = 0.003$) increase in mortality compared to those who with diabetes and major depression (2.30 fold ($p < 0.0001$) (Katon et al., 2005).

Another study conducted by Goldney, Phillips, Fisher and Wilson (2004) examined data on patients with a diagnosis of diabetes and depression, to determine the correlation between diabetes, depression and quality of life. The investigators evaluated

data obtained from a 1998 South Australian Health Omnibus Survey (SAHOA). Personal interviews were conducted by specially trained interviewers, on 3,010 persons who were 15 years of age or older. The purpose of the study was to determine the prevalence of depression in persons with diabetes compared to those without diabetes. The Short Form Health-Related Quality-of-Life Questionnaire (SF-36) was used to analyze data to compare self-reported quality of life between depressed diabetics groups and non-depressed diabetic groups. The percentage of persons with diabetes was 5.2% of the 23.6% of the persons with diabetes exhibited signs of depression compared to 17.1% of persons in the non-diabetic group (P = 0.06). Following analysis of data related to quality of life, the investigators found a high correlation between depression, diabetes and quality of life. In other words, those with a diagnosis of depression and diabetes reported a decrease in quality of life when compared to those with diabetes and no symptoms of depression. Goldney et al., 2004) further indicated that since there was a high expense in the treatment of persons with diabetes and depression, more programs should be implemented to assist patients with these chronic co-morbidities. Due to the complex challenges facing individuals with diabetes, depression often ensues, which further impacts quality of life in a negative manner.

Katon et al. (2008) conducted a 5-year longitudinal study of patients with diabetes and depression who participated in a depression intervention program operated by nurses. The intervention program was called the Pathways Depression Collaborative Care Program, and a comparison was made of patients who were depressed with diabetes who received usual care (not enrolled in the depression intervention program. The main

purpose of the study was to determine the comparative medical costs associated with the interventions for depression. There were 329 patients enrolled in the study that were randomly assigned to either the nurse depression intervention group (n = 164) or the usual care group (n = 165) (Katon, et al., 2008). Incorporated in the nurse depression intervention, was education on depression, behavioral activation, and medication therapy. Data analysis by the investigators indicated that there was a reduction in medical costs for patients in the nurse-operated depression intervention group compared to the patients in the usual care group. Although there was a reduction in medical costs in the Pathways group, it did not approach statistical significance. However, patients in the Pathways program did demonstrate an improvement in depression outcomes compared with those in the usual care group (Katon et al., 2008). Again, as with other researchers (Bogner et al., 2007; Goldney et al., 2004; Kalsekar et al., 2006; Katon et al., 2005), Katon et al. (2008) indicated that persons with diabetes have specific mental health needs that should be addressed to decrease the healthcare burden associated with the disease and to improve outcomes among persons with diabetes and depression.

Herclides, Chandola, Witte and Brunner (2009) indicated that depression is a type of psychological stressor that is associated with both diabetes (Herclides et al., 2009). Herclides et al. (2009) conducted a fifteen-year prospective study of over 5800 men and women who were middle-aged, civil service workers. The objective of the study was to explore the relationship between psychosocial, job-related stress and the development of type 2 diabetes. Job-related stress was interpreted as high demands with low control and minimal work support. At the end of the fifteen year period there were 308 new cases of

diabetes. Further, Herclides et al. (2009) reported that psychosocial stress, which is mediated through psychoneuroendocrine pathways, is responsible for abnormalities in glucose metabolism that can lead to a diagnosis of diabetes. In other words, psychosocial stress that leads to disease is of a chronic nature. Also, due to the release of epinephrine and norepinephrine, and also cortisol, during psychosocial stress, there is a chronic activation of the neuroendocrine pathways that causes an increase in glucose output from the liver, and insulin secretion and sensitivity are decreased (Herclides et al., 2009).

Another prospective study by Lin et al. (2010) was conducted to explore the relationship between advanced diabetes-related complications with depression. Lin et al. (2010) conducted a study of 4,623 type 2 diabetic patients who were managed by primary healthcare providers. The enrollment period for the study was from 2000-2002 and follow-up of the cohort of patients continued through 2005-2007. The patients were assessed for microvascular complications (blindness, end-stage renal disease [ESRD], limb amputations, and deaths from renal failure) and macrovascular complications (cardiovascular problems including stroke and myocardial infarction [MI], congestive heart failure, and deaths). The patients were examined before the study to obtain baseline data and during the follow-up period to assess for microvascular and macrovascular complications. Depression was assessed at baseline and during the follow-up time frames by completion of a self-reporting tool (The Patient Health Questionnnaire-9 [PHQ-9]) designed to identify people with probable minor and major depression. The overall conclusions made by Lin et al. (2010) were that those patients who had depression at baseline had an increased risk for the development of both microvascular and

macrovascular diabetes-related complications. Also, it was indicated that patients with major depression had a greater than 30% risk of development of conditions such as ESRD, blindness, MI or stroke when compared to patients without depression (Lin et al., 2010).

Researcher have also conducted studies to explore whether there were associations between depression, diabetes, and ethnic groups. Wagner, Abbott, Heapy and Yong (2009) used a convenience sampling technique of 125 African American adults with diabetes for a study. Participants were recruited for the study from Expos held by the ADA from 2004 to 2006. The purpose of the study was to examine the relationship between symptoms of depression and self-management of diabetes. The measurement criteria were the A_1C, depressive symptoms, long-term diabetes-related complications, and associations between depressive symptoms and the customary usage of medications. Fifteen of the subjects reported a diagnosis of type 1 diabetes and one hundred and eight reported a diagnosis of type 2 diabetes. Wagner et al. (2009) collected self-reported information related to demographics, self-care behaviors, depressive symptoms (CES-D), and diabetes care.

In addition to obtaining demographic information, blood was collected to measure the A_1C: subjects were paid five dollars for participation in the study. Overall, Wagner et al. (2009) found that African Americans with higher A_1C measurements also had higher scores on the depressive symptom survey. Those persons with higher A_1C levels reported using more medications and they experienced more long-term complications associated with diabetes. In terms of self-care, there was an association between higher A_1C levels

and a lower degree of self-care as measured by the Diabetes Self-Care Inventory. Gender differences also existed in the scores on the depressive symptom tool: 75% of the study participants were women. Women had a mean score of 12.5 on the depressive symptom tool compared to a 7.4 mean score for men. Wagner et al. (2009) suggested that health care providers design assessment and treatment plans specifically for African Americans with diabetes.

Musselman et al. (2014) analyzed data of 172 African Americans with a diagnosis of type 2 diabetes. The setting for the study was an urban diabetes clinic and the study period was one year. One aim of the study by Musselman et al. (2014) was determine the magnitude of deficits in functional capacity: functional capacity was described as the skills necessary to handle the daily challenges associated with diabetes self-management. The second aim for the study by Musselman and colleagues (2014) was to determine whether deficits in functional capacity were related to poor glycemic control.

Participants in the study by Musselman et al. (2014) visited the clinic for baseline screening and assessment. During the initial clinic visit questionnaires were completed by both the observer and the patient. Following the initial clinic visit participants were enrolled in three diabetes management education classes that were conducted every three months: each participant had five to six hours of diabetes education. Nineteen percent of the participants exhibited major depression, and generally, the glycosylated hemoglobin of those with diabetes and comorbid depression was greater than those without comorbid depression. Also, there was a reduction of functional capacity among depressed patients

and over the course of the study (at the end point) depressed patients were ineffective with diabetes self-management (Musselman et al., 2014).

Lopes et al. (2016) also conducted a search for studies from January 1988 to December 2014, and then performed a meta-analysis of twenty-two studies. The objective of the meta-analysis was to ascertain the connection between major depression and persons with type 2 diabetes. The meta-analysis included studies from North, Central, and South America, Europe, and Asia. Three hundred and eighty-seven articles were initially found by Lopes and colleagues (2016), and out of the 387 publications, 165 studies were identified as relevant and therefore, the entire publications were read. In the final evaluation of studies there were only 22 that met the inclusion criteria: data analyses were then conducted. Evaluation of datasets for a total of 5,554 patients with type 2 diabetes was completed. The researchers, Lopes et al. (2016), indicated that there were several different instruments (i.e. Beck Depression Inventory (BDI) first and second edition (BDI-II), the CES-D, and the Geriatric Depression Scale (GDS)) that were used to determine if the individuals had major depression: this could pose concerns with regard to standardization of a diagnosis of major depression (Lopes et al., 2016).

Lopes and colleagues (2016) found that there was a significant number of participants with major depressive disorder, according to the criteria outlined in the DSM-V (2013). The final analysis of patient data indicated a global average of 21.13%, irrespective of the topographical location. Lopes et al. (2016) concluded that there was a high prevalence of major depression in people with type 2 diabetes regardless of the topographical area in which the studies were conducted (Lodes et al., 2016).

People living with diabetes experience complex challenges on a daily basis and as a result, psychosocial issues are prevalent among this population (ADA, 2016). Diabetes distress, depression, and anxiety are often observed in people with diabetes. According to the ADA (2016), people with diabetes have to juggle their schedule between glucose monitoring, nutrition management, physical activity, work, and management of other personal issues. In addition, there might be comorbidities for which people with diabetes have to self-manage that can potentially deter diabetes self-management (ADA, 2015). Therefore, healthcare providers are admonished to perform a thorough assessment, history, and physical to include identification of personal factors that might prevent effective self-management.

Church Attendance, Religious or Spiritual Engagement

Leaders and members of churches often hold to the belief that the presentation of health messages and programs is an effective strategy for health promotion and member engagement within the church setting (Williams, Glanz, Kegler & Davis, 2012). According to Chatters (2000), there are three categories of religious involvement. The first is organizational religious involvement which relates to persons being part of a religious congregation and attending church services and prayer meetings. Organizational religious involvement is often referred to as formal or public participation.

The second category for religious involvement is non-organizational involvement in which the individual engages in private devotion, which includes study of the Bible and prayer. Third, subjective religious involvement refers to a personal perception of

being religious: this type of involvement might not correspond to either organizational or non-organizational religious involvement (Chatters, 2000).

The JHS was a longitudinal study of persons with heart disease or those who were at risk for heart disease, and it has been in existence since 2008. The sample size for the JHS included over 5000 African Americans. Participants of the study were recruited from a four-county area in Jackson, Mississippi; this is in the Mississippi Delta region. The three institutions that combined resources to support the Jackson Heart Study were Jackson State University, Tougaloo College, and the University of Mississippi Medical Center (Taylor et al., 2008). The JHS was funded by the NIH. The JHS is a landmark study that included analysis of data on more subjects to investigate the genetic factors associated with heart disease (i.e. hypertension and stroke), diabetes, and other chronic diseases among African Americans and is the (JHS, 2008a). According to investigators with the JHS (2008a) funding was extended to May 2012, and sustainability studies were evaluated. Although the main objectives of the JHS related to a reduction in the morbidity and mortality rates related to heart disease, a plethora of data have been gathered, which provides information for investigation of other chronic disorders (Taylor et al., 2005). The original intent of the JHS was to investigate factors related to the incidence and prevalence of heart disease among African Americans in the delta region, however, numerous data emerged from this large scale investigation (JHS, 2008c).

Researchers for the JHS reported that from 4357 observations on the question of church attendance, a total of 1,227 (28.16%) persons reported church attendance nearly every day, 2171 (49.83%) reported church attendance at least once a week, and another

572 (13.13%) persons reported church attendance a few times a month. Also, there were 200 (4.59%) persons who reported church attendance a few times a year, another 48 (1.10%) persons who reported church attendance less than once a year, and 48 (1.10) who reported not attending church at all. Additionally, there were 91 (2.09) respondents who did not report any church attendance on the questionnaire. The social history of the respondents included information related to alcohol, tobacco and drug usage, stress, coping and spirituality (JHS, 2008c). Also, at various exam intervals, study participants provided information related to episodes of depression, regular dietary intake, and religion (JHS, 2008b).

The JHS researchers collected blood for analysis of blood glucose readings over a three-month period through measurement of the hemoglobin A_1C. The C-reactive protein level, which is an inflammatory marker, was drawn, along with the ACTH level, and the cortisol level from study participants (JHS, 2008b). There has been a wealth of data generated from the JHS in relation to chronic diseases, stressors, and spirituality. The main supposition made by researchers who studied participant datasets was that spirituality or religiosity are associated with positive health behaviors (Reeves et al., 2012). In other words, the more that individuals engage in regular spiritual activities more positive health outcomes are observed (i.e. less depression and smoking cessation). Further investigation on the association between various chronic diseases, stress, and spirituality would be beneficial for researchers involved in exploring the concepts of stress, disease, and health.

Faith-based organizations are an effective venue for the delivery of health education (Anderson, 2004). According to Obisesan, Livingston and Trulear (2006), those who attended church regularly had fewer risk factors for morbidity, and a suggestion for further study was made. Therefore, a deduction can be made that diabetes education that takes place within the institution of the church might be a reasonable suggestion to promote healthy lifestyles.

In support of health programs in faith-based institutions, within the church, African Americans incorporate ideas and information related to health in their church ministries, and effective programs have been established within the church environment (Resnicow et al., 2002). Faith-based organizations often subscribe to a holistic view of health, this presents a relationship between the spiritual, emotional and physical dimensions of humans (Schnorr, 1999, p. 44). Schnorr (1999, p. 44) reported that the world view of health is typically adopted by those who are considered to be healthy individuals. A number of faith-based organizations have established a health ministry or parish nurse program to promote healthy lifestyles and preventive health (Anderson, 2004). Faith-based organizations seem to be an ideal environment to promote positive health behaviors through education, especially for those with diabetes.

Aaron, Levine and Burstin (2003) conducted a study to examine relationships between church participation and positive health care practices. Regular church attendance was defined with regard to the frequency of attendance. High attendance referred to attendance at church “every week in the month”, moderate was “twice a

month" or "once a month", and low was church attendance "a few times a year", or "never attended church", or "used to attend church but were not currently doing so" (Aaron et al., 2003, p. 909). Analysis of data by Aaron et al. (2003) indicated that there was an association between regular church attendance and engagement in positive health behaviors.

A similar study related to health and faith-based institutions was conducted by Simmons, Voyle, Fout, Feot and Leakehe (2004). The study by Simmons et al. (2004) was a prospective, non-randomized controlled study on the effectiveness of a diabetes intervention program among Pacific Islanders. The basic thrust of the program placed emphasis on weight reduction and exercise. There were four churches in New Zealand, with a total of 516 participants, with whom the diabetes intervention program was initiated (Simmons et al., 2004). In addition, the study period in which data were collected was from 1993-1996. The overall results of the study demonstrated a reduction in diabetes risk related to participation in the diabetes intervention program (Simmons et al., 2004).

Another study conducted by Proctor and Williams (2007) utilized eight African American churches in northeastern Louisiana to obtain self-reported information on personal health status. Proctor and Williams (2007) distributed 400 surveys, with a response rate of 36% (144 surveys). The investigation was an initial, assessment phase of the faith-based community, in order to plan for future health promotion programs

(Proctor & Williams, 2007). The major point of citation of Proctor and Williams (2007) is to show that faith-based organizations within the African American community can be an effective environment to generate data on health issues.

Community Health Advisors (CHA) to educate African Americans who lived in an urban city on diabetes prevention were used in a study by Faridi et al. (2009). The study was a quasi-experimental investigation that compared groups trained by CHAs, that were trained by a diabetes educator. However, a key factor in the study was that the CHAs in the control group received their training after the actual diabetes educational intervention. Data were obtained from thirteen churches in New Haven, CT (N =133) and 6 churches in Bridgeport, CT (N =125), which was the control group. Baseline measures and post surveys were obtained from questionnaires given to participants, and the intervention was a 1-year education program on diabetes risk factors.

The findings of the study by Faridi et al. (2009) were that there were no significant differences with respect to physical activity, dietary patterns, BMI, social support, diabetes knowledge, nutrition and exercise self-efficacy, between groups. However, it should be noted that the control group had persons with higher education, higher incomes and lower BMI. On the other hand, the study group reported higher perceived social supports at baseline, which was statistically significant. Limitations of the study were related to the teaching methods of the CHAs. Also, there was a large loss to follow-up (study group, 68.5%, control group, 62.9%) (Faridi et al., 2009).

In addition to interventions related to diabetes, other researchers have implemented programs related to other chronic diseases within the African American church. More than 45 million adults have been diagnosed with various forms of arthritis. Irvin, Sutherland and Harris (2006) developed an arthritis self-help program for persons with arthritis. The self-help program was implemented in a rural African American church setting, and Irvin et al. (2006) utilized the Faith-Based Prevention Model (FBPM) (Sutherland & Harris, 2001) as a framework for the study. The main premise of the FBPM is that a combination of prevention strategies has a positive impact on members of the rural African American church and community (Sutherland & Harris, 2001). Faith-based programs in the African American/Black community have been shown to be effective with regard to positive health outcomes.

Irvin et al. (2006) suggested that since a faith-based program demonstrated effectiveness with regard to a self-help program in their study, future studies should explore the benefit of utilization of the faith-based venue for research among African Americans, especially in the rural setting. Since an increased incidence of diabetes among African Americans has been identified (CDC, 2009a), churches where there are a large number of African Americans might prove to maintain an environment conducive to research related to health issues.

Also, since there is an increased incidence of diabetes among African Americans (CDC, 2008), the African American Church seems to be an excellent, alternate environment to conduct research related to health issues. According to Sutherland, Harris, Foulk and Gessner (1998), the Southern African American Church has traditionally

provided leadership with regards to community affairs. The Black Church represents one of the strongest, most influential institutions within the Black community (US Black.com, 2009), and is an ideal venue to promote health among African Americans.

Byers et al. (2016) indicated that the church setting was suitable to conduct research among African Americans because it was a neutral and non-threatening environment. Because the church is a non-threatening environment participants felt free to discuss issues related to barriers to diabetes self-management (Byers et al., 2016).

In addition to indication that the church setting being a beneficial environment for research, Lynch et al. (2012) found an association between spirituality an depression. There were 201 persons that participated in the study: the participants were adults. Surveys enabled assessments to be made with regard to spirituality and depression. The Daily Spiritual Experience (DSE) Scale and the CES-D were given to participants to self-report information. Data analysis indicated that the more spirituality one reported, there were fewer depressive symptoms (scoring of the CES-D is related to symptoms of depression. Lynch et al. (2012) suggested that diabetes education in faith-based venues might result in positive health behaviors and therefore improve glycemic control.

Summary

In chapter 2 I included information on the responses to stress and diabetes in terms of physiological factors associated with diabetes, complications of diabetes, and psychological factors associated with diabetes. Also, I presented an overview of the Cognitive Appraisal Theory by Lazarus and Folkman (1984) as the main framework for the study, and concepts of stress, and stressful life experiences. Since depression is a

condition that presents psychological challenges and is intricately associated with diabetes, a discussion on the concept was included in this chapter. Synthesis of the literature demonstrated that much is known about the effects of poor nutrition, obesity, physical inactivity, depression on diabetes, and how programs held at faith-based venues can provide diabetics the knowledge, training and skills to effectively manage the disease.

Although studies have been conducted over the past several decades on diabetes, with regard to risk factors, symptoms, complications and management, few studies were found on hassles of African American with type 2 diabetes. Specifically, in this study I sought to answer the question, is there a difference in the total number of hassles, the frequency and severity of hassles that are self-reported by African American adults with and without type 2 diabetes?

Continual exploration of the factors (i.e. stress, stressors, hassles, and depression) that either promote diabetes self-care or are barriers to diabetes self-care is needed. Also, findings from studies can assist investigators in the design of more innovative, and population-specific diabetes management and education programs. Subsequently, perhaps data will facilitate solutions to the phenomenon of the continual increase of type 2 diabetes among African Americans. Finally, promotion of key elements that relate to diabetes control can be the impetus for positive social change and policy changes related to diabetes management and education on the local, regional, state and national level.

In chapter 3 I include the research design and rationale, the population, sampling and sampling procedure, procedures for recruitment, participation, and data collection.

In addition, operationalization of each variable, plan for data analysis, threats to validity, and ethical procedures are included in chapter three.

Chapter 3: Research Method

Methodology

Introduction

The purpose of this study was to examine the differences between hassles of African American adults with type 2 diabetes compared to hassles of African American adults without type 2 diabetes. I measured hassles using the Hassles (H) portion of the Combined Hassles and Uplifts Scale (CHUS), which is a self-reporting survey that was developed by Lazarus and Folkman for which the copyright is held by Mind Garden (1989).

Among Blacks living in the United States, the prevalence of diabetes is greater than that that seen in White Americans (Fitzner et al., 2011; CDC, 2012a; CDC, 2014a). The states with the greatest percentage of people who are over 18 years and have a diagnosis of diabetes are Alabama (11.1%), Louisiana (11.1%), Mississippi (11.7%), and West Virginia (11.7%; CDC, 2014a). The number of residents in Louisiana who do not know they have diabetes is 124,000, which places an added burden on the healthcare system. Each year the state of Louisiana spends over $5 billion in diabetes care, and with the 1,272,000 prediabetics (ADA, 2016), health expenditure can rise dramatically.

The methodology of an investigation relates to strategies implemented by the investigator with regard to data collection and analysis. In Chapter 3, I address the research design and rationale, the population, sampling and sampling procedure, procedures for recruitment, participation, and data collection, operationalization of each

variable, plan for data analysis, threats to validity, and ethical procedures. In addition, I discuss data analysis related to the research hypotheses.

Research Design and Rationale

I examined the hassles of African American adults with type 2 diabetes compared to those of African American adults without type 2 diabetes (Table 1). My chief objective was to determine the difference in hassles between African American adults with a diagnosis of type 2 diabetes and those without a diagnosis of type 2 diabetes. This study provides descriptive data for researchers to use for future investigations. Also, the data generated from this investigation can be used by program planners to develop culturally-sensitive diabetes interventions (i.e. diabetes education).

Table 1.

A List of Variables with Level of Measurement

Variable	Level of Measurement
Type 2 diabetes	Nominal
No diabetes	Nominal
Total hassles score	Interval
Frequency of hassles score	Interval
Severity of hassles score	Interval

For this study, I used a quantitative, descriptive, comparative design. I used this design to compare the hassles total, frequency, and severity scores between two groups. I

have used numerical values to represent the variables investigated. The hassles scores are interval levels of measurement. African American adults with and without type 2 diabetes are represented by numerical values.

There were time and resource constraints with this study. The copyright to the CHUS belongs to a company by the name of Mind Garden Incorporated. I submitted a letter of request to use the CHUS (hassles portion only) to Mind Garden. This request was contingent on approval to conduct the study from the Internal Review Board at Walden University. Waiting for permission to use the survey and to duplicate the survey added to the time and resource constraints for this study.

Descriptive studies are concerned with characteristics of the phenomenon being scrutinized (Burns & Grove, 2009). Researchers goals for descriptive studies is to provide detail about the subjects (Houser, 2013), and to provide information about the variables that already exist in their natural setting (Burns & Grove, 2009). In descriptive study designs, the objective is not to show causal relationship, but rather to provide a description of the variables and the particular phenomenon that was examined (Burns & Grove, 2009). Descriptive comparative studies allow investigators to assess data within or between groups. Grove, Burns, and Gray (2012) emphasized that there is no treatment or intervention with a descriptive comparative study design. My investigation yielded information from the comparison of the total, frequency, and severity of hassles between two groups.

This study was non-experimental. Non-experimental studies lack randomization of subjects (Norwood, 2010). There was no treatment or intervention in this study, and

there was no need to use dependent and independent variables (see Grove, Burns & Gray, 2012) because there was no manipulation of the independent variable (see Polit & Beck, 2012).

My investigation was appropriate to advance knowledge in the domains of healthcare and public health. The core functions of the public health paradigm include assessment, policy development, and assurance (Rowitz, 2014). A descriptive comparative design represents the assessment phase of the paradigm in that exploration of variables yields information or knowledge. Once knowledge is discovered, investigators can analyze the facts and make a connection to develop a future plan of action based on policies, procedures, or protocols. Development of a comprehensive plan and implementation of the plan equates to the assurance phase of the public health paradigm (Rowitz, 2014), and this is an implication for future research.

Population

The target population for the study was African American adults with and without a diagnosis of type 2 diabetes. Over $5 billion is spent annually for diabetes care in Louisiana (ADA, 2016), and in 2012 Louisiana ranked in the top 10 category of states with the highest percentage of residents with diabetes (CDC, 2014a). There are over 500,000 residents in Louisiana living with diabetes (ADA, 2016). I recruited participants from the northern part of Louisiana. The annual mortality for people with diabetes in Louisiana is approximately 33,000 (ADA, 2016). Although African Americans make up only 32% of Louisiana's population, the burden of diabetes is greatest among this ethnic group (HHS, 2016).

Sampling and Sampling Procedures

I considered using a non-probability sampling technique for the study since there was no manipulation of variables (see Bosewell & Cannon, 2007), and ultimately used a quota sampling technique to ensure there was adequate representation of subject types in each group (see Burns & Grove, 2009). The two groups were African American adults with a diagnosis of type 2 diabetes and African American adults without a diagnosis of type 2 diabetes. I strove to include both male and female subjects from representative age groups. Participants for the study were drawn from faith-based institutions in northern Louisiana.

According to Fain (2009), a convenience sampling technique would have also been appropriate for this study. A convenience sample involves a non-probability sampling method in which subjects are added to the study because they meet the criteria for inclusion into the study and because they are available for participation in the study. However, a convenience sampling technique can be made strong by the institution of quota sampling (Burns & Grove, 2009).

The inclusion criteria for participation in the study were African American adults or Blacks with a diagnosis of type 2 diabetes (Group 1) and African American adults or Blacks without a diagnosis of type 2 diabetes (Group 2). Also participants had to be age 18 or over. Additionally, the diagnoses of type 2 diabetes were self-reported by participants. The exclusion criteria for participation in the study were individuals with any other form of diabetes, such as prediabetes, type 1, or gestational diabetes.

A power analysis was needed to make a determination of the chance that a Type II error was made with the statistical analyses. A Type II error is when the null hypothesis is not rejected when in actuality it should be rejected because it is false. When an investigator has indicated that there is no significant difference when there actually is a significant difference between groups, the null hypothesis is falsely accepted (Trochim & Donnelly, 2008). A Type I error, is when there is a conclusion made by the investigator that there is a significant difference (rejection of the null) when in actuality there is no significant difference (null should be accepted). The null hypothesis is rejected (in favor of the alternative hypothesis: there is a difference) when the decision should have been to fail to reject the null because there is no significant difference (Trochim & Donnelly, 2008).

Alpha, effect size, and sample size are the three essential components that affect power. Power is simply the percentage of time an effect will be identified. In other words, if the power is large, the investigator will be able to establish that the outcomes of the study are not the result of chance (Burkholder, 2011). According to Burkholder (2011), .80 is the most commonly used power value. *Effect size* refers to the ability to reveal a difference in the population; researchers usually accept the effect size at a medium to high level of .40 to .80 (Burkholder, 2011). According to Research Consultation (2007), the effect size is divided into three levels: small (.2), medium (.5), and large (.8). Cohen (1989) stated that the effect is the difference between the means of the groups, which is then divided by the standard deviation. However, the *t* statistic for means is necessary for

this calculation. The effect size determines the degree of or the extent of the effect that is present.

A power calculator can be used to obtain the approximate sample size for an investigation. The Raosoft sample size calculator (http://www.raosoft.com/samplesize .html) provides the sample size, confidence interval, and degrees of freedom if the population size is provided. Also, a master table can be used to determine the sample size for a study. I used the Statistical Power Master Table in Burns and Grove (2009, p. 683) to determine the estimated sample size for each group in this study. The Statistical Power Master Table allowed me to determine that at an alpha value of 0.05, a medium effect level of 0.40, and a power of 0.80, the sample size for the study should be 45 subjects for Group 1, and 45 subjects for Group 2 (Burns & Grove, 2009, p. 683).

Procedures for Recruitment, Participation, and Data Collection

recruitment. Participants were recruited from churches or faith-based institutions: flyers (Appendix E) was distributed and announcements were made over a two-week period or until the sample size was reached. The flyer indicated that no gift(s) or compensation would awarded to participants. Also, individuals were asked for referrals of family, friends, and acquaintances that meet the inclusion criteria, and were within the faith-based setting. Demographic information that was collected included the participant's age, church affiliation, race, marital status, educational level, approximate annual income, and whether there were other comorbidities, and took approximately five minutes to complete (Appendix A). A letter of request to recruit participants and to allow

participants to complete the questionnaires in the faith-based institution was given to the Pastor, Executive Board, or the Overseer of the church (Appendix B).

informed consent. Once it had been identified that subjects met the inclusion criteria for the study, a letter of informed consent was given to them, which took approximately ten minutes to read. The letter of informed consent (Appendix C) included information about the study (e.g. purpose), potential risks associated with the study, confidentiality and anonymity statements, and the estimated time it would take to complete the questionnaires. The letter of informed consent also included a statement that the potential candidates for the study can withdraw from the study at any time prior to the return of the two questionnaires (letter of informed consent and Hassles Scale), and there would be no penalty. The procedure for withdrawal from the study could be made verbally or return of the incomplete (blank) questionnaires. The letter of consent was also be coded since there were no personal identifiers on the document. Prior to placement of the CHUS in each coded, large yellow envelope, the identifier (name) would be removed from the instrument. Also, I was present during completion of the research documents, and emphasized to the participants, in order to protect their privacy, no name or other identifiers would be not placed on any study documents. There were no direct benefits for participation in the study, but participants contributed to the larger body of knowledge with regard to stress/hassles and type 2 diabetes: the letter of informed consent included this information.

data collection. When the letter of informed consent had been retrieved from the study participant the CHUS were given to them for immediate completion. Directions for

completion of the questionnaires were conducted in a group setting or one to one, whichever was applicable. Study participants were informed that following completion of the two questionnaires and return of the documents, automatic enrollment in the study would occur. There were no follow-up procedures for the study since there were no further interviews or interventions. Data collection continued until the number of participants for each group (N = 45/group) had been reached. Data collection is proposed to occur from December 2016 to January 2017.

Each participant was provided with a large yellow envelope. The contents of the envelope was a letter of informed consent, a demographic data profile, and a copy of the Combined Hassles and Uplifts Scale with the name identifier removed from the document. Also included in the large, yellow envelope, was a plain white envelope that was not coded, for the participant to provide their address or contact information if they wished to receive a summary of the study. Each large yellow envelope and the CHUS contained in the envelope were coded appropriately. For example, the envelope for all subjects included in group one (1), which was those with type 2 diabetes, was coded T2D-1, T2D-2, T2D-3, etc.). Conversely, the envelop of those subjects in group 2, which was those without type 2 diabetes, was coded ND-1, ND-2, ND-3, etc.). The white envelope that was contained in the large, yellow envelope was not coded so that no one was able to link any information with the personal identifiers of the participant. Again, if a subject wished to withdraw from the study without penalty, they could do so before submission of the study documents.

Instrumentation and Operationalization of Constructs

instrumentation. The Combined Hassles and Uplifts Scales were developed by Lazarus and Folkman; however, permission to use the tool or reproduce the tool came from Mind Garden, Inc. of Palo Alto, California. The CHUS could be reproduced with permission or arrangements could be made to allow study participants to complete the questionnaire electronically (Mind Garden, 1989). A short electronic message was sent to Mind Garden, Inc. to inquire about the Hassles Scale because it could not be found on the website (original development by Lazarus and Folkman, 1984). A brief response from Mind Garden, Inc. was that the hassles portion of the CHUS is what researchers must use if hassles are the only variable being studied. Permission to use the hassles portion of the Combined Hassles and Uplifts Scale (CHUS) and to reproduce the scale was requested from Mind Garden, Inc. (Appendix C).

The CHUS has 53 items of factors that serve as daily hassles and uplifts. The scale is a four-point Likert scale in which the subjects self-report what items served as a hassle or uplift in the past month, or other specific time frame, or whether the item was both a hassle and uplift in the past month or selected time frame. The scale identifiers are 0 (None or not applicable), 1 (Somewhat), 2 (Quite a bit), and 3 (A great deal) (Mind Garden, 1989). On the first page of the CHUS, there is a space for the individual's name; however, for this study the space for the person's name was removed prior to reproduction of the questionnaire.

The hassles portion of the Scale was appropriate for this study because the objective was to determine if there was a difference in the hassles of African Americans with type 2 diabetes compared to those of the same population without type 2 diabetes. The Scale was also appropriate for this study because hassles were reported by the study participants according to their own perception of hassles: completion of the scale was estimated to take twenty minutes.

Kanner, Coyne, Schaefer and Lazarus (1981) conducted a study in which participants were asked to identify their self-perceived daily hassles. The subjects completed the hassles scale each month for nine consecutive months. Kanner et al. (1981) indicated that the reliability for the scale was identified as stable and the correlation was calculated as 0.79. Kanner et al. (1981) conducted correlation studies on the severity and frequency of hassles over the nine-month period. The correlation of the severity of hassles from one month to the next was 0.48 and was less than the average score for frequency of hassles. Kanner et al. (1981) indicated that based on the correlation scores, hassles were stable. However, the difference between the scores for frequency and severity of hassles indicated that the reported hassles were different from one month to the next (Mind Garden, 1989).

reliability and validity. Test-retest reliability refers to how consistent the scores were over time. Test-retest reliability tests the same attribute at various time intervals. A correlation analysis is performed following the tests for reliability. Higher correlation measures indicate that the attribute measured on the instrument is highly stable. In other

words, each time the attribute is measured with the same instrument, consistency exists (Burns & Grove, 2009).

Validity of an instrument refers to how well the instrument represents what it was intended to measure (Burns & Grove, 2009). A high degree of face validity and content validity were established by Lazarus and Folkman (1984) in the development of the Daily Hassles Scale. Content validity means that the instrument measures all of the main variables that are defined in the study (Burns & Grove, 2009). According to Grove, Burns and Gray (2012), content validity should be established according to the population for which the instrument is being used: as the population for studies change, the validity might change. According to Grove, Burns and Gray (2012), there should be certainty that the instrument is appropriate for the specific study. Lazarus and Folkman (1984) found that hassles appropriately represented traits of psychological stress regardless of the time frame in which they were measured.

Construct validity refers to the extent to which the instrument accurately measures the high level concepts, which are the theoretical constructs, that has been declared, that it measures. Construct validity measures theoretical constructs and from the theoretical definitions of constructs, operational definitions are created (Burns & Grove, 2009). Kanner et al. (1981) established construct validity of the Daily Hassles Scale. The frequency of daily hassles and life experiences were compared and a modest correlation (0.36) was identified. Hassles and life events coincide in that transactions in life produce daily hassles. Both life events and daily hassles correlated but were independent of each other (Lazarus & Folkman, 1984).

DeLongis, Folkman, and Lazarus (1988) conducted a nine-month longitudinal study with 75 married couples to establish construct validity of the Combined Hassles and Uplifts Scale. The objective of the study was to examine the association between daily hassles and physiological and psychological symptoms: the concepts were self-esteem, social support, mood, health, and life stress; however, only the hassles portion of the scale was used. DeLongis et al. (1988) found that there was an overall association among all the variables that were examined.

The Hassles Scale was one instrument used by Hamilton and Meston (2013) in a study to examine the effects of chronic stress on reproduction in women. Psychophysiological testing was conducted within five to ten days of the subject's menstrual cycle to measure genital arousal and factors related to stress. The CES-D questionnaire was also used to assess the level of depression of the participants. Fifteen women were placed in the high stress group and fifteen were placed in the average stress group. The Hassles Scale has 117 items that are listed as possible hassles and the CES-D measured the participant's level of depression.

There was a significant difference ($p < 0.05$) in scores on the Hassles Scale between women in the high and average stress groups. The Hassles Scale score of women in the high stress group was 68.0 compared to women in the average stress group (25.1). There was also a difference in scores on the CES-D, although it was not significant. Women in the high stress group had an average score on the CES-D of 13.0 compared to 10.9 for women in the average stress group. After analysis of all the data Hamilton and Meston (2013) concluded that the physical component of arousal seems to be more

affected by chronic stress than the psychological component. Women in the high stress group had higher cortisol levels (known to negatively affect the reproduction cycle) and lower genital sexual arousal than women in the average stress group (Hamilton & Meston, 2013).

The hassles portion of the CHUS, the Patient Health Questionnaire (PHQ-9) (measures psychological distress), Brief-COPE (assesses coping strategies), and the General Health and Short-Form 12 (assesses physical and mental health) were used in a study by Cook, Hindes, Pater and Maul (2016) to explore associations between daily stressors and coping in adults with congenital heart disease. One hundred and twenty-eight participants were in the study. Coping methods were not associated with an increase in hassles and weak correlations were associated with the sum of the hassles and positive coping mechanisms ($rho = 0.213$, $p < 0.02$). There were also weak correlations between the sum of patient hassles and social coping mechanisms ($rho = 0.211$, $p < 0.02$). The results of the study also demonstrated that there were associations between the hassles scores, age, marital status, income level, and the unemployment status of the study participants. Suggestions by Cook et al. (2016) were for healthcare providers perform a comprehensive assessment of psychosocial risk factors (i.e. low annual income and unemployment) since there is known increased morbidity and mortality in persons with cardiac disease.

Operationalization for Variables

African American/Black adults. African American adults are individuals who are 18 over the age of 18 (ADA, 2016) and the CDC (2008) referred to African

Americans as non-Hispanic Blacks. There is a general assumption that adults are able to make decisions related to their life. Each participant will document their age on the demographic profile sheet.

depression. Depression is a psychological stressor associated with illness (Herclides et al., 2009). Depression is also represented by symptoms experienced by persons with depression (JHS, 2008c). Depressive symptoms include low self-esteem, feelings of sadness and guilt, appetite and sleep disturbances, fatigue, and loss of interest in pleasure-seeking activities (WHO, 2016). Since depression is a psychological stressor, depressive symptoms are related to depression, and stressors are hassles, it can be reasoned that depression is a hassle that is part of the lived experience. A meta-analysis by van Dooren et al. (2013) indicated that depression is a condition that has greater prevalence in people with diabetes. Also, among those with type 2 diabetes there is an increased risk of a diagnosis of major depression (Lopes et al., 2016), and the mortality rate is greater in people with the comorbidities of depression and type 2 diabetes (Katon et al., 2005).

diabetes. Diabetes is a metabolic disorder that partly involves abnormal metabolism of glucose with an insensitivity of the cells for the uptake of glucose (Lewis, Dirksen, Heitkemper, & Bucher, 2014). A diagnosis of type 2 diabetes will be self-reported on the Hassles Scale. Type 2 diabetes is the most common form of diabetes mellitus and it especially affects African Americans more than most other races (CDC, 2011b; Shaw, Sicree & Zimmet, 2010). Middle age (51-64) and older adults (65 or older) have poorer control of their diabetes (Chin & Wray, 2010) and it is predicted that by

2030 there will be over 71 million older adults in America thus, an increase in the cost of diabetes care is expected (Fitzner et al., 2011).

hassles. Hassles are factors that have an effect on individuals and frustrate or irritate them on a daily or regular basis (Lazarus & Folkman, 1984). Hassles are also stressors that are associated with disease (Lazarus & Folkman, 1984; Neuman, 1989). Psychological and emotional distresses are also thought of as daily hassles that individuals must manage for normalcy and distress has an association with mental illness (Spencer et al., 2006). Among ethnic minorities with diabetes who experience psychological distress poor glycemic control is evident (Spencer et al., 2006). Glycemic control is also more difficult among African Americans who experience emotional distress (Wagner, Abbott, Heapy & Yong, 2009).

Since depression is thought to be a psychological stressor (Herclides et al., 2009) and stressors are hassles (Lazarus & Folkman, 1984; Neuman, 1989), then depression is defined as a stressor for this study. Individuals with the comorbid conditions of depression and diabetes are more prone to disability and they have a higher mortality rate (Heeramun-Aubeeluck, Lu, & Luo, 2012). Therefore, it is imperative that healthcare providers are aware of the costs and complications associated with the comorbid conditions so that program development can include screening, diagnosis, and treatment (Heeramun-Aubeeluck, Lu, & Luo, 2012).

hassles scale. The Likert scale for hassles appears to the left of the scale and the subjects are asked to circle or check the appropriate identifier. Hassles are measured in terms of total hassles, frequency of hassles, and severity of hassles. Total hassles

represent the calculation of items that were indicated as hassles, and the range of scores for hassles is 0-159. For example, if a subject identified 53 of 53 items as 3 (A great deal) then the score for total hassles would be 159 (Mind Garden, 1989).

Frequency of hassles is represented by the actual number of items that the subject identified as hassles. The range of scores for hassles frequency is 0-53. For example, if a subject identified 40 of 53 items as a hassle, the score for hassles frequency will be 40 (Mind Garden, 1989).

The severity of hassles relates to the degree of severity of the hassle that the subject identifies. The range of scores for the severity of hassles is zero to three (0-3). According to Kanner et al. (2005), if a subject identifies the severity of the hassle as a 0 (None or not applicable) the hassle does not present a problem or challenge to the individual. On the other hand, if the subject rates the severity as a 3 (A great deal) then that particular hassle is produces more tension or causes the subject more anxiety (Kanner et al., 2005).

The Likert scale for uplifts is to the right of the document. The scale for uplifts is the same as that of hassles. However, uplifts are assessed in terms of total uplifts, frequency of uplifts, and intensity of uplifts. Scoring for the uplifts scale is the same as scoring for the hassles scale. Uplifts are defined as those factors that buffer the negative effects of daily hassles. The higher score for the intensity of uplifts means that the item is more satisfying or causes the individual to worry less (Mind Garden, 1989). This study will only use the hassles portion of the scale.

Question one on the CHUS asks the participant how much of a hassle and uplift was their child or children. Other questions on the scale asks the participant how much of a hassle and uplift was their spouse, sex, family-related obligations, work load and job security. As stated previously, only the hassles portion of the CHUS was utilized in this study.

stress and stressors. Stress is the overarching theory for this study. Stress is defined as any experience that produces disequilibrium within a person's life that causes them to make adjustments in order manage the situation (Selye, 1974). Stressors are elements within one's environment that have the ability to produce stress, and are related to illness (Lazarus & Folkman, 1984; Neuman, 1989).

religious setting. A religious setting, church setting, and engagement in spiritual activities are associated terms for this study. The participants for this study identified their church or religious affiliation in the appropriate space on the demographic profile sheet. Religious engagement included such activities as church attendance for prayer services, Bible study, and health-related programs: the description of religious engagement is appropriate, according to Reeves et al. (2012).

Positive health outcomes often take place as a result of health promotion activities within the church (Anderson, 2004; Reeves et al., 2012; Williams et al., 2012). According to Aaron, Levine and Burstin (2003) there is a correlation between positive health behaviors and regular church attendance. Lynch, Stom, Hernandez-Tejada, and Egede (2012) conducted a study of 201 adults with type 2 diabetes. The main objective of the study by Lynch et al. (2012) was to examine the association between spirituality and

persons with type 2 diabetes using the Daily Spiritual Experience (DSE) Scale and the Center for Epidemiologic Studies-Depression Scale. The participants in the study were patients from an indigent clinic that was associated with an academic medical center. Lynch et al. (2012), found that spirituality and depression were associated. Higher scores on the DSE Scale equated to a lower degree of spirituality. The relationship between spirituality and depression was inverted, such that those with greater depression rated themselves as less spiritual (Lynch et al., 2012).

Recruitment of subjects from faith-based institutions has been found to be an effective method for obtaining study participants (Byers et al., 2016). Also, Lynch et al. (2012) stated that diabetes education conducted in faith-based settings might enhance diabetes self-management which would result in better glycemic control.

Data Analysis Plan

The latest version of the Statistical Package for the Social Sciences (SPSS) was used for data analysis. Descriptive statistics were used to analyze data. Also, a description of the sample was depicted on tables. The t-test for independent samples was employed to assess the difference between the mean hassles scores of people with type 2 diabetes and people without type 2 diabetes.

The Cognitive Appraisal Theory was used as a foundation to answer the research questions. According to Lazarus and Folkman (1984), one main premise of the Cognitive Appraisal Theory is that each individual makes an assessment of all the transactions that occur on a daily basis. Once the assessment is made the individual processes the type of transaction that has occurred: whether it is benign, stressful, or life-threatening. As the

individual processes the transactions, decisions are made with regard to coping mechanisms (Lazarus & Folkman, 1984). In the context of the theoretical framework, daily hassles are quantified as chronic forces that produce stress. Chronic stress adds to the complexity of illness (i.e. diabetes) and might impede positive health behaviors (Larsen, 2016; Karim et al., 2014).

Following are a replication of the research questions and hypotheses for this study.

Research Question 1: Is there a difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes?

$H_0$1**:** There is no difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes.

$H_1$1**:** There is a difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes.

Research Question 2: Is there a difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes?

H_0 2: There is no difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes.

H_2 2: There is a difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes.

Research Question 3: Is there a difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles of persons without a self-reported diagnosis of type 2 diabetes?

H_0 3: There is no difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles of persons without a self-reported diagnosis of type 2 diabetes.

H_3 3There is a difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes.

The statistical test that was used for the current investigation was the t-test for independent samples. The t-test for independent samples is an appropriate statistical test for this study. The term independent samples means that the data was taken from two different groups with different participants and the scores from the measurements are not related to each other (Burns & Grove, 2009). The alpha value for the current study is 0.05, with a medium effect size of 0.40, based on a power of 0.80. Therefore, the null hypothesis would be rejected if alpha was < 0.05, and if alpha was > 0.05 the decision would be to fail to reject the null hypothesis. The decision to fail to reject or to reject the null hypothesis is displayed on a table (Table 2).

Decisions for H_0 1

For the interpretation of null hypothesis 1 (no difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes) if there is no significant difference in the total hassles of those persons with and without type 2 diabetes (groups A and B) and the *p* value is ≥ 0.05, the decision would be to fail to reject the null hypothesis. The decision to reject null hypothesis 1 would be made if the *p* value is ≤ 0.05, meaning, there is a significant difference in the hassle means between both groups.

Decisions for H_0 2

For the interpretation of null hypothesis 2 (no difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes) if there was no significant difference in the frequency of hassles between groups A and B and the *p* value is ≥ 0.05, the decision would be to fail to reject the null hypothesis because there was actually a difference. The decision to reject null hypothesis 2 would be made if the *p* value is ≤ 0.05, meaning there is a significant difference in the frequency of hassles between both groups.

Decisions for H_0 3

For the interpretation of null hypothesis 3 (no difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles of persons without a self-reported diagnosis of type 2 diabetes) if there was no significant difference in the severity of hassles between groups A and B and the *p* value

was $\geq$ 0.05, the decision would be to fail to reject the null hypothesis because there was actually a significant difference. The decision to reject null hypothesis 2 would be made if the *p* value is $\leq$ 0.05, meaning there was a significant difference in the severity of hassles between both groups.

Table 2

Summary of Hypotheses and Outcome Decisions

Null Hypothesis H_0	*p* value	Research Question	Outcome Decision (*p* 0.05)
H_1			
No difference in total hassles	$\geq$ 0.05	A difference in total hassles	Fail to reject the null
	$\leq$ 0.05		Reject the null
H_2			
No difference in frequency of hassles	$\geq$ 0.05	A difference in frequency of hassles	Fail to reject the null
	$\leq$ 0.05		Reject the null
H3 No difference in severity of hassles	$\geq$ 0.05	A difference in severity of hassles	Fail to reject the null
	$\leq$ 0.05		Reject the null

Threats to Validity

Threats to External Validity

Threats to external validity relate to application of incorrect conclusions related to other samples, setting or situations based solely on the current investigation. With regard to the sample, the investigator must be careful not to generalize to other persons in other studies who lack the same characteristics (Creswell, 2014). Actions to eliminate the threat of generalizability include documentation of a specific statement with regard to generalization, and to suggest further studies be conducted with a different sample (Creswell, 2014). Also, there is a potential external validity threat with regard to the setting. Suggestions to conduct research in different settings should be made to eliminate the threat of generalization related to settings (Creswell, 2014).

Threats to Internal Validity

Threats to internal validity refer to "experimental procedures, treatment or experiences of the participants that threaten the researcher's ability to draw correct inferences from the data about the population in an experiment" (Creswell, 2014, p. 174). In other words, internal validity refers to the truthfulness of the findings identified by the investigator, or whether the findings can be explained by extraneous variables (Norwood, 2010).

One threat to internal validity with respect to a quantitative study is triangulation (Norwood, 2010). Triangulation refers to exploration of variables from only one viewpoint, for example, when investigators from the same discipline who study the same

phenomenon (Norwood, 2010). In order to control for investigator triangulation, in the current study the investigator presented findings from other researchers in the literature review. When there is collaboration among investigators from different backgrounds, observations of variables and conclusions about the findings are presented from multiple perspectives.

Another threat to internal validity is that of selection bias. Selection bias occurs when the manner in which the study participants were selected influenced the results of the study (Creswell, 2014). A specific set of inclusion and exclusion criteria will be used in the current study to control for selection bias.

According to Fawcett and Garity (2009) a history threat can impact study results. For example, if some sort of catastrophic event or an event that was extremely pleasurable occurred, a threat to internal validity could be posed. The way in which a participant answered a question could be influenced by the unique event that occurred (Fawcett & Garity (2009).

In addition, threats to statistical conclusion validity can arise in a study. Threats to statistical conclusion validity refer to decision-making based on efficient power analysis. Threats to statistical conclusion validity will be minimized by a use of a master table for two-tailed test: the master table identifies the alpha level, the effect, and the sample size for the study (Burns & Grove, 2009). Construct validity threats relate to when a researcher gives insufficient attention to definitions of constructs within the study. If there is not clarity with regard to identification of the measurement criterion for each variable, a threat to construct validity could occur (Creswell, 2014).

To minimize the threat to construct validity for this study, measurement criteria was clearly stated, as indicated by Creswell (2014).

Ethical Procedures

Protection of human subjects was maintained in accordance with the Committee on Protection of Human Subjects of Walden University (IRB Approval # is 12-27-19-0082989). Permission to use the hassles portion of the CHUS was obtained from Mind Garden Inc. (Appendix D).

There was minimal risk expected for the study. The only risks for the study were feelings of anxiety or frustration as the subjects reflect on the hassles that have resulted in unpleasant feelings. A letter of informed consent was provided all participants. In addition, the participants were encouraged to keep a copy of the letter of consent for their records. I was present to provide instructions, to answer any questions, or respond to any concerns. If a study participant continued to feel anxious or be uncomfortable with completion of the questionnaires after a response was provided for their questions, collection of data would cease immediately. Once data collection was halted for the aforementioned individual, the incomplete questionnaires would be retrieved and destroyed by shredding (a small portable shredder was available for immediate destruction of the incomplete questionnaires), and the data would not be included for analysis in the study. There were no situations that arose that had the potential to compromise ethical procedures, and immediate shredding of documents did not occur.

There were no confidential identifiers on the forms and questionnaires used for the study. If confidential identifiers were inadvertently left on any documents the

information would immediately destroyed, by shredding; however, this situation did not occur. Also, the confidential identifiers were not shared with anyone, before or after destruction. Complete confidentiality was assured. The participant's name did not appear in the dissertation or any other document associated with this study. All information used was coded so that confidentiality was maintained. Also, during data collection, no research documents were taken outside of the data collection area. The data sets will be maintained in a fireproof, locked container, and data will be destroyed after five years: data will be shredded after five years.

Summary

A quantitative descriptive, comparative study investigated the difference between the total hassles, frequency of hassles, and severity of hassles for African American/Black adults with type 2 diabetes compared to African American/Black adults without type 2 diabetes. A diagnosis of type 2 diabetes was self-reported by the participants of the study. In addition, I recruited participants for the study from spiritual/religious settings.

Descriptive statistics were used to describe the elemental features of the data. Inferential statistics, t-test for independent samples, were used to make suppositions about the data with regard to the differences in hassles scores between groups. In chapter 4 I highlight the results of the study, and descriptive data are displayed on tables.

Chapter 4: Results

Introduction

The purpose of this quantitative, descriptive, comparative study was to investigate hassles of African American adults with and without type 2 diabetes for differences, if they exist. The broad research question that guided the study was: Is there a difference in the total hassles, frequency of hassles, and severity of hassles between those with a self-reported diagnosis of type 2 diabetes and those without a diagnosis of type 2 diabetes? Hassles are annoyances that occur on a daily basis that have been known to have a negative impact on the physiological and psychological dimensions of humans (Holmes & Rahe, 1967; Lazarus & Folkman, 1984; Neuman, 1989; Selye, 1976).

The research questions were as follows.

Research Question 1: Is there a difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes?

Research Question 2: Is there a difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes?

Research Question 3: Is there a difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles of persons without a self-reported diagnosis of type 2 diabetes?

In this chapter, I address the findings from the research questions and hypotheses that guided the study. In chapter 4 I also include a discussion of data collection with

regard to timeframe and recruitment of study participants, demographic and descriptive characteristics of the sample, and information related to the population from which the sample was drawn. In addition, I report the analyses of data using descriptive statistics along with the statistical tests I used to analyze data. Finally, I provide a summary of the chapter.

Data Collection

I collected data were collected from December 2016 through March 2017. A non-randomized, quota sampling method was used to recruit subjects mainly from two churches in northern Louisiana that were pastored by the same minister. African Americans make up the majority of the membership in both congregations. Individuals who were visitors to the churches at the time the announcement was made were also included in the sample, as well as person who were referred by members of the churches. Since individuals affiliated with faith-based institutions often engage in positive health behaviors (Aaron, Levine & Burstin, 2003; Anderson, 2004; Obisesan et al., 2006; Proctor & Williams, 2007; Williams, Glanz, Kegler & Davis, 2012), the church was an appropriate venue to obtain participants for the study. Louisiana has one of the highest diabetes prevalence rates in the United States (CDC, 2014a). Also, diabetes is more wide-spread among African Americans in Louisiana than in any other ethnic group (HHS, 2016). Because diabetes is more prevalent in Louisiana and among African Americans, drawing a sample from this population was appropriate. Using a power analysis, I calculated the sample size for this study as a total of 90 individuals.

The demographic information that I collected on the participants of the study were diabetes status, age, marital status, educational level, annual income, co-morbid conditions, and religious affiliation. There was a total of 33 male participants (36.3%) and a total of 58 (63.7%) female participants. I identified two groups for the study, those with (n = 37, 40.7%) and without (n = 54, 59.3%) a diagnosis of type 2 diabetes. The number of males with diabetes was 11 (2.7%), and the number of females with diabetes was 26 (79.3%). There were 22 (40.7%) males without diabetes compared to 32 (59.3%) females without diabetes. The religious affiliations of the participants of the study included Baptist, Methodist, Seventh-day Adventist, Full Gospel Baptist, non-denominational, and Catholic. The majority of participants from this study were affiliated with the Baptist and Seventh-day Adventist churches. Byers et al. (2016) found that it was beneficial to recruit potential study participants from faith-based institutions. My request for participants to identify their religious affiliation was appropriate since those who engage in spiritual or religious-type activities often demonstrate positive health behaviors that lead to positive health outcomes (Anderson, 2004; Reeves et al., 2012; Williams et al., 2012).

The comorbid conditions that appear on the demographic data profile include arthritis, cancer, depression, gastrointestinal (GI) disorders, gout, hypertension, kidney disease, and lupus. Other disorders identified by a few study participants were asthma and thyroid problems. The most common comorbid conditions identified by study participants were arthritis and hypertension.

I used a non-probability sampling technique. Therefore, threats to external validity were possible. Threats to external validity relate to characteristics of the sample and the setting for the study (Creswell, 2014). The sample for this investigation was drawn from the population of African American adults between the ages of 18 and 81, with and without a self-reported diagnosis of type 2 diabetes. The subjects in this study reported that they engaged in religious activities such as belonging to a particular denomination. It should also be noted that there were more females (n = 58) than males (n = 33) that were part of the total sample. In addition, there were only 11 (29.7%) males with diabetes, which is a relatively small sample compared to 26 (70.3%) females with diabetes. In the group without diabetes, there were 22 (40.7%) males and 32 (59.3%) females.

Results

In this section I present descriptive data with regard to age means and standard deviation (*SD*). Table 3 includes descriptions of the total sample by personal and socioeconomic variables. Group A represents participants without a self-reported diagnosis of type 2 diabetes, while group B represents participants with a self-reported diagnosis of type 2 diabetes. Also included in Table 3 are specific age categories, gender, educational status, and income levels.

Table 3

Description of Total Sample by Personal and Socioeconomic Data (N=91)

Characteristic	N	%
Group A	54	59.3
Group B	37	40.7
Age:		
Category 1 (18-29)	8	8.8
Category 2 (30-39)	12	13.2
Category 3 (40-49)	22	24.2
Category 4 (50-59)	17	18.6
Category 5 (60-69)	21	23.1
Category 6 (70-79)	9	9.9
Category 7 (80-89)	2	2.2
Gender:		
Male	33	36.3
Female	58	63.7
Marital Status:		
Single	39	44.3
Married	36	40.9
Divorced	5	5.7
Separated	2	2.3
Widowed	6	6.8
Education:		
< High School	2	2.2
High School Graduate	18	20.0
Some College	27	30.0
Graduate (Associate Degree)	12	13.3
Graduate (Bachelor's Degree)	16	17.7
Graduate (Master's Degree)	13	14.4
Graduate (Doctoral Degree)	2	2.2
Annual Income:		
< $10,000	7	8.0
$10,000-25,000	15	17.0
$25,001-50,000	30	33.0
$50,001-75,000	20	22.0
$75,001-100,000	11	12.0
> $100,000	7	8.0

The age range for the sample was 18 to 81. Seven age categories were documented. The age categories were 18-29 (Category 1); 30-39 (Category 2); 40-49 (Category 3); 50-59 (Category 4); 60-69 (Category 5); 70-79 (Category 6) and 80-89 (Category 7). The mean age category for the total sample (N = 91) was 3.73 (SD = 1.528): this means that the participants were between the ages of 40 to 59 (40 - 59). The mean age for those subjects without a diagnosis of type 2 diabetes (n = 54) was 3.30 (age range 40 and 59) with a SD of 1.423. The mean age for those with a diagnosis of type 2 diabetes (n = 37) was 4.35 (age range 50 – 69) and SD 1.476. Specifically, there were eight persons in Category 1 (8.8%), 12 in Category 2 (13.2%), 22 in Category 3 (24.2%), 17 in Category 4 (18.6%), 22 in Category 5 (24.2%), eight in Category 6 (8.8%), and two in Category 7 (2.2%; see Table 3). Demographic data related to marital status indicated that 39 (44.3%) participants were single and 36 (40.9%) were married. Also, five (5.7%) of the subjects were divorced, two (2.3%) were separated, and six (6.8%) were widowed. Marital status was reported by only 88 of 91 participants (96.7%).

There were 90 (98.9%) respondents who reported their educational level. Two (2.2%) persons had not completed high school, 18 (20%) reported a high school diploma, 27 (30%) reported some college education, 12 (13.3%) reported an Associate Degree. There were 16 (17.7%) participants with a Bachelor's Degree, 13 (14.4%) with a Master's Degree, and two (2.2%) with a Doctorate Degree.

The demographic data profile also asked the participants to identify their annual household income. Seven (8%) identified an income of less than $10,000, 15 (17%) marked an income of $10,000 - $25,000, 30 (33%) had an income between $25,001 -

$50,000, 20 (22%) marked income between $50,001 - $75,000, and 11 (12%) marked income of $75,001 - $100,000. Additionally, there were seven (8%) participants who identified an annual household income greater than $100,000. Table 3 displays the personal and socioeconomic descriptions for the total sample.

Research Questions

The Statistical Package for Social Sciences (SPSS) computer program (version 23) was used to compute the t-test for independent samples. The t-test for independent samples was used to determine whether or not there were significant differences between variables. Participants in this study completed the hassles portion of the Combined Hassles and Uplifts Scale by Lazarus and Folkman (1984). The variables that were examined in this investigation were total hassles, frequency of hassles, and severity of hassles. Table 4 introduces the results of the t-Test analysis of total hassles (total, frequency, and severity) of persons without type 2 diabetes (N=54) compared to total hassles (total, frequency, and severity) of persons with type 2 diabetes (N=37).

Table 4

t-Test Analysis of Total Hassles Between Persons without Type 2 Diabetes (N=54) and Persons with Type 2 Diabetes (N=37)

Variable	Mean	SD	df	*t*	*p*
Total Hassles					
Group A	41.04	22.613			
			89.000	-2.863	.005
Group B	55.08	23.513			
Frequency of Hassles					
Group A	24.33	10.985			
			89.000	-3.093	.003
Group B	31.19	9.439			
Severity of Hassles					
Group A	.7739	.42671			
			89.000	-2.832	.006
Group B	1.0357	.44250			

*level of significance preset at 0.05

Research Question 1

The first research question stated, is there a difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes? The mean total hassles for

the group that did not report a diagnosis of type 2 diabetes (Group A) was 41.04 (SD = 22.613) compared to a mean of 55.08 (SD = 23.513) for the group with a diagnosis of type 2 diabetes (Group B) (Table 4). Application of the *t* test for independent samples resulted in a t statistic of -2.863 at 89 degrees of freedom (df) and a probability level of .005. In accordance with the data analysis plan identified in chapter 3, the decision was made to reject null hypothesis one since the probability level was .005, which is significant in that the *p* value was less than .05 (Table 4).

The Levene's Test for Equality of Variances was .801 (F = .064), which means that the differences in variances in the scores of those with and without type 2 diabetes are equal. According to Holcomb (2006), if the probability of the Levene's Test is greater than .05 the assumption that there is equality of variances is appropriate. The probability from Levene's Test for Equality of Variances was greater than .05; therefore, it is concluded that the difference between the two means for total hassles is statistically significant at the level of .05. As a result of the rejection of null hypothesis one, the alternative hypothesis was accepted, meaning, that there was a difference in the total hassles for persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles for persons without a self-reported diagnosis of type 2 diabetes.

Research Question 2

The second research question examined in this study was, is there a difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes? The mean frequency score for group A (N=54) was 24.33 (SD = 10.985)

compared to a mean of 31.19 (SD = 9.439). The t-Test for independent samples was applied and the results yielded a t statistic of -3.093 at 89 df, and a probability level of .003. Since the *p* value is < .05, in accordance with the data analysis plan the decision was made to reject the null hypothesis.

Levene's Test for Equality of Variances was .259 (F = 1.288), which means that the differences in variances in the scores of those with and without type 2 diabetes are equal. According to Holcomb (2006), if the probability of the Levene's Test is greater than .05 the assumption that there is equality of variances is appropriate. The probability from Levene's Test for Equality of Variances was greater than .05; therefore, it is concluded that the difference between the two means for frequency of hassles is statistically significant at the level of .05. As a result of the rejection of null hypothesis two, the alternative hypothesis was accepted, meaning, that there was a difference in the frequency of hassles for persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles for persons without a self-reported diagnosis of type 2 diabetes.

Research Question 3

The third research question examined in this study was, is there a difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles of persons without a self-reported diagnosis of type 2 diabetes? The mean severity score for group A was .7739 (SD = .42671) compared to group B for which there was a mean of 1.0357 (SD = .44250). The *t t*est for independent samples was applied and the *t* statistic was -2.832, df 89, *p* value of .006. A *p* value of .006 is less than

.05 (preset level of significance) which indicates that there is a significant difference between the two groups in the study. Therefore, the decision was made to reject the null hypothesis (Table 4).

The Levene's Test for Equality of Variances was .808 (F = .059), which means that the differences in variances in the scores of those with and without type 2 diabetes are equal. According to Holcomb (2006), if the probability of the Levene's Test is greater than .05 the assumption that there is equality of variances is appropriate. The probability from Levene's Test for Equality of Variances was greater than .05; therefore, it was concluded that the difference between the two means for severity of hassles was statistically significant at the level of .05. As a result of the rejection of null hypothesis three, the alternative hypothesis was accepted, meaning, that there was a difference in the severity of hassles for persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles for persons without a self-reported diagnosis of type 2 diabetes.

Instrumentation

Statistical analysis of reliability of the hassles portion of the CHUS with regard to the use of the questionnaire in the investigation was tested by use of Cronbach's Alpha test for reliability. The three items that were tested for reliability were the total hassles, the frequency of hassles, and the severity of hassles. The number of cases included in the statistical analysis was 90 and one case was excluded. The Cronbach's Alpha coefficient was .621 for the three items. Cronbach's Alpha of .621 indicates modest internal consistency between items related to total hassles, frequency of hassles, and severity of hassles. According to Kanner, Coyne, Schaefer and Lazarus (1981), with regard to the

reliability for the original version of the Daily Hassles Scale, the scores were reported as being stable over a nine-month study, with repeated use of the scale. The current investigation asked subjects to complete the hassles portion of the Combined Hassles and Uplifts Scale, based on a one-time survey.

Mind Garden (1989) stated that a high degree of both face and content validity existed for the hassles. Also, construct validity for the CHUS was found by DeLongis, Folkman and Lazarus (1988). DeLongis et al. (1988) used the hassles portion of the CHUS when 75 married couples were surveyed over a six-month period. In other words, the couples were asked to complete the survey each month for six month. The aim of the study by DeLongis et al. (1988) was to examine data with regard to self-esteem, social support, mood, health, and life stress. There was an association found between daily hassles and physiological and psychological symptoms (DeLongis et al., 1988), and according to Mind Garden (1989), with regard to the tool developed by Lazarus and Folkman, construct validity was established for the CHUS.

Additional Findings

The data were analyzed by Crosstabs to identify significant findings with regard to total hassles, frequency of hassles, and severity of hassles related to marital status, educational level, income level, and gender. The mean and standard deviation for marital status, educational level, income range, and gender, related to the total hassles, the frequency of hassles, and the severity of hassles are displayed on Table 5. Also, the mean and standard deviation for the age groups in terms of total hassles, frequency of hassles, and the severity of hassles are displayed on Table 6.

Post hoc analysis of the variables hassles total, frequency, severity, and marital status, educational level, and income was performed with the Tukey statistic. The Tukey statistic did not indicate a significant difference between any of the variables in the post hoc analysis. The Tukey statistic was not appropriate to identify a difference between the diabetes group and the gender group because there were fewer than three groups.

Table 5

Rating of Total Hassles, Frequency, and Severity of Hassles for Marital Status (N=88), Educational Level (N=90), Income (N=90), and Gender (N=91) by Mean and Standard Deviation

	Total Hassles/*SD*	Frequency/*SD*	Severity/*SD*
Marital Status			
Single	41.18/21.858	24.33/10.365	.7772/.41298
Married	52.64/25.484	29.86/11.460	.9883/.47830
Divorced	53.00/25.855	29.40/9.370	1.0000/.48724
Separated	52.00/2.828	30.00/4.243	.9700/.04243
Widowed	50.50/23.467	29.67/8.914	.9583/.45186
Educational Level			
< High School	56.50/70.004	23.50/23.335	1.0650/1.3223
High School Graduate	48.83/21.569	28.44/9.895	.9233/.41111
Some College	42.85/18.763	25.74/9.998	.8037/.35091
Associate Degree	38.25/17.823	26.00/12.292	.7208/.33506
Bachelor's Degree	41.81/19.607	25.31/10.442	.7875/.36752
Master's Degree	66.16/31.601	33.92/10.460	1.2462/.59260
Doctorate Degree	26.50/13.435	13.00/5.657	.5000/.25456
Income Level			
<$10,000	44.71/30.154	22.14/10.915	.8457/.56783
$10,001-25,000	40.40/17.667	24.67/9.947	.7613/.33127
$25,001-50,000	47.07/22.481	28.07/11.237	.8843/.42348
$50,001-75,000	49.35/28.044	28.15/10.277	.9290/.52548
$75,001-100,000	49.73/30.030	29.55/12.987	.9382/.57086
>$100,000	46.43/16.959	26.14/11.466	.8757/.45089
Gender			
Male	42.42/19.887	26.36/9.820	.7976/.3764
Female	49.21/25.722	27.55/11.486	.8803/.44974

Table 6

Percentage and Standard Deviation for Total Hassles, Frequency of Hassles, and Severity of Hassles by Age Group (N=91)

Age Group	Total Hassles/*SD*	Frequency/*SD*	Severity/*SD*
18-29 (8)	44.50/31.432	24.38/12.165	.8400/.59334
30-39 (12)	40.58/17.349	26.42/11.485	.7600/.32156
40-49 (22)	45.45/23.609	27.41/10.751	.8629/.45729
50-59 (17)	48.82/20.094	27.59/9.070	.9235/.37985
60-69 (21)	53.38/27.253	29.29/11.345	1.0029/.50982
70-79 (9)	44.11/27.443	25.11/13.860	.8311/.51977
80-89 (2)	31.50/2.121	21.50/4.950	.5950/.03536
Total (91)	46.75/23.883	27.12/10.871	.8821/.45194

Summary

I identified three research questions for this investigation. The probability level to make decisions with regard to the null hypotheses was pre-set at .05. The first research question was; is there a difference in the total hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the total hassles of persons without a self-reported diagnosis of type 2 diabetes? The *t t*est statistical analysis demonstrated that there was a significant difference between the total hassles of those with type 2 diabetes compared to those without a diagnosis of type 2 diabetes (*p* value = .005).

The second research question was; is there a difference in the frequency of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the frequency of hassles of persons without a self-reported diagnosis of type 2 diabetes? Statistical analysis supported a significant difference in the frequency of hassles of those with type 2 diabetes compared to the frequency scores of those without a diagnosis of type 2 diabetes (*p* value = .003).

The third research question was; is there a difference in the severity of hassles of persons with a self-reported diagnosis of type 2 diabetes compared to the severity of hassles of persons without a self-reported diagnosis of type 2 diabetes? Statistical analysis supported a difference between the group scores in terms of severity (*p* value = .006).

Cronbach's Alpha was used to test the reliability of the questionnaire. A modest Cronbach's Alpha was identified. Also, post hoc analysis of demographic data did not present significant differences of hassles between marital groups, educational groups, or income groups.

In chapter 5 I include an introduction related to the purpose and nature of the study, key findings, interpretation of the findings, and limitations of the study. In addition, I provide recommendations for further research, implications related to the potential impact for positive social change, and my conclusions.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In chapter 5, I provide a broad summary of the investigation. Specifically, I summarize the key findings of this investigation, discuss limitations of the study, offer recommendations, identify social change implications, and provide conclusions.

The purpose of this quantitative study was to compare the hassles of African American adults with type 2 diabetes with the hassles of African American adults without type 2 diabetes, within the setting of faith-based institutions. Hassles are daily stressors that can be a precursor to the development of chronic disease (Lazarus & Folkman, (1984). I measured hassles in terms of the total hassles, the frequency of hassles, and the severity of hassles for each group. In addition, the diagnosis of type 2 diabetes and the record of no diagnosis of diabetes was reported by the participants.

Through a review of the literature, I determined the need to conduct this investigation. One of the first documents that identified diabetes as a chronic problem was the U.S. HHS's (2000) Healthy People 2010 goals. The incidence of diabetes has been on the rise for several decades. Albright and Gregg (2013) reported that diabetes was at epidemic proportions, and diabetes is currently the seventh leading cause of death and disability in the United States (CDC, 2013). Although there have been positive efforts made toward enhancing quality of life for diabetics and reducing health disparities related to diabetes, the incidence in the United States has increased from 25 million (CDC, 2011b) to 29.1 million (CDC, 2014a). With regard to health disparities, the prevalence of diabetes is greatest among Native Americans, African Americans, and

Latino/Hispanic Americans (CDC, 2011a). The CDC (2014a) reported that the cost to care for persons with diabetes was approximately $245 billion.

Hassles are psychological stressors that negatively impact the physical system and compound the stress experience (Holmes & Rahe, 1967; Kanner et al., 1981; Lazarus & Folkman, 1984). Persons with diabetes have a greater likelihood of experiencing psychological stress, mental distress, and mental illness (Spencer et al., 2006), and there is an association between diabetes and depression (van Dooren et al., 2013). According to Larsen (2016), the management of diabetes is complicated by mental illness. Healthy People 2020 (2013) included a section that marked mental health as essential for the total well-being of individuals, families, and other interpersonal relationships. Therefore, one goal identified in Healthy People 2020 (2013) is to implement programs that enhance mental health.

I identified the participants in the study using a quota, nonprobability sampling technique for this comparative investigation. Study participants completed the hassles portion of the Combined Hassles and Uplifts Scale. The hassles portion of the CHUS measured total hassles, the frequency of hassles, and the severity of hassles. Data collection began in December 2016 and continued through March 2017. The total sample size for the study was 91 participants. There were 54 participants in the group without type 2 diabetes (group A), and 37 participants in the group with type 2 diabetes (group b). There were also more females (58) than males (33) who participated in this study. In the group with type 2 diabetes, there were 11 males and 26 females, compared to 22 males and 32 females in the group without type 2 diabetes.

Statistical findings from data analysis (*t* test for independent samples) indicated that there was a significant difference in the total hassles score of those with a diagnosis of type 2 diabetes ($p = .005$). I found a significant difference between the two groups with regard to the frequency of hassles ($p = .003$) and severity of hassles ($p = .006$). The mean score for total hassles of those in group A was 41.04 compared to the mean score of those in group B (55.08). The mean frequency score for group A was 24.33, compared to group B who had a mean of 31.19. Severity mean for group A was .7739, and for group B the mean severity score was 1.0357.

Additional findings and post hoc analysis with Tukey statistic did not show any significant associations. In other words, there were no significant associations between males and females with regard to the total hassles, frequency, or severity scores. Also, there were no significant associations found in the hassles as related to age groups, marital status, educational status, or income level.

Interpretation of the Findings

Findings from this study indicated that those with diabetes reported more total hassles, and had a greater frequency and severity of hassles than those without diabetes (see Table 4): this fact is congruent with what has been shown in the literature. According to Spencer et al. (2006), persons with diabetes experience more distress than those without diabetes. Also, there is a greater chance of depression among diabetics (Anderson et al., 2001; Herclides et al., 2009; Kalsekar et al. 2006; Lopes et al., 2016), which can be considered part of the stress experience.

An explanation as to why those with diabetes reported more total hassles, frequency of hassles, and severity of hassles could be that persons with chronic diseases such as diabetes have daily, life-altering challenges with regard to monitoring, medication, frequent physician visits, and family issues (Mendenhall et al., 2010). People with chronic diseases often have specific dietary needs and often have to identify time to engage in physical exercise to improve functioning. Such rearrangement of their normal life produces stress (Polonsky et al., 1995; Young & Unachukwu, 2012).

The physiological changes that take place in the body with diabetes is an indication to reject the null hypotheses. People with diabetes experience disequilibrium between insulin and glucose, cell receptors are affected, and other hormones and organs are challenged (LeMone et al., 2015; Lewis et al., 2014). Additionally, diabetes can result in serious complications such as diseases of the kidneys, peripheral nerves, and limb amputations (Daniels & Nicoll, 2012).

In terms of comorbid conditions, arthritis and hypertension were the two conditions most often identified by participants in this study. The literature supports the finding of hypertension as one of the most reported comorbid conditions because it is a risk factor associated with cardiovascular disease and there is an association with diabetes (USPSTF, 2008). Knight and Sumner (2011) reported that cardiovascular disease, which includes hypertension, is more prevalent among African Americans than Caucasians. The conditions associated with participants in the study by DeLongis et al. (1988) were not chronic diseases like arthritis, hypertension, or diabetes, but were conditions such as sore throats, headaches, backaches, and the flu, which can impact statistical differences.

I computed Cronbach's alpha for reliability of total hassles, frequency of hassles, and severity of hassles, with a resultant coefficient of .621. The Cronbach's alpha coefficient of .621 indicated that there was a modest degree of internal consistency between hassles total, frequency, and severity. One possible reason for a modest coefficient is that each particular hassle (n = 53) on the CHUS was not entered into the calculations for reliability. Another explanation for a modest coefficient is that the items on the CHUS are identified by categories, meaning that some items might be related but were not the same item asked in a different manner. In their canonical article, Kanner et al. (1981) reported that hassles accurately measured life stresses. Kanner and colleagues (1981) used statistics to correlate hassles and uplifts, and found that the relationship between hassles and uplifts was modest. However, it is notable that Kanner et al. (1981) did not use the Combined Hassles and Uplifts Scale to identify associations between constructs (hassles and uplifts), rather, they used the Daily Hassles Scale in their research. The Daily Hassles Scale has 117 items compared to 53 items on the CHUS, which can explain some of the differences. My focus in this study was on hassles alone. According to Tavakol and Dennick (2011), reliability increases as the number of items increases. Tavakol and Dennick (2011) also indicated that the reliability coefficient should not be too low or too high (.7-.9). A low reliability coefficient could mean that there is a measurement error index. Alternately, a reliability coefficient that is too high (e.g. .95) might be a sign that there are a great number of repeated items (Tavakol & Dennick, 2011).

Additional Findings

Kanner et al. (1981) used the Hassles and Uplifts State Scales, the Hopkins Symptom Checklist (measure mental health status), and the Bradburn Morale Scale (an index that measures psychological well-being) to explore the hassles and uplifts frequency and intensity (Murff, 1997). The sample consisted of 52 women and 48 men and the responses to their feelings and emotions as well as their ability to cope with stress were explored. The age range of the subjects that were part of the Kanner et al. (1981) study was 45 to 64. The questionnaire was given to the study participants each month for a total of nine months. A number of study participants reported increased hassles (Kanner et al., 1981). However, as the hassles intensity score increased the uplifts intensity score increased, and it was concluded by Katon and colleagues (1981) that the tool was useful in that it supplied data with regard to coping mechanisms. The data were analyzed each month for correlations between frequency and intensity. The mean frequency scores (0.79) were higher when compared to the intensity scores (0.48) for hassles. Also, the results demonstrated higher mean frequency scores (.072) than the intensity scores (0.60) for the uplifts. Even though the subjects reported different hassles and uplifts from month to month, at the conclusion of the study Kanner et al. (1981) found that the Hassles and Uplifts Scale predicted psychological symptoms to a greater extent than tools that measured major life events.

The questionnaire was completed by persons 45-64 years old in the study by Kanner et al. (1981). There was a difference in the ages of respondents for this study (18-81 years), which is a wider variation of age compared to Kanner et al. (1981).

Researchers in the JHS (2008d) found that there were more women in the 21-44 age group that reported more feelings of depression. DeLongis et al. (1988) and Murff (1997) found that as the age of the study participants increased, fewer hassles were reported. The mean age range in this study was 3.73 which included individuals between the ages of 40 and 59, which has some similarity to the individuals in the study by Kanner et al. (1981).

The number of subjects in this study that were in the 40-59 age range was 39, which was 42.85% of the total sample. The number of persons in the 40-49 age group was 22 and the number of persons in the 50-59 age group was 17. Among the age group of 40-49, the mean for the total hassles, frequency, and severity score was greater compared to the 50-59 age group. A possible explanation for greater mean hassles scores among the middle-age participants is that these are most often the prime age in which individuals are working away from home, and with employment there are job-related stressors produced. Also, perhaps there are financial and social responsibilities related to schooling for children or grandchildren and child-rearing that causes distress.

There were more women than men in my study, and the CHUS (hassles portion only) was used, so there was no comparisons between hassles and uplifts. Also, the gender group (men and women) was not as equal as the group in the study by Kanner et al. (1981) study (men 33/36.3% compared to women 58/63.7%). With respect to the Daily Hassles Scale Kanner et al. (1981) found that men recorded more hassles (M = 22.4, *SD* = 16.9) than women (M = 18.9, *SD* = 13.3). Contrary to the findings by Kanner et al. (1981), there was no difference in the total hassles between men and women. The findings from my investigation are congruent with findings by Murff (1997) in which no

significant differences were found between hassles and uplifts between men and women. Murff (1997) used the CHUS to survey 104 persons: it was a comparative study between persons with and without coronary artery disease (CAD). In the CAD group there were 35 men (67.3%) and 17 women (32.7%) compared to those without CAD in which there were 22 men (42.3%) and 30 women (57.5%): the sample was obtained from patients in the hospital setting (Murff, 1997).

In my study the possible reasons for the differences related to gender might not have been found because of the ratio of men to women, and possibly differences in the age groups. In other words, the sample for the study consisted of more women (N=58) than men (N=33), in the current study. The data analysis for my study indicated that the mean scores for the total hassles, frequency of hassles, and severity of hassles were greater among women than among men. In the studies by DeLongis et al. (1988), and Murff (1997), there was a decrease in hassles scores as the age of the participant increased. The age range of the participants in the study by Kanner et al. (1981) was 45-64, compared to my study in which the age range was 18-81.

Perhaps if the sample of women to men was relatively equal and the sample was matched for age, there might have been differences seen with respect to hassles. As previously indicated, the age range in my study was much broader than the study by Kanner et al. (1981) (45-64) compared to 18 to 81 in this study. In the JHS (2008d), more symptoms of depression were observed among women 21-44 years of age. Also, DeLongis et al. (1988) witnessed fewer reports of hassles as the subjects increased in age.

Although the age ranges were different in my study (seven age groups) compared to Kanner et al. (1981) (45-64), there were similarities and differences. Among the two age groups of younger people (18-29 and 30-39), I found the mean total hassles and frequency of hassles were 42.54 and 25.40, respectively. Among the three middle age groups in the study (40-49, 50-59, 60-69), the mean total hassles and frequency of hassles were 49.22 and 28.09 respectively. The older adult age groups (70-79 and 80-89) the mean total hassles and frequency of hassles was 37.80 and 23.30 respectively. The mean total and frequency of hassles were greatest among the middle age groups, and as the subjects increased in age the total and frequency of hassles decreased: similar to study findings by Kanner et al. (1981) and DeLongis et al. (1988). However, the mean severity scores for my study were highest among the younger age group (0.800) compared to the older group (0.713), and the middle age group (0.596).

Also, I only utilized the hassles portion of the CHUS while Murff (1997) used both hassles and uplifts on the CHUS to make comparisons, while Kanner et al. (1981) used the Daily Hassles Scale which has more than 100 hassles for participants to report. However, DeLongis et al. (1988) used the hassles portion of the CHUS and their final analysis indicated that there were no differences between the hassles of men and women.

Another fact that might contribute to differences in scores between men and women might be related to the ethnicity and socioeconomic status of the participants in previous studies by Kanner et al. (1981) and Murff (1997). For example, in the study by Murff (1997), the sample consisted of 81 Caucasians (77.9%), 20 African Americans (19.2%), one person who was Hispanic (1%), and one from the other race category (1%).

In my study the total sample was drawn from a population of African Americans with religious, denominational affiliation. As it has been reported throughout this study, persons with faith-based affiliations often engage in positive or healthy lifestyles (Proctor and Harris 2007); Reeves et al., 2012; Resnicow et al., 2002). In the study by Kanner et al. (1981) the sample was not restricted to African Americans, but the sample consisted of all Caucasians. The religious affiliations of participants in the study by Kanner et al. (1981), were Protestant (93), six (6) were Catholic, and one (1) was Jewish.

I found another interesting fact when data were analyzed: the hassles scores (total, frequency, and severity) for persons who were married were greater than those who were single. The explanation for greater hassles among married than single persons could be related to positive or negative factors associated with marital relationships (Murff, 1997). Those who were divorced (N=5) or separated (N=2) reported greater hassles than those who were married, with the exception that those who were divorced had fewer frequency of hassles, which could be related to the mental, and sometimes physical distress that is related to dissolution of a relationship. Rung et al. (2016) noted a connection between mental distress, depression, and conflict in the home among women and children affected by a disaster, the Deepwater Horizon oil spill of the coast of Louisiana. Some problems reported in the study by Rung et al. (2016) included an increase in the number of altercations between couples, depression, and economic challenges. Also, Idstad et al. (2015), indicated that there was an association between mental distress and divorce.

Theoretical Framework

Lazarus and Folkman's Cognitive Appraisal Theory (1984) was an appropriate framework for this study. The Cognitive Appraisal Theory provides a framework for the identification, assessment, and evaluation of daily stressors (hassles) that a person encounters (Lazarus & Folkman, 1984). Once the person identifies the stressor there is a prioritization process that takes place. In other words, the person decides which stressor has the potential to produce the most harm or requires the most immediate attention, and then coping strategies are employed (Lazarus & Folkman, 1984). Although the concept of coping is part of the Cognitive Appraisal Theory (Lazarus & Folkman, 1984), the focus of this study was the appraisal of stress rather than coping mechanisms.

Limitations of the Study

The findings of this study are generalizable to African American adults with type 2 diabetes that were affiliated with a religious group or within a particular religious setting. Also, there were no comparisons between ethnic groups in that being African American was part of the inclusion criteria for this study, while other races were excluded from the study.

Statistics from 2014 indicated that there were more than 29.1 million Americans with diabetes; however, there were several million Americans not aware they actually had diabetes (CDC, 2014a). Therefore, another limitation of this study was that there might have been individuals in the comparison group (those without a diagnosis of diabetes) who actually had diabetes and were unaware.

Findings from this study were also limited to the geographical location of Northern Louisiana in that all participants were from this area. Finally, since the majority of study participants were associated with the Baptist and Seventh-day Adventist religious groups, the findings from this study are generalizable to these religious groups in Northern Louisiana, mainly Caddo Parish: the sample size was relatively small and might not represent these religious groups in total.

There were to be two groups, one without a diagnosis of type 2 diabetes (N=45) and one with a diagnosis of type 2 diabetes (N=45). However, due to the makeup of the congregations and the referrals, there were 54 persons in the group without a diagnosis of type 2 diabetes, and 37 in the group with a diagnosis of type 2 diabetes: the total sample size was 91. Another discrepancy that I did not anticipate was that the age and date of birth was placed on the demographic data profile. A number of study participants documented their age or date of birth, so both identifiers might not have been necessary. Also, when the ages were entered into SPSS version 23, instead of entering the actual age of the subject I divided the ages into seven group categories (age range). In addition, there was a section for the participant to mark whether their race was African American/Black: this line item was not needed since the investigation only included this particular ethnicity of subjects.

Recommendations

In this section I include recommendations for further study. First, in order to improve generalizability a larger sample size should be used for future studies. For example, in my study there was a total sample size of 91 persons, 33 men, and 58

women: 54 persons did not have a known diagnosis of type 2 diabetes and only 37 recorded a diagnosis of type 2 diabetes. In the future more persons with diabetes should be surveyed and the sample should include more men. Although the results of the study indicated that there were significant differences in total hassles, frequency of hassles, and severity of between persons with and without type 2 diabetes, a larger sample size might further validate the findings.

Second, there are several forms of diabetes such as prediabetes, type 1, gestational, and latent autoimmune diabetes in adults. I explored hassles of African Americans with type 2 diabetes. In order to generalize the findings related to hassles to a more broad population, other forms of diabetes should be examined.

Third, replication of the study to include persons in a more narrow age range could provide valuable information. For example, the age group that is less than 18 years of age with a diagnosis of diabetes might report different or similar hassles. The nature of the disease can pose problems, be overwhelming, and disrupt a child's daily life (Mendenhall et al., 2010; Polonsky et al., 1995). The younger, school age group are often faced with peer pressure, challenges related to school work, struggles related to self-image, and problems within the home, and thus, might experience different types of hassles.

Fourth, I examined hassles of African Americans with type 2 diabetes. Replication of the study to identify differences in hassles and uplifts in persons with type 2 diabetes and other chronic diseases such as cardiovascular disease, arthritis, kidney disease, or autoimmune disease (i.e. lupus) might provide data that is beneficial for

clinical management. Also, replication of the study comparing different ethnicities might also provide valuable data.

Fifth, I asked participants to rate their hassles based on experiences in the past month. In the study by Kanner et al. (1981) the hassles questionnaire was given to the same group of people each month for nine months. Therefore, more insight about hassles, or hassles and uplifts might be obtained if participants reflected on experiences within a different time frame such as the past week or the previous day, as indicated on the CHUS.

Finally, I found that the results of the study indicated that there were mean differences of hassles between marital groups. I offer another recommendation for further study and that is to replicate the study using the *t* test to identify significant differences in hassles scores or hassles and uplifts, with regard to gender, educational level, and income bracket.

Implications

The findings from this investigation will facilitate additions to the body of knowledge with regard to the stress experience and hassles of persons with chronic diseases such as diabetes. The potential impact for positive social change centers on diabetes education. Potentially, comprehensive diabetes education for diabetics and their families, the general public, and policymakers, will facilitate improvements in glycemic control and self-management, with a subsequent decrease in dollars spent to care for those with diabetes.

Diabetes Education

I presented data specific to African American adults in this study. Future studies can examine hassles of other ethnic groups or hassles of other populations of interest. For example, The incidence and prevalence rates of persons with diabetes have steadily increased over the past few decades. Discovery of knowledge might serve to help researchers identify group characteristics, and other variables that are essential in the study of stress, diabetes, and inclusive factors for diabetes education. Culturally-appropriate and culturally-sensitive programs are essential to promote healthy behaviors among African Americans since there is increased prevalence of diabetes among this population (CDC, 2011c). According to Healthy People 2020 (HP, 2011), the goal for diabetes education (5.1) is that at least 60% of persons with diabetes will have formal diabetes education, and Murff (2007) reported that diabetes education is critical for effective self-management.

I also presented plausible findings pertinent to schools and programs that train healthcare providers. If the results of this study are indeed significant and positive health outcomes are achieved as a result of study findings, then there must be a shift in the manner in which healthcare providers are being trained to care for people with diabetes. In other words, there should be a change in curriculums to emphasize the role that stress plays in dysfunctional carbohydrate metabolism. Discovered data from this study can potentially impact medical schools, schools of nursing, schools of allied health, as well as other training programs.

Mental Health

Data generated from this study can also be used by those entities responsible for the design and implementation of diabetes education programs. Diabetes education should not only include topics related to diabetes risk factors, disease process, and disease management, but should also include information on both the physiological and psychological impact of stress, hassles as stressors. Chronic stress is closely linked to chronic disease (i.e. diabetes), distress, and depression (Anderson et al., 2001; Healthy People 2020, 2013; Kalsekar et al., 2006; Larsen, 2016; Lopes et al., 2016). Musselman et al., (2003) highlighted the association between type 2 diabetes and depression. Wellness with regard to mental health should be a chief component of programs to enhance the quality of life for persons with chronic diseases. Research by Bogner et al. (2007) and van Dooren et al. (2013) confirmed that there is a higher mortality rate among persons with the comorbid conditions of diabetes and mental illness. Since stress is known to have a negative impact on the body by raising the blood glucose level (Clayton, McCance & Forshee, 2012) it is imperative that persons with diabetes learn how to problem solve in order to prioritize daily transactions and to mobilize effective coping strategies. In order to utilize coping strategies that are effective individuals and families must first be educated on various ways to handle stress-provoking transactions.

Mental health is paramount for personal well-being, to foster healthy interpersonal relationships, and to empower individuals with chronic diseases to enable them to complement society and the local community, and to perform their civic duties effectively (HP 2020, 2013). Spencer et al. (2006) affirmed the existence of health

disparities associated with African Americans, diabetes, and mental illness. Since diabetes is worsened by the presence of depression (Wagner et al., 2009), development of preventative mental health programs are necessary. Results from future studies will enable investigators to identify important factors that support the continuation of effective mental health services. Data from this study can facilitate generation of ideas by astute researchers, not only for education, but for best practices related to assessment, monitoring, and management of persons with mental disorders. A Healthy People 2020 goal with regard to mental wellness is that innovative programs related to prevention of mental illness be carefully designed and implemented (HP 2020, 2013).

Legislation and Collaboration

In order for diabetes education and preventative program development to take place on a large scale, legislation and funding are necessary. Data from this study might prove to be beneficial for policymakers and other stakeholders to earmark monies for programs related to health promotion. Data from this study might also facilitate interdisciplinary and interagency round-table discussions related to changes in protocol and standards for diabetes care.

On the national level, legislators, lobbyists, and others who influence policy development should receive in-depth education related to diabetes so that there can be an allocation of funds for research and culturally-specific program development. Also, the findings from this study can be the impetus for collaboration among federal and state agencies. Collaborative efforts by national agencies such as the CDC, NIH, ADA, and the American Heart Association can be strengthened on the local, state, and regional levels.

Inter-agency collaboration is necessary to develop culturally-appropriate programs that provide extensive education and training on problem-solving, stress, and coping, for which the findings of my study validated. As a result of interagency collaboration, a reduction in the incidence and prevalence rates of diabetes can be achieved before the end of the next decade.

Methodology

Researchers interested in diabetes (prevention, management, education, and self-management) can replicate my study with the use of alternative methodologies such as correlational designs or mixed methodologies. A correlational design can be used to determine if total hassles, frequency of hassles or severity of hassles are associated with other factors. For example, industries and other work venues might want to determine whether there is a correlation between hassles and job performance. Another consideration for future studies is to use a correlational design to explore the association between hassles and the number of sick days used by employees.

In the literature review I found that adequate nutrition is beneficial for glucose control for diabetes. Qi et al. (2006) found that persons with diets high in fruit, vegetables, and fiber had decreased inflammatory markers: I found this to be an interesting finding since there is a connection between inflammation and diabetes. So, an additional study could explore correlations between diabetes, diet, and hassles.

Genomics

In today's society there seems to be an ardent curiosity to learn about family history. Several databases such as Ancestry, Family Search, and Archives serve to assist

persons and groups with research about their family heritage. The findings from this study might be a benefit for heritage-seekers as they conduct research and develop genograms related to their family health history. Diseases such as hyperlipidemia, hypertension, stroke, and other chronic diseases such as arthritis, depression, and diabetes, are often seen among family groups (NIH Senior Health, 2015). The study of genomics and genetics is reasonable for researchers to explore since findings from some studies have indicated that there is a link between various diseases and this branch of science. Mjoseth (2017) indicated results of a recent study that highlighted a particular gene (semaphorin-$_4$D [SEMA$_4$D]) found in people who were from West Africa and African Americans. Individuals who carried the genomic variant weighed more than those who did not possess the gene. Since I identified a connection between obesity, diabetes, and African Americans in the literature review, genomics and diabetes is a suitable topic for future studies.

Theoretical Framework

The theoretical frameworks for the current study were stress and the CAT. Other frameworks that could be used to structure future studies are HPM (Pender, Murdaugh & Parsons, 2006) and Perceived Self-Efficacy (Bandura, 1993). The HPM is a nursing model and along with the revised version, it has been an appropriate model to structure studies in other disciplines. The primary postulate for the HPM is that individuals possess traits that enable them to sort out past experiences and to identify behaviors that resulted from their past experiences. According to Pender et al. (2006), past behaviors, especially related to health, are determinants of future positive health behaviors.

Bandura's self-efficacy theory is also implicated to use as a framework for further investigations. The main supposition in Bandura's theory (1993) is that individuals have had experiences in which application of knowledge and skills were used to manage various events. The self-efficacy theory supposes that there are cognitive, social, and motivational skills that are organized and mobilized to manage general and aversive situations. Additionally, because the individual possesses not only knowledge, training, and skills, they have the belief that they can self-manage their situations (Bandura, 1993). Pender's model and Bandura's theory are relative to my study in that a cognitive process takes place as individuals reflect and evaluate experiences and then use their knowledge and skills to manage various situations.

Conclusion

The purpose of my study was to determine if there were differences in the hassles experienced by African American adults with and without a self-reported diagnosis of type 2 diabetes. I used the CHUS (hassles portion only) to measure the total hassles, the frequency of hassles, and the severity of hassles that were reported by the study participants. Also, I used the CAT and stress theory as a platform for the study. Data from the statistical analyses indicated that there was a significant difference in the total, frequency, and severity of hassles between the two study groups.

Diabetes is a chronic disease that presents a multiplicity of challenges in terms of diagnosis, assessment, monitoring, and treatment. Diabetes affects over 29 million Americans and there is an increased prevalence among African Americans (CDC, 2014a). Due to the increased number of persons with diabetes in the U.S., nearly $250

billion are spent each year to care for persons with diabetes and conditions related to diabetes: this includes direct and indirect costs (CDC, 2011b; CDC, 2014a; USPSTF, 2008).

Stress is a condition that affects an individual from both a psychological and physiological perspective. In addition, the concepts of stress, stressors, hassles, and depression are all interrelated, and all have a connection with the development of diabetes and diabetes-related complications. Psychological or emotional stress can also result in a number of physical processes that contribute to abnormal alterations in the blood glucose level of people with diabetes.

Research on the relationship between stress, hassles, and diabetes should be continued for effective program development, best practice identification and implementation. Diabetes education that emphasizes the major role that stress plays in abnormal glucose metabolism is essential. A broad knowledge of hassles and diabetes can facilitate legislation and funding for diabetes care and can also facilitate necessary changes in protocols with regard to diabetes education and management. Finally, individuals with diabetes, along with their support systems, who receive comprehensive diabetes education can be empowered to take personal responsibility for diabetes self-management and control.

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Appendix A: Demographic Profile

DEMOGRAPHIC DATA PROFILE Identification Number _____

Section A: Type 2 Diabetes Yes_____ Diabetes No_____
Section B: Age _____ Date of Birth
_____

Section C: Race African American/Black
_____

Section D: Marital Status Single
_____

Married _____
Divorced _____
Separated _____
Widowed _____

Section E: Educational Level
(Indicate the highest grade completed)
_____ Less than High School
_____ High School Graduate
_____ Some College
_____ Graduate (Associate Degree)
_____ Graduate (Bachelor's Degree)
_____ Graduate (Master's Degree)
_____ Graduate (Doctoral Degree)

Section F: Annual Income
_____ Less than $10,000 _____ $10,000 – 25,000
_____ $25,001 – 50,000 _____ $50,001 – 75,000
_____ $75,001 – 100,000 _____ Greater than $100,000

Section G: Other Conditions

_____ Arthritis _____ Cancer _____ Depression
_____ GI Disorders _____ Gout _____ Hypertension
_____ Kidney Disease _____ Lupus _____ Other (Specify)

Section H: Religious Affiliation

Specify_____

Return of this questionnaire implies informed consent.

Appendix B: Pastor/Executive Board Permission Request

August, 2016

Dear Pastor/Church Executive Board:

My name is Sharon Murff and I am pursuing the Doctor of Philosophy Degree in Public Health with a focus on Community Health Promotion and Education from Walden University in Minneapolis, Minnesota. In partial fulfillment of this degree I am conducting a study of two groups of African American/Black adults (age 18 or older); those with a diagnosis of type 2 diabetes to those without a diagnosis type 2 diabetes. An approximate total of 90 participants will be needed for the study; that is 45 persons for each group.

The Combined Hassles and Uplifts Scale will be used; however, only the hassles portion of the scale will be used to identify the total, frequency, and severity of hassles. The Combined Hassles and Uplifts Scale is a pen and paper questionnaire in which participants will identify self-perceived hassles. Approximately ten minutes is required to complete the questionnaire. A demographic data profile will also be completed as part of the study, for the purpose of description of the sample, and this document will take approximately five minutes to complete.

The only risk to the participant is that the completion of the questionnaire might cause mental discomfort as the individual reflects on the hassles and uplifts they experienced in the past few months. I will be available to respond to any concerns or questions that might arise. Confidentiality to the participants and the church are assured. No names will appear on the questionnaire or in the study, and there will, and there is no cost to the participant or the church. The participant may withdraw from the study any time prior to submission of the questionnaire to the researcher, without prejudice.

I hereby request permission to recruit participants from your church, and to allow the participants to complete the questionnaire in your facility. The Internal Review Board (IRB) of Walden University regulates the Human Subjects in Research; therefore, this study is contingent on permission to move forward with the study by the IRB.

Thank you for your consideration of my request as well as your response.

Sharon Hall Murff RN MSN, CCRN (Doctoral Candidate)

Appendix C: Letter of Request to Use Instrument

August 8, 2016

Mind Garden Publishing Inc.
Permissions Department
P. O. Box 60669
Palo Alto, California 94306

Dear Permissions Coordinator:

In partial fulfillment of the requirements for the Doctor of Philosophy (PhD) in Public Health with a focus on Community Health Promotion and Education from Walden University, I plan to conduct a study to examine the hassles of African American adults with a diagnosis of type 2 diabetes compared to African American adults without a diagnosis of type 2 diabetes. The Combined Hassles and Uplifts Scale (CHUS) will be used; however, only the hassles portion of the scale will be used to identify the total, frequency, and severity of hassles. An approximate total of 90 participants will be needed for the study; that is 45 persons for each group.

I request permission to use the CHUS (hassles portion only) to conduct the investigation. Also, permission to reproduce the CHUS is needed so that each participant will have a survey to complete. Utilization and duplication of the CHUS is contingent on permission to conduct the study by Walden University's IRB.

Results of the study will be made available to you if requested. Thank you for consideration of my request.

Professionally,

Sharon Hall Murff RN MSN, CCRN (Doctoral Candidate)

Appendix D Permission From Mind Garden to Use Tool

mind garden

www.mindgarden.com

To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material;

Instrument: ***Hassles and Uplifts Scale***

Authors: ***Susan Folkman, Ph.D. & Richard S. Lazarus, Ph.D.***

Copyright: ***1989 by Mind Garden, Inc.***

for his/her thesis research.

Five sample items from this instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

The entire instrument may not be included or reproduced at any time in any other published material.

Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

Appendix E: Church Bulletin Insert

Sharon Murff Needs You!

I am pursuing a Doctorate Degree in Public Health with a focus on Community Health Promotion and Education from Walden University in Minneapolis, Minnesota. In partial fulfillment of this degree she is conducting a study that relates to how stress or hassles affect African American adults with and without a diagnosis of Type 2 Diabetes.

There are two groups for the study. If you are an African American male or female, and you are 18 years of age or older, and have been diagnosed with type 2 diabetes, or if you do not have a diagnosis of type 2 diabetes, then you are a prime candidate to participate in the study. I am requesting that you see me immediately following the service to complete two questionnaires, if you choose to participate in study.

Participation in the study is strictly voluntary and I am asking you to read and complete all study questionnaires. If you choose to participate in the study, complete confidentiality will be maintained. Your name will not appear on any of the study documents, in the study, nor in the final written summary of the study.

There is no compensation or any gifts for your participation in this study. However, by participating in this study you will contribute to knowledge about stress and type 2 diabetes. The results of this study will be used for, my dissertation, presentations at conferences and meetings, development of manuscripts for publication, and for educational purposes.

If you will agree to help with my research, please see me in the front of the church immediately following the service, or you may contact me you may contact me in person, at another time.