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Patients' Perceptions of Diet-Only Therapy in the Prevention of Diabetes Complications

Cornelia Emmanuel Inyang
Walden University

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Dr. Frazier Beatty, Committee Chairperson, Public Health Faculty

Dr. Patrick Dunn, Committee Member, Public Health Faculty

Dr. Suzanne Richins, University Reviewer, Public Health Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2019

Abstract

Patients' Perceptions of Diet-Only Therapy in the Prevention of Diabetes Complications

by

Cornelia E. Inyang

BSN, Texas Tech University Health Sciences Center, 2012

BSc, University of Calabar, Nigeria, 1995

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

February 2019

Abstract

Type 2 diabetes is a chronic metabolic disorder and the seventh leading cause of death in the United States. Type 2 diabetes is linked to many chronic diseases, including cardiovascular disease, stroke, and chronic kidney failure. African American adults have a high prevalence of Type 2 diabetes with early onset of diabetes complications. Poor dietary behavior is the primary cause of Type 2 diabetes and its complications, changing dietary behaviors can prevent the onset of diabetes complications or impede existing ones. The purpose of this phenomenological study was to explore patients' perceptions of diet-only therapy in the prevention of diabetes complications. Face-to-face interviews were conducted with six African American adults with Type 2 diabetes between 40 to 64 years using purposeful sampling method. Health belief model formed the conceptual framework of the study. I applied inductive coding process and manually analyze data for themes. Participants expressed fear of diabetes complications, acknowledged effectiveness of dietary therapy, physician communication and strong family support in Type 2 diabetes management. Findings can produce positive social change among African American adults with type 2 diabetes. Patients can be motivated to change their dietary behaviors to prevent disability and death from diabetes complications. Adherence to diet can reduce medical costs associated with Type 2 diabetes and its complications at the individual, family, community, and government levels. Health care providers can apply the findings in their interactions with patients to provide a more patient-centered education that integrates patients' cultural and dietary preferences to facilitate adoption of dietary interventions and long-term adherence.

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Dedication

This dissertation is dedicated to my Lord and Savior, Jesus Christ, the Almighty God, and to my late parents.

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Chapter 1: Introduction to the Study

Type 2 diabetes is a chronic metabolic disorder, a significant public health problem, and the seventh leading cause of death in the United States (Centers for Disease Control and Prevention [CDC], 2017b). Chronic conditions like cardiovascular disease, retinopathy, chronic kidney failure, foot ulcers, limb amputation, heart failure, and stroke are caused by Type 2 diabetes (Ayele, Tesfa, Abebe, Tilahun, & Girma, 2012; Piccolo, Pearce, Araujo, & McKinlay, 2014). Regular physical activity, dietary adherence, blood glucose monitoring, and medication therapy are recommended strategies for effective prevention and control of Type 2 diabetes and its complications (Piccolo et al., 2014). Researchers have asserted that patients find dietary adherence more difficult to maintain than other recommended management strategies (Ayele et al., 2012; Toobert, Strycker, Barrera, & Glasgow, 2010). However, for patients to manage their diabetes effectively to prevent complications, they need to incorporate nutritional therapy into diabetes self-management (Abdullah et al., 2011).

Researchers also have stressed that patients who integrate dietary therapy into self-management have better health outcomes than patients who depend mostly on medication therapy (Broadbent, Donkin, & Stroh, 2011). According to Cooper, Schliemann, Long, Griffin, and Simmons (2014), dietary adherence can control blood sugar levels effectively and promote better health outcomes. Cooper et al. found that patients who changed their eating behaviors moderately to embrace dietary therapy had a significant reduction in complications like high cholesterol and high blood pressure.

Researchers also have asserted that individuals' dietary behaviors can impede or accelerate the development of Type 2 diabetes among the at-risk population (Abdullah et al., 2011; Calvin et al., 2011). The American Heart Association (AHA, 2013) maintained that poor dietary behaviors are the primary risk factor for Type 2 diabetes. Didarloo, Shojaeizadeh, Gharaaghaji, Niknami, and Khorami (2014), along with Piccolo et al. (2014), affirmed that effective dietary management could prevent Type 2 diabetes and delay the onset of complications. Rosal, Borg, Bodenlos, Tellez, and Ockene (2011) added that a weight loss of 7% through dietary management could improve health and increase the quality of life by 50% or more among patients at risk for diabetes.

According to Calvin et al. (2011), patients' perceptions of the disease have a great influence on their health-seeking behaviors and decisions to engage in recommended health programs. Calvin et al. reported that individuals would engage in self-management programs if they had a perceived threat of developing the disease. Leventhal, Brissette, and Leventhal (2003) used the common-sense model of illness to show that illness perception dictates the processes of coping with or controlling disease. Cornish, McKissic, Dean, and Griffith (2017) confirmed that people's perceptions of health conditions, core values, and life's goals influence their responses to health interventions. Van Puffelen et al. (2015) described perceptions as a dynamic force that defines the responses to illness and participation in health promotion interventions. Patients' perceptions of Type 2 diabetes include their views on the causes, symptoms, severity of diabetes complications, self-efficacy, and the expected benefits of self-management (Van Puffelen et al., 2015).

Some researchers have suggested that patients' nonadherence to recommended diets could be the result of their misunderstanding the importance of nutrition. However, Didarloo et al. (2014) refuted this assertion and argued that even patients with knowledge of nutrition benefits still could find it difficult to adhere to long-term dietary management. Castro-Sanchez and Avila-Ortiz (2013) connected patients' nonadherence to diet to their lack of willpower to control appetite. Breen, Ryan, Gibney, and O'Shea (2015) held that because health care providers play an important role, they should reinforce dietary management on every visit to motivate adherence. Mathew, Gucciardi, De Melo, and Barata (2012); Peterson, Nayda, and Hill (2012); and Vasilescu (2015) advocated for the integration of patients' personal preferences, religion, culture, health belief, economics, and goals into diabetes education to promote nutritional uptake. Nutritional therapy plays a critical role in the management of Type 2 diabetes, so researchers continue to pursue ways to motivate patients to adopt and adhere to nutritional therapy in diabetes management (Fort et al., 2013).

Background of the Study

Type 2 diabetes results from the lack of insulin production or the insensitivity of cells to insulin (Menke, Casagrande, Geiss, & Cowie, 2015). Diabetes became a public health problem in the United States in the 1980s, with 5.6 million people identified as having the disease (Vigersky, Fitzner, & Levinson, 2013). The incidence of diabetes continued to escalate, and by 2015, more than 30.3 million people in the United States had the disease, with an additional 7.2 million undiagnosed cases (CDC, 2017b; Vigersky et al., 2013).

Globally, almost 415 million adults have Type 2 diabetes, and 5 million deaths are attributed to diabetes annually (Ley et al., 2016; Ogurtsova et al., 2017). By 2040, almost 642 million adults are anticipated to have Type 2 diabetes if the current trend is not interrupted. Economically, Type 2 diabetes and its complications have imposed an enormous financial burden on the health care system in the United States, individuals, and their family members (Ley et al., 2016). In 2015, approximately \$348 billion was spent in the United States on direct patient care associated with diabetes, and \$673 billion was spent globally on diabetes-related problems (Ley et al., 2016). At the individual level, at least \$13,700 is spent annually on patients with diabetes, whereas a more modest \$5,800 is spent on persons who are nondiabetic (Herman, 2013). In addition to direct medical costs, an estimated \$69 billion is spent annually on such indirect costs as absenteeism from work, reduced work productivity, disability, and untimely death (Herman, 2013).

The American Diabetes Association (ADA, 2017) and the National Institute for Health and Clinical Excellence (2008) emphasized that combining diet, physical activity, and medication therapy into diabetes care would yield the best results. Nutritional therapy is a flexible dietary plan of selected foods that can help patients to control their blood sugar (Malaguti-Boyle, 2016). The goal of nutritional therapy is to promote healthy eating habits among the at-risk population by increasing the quality while reducing the quantity of food consumed (Nwankwo & Funnell, 2016; Tiew, Chan, Lye, & Loke, 2014). Food choices and blood sugar control have a direct connection because dietary patterns and types of food consumed influence blood sugar upload, glycemic control, and

the onset of diabetes complications (Villegas et al., 2010). Consuming processed foods, high energy-dense foods, and high-fat foods lead to obesity, poor blood sugar control, and the early onset of diabetes complications (Villegas et al., 2010).

Dietary adherence yields positive outcomes and reduces the risk of death associated with complications from cardiovascular diseases (Tiew et al., 2014). Researchers have initiated different nutritional approaches to curtail the diabetes epidemic, and in 1999, the Institute of Medicine (IOM) officially advocated for the integration of nutritional therapy into diabetes management (as cited in Malaguti-Boyle, 2016). Examples of the recommended dietary approach include a low-carbohydrate, high-protein diet, a diet that Vasilescu (2015) found useful in the weight control of patients who are obese. The Dietary Approaches to Stop Hypertension (DASH) is a nutritional therapy to manage hypertension (AHA, 2013). DASH foods are rich in protein, nuts, whole grains, and fruits and vegetables, and low in fat and dairy products. Adherence to this therapy has helped patients to manage and control their blood pressure effectively (Steinberg, Bennett, & Svetkey, 2017).

Alcubierre et al. (2016) and Rossi et al. (2013) contended that the Mediterranean diet provided better glycemic load and recommended it for diabetes management. According to Alcubierre et al., patients who maintained a strict Mediterranean diet reported fewer diabetes complications and displayed better self-confidence than patients on other forms of self-care in managing their diabetes. Vadiveloo, Parekh, and Mattei (2015) did not recommend adherence to any specific dietary therapy; instead, they suggested that health providers educate patients to increase their intake of a variety of

foods in their diet to improve nutritional quality and metabolic health. Vadiveloo et al. stressed that increasing the consumption of various fruits and vegetables inhibits the risk of not only Type 2 diabetes but also cardiovascular disease. Health care providers and diabetes educators can influence patients' compliance with diabetes self-management, so BurrIDGE et al. (2016) suggested that providers regularly emphasize to patients the importance of adhering to nutritional therapy. Adequate diabetes education is fundamental to increasing patients' knowledge and self-confidence in managing diabetes and reducing the barriers to nutrition adherence (Rohani, Eslami, Ghaderi, Bidkhori, & Raei, 2016).

According to Chatterjee, Maruthur, Edelman, and Maruthur (2015), African Americans have a high prevalence of Type 2 diabetes and are more at risk than other ethnic groups of developing Type 2 diabetes at a younger age. Epstein et al. (2012) discussed the high prevalence of poor dietary habits among African Americans that further puts them at risk for the early development of Type 2 diabetes and its complications. Other risk factors associated with Type 2 diabetes include obesity, advancing age, socioeconomic status (SES) and ethnicity (Chatterjee et al., 2015). According to Calvin et al. (2011), African Americans are at higher risk for Type 2 diabetes because of their low perceptions of their predisposition to Type 2 diabetes.

Obesity is a recognized risk factor for Type 2 diabetes, and many African Americans are overweight or obese, thus increasing their potential for Type 2 diabetes (Steinhardt et al., 2015). For instance, 49% of African Americans are obese, and 27% are overweight, factors that are heightening their risk for Type 2 diabetes (Steinhardt et al.,

2015). Advanced age also increases the risk for Type 2 diabetes because of the lower sensitivity of body cells to insulin (Nayak et al., 2014). He et al. (2009) found that individuals 40 years of age and older are prone to developing central obesity, predisposing them to the early onset of Type 2 diabetes. Nayak et al. (2014) supported this finding and added that advanced age causes a loss of muscle fiber and the accumulation of sugar in the fatty tissue, resulting in the increased insensitivity of cells to insulin.

Nayak et al. (2014) also stressed that the presence of two risk factors such as being at an advanced age and being of African descent predisposes African Americans, more so than other ethnic groups, to develop Type 2 diabetes. Bockwoldt et al. (2017) as well as Keaton et al. (2014) viewed ethnicity as a significant risk factor, noting that African American adults tend to develop Type 2 diabetes at an earlier age than European American adults do. In support of this view, Steinhardt et al. (2015) asserted that 13.2% of African Americans have Type 2 diabetes versus only 7.6% of European Americans. The CDC (2017b) report indicated that 12.2% African Americans ages 18 years and older had diabetes versus 7.6% of non-Hispanic European Americans. Calvin et al. (2011) noted that about 25% of African Americans with prediabetes had a one in eight chance of progressing to full Type 2 diabetes than European Americans did.

African Americans also are more likely than other ethnic groups to develop diabetes complications that can include heart disease, stroke, blindness, and renal disease. Research has shown that African Americans with Type 2 diabetes have a 50% risk of developing severe complications such as blindness and cardiovascular disease; a

probability 4 times greater for chronic kidney failure with dialysis; and 2.7 times higher possibility of limb amputation, disabilities, and death (Calvin et al., 2011; Piccolo et al., 2014). Disparities in access to quality health care and racial discrimination also compound the diabetes problem among African Americans and increase the prevalence of Type 2 diabetes and complications (Steinhardt et al., 2015). A large proportion of African Americans have a low SES, low levels of education, and financial insecurity, all of which further limit their access to health care (Steinhardt et al., 2015). In addition, the lack of culturally appropriate teaching tools for African Americans increases the gravity of diabetes complications and decreases dietary adherence (Steinhardt et al., 2015). These findings call for an urgent need to address the diabetes problem by promoting adequate dietary management among African Americans.

Problem Statement

Type 2 diabetes has severe health complications that can include cardiovascular disease, chronic kidney disease, blindness, diabetes foot ulcers and amputation, and diabetes neuropathy (Fort et al., 2013). African Americans bear a higher burden of Type 2 diabetes and its consequences than other racial groups, despite the availability of diabetes interventions (Epstein et al., 2012). African Americans who have Type 2 diabetes are twice as likely as European Americans to develop complications such as blindness, are 4 times more prone to end-stage renal disease, and are 2.7 times more at risk for limb amputation (Calvin et al., 2011).

Research has confirmed that African Americans have a higher prevalence of end-stage renal disease than the general population (Calvin et al., 2011). For instance, the

incidence of hemodialysis among all American adults is 1,569 per million but 4,863 per million among the African American population (Calvin et al., 2011). African Americans experience more severe diabetes complications because of their poor diabetes self-management and low perceptions of the severity of the disease (Abubakari et al., 2011).

Dietary adherence is a crucial component of diabetes management, but studies on other disease conditions have shown that African Americans have more difficulty than European Americans adhering to diet. For example, Epstein et al. (2012) reported that European Americans are more likely than African Americans to comply with the DASH diet to control blood pressure. Wells and Walker (2012) indicated that dietary adherence is an added stressor for African Americans as the result of psychosocial and environmental difficulties. De Groot et al. (2003) viewed African Americans' traditional dietary choices as a factor impeding adherence to nutritional therapy. Vijan et al. (2005) noted in their study that the communication barrier between African American patients and their health care providers made it difficult for the group to comprehend dietary guidelines. Challenges to dietary adherence also were connected to the urban setting, lack of access to care, and poor perceptions of illness (Vijan et al., 2005).

Despite the numerous studies on diabetes management, the review of the literature indicated that most researchers have focused on combination interventions such as physical activity and medication therapy or physical activity and diet. Research on nutritional therapy has been scant, and none of the reviewed studies had explored patients' perceptions of diet-only therapy in the prevention of diabetes complications.

I conducted this study to fill that gap in perceptions. The purpose of this study was to explore the perceptions of African American adults between ages 40 to 64 years with Type 2 diabetes and living in southeast Texas about diet-only therapy in the prevention of diabetes complications.

The nutritional goal of diabetes management is to maintain adequate blood sugar control, promote adherence to nutritional therapy, and prevent diabetes complications (Cornish et al., 2017; Van Puffelen et al., 2015). Patient-centered interventions have produced better results than generic programs, so it is urgent to understand how the perceptions of African American adults with Type 2 diabetes affect their uptake and adherence to nutritional therapy in the treatment and prevention of diabetes complications. England, Thompson, Jago, Cooper, and Andrews (2014) asserted that patient-centered dietary adherence can have a longer and more positive impact on glycemic control than short-term, prescribed diets can. Obtaining insight into the participants' perceptions will add to the knowledge base relevant to the patient-centered approach to dietary management and will stimulate adherence to nutritional therapy. Dietary adherence can help to slow the current trend in the escalation of Type 2 diabetes and its complications in the African American population, promote overall health, and reduce total medical expenditure related to diabetes treatment protocols (Breen et al., 2015; Rosal et al., 2011).

Purpose of the Study

The purpose of this study was to explore the perceptions of a sample of African American adults with Type 2 diabetes regarding diet-only therapy in the prevention of

diabetes complications and gain a deeper understanding of the meanings that the participants ascribed to their experiences of the effect of diabetes on health, perceptions of nutritional therapy, and efforts at dietary adherence. Rohani et al. (2016) stated that gaining more in-depth insight into participants' perceptions of nutritional therapy can improve their utilization of diet in the prevention of diabetes complications. Six African American adults with Type 2 diabetes were interviewed to gain their perceptions of nutritional therapy, facilitators of and barriers to dietary compliance, perceived severity of diabetes complications, perceived benefits of dietary adherence, and self-efficacy in nutritional management.

Research Questions

The study was guided by three research questions (RQs):

RQ1: How do African American adults' perceptions of susceptibility to diabetes complications influence their adoption of nutritional therapy?

RQ2: How do African American adults with Type 2 diabetes view the severity of diabetes complications to their overall health?

RQ3: How do African American adults' views of diabetes self-management affect adherence to nutritional therapy?

Conceptual Framework

The health belief model (HBM) was the theoretical foundation of the study. The HBM was formulated by social psychologists Hochbaum, Rosenstock, and Kegels in the 1950s to explain individuals' health-seeking behaviors and use of preventive health services such as immunization and X-ray (Glanz, Rimer, & Viswanath, 2015). Glanz et

al. (2015) contended that people's attitudes toward disease depend on their perceptions of the severity of the illness versus treatment. The model explains that if individuals have a fear of a disease and view the repercussions as severe, they become motivated to take preventive action (Harris & Linn, 1985).

The HBM has six constructs: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, self-efficacy, and cues to action (Glanz et al., 2015). Social and public health scientists have used the HBM extensively to explain people's perceptions of health conditions and their responses and adherence to health interventions and treatment (Orji, Vassileva, & Mandryk, 2012). The HBM was the ideal conceptual framework for this study in providing insight into the ways that African American adults with Type 2 diabetes perceived their susceptibility to diabetes complications, severity of the complications, perceptions of susceptibility to the risk factors of diabetes, benefits of nutritional therapy in preventing diabetes complications, perceived barriers to dietary therapy, and self-efficacy in diabetes self-management.

Nature of the Study

In this phenomenological qualitative study, I sought to gain deeper insight into how a sample of African American adults with Type 2 diabetes perceived nutrition-only therapy in the management and prevention of diabetes complications (Matua & Van, 2015). Using the phenomenological approach enables participants to share their personal experiences of Type 2 diabetes and their perceptions of nutritional therapy (Matua & Van, 2015). Researchers use the phenomenological approach to explore their participants' experiences of the phenomena under investigation, their perceptions of the

phenomena, and what the experiences mean to them (Phillips-Pula, Strunk, & Pickler, 2011). Perceptions of a health intervention dictate the willingness of individuals to adopt and use available health resources (Phillips-Pula et al., 2011).

The phenomenological approach was appropriate to explore the perspectives of a sample of African American adults of diet-only therapy who were living in southeast Texas at the time of the study in the prevention of diabetes and their decision to adopt or reject nutrition intervention. I conducted face-to-face interviews using semistructured, open-ended questions to collect the data, which I coded manually for analysis and interpretation.

Definitions of Terms

African American: A person of African descent born in the United States (U.S. Census of Bureau, 2011).

Body mass index (BMI): Measurement of weight in kilograms divided by the square of height in meters. A high BMI indicates a high percentage of body fat (CDC, 2017a).

Glycated hemoglobin (HA1c): A hemoglobin protein that binds with blood glucose in the red blood cells and is used to measure average blood glucose levels in the preceding weeks or months (Gore & McGuire, 2016). HA1c is the indicator for diabetes that tracks and monitors how well diabetes is controlled. High levels of HA_{1c} increase the risk of diabetes complications (Gore & McGuire, 2016).

Glycemic load: Measurement of the quality and quantity of carbohydrates in grams per serving of food (Joslowski et al., 2015).

Hemoglobin: A protein in the red blood cells that binds with oxygen in the lungs and transports it throughout the body (Gore & McGuire, 2016).

Informed consent: The willingness of competent persons to participate in a study after receiving appropriate information about the purpose of the study, benefits of being in the study, and potential risks of participating (Kraft et al., 2017).

Assumptions

There were several assumptions in this study. The first assumption was that adherence to nutritional therapy would prevent or delay diabetes complications among African American adults with Type 2 diabetes. The second assumption was that the participants would be competent, honest, and able to share accurate information about their experiences with diabetes, self-management, and perceptions of nutrition-only therapy. The third assumption was that the participants would be African American adults who met the inclusion criteria and would be willing to participate in the study voluntarily. The fourth assumption was that assessing the participants' perceptions of nutrition-only therapy in the prevention of Type 2 diabetes would yield relevant results that could promote the uptake of nutritional therapy and adherence to diet. The final assumption was that the findings will have a positive impact on the participants, family members, community members, and the general public.

Delimitations

The one delimitation of this study was that I did not consider the participants' perceptions of other therapies such as medication, physical activity, or alternative approaches.

Limitations

There were several limitations to the findings of this study. I limited this study to data collected from the participants on nutritional therapy and the prevention of Type 2 diabetes complications. The recruitment and participation of only African American adults excluded other ethnic minority persons from the study who might have had similar experiences with diabetes and its complications, thus limiting the applicability of the findings to African American adult population. The data collected from the interviews were based on the participants' self-reports, which might have been influenced by their desire to give responses to the interview questions that I expected and considered acceptable. Cultural perceptions also might have influenced the participants' understanding of the questions and their responses, thus precluding generalization of the findings to other racial and ethnic groups.

Scope of the Study

The scope of this phenomenological study was to obtain the perceptions of African American adults living in southeast Texas about Type 2 diabetes and nutrition-only therapy in the prevention of diabetes complications. Six African American adults with Type 2 diabetes were selected purposefully through criterion sampling to participate in the study. Three RQs were formulated to guide this study, and six interview questions were developed to answer the RQs. I used semistructured, face-to-face interviews with open-ended questions to obtain the participants' perceptions of diet-only therapy in the prevention of diabetes complications.

Significance of the Study

This study is significant because the health status of individuals reflects the state of health of the nation (Ogurtsova et al., 2017). Type 2 diabetes is associated with debilitating complications affecting various organs of the body, resulting in a reduction in health and quality of life (Ogurtsova et al., 2017). The cost of medical treatment attributed to Type 2 diabetes is staggering, with an estimated \$673 billion spent on diabetes and diabetes-related cases globally in 2015 (Ogurtsova et al., 2017). Preventing diabetes complications can reduce the morbidity and mortality rates linked to the disease and the overall cost of treatment (Woolf, 2009). Woolf (2009) posited that preventive health interventions that address a single risk factor of disease can moderate the prevalence and severity of other related conditions. Diet has a role in the prevention and control of diabetes, as well as a delay in the onset of complications. Evidence has shown that patients who follow the recommended nutritional therapy experience fewer disease complications and have a higher quality of life (Broadbent et al., 2011).

The findings may contribute to the literature by providing more in-depth insight into the participants' perceptions of nutritional therapy in diabetes management. African Americans with Type 2 diabetes might experience a healthier quality of life through dietary adherence. Findings also can be used by health care providers and diabetes educators to offer more patient-centered counseling and educational interventions on nutrition management. A patient-centered approach has been shown to yield better results than generic programs (Rohani et al., 2016).

Summary

I explored the ways that the perceptions of African American adults with Type 2 diabetes of nutritional therapy can influence the uptake of nutritional therapy in the management of diabetes and prevention of complications. Individuals' perceptions of illness are a strong factor in hindering or promoting healthy behaviors and the use of health interventions. Type 2 diabetes is a serious health problem with numerous complications. It is the seventh leading cause of death in the United States. Type 2 diabetes and its complications disproportionately impact African Americans adults more than other ethnic groups (Wermeling et al., 2014).

African Americans are less likely to adopt health preventive measures, especially dietary intervention, in the management of diabetes, thus exposing them to a higher incidence of complications. Successful self-management of diabetes can control blood glycemic load and minimize complications (Dyer, 2013; Lazarou, Panagiotakos, & Matalas, 2012). Active participation in self-care is fundamental to positive health outcomes, so the use of dietary management would reverse the current high prevalence of Type 2 diabetes among African Americans (Tang et al., 2015).

In Chapter 2, I review the relevant literature on diabetes management, patients' perceptions of nutritional therapy, the risk factors associated with Type 2 diabetes, the complications of Type 2 diabetes, and the theoretical framework guiding the study.

Chapter 2: Literature Review

In Chapter 2, I review relevant literature on patients' perceptions of nutritional therapy in the management of diabetes and the prevention of complications, along with the risk factors of Type 2 diabetes that supported the need for further study. Type 2 diabetes is a metabolic disorder and a precursor of many chronic diseases, including cardiovascular disease, and it is a leading cause of death in the United States (Chatterjee et al., 2015). Type 2 diabetes results from insulin resistance or the lack of insulin production by the pancreas to meet the metabolic processes of the body (CDC, 2017b). The incidence of diabetes has been on the rise in the United States since the 1980s, and in 2015, more than 30.3 million Americans had diabetes, with 95% classified as Type 2 diabetes (CDC, 2017b; Menke et al., 2015). The prevalence of Type 2 diabetes has resulted in the call for urgent interventions to curb escalation of the disease and exacerbation of complications.

The various sections in this literature review include the literature search, theoretical framework, and diabetes risk factors, among others. The review is an overview of previous studies on diabetes management, prevention of diabetes complications, and nutritional therapy. It also serves as the basis for further studies on diabetes and the prevention of diabetes complications. The review further highlights nutritional therapy as a component in the self-management of diabetes and a necessary element in the prevention of adverse diabetes outcomes.

Literature Search

I conducted a search of the literature for relevant articles from peer-reviewed journals on the topic under investigation. Most of the literature searched was within 5 years of publication and ranged from 2012 to 2017, except for a few studies outside that time range. Databases that I searched for literature included MEDLINE with Full Text, PubMed, ProQuest Central, CINAHL Plus, ProQuest Family Health, EBSCO Open Access Journals, Dissertations and Abstracts, and Science Direct, as well as publishers' databases such as Elsevier, Springer, Nursing Allied Health Source, Sage Premier, and Nursing & Allied Health. The search terms were *perceptions, illness perceptions, Type 2 diabetes, dietary management, dietary therapy, nutrition management, nutritional therapy, dietary adherence, nutrition adherence, perspectives, diabetes complications, diabetes risk factors, attitude to diabetes, knowledge of diabetes, awareness of diabetes, prevention, dietary compliance, and African Americans*. Articles from specific websites such as the ADA, CDC, and the National Institute for Health and Clinical Excellence also were reviewed for their relevancy to this study of the participants' perceptions of nutrition-only therapy in the prevention of diabetes complications.

Theoretical Framework: Health Belief Model

I selected the HBM as the theoretical foundation to understand how the participants' perceptions of illness influenced their participation in preventive health interventions. The HBM gives researchers insight into people's beliefs and the extent to which they will adhere to health intervention practices (Glanz et al., 2015). The HBM has provided evidence of diet management in controlling glycemic levels and promoting the

health of patients with diabetes (Harris & Linn, 1985). Researchers have used the HBM frequently as a framework for their own studies (Finfgeld, Wongvatunyu, Conn, Grando, & Russell, 2003; Plowden, 1999).

According to the HBM, if individuals believe they are susceptible to a disease and view the repercussions as severe, they are more willing to take preventive actions (Harris & Linn, 1985). The HBM has six constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Finfgeld et al., 2003). People are likely to take action if their perceived susceptibility and perceived severity to illness are high and if perceived benefits of taking action are equally high (Yang et al., 2016). Perceived barriers are hindrances to engaging in available interventions; cues are motivations to act, including encouragement from others; and self-efficacy refers to the ability of individuals to respond to disease prevention (Glanz et al., 2015). High perception of illness severity spurs individuals to seek health interventions and facilitates changes in health behaviors.

Researchers have used the HBM to understand health behaviors. In 1999, Plowden employed the HBM to understand how African American men perceived prostate cancer and health screening. Plowden stressed that perceptions of illness are influenced by internal and external factors that he identified by applying the HBM. Plowden asserted that the HBM could help health practitioners to understand patients' attitudes toward health programs and can motivate patients, especially African American men, to engage in such preventive measures as screening for the early detection and treatment of prostate cancer.

Plowden (1999) described internal factors as the signs and symptoms that spur patients to seek medical help and interventions; he described external factors as the media, peers, and influential personalities. External factors refer to the outside influences of notable public figures such as church pastors or elected officials who might be able to convince men to seek early screening. Plowden demonstrated the power of external factors by reporting that more than 800 men went for prostate screening after listening to a speech by a respected male figure who was receiving treatment for prostate cancer at the time. Plowden concluded that African American men would participate in screening if they believed that they were vulnerable, viewed the consequences of prostate cancer as severe, perceived early prostate cancer screening as beneficial, and supported the removal of barriers to participation.

Phipps, Cohen, Sort, and Braitman (1999) conducted a pilot study of Vietnamese and Cambodian women in Philadelphia to assess not only their knowledge and beliefs about cancer but also their engagement in screening to detect cancer. The researchers found that 82% of the 38 women in the study had no idea about cancer, even though they attended community clinics. Most of the participants had no education, and all were homemakers (Phipps et al., 1999).

Phipps et al. (1999) reported that only 11% of all the women were knowledgeable of breast examinations and that only 2% knew about the Pap smear. Almost all of the participants lacked basic knowledge of cancer (Phipps et al., 1999). According to the researchers, the participants believed that cancer is a condition inherited from family members, is always fatal, and is not preventable. The researchers recommended that

health care professionals assess patients' beliefs about health conditions to ensure that patients have the best health education and information available.

Becker, Drachman, and Kirscht (1974) examined the explanatory value of a behavioral model by studying health motivations, perceptions, and mothers' attitudes to predict adherence to prescribed regimens for their offspring. In the randomized study of 116 recruits, Becker et al. found that the mothers who perceived illness as a significant threat to their children were quick to cooperate with prescribed interventions and had confidence in the physicians and the prescribed medication to allay the threat of illness. The researchers further discovered that the mothers were interested in their children's health and were apprehensive of the children's illness state. Becker et al. concluded that the mothers who had frequent interactions with their children's pediatricians were more knowledgeable of the threats of children's common ailments and susceptibility of children to such illnesses, and the means of coping with such conditions.

Brownlee-Duffeck et al. (1987) investigated the role of health beliefs in patients' adherence to diabetes regimen and metabolic control as a way to improve health assessment methods. The researchers assessed adherence using a questionnaire to quantify behavior through specific self-report rating. They examined the Diabetes Knowledge and Management Skills Assessment Questionnaire to evaluate differences in dietary adherence following acquisition of knowledge.

Brownlee-Duffeck et al.'s (1987) results supported the HBM explanation of patients' perceptions and confirmed that the participants' health beliefs were responsible for 41% to 52% of self-reported adherence and 19% to 20% metabolic control. Perceived

severity and benefits accounted for greater adherence to treatment and metabolic control. Brownlee-Duffeck et al. noted that the participants viewed the high cost of disease management as a barrier responsible for poor adherence and lack of metabolic control. The researchers also noted an aberration to the HBM: Participants with greater perceived susceptibility to diabetes complications also had poorer metabolic control.

Individuals' health beliefs influence their perceptions of disease severity. In a study of 93 male patients with Type 2 diabetes, Harris and Linn (1985) assessed the health beliefs of the participants, compared their responses to behavioral and physiologic measures of adherence, and found that treatment compliance was related to the participants' beliefs in the severity of disease. The researchers noted that susceptibility to illness was a more significant and successful predictor of metabolic control than adherence to the treatment itself. Harris and Linn asserted that improvements in attitudes towards self-care can lead to successful disease control.

Tang et al. (2015) conducted a qualitative study to gain insight into the perspectives of Hispanic American, African American, and European American female participants who had experienced gestational diabetes. Tang et al. interviewed 23 women using the framework of the HBM and assessed them on modifiable factors such as weight and nonmodifiable factors such as family history to evaluate their perceived susceptibility. The researchers found that a quarter of the women could not link the risk factors to the development of Type 2 diabetes; however, half of the participants expressed awareness of their risk to Type 2 diabetes and verbalized high perceived severity of such complications as chronic kidney disease and limb amputation. Almost all the women

were afraid of the potential impact of diabetes on their unborn children (Tang et al., 2015).

According to Tang et al. (2015), although all of the women acknowledged that Type 2 diabetes was a serious disease their different perceptions of the severity of diabetes influenced their management of the disease. About half of the women in their study tried to control their diabetes based on the perceived health benefits of behavioral change. One third of the participants engaged in activities like walking and staying active because of their awareness of their health benefits in controlling diabetes, and one quarter of the women changed their behaviors to prevent the worsening of complications (Tang et al., 2015). Tang et al. stated that perceived barriers to adequate self-management included the patients' lack of sufficient time because of their involvement in other activities that also required their time. The researchers suggested that health providers give pregnant women with gestational diabetes more explicit instructions and emphasize the relationship between gestational diabetes and the subsequent risk of Type 2 diabetes.

Patients' Perceptions of Illness and Type 2 Diabetes

Patients' perceptions of illness guide their attitudes toward illness and reactions to health management strategies. Van Puffelen et al. (2015) described perceptions as a dynamic influence that can determine how individuals respond to illness and their willingness to engage in health interventions. For patients with diabetes, illness perceptions include the ways that they view diabetes, recognize the symptoms, and are aware of the severity of diabetes and its consequences; self-efficacy; and anticipated effectiveness of recommended interventions, such as nutritional therapy, physical

activity, and medication therapy (Van Puffelen et al., 2015). Although all patients with diabetes want to live a healthy normal life, only a few achieve this goal; instead, many patients have crippling complications from the disease (Van Puffelen et al., 2015; Woolf, 2009). Management of Type 2 diabetes determines the disease outcomes and individual well-being. Consistency in diabetes self-management, including regular blood sugar monitoring, lifestyle modifications, dietary adherence, and medication compliance, can help patients to achieve optimal health (ADA, 2017). Effective health interventions have realistic goals, are patient centered, and are easy enough for patients to comprehend (Voigt et al., 2015)

Voigt et al. (2015) completed a cross-sectional study with 242 participants to determine the relationship between the participants' perceptions of illness severity and glycemic control. They reported that participants who had deeper perceptions of disease severity had lower glycemic control, much as the participants who had deeper perceptions of self-efficacy also maintained lower glycemic levels. Voigt et al. used the common-sense model of self-regulation for health and illness to assess how the participants engaged in the cognitive and emotional processing of disease or health threat. Results showed that the older participants had better diabetes control than the younger ones and that the participants with a shorter duration of the disease had better blood sugar control the participants with a long history of the disease did (Voigt et al., 2015). This finding does not support Van Puffelen et al.'s (2015) result that participants who had longer durations of diabetes had increased insight and knowledge of the disease thanks to better self-management.

Patients' Perceptions of Effective Diabetes Management

Type 2 diabetes is a progressive metabolic disease prevalent among minority groups, including African Americans (ADA, 2017). Globally, research has shown that most patients perceive insulin therapy and medication management as the most effective approaches to manage diabetes (ADA, 2014). Even patients who know about dietary treatment and physical activity in managing diabetes have demonstrated a lack of confidence in dietary therapy and have not pursued nutritional treatment actively to manage their diabetes (Castro-Sanchez & Avila-Ortiz, 2013). Having knowledge of diabetes management strategies, attitudes, and decision-making skills to engage in self-management is necessary to manage diabetes adequately and have better health outcomes ((Lynch & Kane, 2014).

Broadbent et al. (2011) investigated diabetes patients' perceptions of illness and treatments, and they linked the patients' lack of adherence to diabetes recommendations and lifestyle modifications as the primary reason for frequent hospitalizations. The researchers used the Brief Illness Perception Questionnaire and the Validity and Reliability Scale to gauge the patients' perceptions of the effectiveness of medication, physical activity, and diet in the management of their diabetes. The 157 study participants viewed medication therapy as the most important approach to diabetes management; only 10% attached any significance to dietary management (Broadbent et al., 2011). This result supported previous research on diabetes patients' perceptions of medication therapy as the ideal approach to control blood sugar.

For instance, in 2015, Van Puffelen et al. found in a study of 195 participants in the Netherlands that 174 of the participants managed their diabetes with insulin. The participants expressed better adherence to insulin therapy because of the apparent immediate effect of insulin on blood sugar (Van Puffelen et al., 2015). According to the researchers, only 21 of the participants reported integrating diet into their self-management to improve their glycemic levels. Van Puffelen et al. also observed that more participants perceived their diabetes as a chronic disease, but not necessarily a critical problem. Participants voiced that although diabetes interfered with their daily life activities, they could control it with self-management and medication therapy (Van Puffelen et al., 2015).

Suparee et al. (2015) conducted a grounded study with 33 participants who had Type 2 diabetes. They noted that the participants misunderstood the essence of diabetes management and lacked the necessary skills to manage their diabetes, subsequently depending entirely on insulin to control their blood sugar. The researchers collected data using semistructured, face-to-face interviews and a focus group. The participants in the study attributed the causes of diabetes to defects in their genes, karma, poor eating behaviors, and malfunctions in the body (Suparee et al., 2015). According to the researchers, a few of the participants reported being aware of diet and exercise as components of diabetes care, but they expressed discouragement because of the restrictions imposed by dietary therapy. Suparee et al. concluded that many diabetes patients often are frustrated with the recommended self-management strategies and limitations imposed by diabetes complications.

Patients' perceptions of diabetes vary across the world. People from developing countries perceive diabetes and its management differently from the ways that people in developed countries do. In Thailand, for instance, Srivanichakorn, Sukpordee, Yana, Sachchaisuriya, and Schelp (2011) noted that diabetes patients were uninformed about diabetes prevention strategies and diabetes complications. Suparee et al. (2015) asserted that patients in Thailand viewed diabetes as the name of the disease, but had no understanding of its importance. According to Suparee et al., patients believed that genetic problems or some spiritual repercussions were responsible for their diabetes. They also noted that patients would resort to nonmedical sources like herbs and religious activities to clear the system of diabetes. This assertion supported Mayega, Etajak, Rutebemberwa, Tomson, and Kiguli's (2014) results in Uganda, where diabetes patients often lacked knowledge of the causes of Type 2 diabetes and reverted to traditional practices to manage their diabetes. According to Suparee et al., patients need the education to understand what diabetes is and the ways that nutrition can contribute to successful management for optimal health outcomes.

In their ethnographic focus group study, Mayega et al. (2014) assessed participants' perceptions of Type 2 diabetes. The study had 12 focus groups with eight participants in each group ages 30 to 60 years, all of whom were diabetic, prediabetes, or obese. Mayega et al. observed that Uganda's health education programs were provider centered and difficult for patients to understand, unlike patient-centered programs used in developed countries. Suparee et al. (2015) made a similar observation in Thailand, noting that diabetes education materials were generic and nonpatient centered, leading to

misunderstandings of diabetes teachings and poor diabetes management. Mayega et al. recommended that environmental, cultural, and social norms be incorporated into diabetes education programs to enhance compliance and promote wellness among patients with diabetes.

Abubakari et al. (2011) explored the association among perceptions of illness, diabetes self-management, and blood sugar control among patients of African and European descent. The researchers observed variations in the participants' ethnic perceptions of diabetes. The sample comprised 359 patients with diabetes, with 222 of African descent and 137 of European descent. Results indicated a significant difference between the two groups of participants in terms of the acquisition and use of new knowledge. Whereas the European participants exhibited increased perceptions of diabetes symptoms as an incurable disease, the African participants perceived diabetes as a short-term and curable disease (Abubakari et al., 2011). In addition, increased knowledge of nutritional therapy did not motivate dietary adherence; instead, it led to unstable perceptions of diabetes among the African participants (Abubakari et al., 2011). This result supported Bhattacharya's (2012) assertion that African Americans' poor opinions of the diabetes process and disease management were responsible for the high prevalence of the disease and the severity of complications.

Kazley, Johnson, Simpson, Chavin, and Baliga (2014) assessed the ways that health care providers perceived African American patients' knowledge of and behavior toward chronic kidney disease. The researchers reported that health care providers believed that their African American patients were ignorant of the causes of kidney

failure. The participants, all of whom were nephrologists and nurses from four regional dialysis clinics, reported higher rates of diabetes and hypertension among African Americans than other ethnic groups. Participants also expressed that their African American patients were more noncompliant than other races with treatment and lacked knowledge of available resources among African Americans (Kazley et al., 2014). Kazley et al. identified the need for a better approach to health communication between providers and African American patients.

Fitzpatrick and Hill-Briggs (2014) measured the ways that African Americans with multiple chronic conditions dealt with their health problems. The researchers engaged 320 African American participants who were at high risk of heart disease. Fitzpatrick and Hill-Briggs acknowledged that diseases like Type 2 diabetes, high blood pressure, and hyperlipidemia were major precursors for cardiovascular diseases, which are pervasive among African Americans. African Americans need to know how to take care of their health problems and be able to identify and adopt effective approaches to take care of their health. Fitzpatrick and Hill-Briggs believed that having this knowledge would help African Americans to increase their self-efficacy and confidence in self-management. The researchers also made a spiritual observation and reported that African Americans generally are more likely than other ethnic groups to regard health as a gift from God and have a strong affinity for God's healing power. According to Fitzpatrick and Hill-Briggs, the majority of the participants in their study believed that although medical interventions are necessary, God is the ultimate healer.

Willig, Richardson, Agne, and Cherrington (2014) linked poor diabetes control among African American women to their consumption of large portions of high-calorie foods. The researchers observed that unlike other ethnic groups, African American women were the least likely to report any active efforts toward weight loss, despite the high rates of obesity, cardiovascular disease, hypertension, and diabetes among this population. According to Willig et al., learning the skill of intuitive eating may improve eating habits that would result in weight reduction, good blood glucose control, and the promotion of self-efficacy among African American women with Type 2 diabetes. Bhattacharya (2012) investigated the psychologic impact of health and illness beliefs on diabetes self-management among African Americans adults with Type 2 diabetes and found low awareness of diabetes chronicity among the 31 participants. Bhattacharya emphasized the need to increase the participants' perceptions of disease to enhance their adoption of diet and adherence to physical activity.

Perceptions of Diabetes Risk Factors Among African American Adults

Genetic composition, obesity, sedentary lifestyle, low SES, and the environment are causative risk factors for Type 2 diabetes (Seeleang, 2011). According to Seeleang (2011), these risk factors are prevalent among the African American population and are responsible for the proliferation of obesity and cardiovascular disease. The prevalence of chronic diseases like Type 2 diabetes and heart disease among minority groups also has been blamed on the disparities in morbidity and mortality among African Americans, and explains the higher rate of diabetes complications among African Americans than among European Americans (Bock, 2012).

Risk Factors Associated With Type 2 Diabetes

Genetics

Evidence of genetics as a risk factor for Type 2 diabetes among the African American population has been convincing. According to research, genetics can dictate the age at onset of Type 2 diabetes as well of the prevalence of the disease among various ethnic groups (Elbein, Das, Hallman, Hanis, & Hasstedt, 2009). More than 60 genetic variations have been linked to the risk of Type 2 diabetes in the general population (Keaton et al., 2014). African Americans have lower insulin clearance early in their adolescent years, even when insulin sensitivity is the same as in European Americans of the same age and health status (Hannon, Bacha, Lin, & Arslanian, 2008).

Researchers have investigated the role of genetics and the high prevalence of Type 2 diabetes among African Americans (Hannon et al., 2008). In a study of a sample of 531 male participants, most of whom were African American men, McVay et al. (2015) sought to determine if the risk factor of genetics was responsible for the participants' decreased perceptions of disease control and self-efficacy. Results indicated that information about genetics was significant, having a positive impact in the short term. However, the acquired knowledge was not translated into a long-term plan to prevent the future development of diabetes (McVay et al. 2015). Self-efficacy regarding diet and physical activity were not particularly affected by the information about genetics, but McVay et al. asserted that individuals can benefit from such information in helping them to make informed dietary choices.

Keaton et al. (2014) compared the risk of allele gene load between African Americans and European Americans in a sample of 1,990 African Americans and 1,644 European Americans. The researchers identified risk alleles 38 to 67 in the African American and 38 to 65 risk alleles in the European American participants. The result indicated a higher burden of 2.8 allele risks among the African American participants than among the European American participants. The higher the allele load, the higher was the risk of developing Type 2 diabetes (Keaton et al., 2014). Genetic research on other chronic diseases has shown higher expressions of genes responsible for cardiovascular disease and cholesterol among European Americans. On the hand, African Americans in that earlier research had higher levels of genes that were resistant to insulin and inflammation, thus increasing their susceptibility to kidney failure (Sergeant et al., 2012).

In their study, Sergeant et al. (2012) inspected levels of linolenic acid and arachidonic acid and their connection to genetic variations in the fatty acid desaturase gene cluster and rate of occurrence of high-converting genotypes in diabetes patients of African and European lineage. The sample comprised 229 participants, 166 European Americans and 63 African Americans, with diabetes or metabolic syndrome. Sergeant et al. discovered that linolenic acid and higher frequency of alleles facilitated the synthesis of linolenic acid among African Americans with diabetes. The researchers concluded that linolenic acid weakens the body's immunity and increases inflammatory processes, resulting in desensitization of the body cells to insulin.

Obesity

Obesity is a significant modifiable risk factor that stimulates the early onset of Type 2 diabetes. Obesity has been defined as a BMI greater than 30kg/m^2 ; the recommended BMI is less than 25kg/m^2 (Cloete, Mitchell, & Morton, 2017). The risk of individuals who are obese developing Type 2 diabetes increases with a larger proportion of abdominal fat because the insulin receptors in fatty tissue have poorer glucose clearance capability than those in muscle tissue. Insulin receptors in muscle tissue can induce 2 to 3 times more glucose clearance than those in fatty tissue (Cloete et al., 2017). The ineffective glucose clearance in fatty tissue leads to excessive demand for insulin secretion by the pancreas and persistent desensitization of body cells, resulting in excessive accumulation of blood glucose, also known as Type 2 diabetes (Eaton & Eaton, 2017). Obesity compounds the diabetes complications and contributes to physical inactivity and an increase in disability and mortality (Laditka & Laditka, 2015).

African Americans' perceptions of obesity also may be contributing to the problem as well as the increased incidence of Type 2 diabetes. Sivalingam et al. (2011) completed a cross-sectional survey of 970 European American, Hispanic American, and African American adults to obtain their perceptions of obesity as well as their awareness of health problems related to obesity. The researchers discovered that the African American participants did not regard obesity as a health problem and were not motivated to engage in healthy choices to decrease weight. According to Sivalingam et al., even though most of the participants acknowledged diabetes as a health problem, the African American participants were the least of the three groups in self-recognizing obesity as a

health problem. Sivalingam et al. concluded that perceptions of disease determined that participants who considered themselves obese were willing to engage in weight loss programs and seek health interventions.

Lynch and Kane (2014) found that patients' underestimation of their body weight was a major factor in poor weight management and a barrier to their use of available health services. Lynch and Kane assessed African American women's perceptions of body size using cultural descriptions of body size terms rather than medical definitions. Results indicated that the participants' views of overweight and obesity were significantly different from the medical definitions of the terms. The 69 African American women who took part in the study had an average age of 38 years and a mean BMI of 32. The researchers used the Body Image Scale to assess the women's perceptions of obesity and found that the participants did not consider an overweight body image as obese. Lynch and Kane established that the participants who had body weights of 30 to 35 BMI still considered their weights to be ideal, thus perpetuating obesity within the African American population.

Physical Inactivity

Physical inactivity is a critical risk factor for Type 2 diabetes, obesity, and other chronic health conditions (AHA, 2013). The AHA (2013) defined physical inactivity as a lack of participation in light to moderate or vigorous sessions of aerobic exercises for at least 10 minutes per day. Physical inactivity is the fourth leading cause of mortality in the United States (AHA, 2013). People who do not engage in regular physical activity, especially individuals with chronic diseases like heart disease and diabetes, develop early

signs of health complications and disabilities (AHA, 2013). Regular engagement in physical activity improves health and fitness levels and glycemic control; reduces insulin resistance; and moderates the risk of chronic diseases, including diabetes and heart disease (CDC, 2017b; Komar-Samardzija, Braun, Keithley, & Quinn, 2012).

Regular physical activity decreases lipids and cholesterol values and reduces the inflammation of cells and the risk of cardiovascular disease and hypertension (Komar-Samardzija et al., 2012). To bolster this point, Boylan (2007) admitted that consistent and regular physical exercise that builds on endurance and strength reduces and, in some cases, reverses diabetes complications. Mathieu et al. (2012) concurred that individuals who engage regularly and consistently in physical activity reduce their risk of cardiovascular disease by 50% and delay the worsening of complications.

Tao et al. (2016) asserted that physical activity is effective in improving chronic health conditions. The researchers studied a sample of 1,948 adults with Type 2 diabetes to examine the relationship between physical exercise and health-related quality of life. Tao et al. noted differences in health-related quality of life among those who regularly engaged in the prescribed physical activity and those who did not. Participants who took part in daily physical activity reported better overall well-being, with higher physical, mental, emotional, and social functioning than patients who did not. Tao et al. further stated that only 21% of the participants met the recommended amount of daily physical activity.

African Americans have the highest incidence of heart disease-related deaths at all ages (Al Tunaiji, Davis, Mackey, & Khan, 2014). Physical inactivity is higher among

African Americans, at 41.1%, and Hispanic Americans, at 42.2%, than among European Americans, at 27.7% (AHA, 2013). According to the AHA (2013) report, 32% of adults in the United States do not engage in leisure-time exercise and that 41.1% African American adults are inactive, as compared to 27.7% of European Americans. Mathieu et al. (2012) attributed the lack of physical activity as the cause of the high risk of cardiovascular disease and the racial health disparity between the African American population and the European American population.

Factors relevant to environmental, social, cultural, physical, psychological, age, and gender issues have been linked to noninvolvement in regular physical activity. Al Tunaiji et al. (2014) found that 26.1% of people between 18 and 44 years of age were more active (i.e., engaged in more physical activity) than 23.4% adults 45 to 64 years of age. Webb, Khubchandani, Hannah, Doldren, and Stanford (2016) concluded that in comparison to European American women, 62% African American women did not engage in prescribed aerobic exercise guidelines and 37.7% did not take part in any form of physical exercise.

Cornish et al. (2017) noted that unlike their European American counterparts, African American adults ages 45 years and older were not likely to engage in exercise programs and that 33.3% African American women were more inactive than 29.9% of African American men. However, the lack of motivation to have more active lifestyles has been more conspicuous among African American men than among European American men. Strategies to spur individual interest in regular exercise are needed to overcome the constraining barriers of time, environment, and social and psychological

issues (Friedman, Hooker, Wilcox, Burroughs, & Rheume, 2012). According to Cornish et al., autonomous motivation and perceived competence will help people to locate the resources that they need to overcome barriers to exercise.

Mathieu et al. (2012) conducted a study to determine if an association existed between ethnicity and participation in physical activity, identify a possible relationship between physical inactivity and death caused by heart disease among African Americans, and elucidate differences in beliefs of physical activity as a preventive health measure among ethnic groups. The sample comprised 3,016 adults living in Dallas and between the ages of 18 and 65 years. Fifty percent of the participants were African Americans, 31% were European Americans, 17% were Hispanic Americans, and 55% of all participants were women. There was no significant difference among the participants regarding their perceptions of the importance of physical activity in preventing the risk of cardiovascular disease. However, the African American and Hispanic American participants in Mathieu et al.'s study reported having less awareness than the European American participants of other preventive benefits of regular exercise. The researchers also found that the African American participants engaged in the least amount of physical activity, despite being at the most risk of heart disease.

Komar-Samardzija et al. (2012) explored the influence of social support from family and friends, self-efficacy in exercise, the environment, community support, SES, and effect of body image discrepancy on participation in physical activity among a sample of 50 African American women with Type 2 diabetes. The researchers noted that individuals with low educational and income levels were disadvantaged because they

were prone to making poor dietary choices. These participants consumed food high in calories and fat and had high rates of physical inactivity, thus increasing their risk of developing Type 2 diabetes. The researchers observed that participants who had high self-efficacy participated more frequently than people with lower self-efficacy in physical activity. Komar-Samardzija et al. concluded that family and social support increased the individuals' self-efficacy to work out and was a significant predictor of engagement in physical activity of African American women with Type 2 diabetes.

Socioeconomic Status

Type 2 diabetes is pervasive among people with a low SES, defined by level of income, education, and vocation (Chatterjee et al., 2015). The review of the literature showed that low SES has an essential role in the development of Type 2 diabetes and the advancement of diabetes complications (Chatterjee et al., 2015). Various studies on the relationship between SES and population health have indicated that the SES of individuals, as well as that of the general population, has a tremendous impact on health status (Chatterjee et al., 2015; De Silva et al., 2016; Maier et al., 2013; Williams, Priest, & Anderson, 2017). Low SES has been linked to poor health behaviors and chronic diseases like Type 2 diabetes and cardiovascular disease (De Silva et al., 2016). Low SES also has been connected to a lack of access to health care and the underuse of health interventions, leading to the increased severity of complications from chronic diseases (De Silva et al., 2016).

SES is a strong determinant of health and can dictate the onset of disease, disease severity, access to care, quality of care, and disease outcomes (Williams et al., 2017).

According to Tozer, Belanger, Moore, and Caudle (2014), low SES also impacts the way that people perceive and react to illness, and determines if they seek early or late interventions regarding their health. Generally, people with high levels of education have a better understanding of the implications of disease and illness and are inclined to make health decisions that have positive outcomes (Miech, Kim, McConnell, & Hamman, 2009). Individuals with higher incomes have access to the health care system and more resources to meet their health needs. They also are more aware of health implications and are thus inclined to adopt and follow medical recommendations (Miech et al., 2009).

Tozer et al. (2014) studied the relationship between SES and the frequency of emergency room visits in Canada. In the retrospective study of 36,765,189 emergency room visits that occurred between April 1, 2003, and March 31, 2010, the most frequent visits were recorded in provinces whose residents experienced a low physical environment and low SES. The residents' SES was measured by levels of education, employment, and income; the physical residential area was measured by level of affluence. The researchers did note that the routine use of emergency room services was linked to a lack of health insurance, because some of the patients had insurance, but rather on patients' knowledge about health, the need for preventive health practices, and the lack of use of primary care services.

Thurston et al. (2014) conducted a multisite longitudinal study to examine the significance of a consistent 12 years of low SES on women in midlife in the United States. The sample comprised 3,302 middle-age women. Fifty percent of the participants were European Americans, 30% were African Americans, and 20% were Hispanic

Americans or Chinese Americans. The researchers found that the women who had a high school degree or less and earned a low income were under constant financial stress and had a higher incidence of carotid plaques and thickening of the inner lining of arterial walls versus the women who had higher levels of education and wealth, irrespective of the women's racial backgrounds. Results were consistent with those of Rivera, Lebenbaum, and Rosella (2015).

Rivera et al. (2015) studied the effect of low education, low income, and residential area among women and found that the women who did not graduate from high school, who earned low incomes, and who lived in poor communities were more predisposed than their counterparts with higher education degrees, better salaries, and residence in more affluent neighborhoods to developing Type 2 diabetes. Other factors linked to the high prevalence of Type 2 diabetes among African Americans have been identified as racial discrimination, financial insecurity, and the lack of quality health care. Steinhardt et al. (2015) noted that the lack of culturally relevant health care education also has contributed to patients' poor understanding of the implications of diabetes as well as their poor health and dietary choices. According to Steinhardt et al., African Americans exhibit more symptoms of depression than European Americans do, a fact that affects their ability to participate in diabetes self-management effectively.

Elgart et al. (2014) completed a study on the relationship among SES, Type 2 diabetes, and chronicity of diabetes complications in Argentina. Participants were 387 patients with Type 2 diabetes and 774 persons who did not have diabetes. The researchers reported that the patients with diabetes who had a minimum level of education, earned

lower incomes, and did not have regular, full-time jobs experienced more diabetes complications. Maier et al. (2013) submitted that the presence of low SES in some areas of Germany accounted for the high incidence of Type 2 diabetes in those areas. In a study involving 11,688 participants, of whom 1,008 had Type 2 diabetes, Maier et al sought to examine the regional prevalence of Type 2 diabetes. They found that localities with a lot of regional deprivation had higher incidences of Type 2 diabetes. Maier et al. further observed that residents in eastern Germany experienced material deprivation as high as 12.6% and also had a higher prevalence of Type 2 diabetes than residents in affluent areas like southern Germany, with a material deprivation rate as low as 6.0%. Maier et al. stressed that the socioeconomic status of a region, independent of individuals' low SES, was related to the high prevalence of regional diabetes. They concluded that households with high levels of poverty had were more likely to develop Type 2 diabetes than households with high incomes.

Chih-Cheng et al. (2012) explored the association of income disparity and incidence of diabetes to determine if there was inequality in the care provided by the national health insurance program in Taiwan. Chih-Cheng et al. reported that Type 2 diabetes was more prevalent among individuals from the poor and middle classes than among individuals with higher incomes, noting that individuals who were poor had a 50% higher risk than more wealthy individuals of developing Type 2 diabetes. Chih-Cheng et al. found that people who lived in poverty did not go to health care providers for diabetes care and did not screen for glycated hemoglobin, cholesterol, lipids, triglycerides, and retinopathy, which worsened their condition. The researchers

concluded that poverty was associated with a high prevalence of Type 2 diabetes within a population, along with evidence of disparities in health care, despite universal health insurance coverage. Thus, people who have a low SES, including education and income, as well as diabetes experience worse complications than people who have a higher SES (Chih-Cheng et al., 2012).

Tao et al. (2016) suggested that low SES extends beyond diabetes management to implicate other essential factors such as quality of health care, type of resources available to the community, and patients' ability to access diabetes-related information. Other effects of low SES identified by Tao et al. included patients' compliance with medication regimens, recommended exercise, nutritional therapy, and effective communication with health care providers. Of the sample of 25,454 patients in their study, the 1,695 participants who had the least education also had the highest number of comorbidities, including heart disease, stroke, neuropathy, and visual impairment (Tao et al., 2016). Tao et al. argued that SES affected the management of diabetes, hypertension, and blood cholesterol by adult Chinese patients with Type 2 diabetes. They also confirmed that in China, adults with low SES were not able to control their metabolic levels and were more at risk of diabetes complications. Conversely, patients with higher SES had better control of their blood sugar, blood pressure, and blood cholesterol (Tao et al., 2016).

Environmental Conditions

Mayberry, Harper, and Osborn (2016) argued that ecological conditions can influence the onset and high prevalence of chronic diseases like Type 2 diabetes. Müller-Riemenschneider et al. (2013) identified patients' environmental factors as type of

houses, population density, land space, built-in walkways and network of streets, distance to grocery stores and types of food stores, schools, work, health care providers and facilities, parks, and quality open spaces. Hill et al. (2013) affirmed that physical and built-in environmental factors can affect the likelihood of participation in physical activity. The lack of walkways, tracks, and recreation centers directly results in decreased physical activity and increased levels of a sedentary lifestyle, obesity, and for the risk of Type 2 diabetes (Hill et al., 2013; Mayberry et al., 2016)

Researchers have found that poverty-stricken communities lack health promotion amenities, health food grocery stores, and supermarkets, depending mostly on convenience and street corner stores for their food, thus increasing their risk of obesity and Type 2 diabetes (Dinca-Panaitescu et al., 2012; Jiang & Pearlman, 2013). Al Hasan and Eberth (2016) maintained that although deprived communities have large numbers of convenience stores, street corner stores, and fast food restaurants, they lack grocery stores and supermarkets that sell healthy foods and vegetables. Jiang and Pearlman (2013) noted that such communities also experience high levels of poverty and the prevalence of chronic diseases like obesity, Type 2 diabetes, heart disease, kidney disease, and stroke.

Al Hasan and Eberth (2016) investigated the association between the density of four different types of food outlets and the prevalence of Type 2 diabetes in South Carolina in 2011. The researchers espoused that accessibility to high-density fast food restaurants and street corner stores correlated with a high prevalence of Type 2 diabetes and obesity. The researchers observed that counties in South Carolina with the highest

density of fast food restaurants and convenience stores also had the highest incidence of Type 2 diabetes and obesity.

Mezuk et al. (2016) reported a relationship between built-up areas in Sweden that had many fast food outlets and a high prevalence of Type 2 diabetes, emphasizing that these built-up areas gave people easier access to unhealthy food sources. The result was an increased incidence of Type 2 diabetes and the potential early onset of Type 2 diabetes. Mezuk et al. stated that areas with access to a high supply of health-harming foods rated higher in the incidence and prevalence of Type 2 diabetes.

Gebreab et al. (2017) had similar findings in their cross-sectional study of the effects of environmental factors as the risk factor in the development of Type 2 diabetes. The researchers linked the high incidence of Type 2 diabetes to neighborhoods with low social interactions, high crime rates, and security issues. Gebreab et al. added that the individuals who lived in areas with large numbers of unhealthy food outlets were 34% at higher risk for Type 2 diabetes than people who lived in areas with stores that provided healthy food. Chatterjee et al. (2015) supported this viewpoint and agreed that because of their easy access to unhealthy foods, African Americans have a higher incidence of and proclivity for developing type diabetes than European Americans do. The researchers further surmised that people who live in predominantly African American neighborhoods are at higher risk of Type 2 diabetes than people who live in mostly European American neighborhoods.

Evidence of the impact of the complications of diabetes has not been limited to physical disability; rather, research has shown that the complications also can affect

cognitive state. For instance, Tran, Baxter, Hamman, and Grigsby (2014), as well as Vadstrup Eva, Frølich, Perrild, Borg, and Røder (2011), maintained that lower cognitive functioning is common among patients with Type 2 diabetes and has negative consequences on the well-being and total quality of life of the individuals involved. Tang et al. (2015) reported a higher prevalence of impaired executive cognitive functioning among Type 2 diabetes patients. Tang et al. defined executive cognitive functioning as the ability to participate actively in health-related behaviors. People with reduced executive cognitive functioning are unable to engage in positive health practices, resulting in increased utilization of health services.

In their study of 1,063 participants, Tran et al. (2014) applied the Mini-Mental State Exam and the Behavioral Dyscontrol Scale to measure cognitive functioning. The researchers found that the participants with diabetes had lower cognitive function than those without diabetes. Tran et al. correlated lower cognitive functioning to the frequent use of outpatient services. They also associated lower executive functioning among Type 2 diabetes patients with a lack of adherence, which heightened diabetes complications and incessant use of acute care facilities.

Nutritional Therapy in Diabetes Management

Preventing Type 2 diabetes and its complications is the central goal of diabetes management (Lazarou et al., 2012). Patients with Type 2 diabetes need to understand the significance of effective diabetes self-management so that they can take responsibility for their condition and make healthful dietary choices (Dyer, 2013). Patients can control their blood glucose levels and improve health outcomes by adhering to nutritional therapy

(Alcubierre et al., 2016). Franz et al. (2003) underscored that patients could regulate blood sugar levels, maintain ideal weights, attain normal lipid levels, and have normal blood pressure by following the diets recommended by their health care providers.

Nutritional guidelines include reducing total fat intake, cholesterol, and sodium (Franz et al., 2003). According to Lazarou et al. (2012), adequate dietary therapy includes vegetables, fiber, fruits, and whole grains. Patients with diabetes are encouraged to avoid such unhealthy products as processed foods and fast foods.

Having knowledge of and skills in diabetes self-management and dietary therapy can help patients to choose their food options wisely (Breen et al., 2015). However, research has shown that even though most people can follow prescribed nutritional guidelines in the short term, they cannot sustain healthful dietary habits in the long term, thus increasing the risk of diabetes complications (Vadiveloo et al., 2015). The ADA (2017) and the National Institute for Health and Clinical Excellence (2008) recommended incorporating diet, regular physical activity, and medication therapy in the care of individuals with Type 2 diabetes to obtain the best health outcomes. Although the ADA has not prescribed a specific dietary approach to manage diabetes, it has suggested that patients' personal preferences, religious beliefs, culture, health beliefs, economics, and personal goals be considered when making dietary recommendations (Vasilescu, 2015).

Dietary therapy is useful in the management of chronic diseases like heart disease and obesity (Rosal et al., 2011). Alcubierre et al. (2016) suggested that adherence to a traditional Mediterranean diet can increase blood sugar control and a health-related quality of life. Alcubierre et al. completed a cross-sectional study with 294 patients to

assess their health-related quality of life, diabetes care satisfaction, and adherence to a Mediterranean diet. The researchers applied the Audit Diabetes-Dependent Quality of Life to measure health-related quality of life, the Diabetes Treatment Satisfaction Questionnaires to measure treatment satisfaction, and the relative Mediterranean Diet Score to measure dietary adherence. The researchers concluded that adherence to a Mediterranean diet did not influence patients' overall health-related quality of life but did increase their overall satisfaction with treatment regimens. Alcubierre et al. concluded that adherence to a Mediterranean diet was associated with a positive quality of life.

Vasilescu (2015) identified a low-carbohydrate-high-protein diet for short-term weight management for patients dealing with obesity. Kjeldsen-Kragh (2003) found evidence that a Mediterranean diet is effective in improving the symptoms of rheumatoid arthritis. The DASH diet has been found effective in preventing or gaining better control of high blood pressure among patients with hypertension. The DASH diet encourages the intake of foods rich in protein, magnesium, calcium, and potassium, as well as the consumption of nuts, beans, whole grains, fiber, fruits, vegetables, food low in fat, and dairy products. Steinberg et al. (2017) reported that hypertensive patients, regardless of racial and ethnic groups, who adhered to the DASH diet had a marked decrease in blood pressure after 2 weeks on the program.

The quality of diet has a direct impact on blood sugar levels and glycemic upload. Tiew et al. (2014) reported that healthy foods can have protective factors that support positive health outcomes. According to the researchers, consuming healthy food can reduce all causes linked to all deaths by 17% to 42%, reduce all causes of heart disease-

related deaths by 8% to 53%, and reduce the risk of cardiovascular disease by 14% to 28%. One example of research confirming the efficacy of nutritional therapy in the management of Type 2 diabetes was Cooper et al.'s (2014) study. Cooper et al. asserted that adherence to nutritional therapy could lower blood sugar levels, and they emphasized that moderate changes in dietary behavior among newly diagnosed diabetes patients could lead to a significant reduction in levels of blood sugar, blood pressure, triglycerides, and total cholesterol when compared to medication management. In their study of 574 participants newly diagnosed with Type 2 diabetes in the United Kingdom, Cooper et al. found that adherence to dietary guidelines from the ADA and the United Kingdom had similar effects on patients who were not on any medications and those who were receiving medication therapy.

Dietary patterns may have an impact on diabetes control and complications. In a prospective study that Villegas et al. (2010) conducted to investigate the dietary intake of the participants, three consumption food patterns of the participants were identified. Villegas et al. divided the sample of 36,159 middle-aged Chinese women into three groups with different dietary habits. Group 1 participants consumed moderate amounts of staples foods consisting mostly of carbohydrates and little vitamins and minerals. The women in Group 2 consumed more vegetables and high amounts of dairy milk. The participants in Group 3 consumed more processed foods, large amounts of high-energy foods, pork, eggs, seafood, red meat, and fruits and vegetables (Villegas et al., 2010). The participants in Group 2 had the lowest risk of developing Type 2 diabetes, and the participants in Group 1 had a higher risk than those in Group 2 for Type 2 diabetes. The

participants in Group 3 were the most obese of the three groups, had more abdominal adipose tissues, and had the highest risk of developing Type 2 diabetes (Villegas et al., 2010).

Rossi et al. (2013) studied the effect of strict adherence to a traditional Mediterranean diet on daily glycemic load and discovered that patients who adhered strictly to a traditional Mediterranean diet had better control of the glycemic load and decreased chances of developing Type 2 diabetes than patients who were less compliant. A traditional Mediterranean diet consists of foods like vegetables, cereals, fruit and nuts, legumes, seafood, and high amounts of monounsaturated fat (Rossi et al., 2013). The result supported the recommendation from Kjeldsen-Kragh (2003) to integrate a Mediterranean diet into the mainstream of diabetes diet guidelines.

Vadiveloo et al. (2015) recommended the intake of different nutrient-dense foods as a solution to metabolic syndrome problems. The researchers added that patients who consume different food selections have more opportunities to improve their dietary intake and metabolic health. According to Vadiveloo et al., increasing the consumption of a wide variety of fruits and vegetables decreases the risk of Type 2 diabetes and cardiovascular disease. In their cross-sectional study, Vadiveloo et al. proposed that consuming meals with a variety of healthy foods like fruits, vegetables, nuts, lean meats, and seafood would lower the risk of abdominal fatty tissue and would decrease blood pressure and metabolic disorders among the general population. The study involved 7,470 participants ages 20 years and older drawn from the National Health and Nutrition Examination Survey 2003-2006 data (Vadiveloo et al., 2015).

Dietary Therapy and Barriers to Dietary Adherence

Dietary nonadherence is an area of ongoing concern to patients and health care practitioners (Nam, Chesla, Stotts, Kroon, & Janson, 2011). Nutrition is an essential component in the management of diabetes that can help patients to achieve and maintain adequate blood glucose control and prevent diabetes complications (Ayele et al., 2012). Boylan (2007) noted that inadequate diabetes self-management and the lack of dietary adherence can lead to the early onset of diabetes complications and increase the risk of disabilities like stroke and blindness.

Poor nutritional habits and barriers to healthful eating can impede blood sugar control (Knight, Stetson, Krishnasamy, & Mokshagundam, 2015). Patients need to have a good understanding of the effect of diet in managing diabetes to reduce the frequency of hospitalization and improve patients' overall health and well-being (Mead, Andres, Ramos, Siegel, & Regenstein, 2010). Poor health literacy can impact diabetes management and patients' inability to comprehend effective ways of managing their disease (Lynch & Kane, 2014). Wens, Vermeire, Royen, Sabbe, and Denekens (2005) supported Lynch and Kane's (2014) assertion and reported that general practitioners were frustrated at patients' inability to comprehend the seriousness of diabetes and engage in self-management.

Patients who underrate the severity of the diabetes complications prevents them from taking appropriate actions to control the disease (Wens et al., 2005). According to Lynch and Kane (2014), having a lack of self-confidence in managing their diabetes exaggerates patients' frustration and prohibits them from participating actively in self-

care. Nam et al. (2011) bolstered this point by noting that miscommunication between health care providers and patients, a lack of family and social support, poor health literacy, and poor self-efficacy can have a negative impact on adherence to dietary compliance. Rendle et al. (2013) suggested that factors such as low motivation, low self-efficacy, low health literacy, and impaired view of the disease might affect the way that patients react to diabetes. Rendle et al. also explained that patients who lack resilience look for short-term results, and are unlikely to persevere and bear the cost of dietary compliance. Simon-Tuval, Shmueli, and Harman-Boehm (2016) concurred that individuals with risk-seeking behaviors are poor in self-care, underrate the severity of disease complications, and defy health consequences. Halali, Mahdavi, Mobasseri, Asghari Jafarabadi, and Karimi Avval (2016) identified several barriers that might impede patients' compliance with dietary regimens, including patients' inability to resist the temptation of consuming inappropriate foods; high cost of healthy foods; confusion about food choices; and psychological problems such as depression, lack of support, and negative attitude toward following a diabetes diet.

Location of Study

I purposefully recruited six participants from a large city in southeast Texas for the study. Participants were African American adult men and women who had Type 2 diabetes and were between the ages of 40 and 64 years. Calvin et al. (2011) confirmed that African Americans with Type 2 diabetes are disproportionately affected by diabetes complications as well as the worst severity of complications. This finding was supported by Konen, Summerson, Bell, and Curtis (1999), who asserted that African Americans

with Type 2 diabetes often experience more severe diabetes complications than European Americans. Shah, Dolan, Gao, Kimball, and Urbina (2012) affirmed this view and stated that African American adults with Type 2 diabetes tend to have a higher incidence of complications from heart disease as well as the onset of diabetes complications at an earlier age than European Americans.

Research Justification

I selected the research methodology for this study based on the RQs and the theoretical framework. Diabetes and its management have been studied widely, and the review of the databases for studies on diabetes, diabetes management, diabetes diet, and diabetes complications yielded numerous results, the majority of which were quantitative. Studies of dietary therapy in the management of Type 2 diabetes focused mostly on combined treatments like diet and physical activity or medication and diet, or a combination of physical exercise, diet, and medication. The few studies on nutritional therapy assessed the role of diet in the management or prevention of diabetes and its complications. Studies of patients' perceptions of nutrition-only treatment in managing the complications of diabetes were scarce, and none was found in the literature, thus warranting the need for this study.

Lazarou et al. (2012) explored the efficacy of various diets in the prevention of Type 2 diabetes. They reviewed high-fiber diets, low-fat diets, vegetable-rich diet, fruits, whole grains, and low alcohol consumption. Lazarou et al. concluded that an effective diabetes diet is rich in macronutrients and micronutrients consumed in the right proportions.

Otto, Padhye, Bertoni, Jacobs, and Mozaffarian (2015) conducted a multiethnic study to investigate the role of dietary diversity on metabolic outcomes. Results supported their assertion that consuming meals that contain fruits, vegetables, and nuts can promote health and prevent disease. They also found that the intake of unhealthy foods that are predominantly high-energy dense, transfat, soda, and desserts, can precipitate the onset of chronic diseases like obesity, Type 2 diabetes, and cardiovascular disease. According to Avedzi et al. (2017), replacing dense, high-energy foods with low-calorie foods can improve blood glucose control and reduce heart disease risk factors like total cholesterol. Broadbent et al. (2011) asserted that the participants in their study regarded medication treatment as more vital than adherence to preventive measures like physical activity and diet to their disease management. Georgsson and Staggers (2017) asserted that because the goal of diabetes management is to control glycemic levels and prevent the accumulation of glucose in the blood, it is necessary to find ways to alter patients' perceptions toward dietary therapy to enhance adoption and adherence to nutritional therapy.

Marincic et al. (2017), in a retrospective study, reported significant success using diet in the weight management of the African Americans and European Americans in their sample, although the loss was more pronounced among the European Americans than among the African Americans. The researchers also emphasized that diet can reduce hemoglobin A1C and total cholesterol levels significantly. These findings support the importance of healthy eating in managing Type 2 diabetes and the need to improve

patients' perceptions of the effectiveness of nutritional therapy in managing diabetes and preventing complications (Marincic et al., 2017).

The current study on the perceptions of African American adults with Type 2 diabetes on diet-only therapy in the prevention of diabetes complications is timely and helps to fill the gap in the literature. Gaining an understanding of patients' perceptions can help health providers to promote diabetes education in ways that can motivate adoption of and adherence to dietary therapy. The findings also can help diabetes patients to eat healthier and enjoy a higher quality of life. Results can help to reduce the financial burden of diabetes and its complications, as well as decrease the prevalence of morbidity, disability, and mortality among the African American population.

Summary of Literature Review

In this chapter, I reviewed numerous published works on diabetes and its management by focusing on dietary therapy and diabetes complications. I adopted a phenomenological approach to conduct this study to enable a sample of African American adults with Type 2 diabetes to share their stories and describe their experiences of diabetes, strategies that they used to control blood glucose to prevent diabetes complications, and the motivations and hindrances to adhering to nutritional therapy to prevent diabetes complications. In the review of the literature, I explored Rosenstock's (1966, as cited in Plowden, 1999) HBM, as used by Plowden (1999), to understand African American men's perceptions of prostate cancer and Tang et al.'s (2015) exploration of the ways that women who had gestational diabetes sought to prevent the onset of Type 2 diabetes following childbirth.

Plowden (1999) advocated that African American men's decisions to seek prostate screening and engage in treatment depended on their perceptions of their susceptibility to prostate cancer and the severity of the disease. Tang et al. (2015) asserted that women connected their risk of developing Type 2 diabetes to family histories of diabetes, personal histories of gestational diabetes, and current and future health practices and behaviors. Tang et al. noted that a significant number of women did not have any knowledge of the link between gestational diabetes and subsequent Type 2 diabetes. They stressed the need for health care providers to educate pregnant women about the link between gestational diabetes and Type 2 diabetes. Tang et al. suggested that health care providers use patient-centered education instruments to teach strategies to have a healthy lifestyle and prevent the onset of Type 2 diabetes following childbirth.

Poor health behaviors and dietary choices were the primary risk factors associated with the early development of Type 2 diabetes and other chronic diseases, as well as worsening progression of diabetes complications (Willig et al., 2014). Other risk factors of developing Type 2 diabetes included patients' perceptions of illness; low-SES; obesity; physical inactivity; increasing age; genetics; lack of education; and environmental, social and cultural conditions (Al Tunaiji et al., 2014; Cornish et al., 2017; Friedman et al., 2012; Komar-Samardzija et al., 2012; Mathieu et al., 2012). There was agreement among researchers that African Americans have a higher risk for Type 2 diabetes and also bear a higher burden of the disease than other racial groups (Kazley et al., 2014; Seeleang, 2011). African Americans who have low SES and live in poorer neighborhoods that lack access to healthy amenities have been found to consume

unhealthy foods, a situation that increases the prevalence of Type 2 diabetes among the African American population (Broadbent et al., 2011; Suparee et al., 2015).

Diabetes self-management is key to successful blood glycemetic control. Researchers have agreed that patients are ultimately responsible for managing their diabetes and should be educated appropriately about the importance of dietary management (Dyer, 2013; Lazarou et al., 2012). Being aware of diabetes management strategies, attitudes, skills, and the decision to take an active part in their self-management of diabetes can help patients to manage their diabetes effectively and improve health outcomes (Lynch & Kane, 2014). Patients' participation in self-care increases healthy outcomes has led researchers to suggest that health care providers adopt a more patient-centered approach to health communication to increase awareness and adherence (Tang et al., 2015).

According to Mayega et al. (2014) and Voigt et al. (2015), effective health interventions have realistic goals, are patient centered, and are easy enough for patients to comprehend. Abubakari et al. (2011) asserted that patients' awareness and perceptions of the risk factors for diabetes could motivate them to make healthier choices. Fitzpatrick and Hill-Briggs (2014) and Plowden (1999) asserted that because African Americans are very spiritual, any interventions to encourage patients' participation should incorporate spirituality.

I selected Husserl's descriptive phenomenological approach (as cited in Strandmark, 2015) to obtain the perceptions of African American adults with Type 2 diabetes about nutrition-only therapy in the prevention of diabetes complications.

According to Strandmark (2015), Husserl's phenomenological approach helps researchers to understand people's lived experiences and the meanings that they ascribe to those experiences. Using a Husserlian phenomenological approach gave the participants the opportunity to describe their experiences of Type 2 diabetes, diabetes complications, awareness and use of dietary therapy, and barriers to adherence to nutritional therapy. The HBM formed the conceptual framework of this study, as supported by various studies in the literature review. One such study was conducted by Plowden (1999), who used the HBM to evaluate the ways that African American men understood prostate cancer and the need for cancer screening. Chapter 3 provides a comprehensive description of the Husserlian phenomenological approach and the HBM.

Chapter 3: Methodology

In the previous chapter, I reviewed the literature on patients' perceptions of illness, Type 2 diabetes, and nutritional therapy that identified misconceptions in patients' understanding of nutritional therapy in the management of diabetes and the prevention of diabetes complications. The purpose of this phenomenological study was to obtain the perceptions of a sample of African American adults with Type 2 diabetes regarding nutrition-only therapy in preventing diabetes complications. This chapter presents details about the research methodology and design, the RQs, my role as the researcher, recruitment strategies to obtain the sample, the sampling technique, data collection and analysis, ethical issues, and trustworthiness.

Research Design and Rationale

I prepared three RQs to guide the study:

RQ1: How do African American adults' perceptions of susceptibility to diabetes complications influence their adoption of nutritional therapy?

RQ2: How do African American adults with Type 2 diabetes view the severity of diabetes complications to their overall health?

RQ3: How do African American adults' views of diabetes self-management affect adherence to nutritional therapy?

Phenomenology is a philosophical concept used to study aspects of human life such as perceptions, attitudes, and beliefs (Goulding, 2005; Willis, Sullivan-Bolyai, Knafl, & Cohen, 2016). Phenomenology strives to uncover, describe, and interpret people's lived experiences of events (Strandmark, 2015). Husserl introduced the concept

in the early 1900s, but it was revised by Heidegger in 1962 and extended as a research methodology in 1967 by Schulz (Goulding, 2005; Koch, 1999; Willis et al., 2016).

Phenomenological methods give researchers more insight into people's experiences of events and describe and interpret meanings attached to the experiences (Goulding, 2005; Koch, 1999; Willis et al., 2016).

Phenomenological studies are based on Husserl's descriptive phenomenology and Heidegger's interpretive-hermeneutic phenomenology (as cited in Heinonen, 2015). Descriptive phenomenology considers people's involvement in events as factual and accepts their perceptions of the events while excluding others' views (Finlay, 2009; Goulding, 2005; Strandmark, 2015). In descriptive phenomenology, researchers are encouraged to maintain the participants' narrated experiences intact and avoid superimposing their personal views upon the participants' experiences of the phenomena under investigation. Husserl encouraged researchers to use bracketing to identify and set aside their own biases in an effort to capture the participants' views (as cited in Heinonen, 2015). On the other hand, Heidegger's interpretative (i.e., hermeneutic) phenomenology encourages researchers to interpret their participants' lived experiences to gain a deeper understanding of their views (as cited in Heinonen, 2015).

I conducted this descriptive phenomenological study to obtain the perceptions of a sample of African American adults with Type 2 diabetes about nutrition-only therapy in preventing diabetes complications. This approach was the most suitable way to uncover deeper meanings of the participants' experience of Type 2 diabetes and nutritional therapy (Murrock, Taylor, & Marino, 2013). The phenomenological approach allowed

the participants to tell their stories and describe their lived experiences of the phenomena. Phillips-Pula et al. (2011) and Rohani et al. (2016) emphasized that understanding the participants' views of nutritional therapy in managing their diabetes might improve the uptake of dietary therapy and facilitate adherence to therapy.

Role of the Researcher

In qualitative studies, the researchers are the main data collection tool (Creswell, 2013), hence I was the data collection instrument in this phenomenological study. While waiting for approval from Walden University's Institutional Review Board (IRB) to conduct the study and collect the data, I reflected on my personal experiences of diabetes and its complications, and the importance of diet in preventing diabetes complications. As a nurse, I have taken care of numerous diabetes patients, so I spent the time waiting for IRB approval to examine how my experience would impact the participants' views; I wrote them down and evaluated my experiences with a peer. I made notes of my thoughts and reactions to diabetes patients' attitudes toward the management of the disease, and I deliberately made plans to suspend my experiences so that I could capture the participants' experiences. After gaining IRB approval (#06-12-18-0389381), I informed the participants that I was a nurse who had experience caring for diabetes patients. According to instructions from Creswell (2013), I shared my assumptions about Type 2 diabetes, my personal views on nutritional therapy, and the steps that I took to deal with my biases so that my opinion did not interfere with the participants' views in order to yield credible results.

Biases can have serious negative impact on the quality of research results (Creswell, 2013), to prevent my biases from influencing the results, I used reflective journaling and bracketing to maintain ethical standards and provide effective results. I maintained safety procedures to protect the participants from any potential harm, and I enhanced their safety during data collection. I informed all of the participants that their participation in the study was voluntary and that they could withdraw from the study at any time without any repercussions. I also notified the participants of their right to privacy and explained how I would store and secure their private information. I adhered to all ethical processes demanded by the IRB, including that I duly inform all participants of all aspects of the study before obtaining their informed consent. The consent form was worded clearly so that the participants could comprehend the purpose and benefits of the study. I used a face-to-face interview protocol to collect my data.

Participant Selection

This study took place in a large city in southeast Texas because of the large number of African Americans residing in the area. The Houston Department of Health and Human Services (2014) indicated that African American adults living in this city have a high prevalence of Type 2 diabetes and obesity.

Qualitative researchers use diverse sampling strategies to recruit participants. One such technique is snowball sampling, meaning that more potential participants are recruited through verbal recommendations from participants already in the study (Creswell, 2013). Convenience sampling involves selecting participants based on their ease of accessibility. Purposive sampling involves the careful selection of participants

who have experience of the phenomenon under investigation (Hofisi & Mago, 2014). Criterion sampling is a type of purposeful sampling that establishes criteria for participation (Cleary, Horsfall, & Hayter, 2014). I used purposive sampling with criterion sampling to obtain my participants. This sampling method ensured that the potential participants met the requirements to join the study and were able to voice their experiences of the phenomenon (Cleary et al., 2014). This study had three inclusion criteria: (a) Participants had to be African American adults between the ages of 40 and 64 years, (b) had to have Type 2 diabetes, and (c) had to reside in a large city in southeast Texas.

The initial sample was to be six to eight purposively recruited participants. I considered this sample size sufficient to yield rich, thick data. Dworkin (2012) posited that an adequate sample size in a qualitative study is one that can reach data saturation, that is, when no additional information from the participants yields new information about the phenomenon. A good sample size generates rich data about the phenomenon that provide insight and more in-depth understanding (Dworkin, 2012). Dworkin suggested a sample size of five to 50 participants; Mason (2010) stated that a sample of five to 25 interviewees is appropriate for a phenomenological study.

To recruit participants, I distributed copies of the flyer in three physician offices and in public parks. The flyers provided information about the purpose of the study, the risks of participating, and the benefits of being in the study. It also highlighted the criteria: Participants had to be African American adults between the ages of 40 and 64 years, had to have Type 2 diabetes, and had to reside in a large city in southeast Texas.

The flyer also contained my contact information. I screened potential participants over the telephone using the interview screening protocol to ensure that they met the inclusion criteria. I discussed the purpose of the study, the benefits of being in the study, and the reasons for needing participants. I informed the potential participants that their identities would remain private and protected by my assignment and use of alphanumeric codes. I also notified them that I would secure all field notes and the USB containing interview data in a locked safe and keep them for 5 years before disposing of them according to Walden University's requirement. I gave all interested participants 1 week to decide if they wanted to join the study and to call back to schedule interview dates and places.

For the individuals who called back and expressed an interest in joining the study, I reiterated the purpose of the study and reviewed all aspects of the informed consent form. I informed them that even though participating in the study did not pose any risks, the consent form had the contact information of a crisis hotline that they could call in case of an emergency condition resulting from their being in the study. The consent form also contained my committee chair's contact number and Walden University's research participant advocate's contact number in case the participants had any questions or concerns about the study.

I collected the participants' e-mail addresses or physical addresses to forward the informed consent form to them to read more closely and to ask any questions to clarify any information before engaging in the interviews. I also reminded the participants that I would take notes during the interviews and audio-record their responses. I selected a familiar restaurant in the area based on the participants' preference, and with the

participants' assistance, I picked dates and times for the interviews that were acceptable to them. The consent form was signed at the interview venue after I answered their questions. Each interview was scheduled to last 45 to 90 minutes. All of the participants gave me permission to contact them with follow-up calls in case I needed to clarify any of their interview responses.

Data Collection

I collected the data for 7 weeks, scheduling the interviews once a week from Week 3 to Week 7. Data analysis process took place concurrently. The interviews took place in a conference room that I rented at a popular restaurant in the southwest Houston area. I maintained open communication with the participants during the study period but terminated contact with the participants once I completed the study. I gave each participant a \$10 gift card following the interview to cover the cost of commuting to the interview location. Patton (2015) noted the appropriateness of a small cash gift to participants as a token of appreciation for their willingness to be in a study.

I collected the data using a face-to-face interview protocol and asking semistructured, open-ended questions. Using face-to-face interviews facilitates not only physical interactions between researchers and their study participants but also the collection of rich data, something that is not possible with other research methods (Ryan, Coughlan, & Cronin, 2009). Asking semistructured, open-ended questions during interviews gives the respondents the opportunity to discuss their experiences of the phenomenon and enables the interviewers to explore deeper to gain insight into the essence of their experiences (Patton, 2015). I developed a rapport with the participants

early in my interactions with them. I reviewed and emphasized the purpose of the study to remove any misconceptions and unfounded expectations; I also set boundaries to ensure that my relationship with the participants remained professional, and I established a rapport with them to ensure natural expression and communication.

Qualitative researchers can develop their own interview instruments or use ones developed previously by other researchers. I designed the interview for this study. The instrument had six semistructured questions with subquestions guided by the RQs and the constructs of the HBM grounded in a descriptive phenomenological approach. I conducted a pilot study to test the performance of the study guide in the final study. The pilot study also helped me to sharpen my interviewing skills on directing the interview process, including when to interrupt and prompt the participants to elaborate on their lived experiences.

The interview protocol had two parts. The first part asked the participants for demographic information relevant to age, sex, date of birth, highest level of education, and marital status. The second part comprised the six semistructured, open-ended interview questions that I asked in an effort to answer the three RQs:

RQ1: How do African American adults' perceptions of susceptibility to diabetes complications influence their adoption of nutritional therapy?

RQ2: How do African American adults with Type 2 diabetes view the severity of diabetes complications to their overall health?

RQ3: How do African American adults' views of diabetes self-management affect adherence to nutritional therapy?

Data Management and Analysis

Qualitative researchers translate their raw data into meaningful interpretation during the data analysis stage. Coding is the process used to condense the data by retrieving and assembling the most relevant items into chunks to make sense of them (Miles, Huberman, & Saldana, 2014). Researchers use a heuristic process to reflect on the data and assigns codes to similar data that are then clustered into categories to identify themes for interpretive purposes (Miles et al., 2014). I used the coding process suggested by Creswell (2013) to code and analyze the responses into themes and categories.

I manually coded the data and referenced NVivo v.11, that is, I applied my knowledge of NVivo, but I did not use the software for the analysis. I read through the field notes and listened to the audio recording repeatedly to gain an unbiased understanding of the participants' responses. I transcribed the participants' responses verbatim into Microsoft Word format. I grouped participants' responses to the interview questions to facilitate the coding process. I then created a table matrix to group codes with similarities and differences in the interview data. At the initial phase of the coding, I used open coding to conduct a line-by-line reading of participants' responses to identify similarities and differences in the data. I created a table matrix and grouped codes with similarities together. I used color markers to highlight frequently occurring words and clustered into categories. I then conducted axial coding to explain the association among the codes for emerging themes. I gathered the themes together and applied them to answer the RQs. I compared the analyzed data with the original transcriptions to ensure

the accuracy of the participants' responses. I conducted member checking to ascertain that the data analysis captured the participants' views and experiences.

Ethical Procedures

Before collecting any data, I was required to submit a written application to Walden University's IRB to obtain approval to conduct the study. Once I received IRB approval, I began to collect the data from the participants. I addressed ethical issues throughout the data collection, data analysis, and interpretation phases of the study. All participants were screened for eligibility before enlisting into the study. As already mentioned participants had to be African American adults between the ages of 40 and 64 years, had to have Type 2 diabetes, and had to be residing in a large city in southeast Texas. The consent form included information about all aspects of the research as well as the researcher's name, institution, study purpose, selection protocol, and the potential risks and benefits of being in the study. Participants were allowed to take part in the study only after signing the informed consent.

I established and maintained a respectful relationship with the participants throughout the study, and I terminated all contact with them once I had completed the study. During the interviews, I made sure that no participants were subject to any situations that could have jeopardized their emotional or psychological health. I used alphanumeric codes to identify the participants to protect their privacy and maintain the confidentiality of their responses to the interview questions. I used a password-protected laptop and computer containing the participants' interview responses, and I secured and locked the interview recordings and notes in a safe cabinet that only I had access to. I

maintained the participants' rights and did not coerce anyone into joining the study. Only individuals who volunteered and met the criteria to join the study were interviewed.

Validity and Reliability

Trustworthiness refers to the degree of confidence in the processes that researchers use to maintain rigor during data collection, data analysis, and results presentation (Connelly, 2016). Trustworthiness of a study includes the validity, credibility, confirmability, dependability, and transferability of the results (Connelly, 2016). Researchers who also act as the primary data collection instrument in qualitative studies can introduce biases that might compromise the interview process, the quality of the collected data, and the validity and reliability of the results (Creswell, 2013). Obtaining high-quality data during the interview process ensures the reliability and trustworthiness of the results (Patton, 2015).

To maintain the reliability of this study, I applied reflexivity and bracketing to prevent personal biases from compromising the data. I triangulated multiple sources, including the audio-recordings of the interview responses, my field notes, observations of the participants, and the reviewed literature, to validate the results. I consulted with peers and my committee chair before and during data collection and analysis, and with my committee member after data analysis. I also reflected on and set aside my experiences to avoid their influencing the participants' responses.

To ensure the validity of the results, I took field notes and audio-recorded the participants' responses to the interview questions. I then transcribed their responses verbatim for interpretation. I used criterion sampling to recruit the participants to prevent

selection bias, and I applied aspects of the HBM during data collection and analysis to increase the validity of the data and the findings. Because any discomfort or distractions experienced by the participants during the interviews could have reduced the value of the data, I allowed the participants to choose the location for the interviews. I ensured that the room was quiet, private, comfortable, and free of distractions during the interviews. To prevent interview fatigue, I limited each interview to a maximum of 90 minutes. The longest time of any interview was 75 minutes. During the analysis process, I often referred to the RQs to ensure that the responses to the interview questions aligned with the phenomenon under investigation and clearly reflected the participants' perceptions. I conducted member checking by giving the participants the opportunity to review and amend the transcriptions.

Summary

This chapter highlighted the methods that I used to conduct this study, my role as the researcher, recruitment of the participants, and the data collection and analysis processes. I addressed ethical issues and the ways that I complied with Walden University's IRB ethical standards and regulations. I also explained the various strategies that I used to maintain the trustworthiness of the results. In Chapter 4, I focus on the data collection and analysis processes, the themes that emerged from the analysis, and evidence of trustworthiness.

Chapter 4: Results

I conducted this phenomenological study to obtain the perceptions of a sample of African American adults with Type 2 diabetes of diet-only therapy to prevent diabetes complications. Phenomenology plays a vital role in research and gives researchers the opportunity to study the perceptions, attitudes, behaviors, beliefs, and characteristics of the participants that cannot be captured in quantitative research (Willis et al., 2016). Phenomenological research explores individuals' world events and describes and interprets the ways that individuals attach meaning to their experiences (Finlay, 2009; Goulding, 2005; Koch, 1999; Willis et al., 2016).

Using a phenomenological method was the most appropriate way to obtain the participants' perspectives about the efficacy of dietary management in preventing diabetes complications. Phillips-Pula et al. (2011) and Rohani et al. (2016) contended that gaining insight into participants' perceptions of dietary therapy can improve adherence to nutritional therapy and reduce the potential for nonadherence and the risk of diabetes complications (Matua & Van, 2015; Murrock et al., 2013).

This chapter includes the findings based on the participants' responses to the six interview questions. The sample comprised six African American adults with Type 2 diabetes who were living in a large city in southeast Texas. The semistructured, open-ended interview questions were developed from the three RQs to obtain the participants' perceptions of diet-only therapy in preventing diabetes complications.

Research Questions

Three RQs guided the study:

RQ1: How do African American adults' perceptions of susceptibility to diabetes complications influence their adoption of nutritional therapy?

RQ2: How do African American adults with Type 2 diabetes view the severity of diabetes complications to their overall health?

RQ3: How do African American adults' views of diabetes self-management affect adherence to nutritional therapy?

Pilot Study

I conducted a pilot study to test the appropriateness of the interview questions to collect data to answer the RQs, generate rich data about the phenomenon, and make corrections to the questions as needed. The pilot study helped to establish and shape the final interview process. Vogel and Draper-Rodi (2017) emphasized that pilot studies are essential in preventing any compromise of the results that could happen if researchers adopt inappropriate methodologies for their studies. The pilot study showed that the interview questions were adequate to produce rich data, so I did not make any significant wording changes to them.

Following approval from Walden University's IRB to proceed with the study, I posted recruitment flyers in the offices of three physicians. Two women and one man responded to the flyers and were subsequently screened over the telephone. Participation criteria included being an African American adult with Type 2 diabetes, being between the ages of 40 and 64 years, and residing in a large city in southeast Texas. Two of the

individuals were eligible to take part in the pilot study. I explained in detail to each respondent the purpose of the pilot study, role as a participant, how personal information would be used and secured, potential risks and benefits of being in the study, and the need to obtain informed consent. Respondents were informed that taking part in the pilot study was voluntary and that they could withdraw from the study at any time without any negative repercussions.

I informed the respondents about the interview process and asked their permission to take notes during the interviews, and also audio-record the interviews so that I could transcribe them verbatim. I notified the respondents that it would be necessary for them to read the informed consent form for understanding prior to being interviewed. I collected the participants' home addresses to mail the consent form.

The pilot study took place on June 21, 2018, at a restaurant chosen by the two participants. I rented a conference room at the restaurant for the interviews. I assigned alphanumeric codes PS1 and PS2 to the participants to protect their identities. The interviews were scheduled to last no more than 90 minutes to prevent participant fatigue.

The interview consisted of six open-ended questions (see Appendix A). The first interview was with PS1 and lasted 75 minutes. The second interview was with PS2 and lasted 65 minutes. I used my interview protocol to guide the flow of the interview process during the pilot study with the two participants. I made only minimal adjustments to the interview questions because the participants stated that their wording was appropriate, was easy to understand, and allowed them tell their stories freely (see Table 1). The adjusted interview questions were used in the final study. Because the pilot study

participants were part of the final sample, I included their responses from the pilot study with the responses from the other participants in the final study and analyzed them together.

Table 1

Participants' Responses From the Pilot Study

Questions	Responses
Q1. How did you feel when your doctor told you about the diagnosis?	<p>PS1 I was very afraid when my doctor told me I have Type 2 diabetes because I did not know much about Type 2 diabetes. I have heard of it but I don't have any close relations with the diabetes.</p> <p>PS2 I was nervous and scared when my doctor told me my diagnosis. I did not know what to do about diagnosis as two of my sisters and my dad already have the disease and they are not doing well at all. The amount of medications and sickness plus feeling bad all the time is what scared me the most. My first thought was that I am going to face the same things that they are facing and that was just too much for me to handle.</p>
a) How does having Type 2 diabetes affect your view of the seriousness of diabetes complications?	<p>PS1 I see Type 2 diabetes is a very terrible disease which can actually render your body and life useless.</p> <p>PS2 It changed my view of the disease. When I was watching my sisters and father deal with the disease I used to feel bad for them but since having the disease I have a different view. Diabetes is a very serious disease that can lead to complications. Like now one of my sisters is disabled and blind and had stroke and is now in Nursing home because no one is there to take care of her.</p>
Q2. Can you describe how you view Type 2 diabetes and its impact on healthy eating?	<p>PS1 My doctor told me from the beginning that the way I manage my diet will determine how well I control my sugar and how well I can prevent complications. Since then I have been careful with my food, I try to avoid anything that will increase my sugar. I see that it works because since my diagnosis I have only been on one sugar pill and my doctor</p> <p>PS2 If you eat right you can do well and live longer. So having diabetes make you to select what kind of food you should eat. If you have insurance and have primary doctor your doctor tell what to eat but if you don't have insurance you have to go to county clinic and sometimes it can be very frustrating.</p>
a) How does the thought of having diabetes complications affect how you eat?	<p>PS1 It makes me to be conscious of what I am doing with my health so that I do not worsen my health conditions but rather stay healthy. If I don't diet in a good way that will worsen my health and I will be doing myself much harm. If I don't take care of myself well and I develop complications I will become too much burden on my family.</p>

Table 1 Cont'd

Questions	Responses
	<p>PS2 I sometimes have nightmares in which I find myself with different complications. I don't know if it is my fears of the disease that causes the dreams because sometimes those dreams are so real so to make sure I don't have the complications I try to eat as right as possible. I don't eat red meat but chicken and fish. I also eat lots of vegetables and fruits too</p>
<p>b) Can you explain any complications that you may have had and how that affects your diet?</p>	<p>PS1 I only have mild complications and that is not what makes me to watch my diet, on the contrary it is the fear of developing any complications that actually make me watch what I eat. .</p> <p>PS2 I feel fatigued all the time and this affects my work because my work involves standing so at work I am tired and cannot do as much as others and I don't like to be like that. Employers don't like that so I find myself out of job more often than I would love to. When that happens, I don't have money and it is hard to eat right because you just want to eat to survive. The complications of tiredness and neuropathy are the two things giving me concern. I am doing my best trying to eat right. I know what to eat because I learned from the dieticians.</p>
<p>c) How do you feel about making changes to your diet?</p>	<p>PS1 It was hard for me when I was told I needed to change my diet because I had to make myself avoid some foods that I normally liked to eat. But after sometime of trying I became ok and I don't have any problems because diet is very important in controlling blood sugar.</p> <p>PS2 It was very hard at the beginning but it is not too much problem now. Important thing is for me to continue to stick to the diet so I do not get bad complications. At the beginning dealing with change in the way you eat is a big deal but gradually you do better. When you see the positive things that sticking to diet does it motivates you to continue doing the right thing.</p>
<p>d) Can you explain how your views on the seriousness of diabetes complications motivate you to maintain prescribed diet?</p>	<p>PS1 Diabetes has a very serious impact especially physical and emotional. If you don't manage your sugar well you can end up with all the problems and that is why I check my blood sugar all the time before I eat just to know how my sugar is reading. I eat small portions of food and I try not to eat too much because that is not good for the sugar. Because I want to live longer in good health, I don't want to become a victim of diabetes.</p> <p>PS2 It motivates me alright. Seeing my sisters and my father with all their problems make me to choose to eat right so I don't have complications. When you develop complications then they increase the medications and after a while you just become a walking pharmacy.</p>
<p>Q3. How does Type 2 diabetes impact your overall health?</p>	<p>PS1 Diabetes is a very serious sickness on health and when you go to diabetes clinic you will see different people with all kinds of complications. I will see many people that are very sick and some of them in wheelchair. If you cannot manage the condition then life will become miserable and bad things like blindness, heart problem and kidney problem can happen.</p>

Table 1 Cont'd

Questions	Responses
	<p>PS2 It could affect your heart, kidney and eye but I have not experienced any. The impact of type diabetes in my family is very bad like I mentioned before. Type 2 diabetes has very bad repercussions on health because of the complications.</p>
<p>a) Can you describe how diabetes affects your health generally?</p>	<p>PS1 Diabetes has not really affected me in a terrible way because I took steps earlier on to make sure that I followed all the instructions they gave me. I was told if I followed the teachings I will not have complications. I have been very lucky because following diet has helped me not to have bad complications.</p> <p>PS2 Recently, my legs have been swelling, and I was having hard time breathing and had to go to hospital. They told me at the hospital that my heart was becoming weak and was not pumping blood like it was supposed. I don't really know but the doctor said I may be having heart failure and I truly hope not because I am the strong member of my family now and it will be devastating on everyone.</p>
<p>b) How would you describe your understanding of diabetes complications on health?</p>	<p>PS1 Diabetes complications are bad diseases that happen to your body because of the effects of high sugar in your blood. Diabetes complications can affect different parts of your body like your eyes and heart. It is a very bad disease which you have to be very careful with so it does not destroy your life. When you have complications, you have to deal with poor health, which would make you to be in and out of hospitals all the time.</p> <p>PS2 My understanding of diabetes complications is that it is a bad disease with series of complications that hit every part of your body and render your life useless.</p>
<p>Q4. How do the instructions you receive from your health care providers help you manage your diet?</p>	<p>PS1 My doctor instructed me a lot on how to manage my diabetes well with diet and medication and I have been following all the instructions that they have been giving me and so far it is working. Sometimes I do not even have to take my medication because my blood sugar will be too low. Following the doctors' instructions is very important to control your sugar so you do not worsen your health.</p> <p>PS2 My doctor was very serious from the beginning and insisted I got diabetes education. He even went to the extent of not filling my medications except I went to diabetes classes. I am glad he did because it has helped me a lot to understand about the disease and how to manage it properly.</p>
<p>a) How do you manage your diabetes to maintain good blood sugar control?</p>	<p>PS1 I manage my blood sugar in so many ways. You have to always bring God into everything that you do. It is God that gives doctors and all the instructors the wisdom to take care of sick people, and so although the doctors are doing well God is still the only one that rules over them, therefore I pray all the time and I ask God to keep me in perfect health and watch over my health and prevent all the complications. I sleep on time because sleep is important to rest your body, I exercise and stay active, I eat healthy and take my medication as the doctor say I should and these help to maintain good blood sugar control.</p>

Questions	Responses
	<p>PS2 Diet is very important and if you eat as they instruct you your sugar should be fine. My sugar is on the most part well controlled and it usually runs and barely gets above 150. I use diet a lot to manage my sugar, I eat lots of vegetables and try to eat very minimal carbs. During the course of this diabetes, I have also gathered many things that I do to keep my sugar down.</p>
<p>b) Can you tell me your understanding of why you use diet in the management of your diabetes?</p>	<p>PS1 My understanding is that if you eat right it can help you to manage your sugar and if you don't then your sugar will be high all the time and the high sugar will damage parts of your body causing complications. Also my doctor told me that I got the diabetes from the bad food I was eating and that is why he wanted me to change my diet and avoid those foods like eating too much rice and sugar so my blood sugar can be controlled.</p> <p>PS2 If you follow diet instructions it will help you to control your blood sugar and also lose weight and if you continue to maintain the diet you can eventually discontinue medications so diet is very important in managing diabetes.</p>
<p>c) How does following providers' instructions on dietary management affect your self-confidence in managing your diabetes?</p>	<p>PS1 My doctors' instructions have helped me to maintain my health because my doctors keep emphasizing that diabetes is a bad disease that can shorten people's lives. They also showed me how to manage my sugar which gives me confidence in my self-care.</p> <p>PS2 Following providers' instructions on diet will teach you about what food you should eat to control your sugar. The instructions also help you to learn about other things about diabetes which can worsen if you do not manage your diabetes well. Following the providers' instructions gives you the confidence you need to manage your diabetes.</p>
<p>Q5. How would you describe diabetes diet and diabetes complications?</p>	<p>PS1 Diabetes diet is the kind of diet that helps you control your blood sugar so your sugar cannot be too high. When you eat bad foods it makes you to have diabetes complications like eye problems</p> <p>PS2 Diabetes diet is the type of food you can eat to control your blood and how much you should eat, which generally is eating small amount but frequently. I will like to say that diabetes diet has a relationship with the complications because if you do not do the diet as they tell you to then you can develop complications, which can become very bad sometimes.</p>
<p>a) Can you explain how maintaining diabetes diet can help you control your blood sugar and prevent complications?</p>	<p>PS1 Whenever you don't manage your diabetes well with diet and taking your medications and obey all the rules you are setting yourself up for danger. If you do not manage your blood sugar levels well it will result in the body system breaking down.</p> <p>PS2 Diabetes diet is a diet with vegetable and fruits and low carb as they teach in diabetes class. High carbs will increase your sugar and you will not be able to control your sugar which will cause complications</p>

Questions	Responses
<p>b) Can you explain how poor blood sugar control can cause diabetes complications?</p>	<p>PS1 If I don't diet in a good way and control my blood sugar that will worsen my health and I will do myself much harm. High blood sugar which comes from heavy meals and starch has bad effects on the body. PS2 Poor blood sugar control causes diabetes complications because when your blood sugar is always high, it affects parts of your body, causing complications; therefore, it is important to try and control your blood sugar to prevent complications.</p>
<p>Q6. How does the support you receive from your family regarding your diet help you in managing your diabetes?</p>	<p>PS1 I am a widow, I lost my husband in 1993 when my children were very young in high school and college. I worked so hard to make sure they all were able to continue with their education. My children are all very supportive and they encourage me to make sure I am ok. I live with one of my daughters, the second one, because she feels responsible for and she treats me like I am her child. I have wonderful children and their support me in managing my blood sugar. PS2 The most support I get is from my mother because she is always calling to make sure I am still eating right. My niece also tries to make sure we eat healthy and since I already know much about diabetes, [so] it makes eating right not too difficult.</p>
<p>a) Can you explain more how your family's involvement in your diabetes care helps you with adherence to recommended diet?</p>	<p>PS1 They help my adherence because they are the ones that buy the food that I eat, they monitor my medications and how I am taking them, and they also make sure I check my blood sugar before I eat in the morning and before I take my medicine, and they also make sure I check my blood sugar before going to sleep. PS2 Because we are all on the same page about eating healthy everyone tries to eat right. We don't fry foods in the house, and most of the things we eat is prepared in the house. The diabetes classes encourage cooking food at home to be able to control your diet.</p>
<p>b) How would you explain why you decide to maintain recommended diabetes diet?</p>	<p>PS1 I decided to maintain the recommended diabetes diet because I know that if I do not I will have too many complications that will make my life very miserable and I end up with too many problems. PS2 From the time the doctor told me I have Type 2 diabetes and insisted I attend the classes I learned of the importance of eating well to maintain good health I have been doing all that they teach me in the diabetes class.</p>
<p>c) Can you explain challenges you have that may prevent you from maintaining prescribed diabetes diet?</p>	<p>PS1 I don't have any challenges because I am eating as my doctors tell me to eat, my children, like I said are all with me and are helping me to make sure that I eat well and continue to do everything the doctors tell me to do to maintain my health. PS2 Cost of eating healthy is the major challenge I have. Before it was not so expensive to buy healthy foods but now it is becoming more and more difficult because of increasing prices. I try to eat healthy, but sometimes you cannot afford healthy food and you may start eating the wrong type of food which will cause your blood sugar to become high. But since you only earn so much, you can't spend what you don't have.</p>

Questions	Responses
d) Can you explain how planning your diet and setting goals has helped you keep to your diet?	<p><i>PS1</i> Planning my diet and setting goals has been helping me to maintain my blood sugar. I used to eat like two or three times a day before when I did not have diabetes but since the diabetes the doctors told me that I have to eat in small portions many times a day so I do not eat too much in one time so my stomach can handle it, that how I have been eating and now I don't eat too much food like before.</p> <p><i>PS2</i> It is important to plan your diet because it helps you to control how much you eat. Planning my diet has been the one thing that has helped me all these years to control my blood sugar. When you have diabetes you must know how to plan your meals and how to eat right otherwise when your sugar is uncontrolled you begin to have complications which can really mess up somebody's life.</p>

Demographics

The final study sample comprised six African American adults, two men and four women. The two participants in the pilot study were included in the final sample. The first part of the interview asked for demographic information relevant to age, sex, marital status, and highest level of education. Participants were assigned alphanumeric codes to protect their identities and maintain the confidentiality of their responses (P1, P2, etc.).

The demographic information did not contain any identifiable information that could have been linked to the participants. Participants' ages ranged from 47 to 64 years, with the average age being 56.6 years. Two participants were widows, two were widowers, one was divorced, and one was married. The highest level of education was an associate degree, and the lowest level was Grade 9. All participants resided in a large city in southeast Texas, where they also received medical care. The number of years that they had been diagnosed with Type 2 diabetes ranged from 3 to 16 years. Three (50%) participants had been dealing with diabetes for more than 10 years, two (33%) for more than 5 years, and one (16%) for less than 5 years. The year of first being diagnosed with Type 2 diabetes ranged from 2003 to 2015 (see Table 2).

Table 2

Participants' Demographic Information

Participant ID	Age (in yrs)	Gender	Education	Marital status	Year of diagnosis	Duration of diabetes in years
P1	62	Female	Grade 10	Widow	2006	12
P2	57	Male	High school	Widower	2009	9
P3	56	Female	High School	Divorced	2010	8
P4	63	Female	Grade 9	Widow	2002	16
P5	47	Female	Grade 9	Married	2004	14
P6	55	Male	Associate degree	Widower	2004	14

Research Tool

Qualitative researchers employ interviewing as one technique to collect data and gain insight into their participants' experiences of the phenomena under investigation (Ryan et al., 2009). Interviewing allows the participants to express their ideas, feelings, views, perspectives, and meanings of the phenomena (Starks & Trinidad, 2007).

According to Patton (2015), the quality of qualitative data depends on researchers' knowledge and interviewing skills when conducting e interviews, including effective listening and communication skills. Certain factors, such as establishing the purpose of the study, setting professional boundaries to prevent unnecessary involvement with the participants, guiding the study, developing rapport with the participants, encouraging dialogue, and helping the participants to be comfortable, are vital to the success of any study (Creswell, 2013). In addition, interview questions should be clear, concise, and easy to understand so that the participants can share their experiences of the phenomenon freely and openly (Creswell, 2013; Patton, 2015).

I conducted face-to-face interview using semistructured, open-ended questions to obtain data from the participants. Semistructured questions are loosely structured, give

the participants the opportunity to expand on their responses, and allow the interviewers to explore the essence of the participants' experiences in more depth (Patton, 2015).

Qualitative researchers can develop their own interview instruments or use ones previously developed by other researchers. As already mentioned, I developed six semistructured, open-ended questions guided by the literature review, the RQs, and the constructs of the HBM (Hofisi & Mago, 2014).

Setting

The study took place in a large city in southeast Texas. I collected the data after receiving IRB approval to conduct the study. I contacted several physicians' offices in the city to ask permission to distribute the recruitment flyer in their facilities. Three clinics gave me permission to post the flyer in their waiting areas. I posted 30 copies of the flyer in each clinic. Neither the physicians nor their staff members were involved in the recruitment process.

Sample Selection

I used a purposive sampling method with a criterion strategy to select the participants. I received telephone calls from 11 individuals who responded to the flyers that I had posted in the physicians' offices and two from the flyers that I had distributed directly to individuals in the parks. I conducted telephone screening to establish the individuals' eligibility to participate in the study (see Appendix B). Of the 13 respondents, three did not meet the inclusion criteria, two were older than 64 years, and the third had gestational diabetes. The final sample was six participants.

Data Collection

Data collection and data analysis took place concurrently. On the day before their individual interviews, I called the participants to remind them of the interview time and place. On the days of the interviews, I arrived early to prepare the room and environment for the participants' arrivals. I checked that the audio recorder, an Olympus digital recorder, was working well; I arranged the recorder and writing pad properly on the table; and I made sure that the seats were comfortable and the room was welcoming.

I greeted the participants warmly, introduced myself, thanked them for being in the study, and asked them to introduce themselves. I reviewed the study and informed consent form, and encouraged them to ask questions before signing the consent form. Participants were reminded to notify me if they felt uncomfortable with the questions and did not wish to continue to answer the interview questions. I used the interview protocol to maintain consistency in the interview process (see Appendix C).

The interviews were conversational, and the participants were friendly and expressive in their responses to the interview questions. During the interviews, I observed the participants' facial expressions, body language, and tone of voice, making notes of these observations on the writing pad as the interviews progressed. I gave the participants a break during their interviews to stretch and use the restroom. The interviews with the four participants lasted between 55 to 60 minutes. The first two pilot study interviews lasted 65 to 75 minutes.

Data Analysis

Coding involves condensing interview data to facilitate retrieval of the most relevant information and assemble it in chunks to identify word patterns and themes (Miles et al., 2014). To analyze the data, I used the coding process suggested by Creswell (2009):

1. Gather raw data.
2. Organize and prepare the textual data for analysis by transcribing the audio data, type the field notes, and sort and arrange the data into the required format.
3. Read and reflect on the overall meaning of the data.
4. Code the data for themes.
5. Generate themes by interpreting the participants' experiences.

I manually coded the data for analysis. After gathering the interview data, I read through the field notes, and I listened to the recordings repeatedly to gain an unbiased understanding of the participants' responses. I then transcribed the recordings verbatim into Microsoft Word format. I grouped the responses to each interview question to identify codes more easily. I then created a table matrix and grouped codes with similarities apart from codes with differences. I used color markers to highlight frequently occurring words and segments that I later clustered into categories.

At the initial phase of the coding process, I used open coding to conduct a line-by-line reading of the participants' responses to identify similarities and differences and then grouped them into categories and themes. I then conducted axial coding to explain the

association among the codes and name the themes. I reviewed the participants' responses frequently, particularly when I collected and added data to further identify similarities and differences and to check for data saturation (Creswell, 2009). I tracked my data analysis often to prevent repeating activities and unnecessary wasting time. I then grouped emerging themes together and applied them to answer the RQs. I reviewed the constructs of the HBM in line with the codes, and I applied some to describe the emergent themes.

I applied reflective journaling and bracketing throughout the data analysis. To broaden my understanding during the coding process, I reviewed the field notes regarding my thoughts and the participants' nonverbal responses (Smith & Firth, 2011). I referenced NVivo v.11, but I did not use the software during the coding process. I used the participants' direct quotes from the transcriptions as well as my field notes to reflect the participants' experiences. As mentioned earlier, I compared the meanings of the analyzed data with the original data in the transcriptions to ensure that the participants' perspectives remained intact. I further performed member checking with the participants to keep the analyzed data congruent with their perspectives and that my interpretation represented their viewpoints accurately.

Themes

Patients with Type 2 diabetes are faced with many challenges while trying to manage the disease. During the interviews, the participants shared their struggles, especially in the area of dietary management. There were expressions of pain, anger, fear, and frustration over the loss of freedom to make dietary choices and their efforts to

manage the disease on a daily basis. The 10 themes that emerged were worded to capture the participants' lived experiences with Type 2 diabetes and their perceptions of dietary management in preventing diabetes complications.

Themes Relevant to Research Question 1

RQ1 asked how African American adults' perceptions of susceptibility to diabetes complications influenced their adoption of nutritional therapy. To answer RQ1, it was necessary for me to understand the participants' perceived risk or susceptibility to the disease and if it increased their likelihood of seeking dietary therapy. Patients with diabetes who believe that they are susceptible to complications and have confidence in the efficacy of dietary therapy use the therapy. Three themes relevant to RQ1 emerged from the participants' responses, with the overriding theme being the emotional impact of diabetes complications on health and well-being, especially in regard to disabilities and loss of function. Participants described their reactions to receiving a diagnosis of Type 2 diabetes as being scared, nervous, anxious, afraid, distressed, upset, troubled, depressed, and miserable.

Theme 1: Fear of diabetes complications. Fear of Type 2 diabetes and its associated complications are common experiences among patients with Type 2 diabetes. All six participants reported being afraid and traumatized when their physicians informed them of the diagnosis. None of the participants anticipated having diabetes, even those with strong family histories. Five participants reported having relatives with Type 2 diabetes and were knowledgeable of the severity of the complications of diabetes. P1 had

witnessed the impact of complications such as blindness, stroke, amputation, and dialysis on siblings and her father, and she was afraid that she might end up same way.

P1 described her first reaction to her diagnosis:

I was very scared when my doctor told me I had Type 2 diabetes. I was not expecting to have the disease, so when he told me the diagnosis my first reaction was that it cannot be possible, and then I became really scared.

P2 recalled, “I was nervous and scared. I did not know what to do about the diagnosis as two of my sisters and my dad already have the disease.”

P3 reported that she knew she was at risk for the disease, but was not prepared. She said, “The diagnosis of Type 2 diabetes was devastating and left her feeling very concerned and overwhelmed.” As I sat across P3, I observed a look of pain in her eyes, and when I asked how she was feeling, she stated that she wished that she had known how to protect herself from diabetes before it happened to her.

P4’s case was different because she was the only participant who had no personal experience of Type 2 diabetes. However, like the other participants, her reaction to her diagnosis was traumatic:

I was very distressed because I did not know much about Type 2 diabetes. I knew the disease existed, but I did not know much about it. I did not have any close friends or family with diabetes, so that really made it horrifying, especially when the doctor told me that it was a disease that destroys the body and then kills the person if not well managed.

P5 was the youngest participant and had the worst reaction to the diagnosis of Type 2 diabetes because of her experience of the impact of the complications on her husband's family. P5's father-in-law had diabetes complications, including limb amputation; her two sisters-in-law had stroke and blindness; her father-in-law and one of the daughters were on dialysis; and her husband's cousin had undergone limb amputation. P5 had a history of gestational diabetes that progressed to Type 2 diabetes. P5 stated that she felt as if she had been given a death sentence when her physician told her the diagnosis.

P5 had morbid obesity, a health factor that compounded her diabetes. P5 also had problems with her knees that affected her mobility and intensified her fear of limb amputation. P5 stated, "Amputation is my worst fears because three members of my husband's family have Type 2 diabetes and also have amputation. Losing your legs and eyes are the worst things that can happen to you."

Theme 2: Dietary efficacy. Dietary therapy plays an important role in the prevention of Type 2 diabetes and its complications. Adherence to recommended diets helps to regulate blood sugar levels as well as prevent and minimize the severity of diabetes complications. Knowing about the benefits of dietary therapy in preventing diabetes complications increases adherence.

All of the participants acknowledged that eating an unhealthy diet was the primary risk factor for Type 2 diabetes and that consuming a healthy diet could control blood sugar levels and prevent complications. Poor dietary habits and uncontrolled blood sugar levels accelerate the early onset of complications from diabetes (Breen et al., 2015).

For instance, P2 remarked, “Poor blood sugar control causes diabetes complications because when your blood sugar is always high it affects parts of your body causing complications therefore it is important to try and control your blood sugar to prevent complications.”

Understanding how patients view diet in the prevention of diabetes complications is important and promotes adherence. Hajos, Polonsky, Twisk, Dain, and Snoek (2011) emphasized that patients who understand the importance of diet as an intervention increase their adherence to dietary therapy.

P5 stated that she used to be very fond of cakes and candies and wished that she had known better. She reported that since finding out about dietary management, she has encouraged her children and family members to eat healthy to avoid Type 2 diabetes.

P2 noted, “Diabetes diet has a relationship with the complications because if you do not do the diet as they tell you to do, then you can develop complications which can become very bad sometimes.”

P1 used diet to manage her diabetes “because diet helps you to manage diabetes well. When you eat the kind of food they tell you to eat, then you can control your diabetes. When you don’t follow their instruction you develop complications.”

A diabetes diet consists of low-carbohydrate meals served in four to six small portions per day (Malaguti-Boyle, 2016). P4 reported that diet had been very effective in helping her to manage her diabetes and control her blood sugar.

P2 noted that “diabetes diet consists of the type of food you eat to control your sugar, which also include how much you eat which generally is eating small amount but frequently.”

Noncompliance to a prescribed diet keeps the blood sugar levels elevated, which then can compromise body tissues and organs, with subsequent debilitation of the organs.

P1 explained, “If you have Type 2 diabetes, you have to watch what you eat because you cannot eat as much of certain foods because it is going to run your blood sugar high and you end up with complications.”

To P6, “Diabetes diet has to do with the amount of carbs you eat to keep your blood sugar down. The diet involves eating small portions to prevent complications.”

P1 noted that diet is very important:

If you have diabetes and watch what you eat, your sugar will be fine, and you will be fine, but if you eat everything because your body craves it, your blood sugar will run high, and this is not good.

Theme 3: Challenges of adherence to diet. Having accurate information about dietary therapy in the prevention of diabetes complications improves patients’ perceptions of the benefits of the diet and facilitates their uptake of and adherence to the therapy (Breen et al., 2015). Although the participants acknowledged that dietary management was significant in helping them to control their blood sugar levels and prevent diabetes complications, they still viewed dietary therapy as restrictive and difficult to maintain. Apart from P4, the other participants said that they longed for regular diets and were tired of following a diabetes diet.

P1 stated:

I crave for sweets and pizza so bad sometimes, but after I have been having diabetes for these past years, I know diet helps keep you healthy. So, I use diet because I want to control my sugar and I don't want complications.

The participants were unhappy as we talked about dietary therapy, and they voiced that adhering to the diet required extra effort and determination. Claude, Hadjistavropoulos, and Friesen (2013) observed high levels of health anxiety among the diabetes patients in their study that they attributed to their fear of diabetes complications, poor dietary adherence, and inability to self-manage diabetes. Maintaining a diabetes diet involved discretion in food choices.

P2 stated that he had been trying to ensure that he adhered to his dietary plan. He explained what his diet was like:

Lots of vegetable and fruits, and that's how I have been eating since I have been attending diabetes class. I try not to do carbs because I learned earlier that if I do not control my sugar, I will develop complications. Important thing is for me to continue to stick to the diet so I do not get bad complications.

P2 added that seeing the positive effects of the diabetes diet on his blood sugar levels motivated him to continue following the prescribed diet. Some participants stated that the desire for a healthy lifestyle was a major motivation for adhering to a diabetes diet.

P3 reported, "When I eat diabetes diet, I do so in order to have a healthy living in life and to prevent developing more diabetes complications."

Poor dietary behaviors are not limited to poor blood sugar control; they also increase the risk of obesity, which aggravates poor glycemic control and increases the need for medication management.

P4 stated:

Because diabetes makes your sugar high and also makes you gain weight, the better you take care of your diet, the better your sugar will be controlled and the less medication you will need to take to control the sugar.

P1 expressed frustration with the nature of the prescribed diet and the recommended meal plan, noting that the portion sizes were small and did not satisfy hunger.

P5 expressed frustration having to follow a diabetes diet:

Diabetes forces you to eat what you don't really want to eat, but you have to eat anyway, because you don't have any choice. I have to eat the food; otherwise, I will have to blame myself later. Diabetes diet is horrible, and to me, it does not taste good at all. Sometimes it is really challenging to stick with the diet. The way they package it seems as if they don't want you to enjoy what you are eating. The portion is another thing because it is too small, but you have got to try to eat it so you can keep your sugar down.

Themes Relevant to Research Question 2

Three themes relevant to RQ2 emerged. Following is a discussion of each theme.

Theme 4: Perceived severity of diabetes complications. Perceptions of disease severity can have serious implications for the self-management and use of health

resources. When people believe that developing a disease might have serious consequences on their health, they tend to be more willing to engage in activities that might help to prevent the disease (Glanz et al., 2015). Being aware of the severity of the diabetes complications, coupled with having appropriate information on effective management of the disease, improves adherence to recommended interventions (Hajos et al., 2011). Diabetes complications can have a severe impact on the quality of life of patients with Type 2 diabetes. I asked the participants in my study how they perceived the severity of diabetes complications on their health and the efficacy of diet in preventing the disease. All the participants expressed that diabetes complications had serious repercussions on their health and that dietary therapy was a crucial approach to preventing complications. Most of the participants reported having complications and that their parents and siblings also had experienced various complications that had resulted in their deaths. Feelings of fear and frustrations became obvious as the participants recounted their experiences of the consequences of diabetes complications on their health. These feelings were more evident among patients whose parents and siblings had experienced such serious complications as stroke, amputation, and the need for dialysis.

P1 fidgeted with the bottle of water on the table and lamented, “Type 2 diabetes is a very dangerous disease that affects every part of your body. I am very worried because of the complications with my eyes, and the pain in my legs and hands because of neuropathy.” She added that she was maintaining the recommended diet so that her condition did not worsen.

P5 was tearful as she mourned her disability, stating that she never thought that she would be in a wheelchair, unable to walk or run. I asked her if she wanted to stop the interview, but she regained her composure and insisted on continuing. She said that this was the first time that anyone had given her the opportunity to vent her feelings and express what Type 2 diabetes had done to her, and that someone might be able to learn from her story.

P2 reported that having Type 2 diabetes had given him a different understanding of the severity of the disease and its complications. P2 noted that he was aware of Type 2 diabetes and diabetes complications before his diagnosis because his mother and two sisters had developed very serious complications from the disease. His older sister had suffered a massive stroke in 2015 and had been in a comatose state in a nursing home since then. P2 mentioned that having parents and siblings with the disease did not really prepare him because having the disease and experiencing complications gave him a deeper understanding of the gravity of the disease.

P4 stated, “I see diabetes as a terrible disease that renders the whole body and life useless because it affects physical, emotional, and psychological self; therefore, I am trying my best to stay healthy as possible.” As expressed by the participants, diabetes complications on health and quality of life are severe, so strict adherence to dietary recommendations can ameliorate current complications and prevent new ones.

Theme 5: Living with diabetes complications. Having appropriate knowledge of Type 2 diabetes and using diabetes management strategies such as nutritional therapy early in the course of the disease is essential to preventing diabetes complications. Van

Puffelen et al. (2015) observed that patients often do not make lifestyle changes until they experience diabetes complications. Awadalla et al. (2017) asserted that patients with poor blood sugar control and a long duration of diabetes are prone to significant diabetes complications because they have failed to adhere to self-management approaches. To assuage the impact of diabetes complications, patients need to change their dietary behaviors and lifestyles (Carpenter, Theeke, Mallow, Theeke, & Gilleland, 2017). Participants in this study had been dealing with Type 2 diabetes for different amounts of time, and almost all of them had experienced at least one complication from diabetes. Living with diabetes complications involves not only dealing with the impact of the complications but also engaging in activities to improve individual health.

P1 expressed concern about the pain in her legs and arms as well as her vision problems. She was afraid of developing more complications:

Living with diabetes complications is a difficult task as steps must be taken to prevent damaging effects on the total body. If a person has stroke or blindness, life becomes a problem. That is why I plan my diet to achieve the goal of staying healthy.

P2 said that although he has not experienced many complications, “seeing my sisters and my mother with all their problems make me to choose to eat right so I don’t have complications.”

P4 mentioned having only mild neuropathy despite having diabetes for many years. P4 worried about her diabetes and possible complications, especially when she saw so many sick people with serious complications in the diabetes class:

Diabetes is very bad, and when you have complications, you have to deal with poor health, which would make you to be in and out of the hospital all the time, and this can affect your finances because you end up paying too much on health. If you eat right, it can help you to manage your sugar, and if you don't, then your sugar will be high all the time and will damage parts of your body, causing complications.

P3 had issues with her back, coupled with breathing problems. She commented: I cannot exercise much. Right now, I am trying to make sure I do not have any more serious complications, so I am doing all I know to control my blood sugar because if I don't control my sugar my problem will get worse.

P6 was not interested in dietary therapy as he was using insulin therapy, instead, to control his blood sugar levels. P6 added that he prayed to God to bless his food before eating and had not experienced any severe complications other than two heart attacks. When asked what he would do if he had another heart attack with serious repercussions, he responded that he would not worry about it until it happens.

Theme 6: Preventing diabetes complications. Managing Type 2 diabetes effectively can prevent the early onset of diabetes complications. African Americans with Type 2 diabetes develop diabetes complications earlier in the course of the disease than other ethnic group, which means that they bear a higher burden of the disease (Kazley et al., 2014). Managing diabetes adequately involves concerted efforts to manage glucose levels. Preventing diabetes complications promotes patients' health status and limits disabilities.

P4 said that early in her diagnosis, she was determined to adhere strictly to the physician's orders, and because of that, she did not have any complications, despite having diabetes for a long time.

P1 stated that although she did not always adhere strictly to her meal plan, she was doing her best to eat right to prevent exacerbating diabetes complications.

When I asked the participants how developing diabetes complications would affect their overall health, P1 responded, "That would be terrifying as it will lead to more disabilities. I control my diet and eat three meals every day, and I check my A1C levels in doctor's office to monitor how my compliance with diet is doing."

P2 looked concerned and commented:

Developing serious complications will affect my performance even more than now. I use my diet, which consists of three small portions of meals and two snacks, and this has even helped me to lose my weight from 300 lbs to 187 lbs now. If I don't do that, then I must brace myself for serious complications, which I can avoid.

The participants dreaded having more complications because it would affect their level of function and ability to live independently. To avoid experiencing diabetes complications, P4 expressed, "I plan and eat my recommended meals, and I also take my medication, do exercises, and pray to God every day."

P5 had complications with her legs that kept her worried about the future of her health, especially because she was still young. P5 lamented, "Diabetes has seriously impacted my overall health. Already, I am obese; I have neuropathy in my legs; my knees

cannot support me; and psychologically, I am depressed over this diabetes.” P5 noted that she had an 8-year-old son whom she has not been able to walk with, play with, or take places because of her diabetes complications.

P5 looked helpless as she sat across the table and added:

It is hard for me to maintain adequate health because of the diabetes, and my weight also has a lot to do with it, which is also part of my problem. I cannot walk very long distances, although I can drive myself. I depend on my daughter to plan and maintain my diet for me since she took that upon herself. I am afraid, and I have anxiety because I am worried about the outcomes of my diabetes. I don't want amputation of my legs. I want to live a normal life but can't because of all these problems that diabetes has brought into my life. I am only 47 years old, yet I have so many health issues due to diabetes. I can't enjoy life with my family like I should because of all the problems from diabetes.

Listening to the participants gave me deeper insight into the importance of dietary adherence to prevent diabetes complications. Participants agreed that managing Type 2 diabetes effectively kept their blood sugar levels well controlled and reduced the risk of diabetes complications. The participants with the most complications were not strict in adhering to dietary recommendations.

Themes Relevant to Research Question 3

Four themes emerged relevant to RQ3, which sought to discover how African American adults' views of diabetes self-management affected their adherence to nutritional therapy. Diabetes self-management is crucial to patients' overall health.

Factors such as self-efficacy and knowledge of the benefits of self-management can have a positive impact on patients' engagement in self-management, whereas a lack of self-efficacy can be a barrier, even if patients perceive dietary therapy as beneficial to preventing complications.

Self-efficacy refers to the ability to use preventive health measures confidently to promote health and wellness (Grace-Leitch & Shneyderman, 2016). Self-efficacy increases self-confidence and promotes adherence to health interventions. According to Khairna, Kamal, Giannetti, Dwibedi, and McConaha (2018), diabetes self-management involves making adjustments to health behaviors and integrating these changes to achieve the goals of dietary adherence, physical therapy, blood sugar monitoring, and medication compliance.

Lynch and Kane (2014) asserted that the lack of self-efficacy in dietary management was a barrier to adopting and sustaining dietary therapy. Barriers that affected the participants' ability and confidence to take care of their diabetes included the cost of healthy foods, a lack of money, and the nature of the diabetes diet. On the other hand, the participants also highlighted the factors that boosted their self-efficacy, namely, effective communication with health providers, rapport between providers and patients, strong family support, and resilience. Following is a discussion of each theme.

Theme 7: High cost of healthy foods. The high cost of healthy foods was a barrier to the participants' dietary adherence. Halali et al. (2016) reported that the high cost of healthy foods was a major problem to dietary management by patients with chronic disease. The participants stated that in the past, it was easier to eat healthy

because fresh fruits and vegetables were more affordable. They also noted that because of higher prices, it was difficult to adhere to a diabetes diet.

P2 explained, “Before it was not so expensive to buy healthy foods, but now it is becoming more and more difficult to eat as they want you to because of increases in prices.”

P3 stated, “I like vegetables from whole food stores because they are organic, but they are very expensive, and I can’t keep up with it as I don’t have enough money.”

P5 commented, “My barrier is more financial because of the high cost of vegetables. For example, you go to McDonalds you get a 99-cent burger, but salad in the same place goes for \$7.”

P2 shrugged his shoulders and said, “I like to eat healthy, but sometimes, you can’t afford healthy food, and it forces you to eat the wrong type of food, which runs your blood sugar high.”

P5 said, “Because of the high cost of healthy foods and my limited disability income, I sometimes have to suspend my needs to accommodate the needs of my family.”

The participants also complained about the packaging of the diabetes diet and the challenge of eating the same kind of food all the time. Castro-Sanchez and Avila-Ortiz (2013) noted that long-term adherence was a major challenge because patients found it difficult to follow the prescribed diet over a long period.

P3 stated, “My other problem is how [the] diabetes diet is packaged. The diet is horrible and tasteless, and the size is always too small.”

P6, who did not practice dietary therapy, noted “My challenge is the deprivation imposed by diabetes diet, and you know, you have to give up virtually every good thing to be able to meet the demand of diabetes diet, and I am not for that.”

P1 remarked, “My challenge also is just making yourself to desire to keep eating what you don’t really like because after a while, you are tired of eating grilled foods.”

Theme 8: Providers Communication. Health communication between providers and patients can be either a facilitator or a barrier to adherence. Barriers to effective communication can be to the result of several factors: providers’ attitudes toward patients, their relationships with patients, and communication techniques (Theresia, Yayi Suryo, Soenarto, Ira, & Mora, 2018). Communication that supports a patient-centered approach increases patients’ knowledge and builds their confidence in the physicians, eliminates self-doubt, and increases self-efficacy in dietary management and adherence (Theresia et al., 2018).

From the participants’ comments and responses to the interview questions, it was obvious that they had good rapport with their primary physicians. This positive relationship engendered trust in the physicians and made the participants more receptive to the physicians’ instructions on Type 2 diabetes and their explanations about the serious threat of diabetes to health. The participants also emphasized that the physicians’ genuine interest in their health encouraged them to engage in diabetes education, which provided them with invaluable information about managing Type 2 diabetes. The educators taught the patients effective methods in managing diabetes, which included dietary management.

I asked the participants how providers' communication promoted their self-confidence in their dietary management efforts.

P2 commented:

Providers' instructions on diet will teach you about what food you should eat to control your sugar. The instructions also help you to learn about other things about diabetes, which can worsen if you do not manage your diabetes well. Following the providers' instructions gives you the confidence you need to manage your diabetes

P1 stated:

The doctor told me all about my diabetes and insisted I go to class to learn about diabetes and how to take care of myself. My doctor is so into all this diabetes teaching so much that if I don't go to the class, she will not give me prescription for my diabetes medicine.

P3 believed that providers' instructions had been pivotal to her self-management of diabetes. She said, "My confidence has gotten better and now I have confidence in managing the diabetes. My doctor and the diabetes teacher have helped me to know how to manage my condition with diet and medication."

P4 was of the same opinion:

My doctors instructed me a lot on how I am to manage my diabetes very well with diet and medication, and I have been following all the instructions that they have been giving me, and so far, it is working.

P4 answered somewhat hesitantly:

The instructions help somewhat, although I don't really like to stick to their own recommended diet totally. I know what I am supposed to eat, and I know the ones that work for me through trials and error over time.

I also asked follow-up question to find out how attendance at diabetes classes influenced the participants' dietary behaviors.

P1 responded:

In the diabetes class, they take time to teach you more about diabetes and how to eat to control your blood sugar, and they explain a lot about Type 2 diabetes. In the class, they taught me everything I know about Type 2 diabetes, and now, I have self-confidence in managing my diabetes.

P2 answered that his doctor's advice was influential in his self-management:

My doctor was very serious at the beginning and insisted I got to diabetes education to help me understand about the disease and how to manage it properly. From the time the doctor told me I had Type 2 diabetes and insisted I attend the classes, I learned of the importance of eating well to maintain good health.

Following my providers' instructions give me the confidence needed to manage the diabetes, and I have much confidence in managing myself.

P3 also believed that her doctor and the diabetes educator influenced her uptake of dietary therapy:

My primary doctor does most of the teachings. My confidence has gotten better, and now I have confidence in managing the diabetes. When I was first diagnosed,

my doctor told me that Type 2 diabetes was caused by the bad food I have been eating. He told me I will have to attend diabetes class, where they will show me the kind of food that will help me to control my diabetes.

P4 explained that because she had no knowledge of Type 2 diabetes , she was very careful to listen to her doctor and do as instructed:

My doctor told me from the beginning that the way I manage my diet will determine how well I control my sugar, and how well I can prevent complications. Since then, I have been careful with my food. I try to avoid anything that will increase my sugar, and I see that it works because since my diagnosis, I have only been on one sugar pill, and my doctor says that I am doing well.

P5 answered that though she knew much about self-management, she still believed that she could benefit from more information about self-management. She explained, “I am somewhat knowledgeable and educated on diabetes and diabetes complications and how it affects health, but I would still benefit from more teachings on diabetes and how to manage the complications.”

P5 was instructed to notify her doctor about her concerns regarding dietary management so that the doctor could refer her to a diabetes educator for further instruction on self-management.

Theme 9: Family support and security. Carawan, Nalavany, and Jenkins (2016) discussed the fundamental importance of strong family support to patients’ adherence and its positive impact on the ways that patients respond to and access health interventions.

Strong family support serves as a cushion that can protect chronically ill patients against emotional distress and increases their self-esteem and sense of security (Carawan et al., 2016). The participants in the current study who had family support expressed having a sense of love and belonging that enabled them to comply with dietary demands and gave them the impetus to persevere with dietary therapy.

P1 described her family as fundamental to dietary adherence:

I will say my family is very supportive because they want me to eat healthy to stay healthy. I am glad I have people who worry about me, but I think my reaction to them depends on my mood. My son gets on my nerves because he wants to grill everything and does not want me to eat my fried foods. He is very picky and very health conscious. His wife is like that, too, and between the two of them, I don't see anything to eat in the house. My daughter is involved, too, but since I am staying with my son right now, he controls all my eating.

P2 said that he was the one encouraging his siblings and mother, who also had Type 2 diabetes. He added that his mother encouraged him and called him to make sure that he was still eating right. He said, "My niece, who also lives with me, tries to make sure we are eating healthy, and since I already know much about diabetes management, it makes eating right not too difficult."

P3 stated that her family was very supportive:

My family supports me, especially in buying and cooking the food. They know what I like to eat to stay healthy, so they use natural stuff like thyme and herbs and do not use any other oil than olive oil. My brother is a chef, and he adds his

experience to make sure the food I eat is not overloaded with salt, sugar, and oil, although every now and then, I still crave sweets to calm my cravings. My daughter does the shopping for me most of the time, while my brother does the cooking sometimes. My family involvement is very important to me because without their help, I will not be able to take care of myself.

P4 also remarked that her family had been encouraging her to eat healthy by providing for her:

My children are all into my life, and they encourage me so much to make sure I am OK. I live with one of my daughters because she feels responsible for me. I have wonderful children, and their support makes managing my blood sugar achievable. They help my adherence because they are the ones buying the food I eat.

P5 explained that she would never have been able to take care of herself and diabetes needs without her family involvement:

My first daughter, she is my hero and biggest support system. She makes sure I eat right and encourages me not to focus too much on my health challenges but to see my little achievements. She is my champion. People don't like her food because she eats very healthy, but she is doing those things to encourage me. She makes sure I eat right and worries too much about me when I am not feeling very well. She cheers me on, and sometimes, she helps me forget the reality. Family's involvement is very important because if they don't get involved, you become very alone, but when they are part of it, you kind of feel that they love you and

that will encourage you and give you the strength to continue eat right and stay healthy.

P6 had no family support and stated that his mother had died from diabetes complications, as had his wife. He had no other family except friends:

Right now, I don't have support from anybody. I lost my mother 2 years ago and then my wife. I don't have anybody, so I eat out most of the times as I do not have siblings. I do have friends, but we eat and meet for food, then go somewhere for a game. I don't cook. My wife used to cook, and we did not have any kids, so really, what's the point of trying anything?

P6's response highlighted the significance of strong family support in chronic disease management, especially in regard to dietary adherence.

Theme 10: Resilience. Resilience refers to the ability to adjust to a disease condition by taking positive action to regain wellness and operate within maximum possible capacity (Yorgason et al., 2010). Patients with Type 2 diabetes who demonstrate resilience do not leave their health condition to chance; rather, they take an active part in the management of their diabetes and use the recommended dietary interventions to improve their health. Patients with resilience do not give up easily: They take hold of their lives and press ahead to success (Santos, Bernardo, Gabbay, Dib, & Sigulem, 2013). Having the determination to have healthy lives was a recurrent message expressed by the participants, and this motivated them to adopt dietary therapy to control their blood sugar levels and prevent the development of diabetes complications.

P2 stated:

When my doctor told me I had Type 2 diabetes and that the disease is very terrible and kills people slowly, I made up my mind right from that time to do everything I can to make sure I do not end up with terrible complications like my father, who was on dialysis, and my sisters, who have stroke, heart attack, and partial blindness.

P3 explained:

When I maintain [a] diabetes diet, I do so in order to have a healthy living in life and to prevent developing diabetes complications. If you don't have diabetes or know people who have Type 2 diabetes with diabetes complications, you won't understand how important it is to do everything within your power to get good blood sugar control. Each time I remember how my siblings and how they are suffering because of diabetes complications, I just tell myself to do more to control the sugars so I do not have more complications..

P4 recalled her immediate reaction following her diagnosis:

I spoke to myself a long time ago, and I decided that it is better for me to eat healthy and live longer in better health than eat all the nice-looking food and end up with problems. Following the doctors' instructions is very important to control your sugar so you do not worsen your health. I pray all the time, and I ask God to keep me in perfect health and watch over my health and prevent all the complications. I sleep on time because sleep is important to rest your body, I

exercise and stay active, I eat healthy and take my medication as the doctor says I should, and these help to maintain good blood sugar control.

P5 explained:

High sugar is responsible for all the complications, so when I learned about my diagnosis, I decided to watch my diet so I can have a healthy normal life. I do it for myself and my family so I can be healthy and also to prevent complications.

Issues of Trustworthiness

The trustworthiness of this study depended on the credibility, confirmability, dependability, and transferability during the various phases of data collection, data analysis, and presentation of the results (Creswell, 2013). Trustworthiness meant that this study met the expected high standard of qualitative research and that the results can make a valuable contribution to the extant literature on the importance of dietary therapy in the prevention of diabetes complications (Connelly, 2016).

Evidence of Credibility

To ensure credibility, I consulted with peers to review the coding and analysis of the data. I also engaged in reflexive journaling, and I triangulated the data. I spent time with the participants during the interviews and following up afterward to verify the data. In addition, I conducted member checking after analyzing the data by giving the participants copies of their transcribed interview responses so that they could check them for accuracy and make any necessary amendments. Creswell (2009) recommended that researchers give their study participants the opportunity to review the interview data, the analyzed data, and researchers' interpretations of the analyses. I referred often to the RQs

to ensure that the interview guide aligned with the phenomenon under investigation to yield rich data.

Confirmability

The HBM served as the conceptual framework of this study, and I applied its constructs to various stages of the study to increase confirmability. I maintained a reflexive journal to document personal biases during the study to prevent researcher bias (Koch, 1999). I used reflexive journaling to document my personal presumptions about diabetes complications and dietary therapy to ensure that they did not influence the participants' responses to the interview questions. I also triangulated the data by incorporating my field notes of the participants' verbal and nonverbal responses into the data analysis. As already mentioned, I referenced NVivo v.11, but I did not use it in the actual coding.

Transferability

To ensure transferability of the results, I used purposive sampling method with criterion strategy to select participants. I conducted face-to-face interviews with semistructured, open-ended questions that yielded rich descriptions of the participants' experiences of the phenomenon under investigation. I took field notes and audio-recorded the interview responses, which I transcribed verbatim for analysis to maintain the participants' perceptions. I used direct quotes to support the participants' viewpoints and the themes that emerged. I continued the interviewing process until I reached saturation, that is, the point at which further interviewing did not yield any new information. Each

interview was limited to a maximum of 90 minutes to prevent participant fatigue (Miles et al., 2014).

Dependability

I consulted with peers to review the coding and analysis of the data. Initially, my committee chair reviewed the interview guide to make sure that the interview questions would answer the RQs and yield rich data that would help to broaden my understanding of the participants' experiences. I used member checking to ensure that the transcriptions were an accurate reflection of the participants' perceptions of the use of dietary therapy in the prevention of diabetes complications.

Summary

The purpose of this study was to obtain the perceptions of six African American adults with Type 2 diabetes about diet-only therapy in preventing diabetes complications. In Chapter 4, I explained the procedures used to collect, organize, and analyze the interview responses. I selected my participants through purposive criterion sampling. The flyers contained information about the purpose of the study and the eligibility criteria. Participation in the study was voluntary, and volunteers were informed of their rights, especially the right to withdraw from the study at any time and without any negative repercussions. I obtained informed consent from all participants prior to interviewing them. Three RQs were used to investigate the phenomenon under investigation, and six interview questions were formulated to answer the RQs.

RQ1 asked how African American adults' perceptions of susceptibility to diabetes complications influenced their adoption of nutritional therapy. Six African American

adults participated in the study, and all of them agreed that their perceptions of susceptibility to diabetes complications prompted their adherence to dietary therapy.

RQ2 asked how African American adults with Type 2 diabetes viewed the severity of diabetes complications on their overall health. All of the participants were concerned about and afraid of the possibility of developing diabetes complications and the impact on their overall health. This fear motivated their adoption of and adherence to nutritional therapy. Four participants reported prior experience of family members having to deal with devastating diabetes complications. One participant had no prior experience with diabetes and learned about the severity of the disease from a primary physician. One participant reported being aware of the implications of diabetes complications and the benefits of dietary adherence, but was not interested in dietary management.

RQ3 investigated African American adults' views of diabetes self-management affecting their adherence to nutritional therapy. Participants reported that self-management was essential to control diabetes. The participants stated that they had confidence in the benefits of dietary therapy because of the information that they had received from physicians and diabetes educators. They also mentioned family support as bolstering their confidence and ability to maintain nutritional therapy. One participant who had no family support was the least compliant in following a diabetes diet. Also discussed in Chapter 4 were the study's trustworthiness, as well as the credibility, validity, transferability, and dependability of the results. In Chapter 5, I interpret the findings and limitations, offer recommendations, present the implications for social change, and end with a conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this phenomenological study was to obtain the perceptions of African American adults between the ages of 40 to 64 years with Type 2 diabetes who were living in a large city in southeast Texas at the time of the study about diet-only therapy in preventing diabetes complications. Type 2 diabetes is a significant public health problem. African Americans have a high prevalence of Type 2 diabetes and are more risk at than any other ethnic group of the early development of Type 2 diabetes and its complications (Chatterjee et al., 2015). Chronic conditions like cardiovascular disease, retinopathy, chronic kidney failure, foot ulcers, limb amputation, heart failure, and stroke are linked to Type 2 diabetes. Because poor dietary behavior is a significant causative risk for Type 2 diabetes and its complications, adhering to effective dietary management can assuage the prevalence of the condition in the African American population (AHA, 2013; Didarloo et al., 2014; Piccolo et al., 2014).

Calvin et al. (2011) found that patients who consistently adhered to the recommended diet had fewer diabetes complications than patients who depended more on medication therapy. Dietary adherence is fundamental to the successful management of diabetes and prevention of diabetes complications. However, research has shown that patients tend to have more difficulty adhering to long-term nutritional plans than to medication regimens (Abdullah et al., 2011; Ayele et al., 2012; Toobert et al., 2010). Patients can be motivated to adopt and maintain dietary therapy to minimize diabetes complications and increase their quality of life (Calvin et al., 2011). The findings of this study could contribute to reducing the current high prevalence of Type 2 diabetes, its

associated complications disability, and mortality among the African American population.

Three RQs guided the study:

RQ1: How do African American adults' perceptions of susceptibility to diabetes complications influence their adoption of nutritional therapy?

RQ2: How do African American adults with Type 2 diabetes view the severity of diabetes complications to their overall health?

RQ3: How do African American adults' views of diabetes self-management affect adherence to nutritional therapy?

I conducted face-to-face interviews to obtain my data from the six participants. I manually coded the transcribed interview responses using open coding during the initial coding phase to identify similarities and differences in the responses and then axial coding to create categories and themes. Data analysis gave me an understanding of the participants' perceptions of susceptibility, severity, and benefits of adherence to dietary therapy, as well as the barriers to nutritional management to prevent diabetes complications. In this chapter, I interpret the findings based on the themes that emerged from the data analysis. I present the findings in the context of the constructs of the HBM. I also present the limitations of the study, recommendations for further study, implications for social change, and conclusion.

Interpretation of Findings

Several themes emerged from the analysis of the interview responses that were aligned with the three RQs. Results showed that the participants' perceptions of the

severity of diabetes complications motivated their adoption of dietary adherence in the management of Type 2 diabetes. The findings supported the HBM explanation that patients' perceptions of the severity of diabetes complications are responsible for dietary adherence.

Research Question 1

Three themes emerged to support RQ1. Perceptions of susceptibility to a disease condition determine how individuals respond to the use of available health resources (Calvin et al., 2011). Nutritional therapy is an essential part of diabetes management, and patients who comply with dietary management have fewer complications and enjoy better health than people who do not comply with the regimen. The results of this study could be used by health care providers to improve patients' knowledge of the importance of diet in managing diabetes, thus promoting dietary uptake and sustenance.

Fear of diabetes complications. Calvin et al. (2011) asserted that people generally are willing to engage in diabetes self-management if they perceive that they are at risk of developing the disease or its complications. Individuals who believe that they are susceptible to illness and view the repercussions as severe take the necessary action to prevent the sickness (Harris & Linn, 1985). According to Harris and Linn (1985), susceptibility to illness is a more useful predictor of metabolic control among diabetes patients than adherence to the treatment itself. This statement was supported by the participants' responses that fear of diabetes complications was their primary motivation for engaging in nutrition management. Participants demonstrated good understanding of the consequences of diabetes complications and the importance of diet in preventing such

complications. Participants discussed their fear of diabetes complications, along with the challenges and limitations imposed on daily living. Participants were terrified of diabetes complications

Dietary efficacy. Diet plays a significant role in the effective management of Type 2 diabetes and the prevention of complications. According to Huang et al. (2010), dietary management is capable of improving glycemic control, even if patients' diabetes had been poorly controlled previously. Being aware of dietary efficacy gives Type 2 diabetes patients the knowledge to make food choices that can help them to manage their blood sugar levels and improve their health and well-being. Breen et al. (2015) showed that having knowledge of nutritional therapy increases the ability of individuals to manage dietary intake effectively. All of the participants affirmed that poor dietary behaviors were responsible for their Type 2 diabetes and diabetes complications and that nutritional therapy was effective in managing their glycemic control and preventing complications.

Challenges adhering to diet. Dietary adherence is crucial to the long-term management of Type 2 diabetes and prevention of complications. Although diet plays a pivotal role in managing diabetes, adhering to a diabetes diet remains very low among Type 2 diabetes patients. According to Castro-Sanchez and Avila-Ortiz (2013), long-term dietary maintenance is a significant challenge for diabetes patients, who might be initially eager to change their dietary behaviors in the short run but become discouraged and overwhelmed as long-term adherence becomes more difficult.

Most of the participants in the study expressed challenges with dietary adherence. Some complained about the taste of the food and the small portion sizes. They verbalized cravings for regular foods like cakes, cookies, and candies, all of which could lead to elevated of blood sugar levels and poor control of glycemic levels.

Participants who perceived diet as beneficial to curtail diabetes complications exhibited self-control to their approach to diet. One participant reported that self-discipline and strict adherence to diet had helped her to maintain proper blood sugar control. Another participant who was not very compliant with diet and had already suffered two heart attacks was very aware of the effectiveness of a diabetes diet but was not willing to use dietary therapy. To address adherence problems, Vasilescu (2015) advocated that physicians and educators not only address patients' personal preferences but also incorporate religious, cultural, and health beliefs; socioeconomic status; and management goals into patients' education.

Research Question 2

Perceived severity of diabetes complications. Important predictors of the possible changes to health behaviors include perceived severity, perceived barriers, and perceived susceptibility to illness. Having strong perceptions of the individual risk of disease complications impels individuals to use health resources and make changes to their health behaviors (Carpenter et al., 2017). Perceived severity among the participants in the current study was heightened by their awareness of the severity of diabetes complications among their own family members. Perceived severity accounted for the participants' greater adherence to treatment and metabolic control. Glanz et al. (2015)

asserted that people who believe in the severity of illness are more willing to engage in health practices to prevent the disease. The participants saw diabetes complications as being very serious and described their effects on health as damaging and detrimental.

Living with diabetes complications. Knowing about the progression of Type 2 diabetes and its impact on health enables patients to take proactive steps in the management of their disease. Diabetes complications are linked to high morbidity and mortality rates and require concerted efforts to overcome these effects. Over time, because of the chronicity of Type 2 diabetes, patients become discouraged with the prescribed diet and need encouragement from health care providers and family members to maintain dietary adherence (Castro-Sanchez & Avila-Ortiz, 2013). Making the appropriate response to diabetes management minimizes the onset of complications or the exacerbation of extant complications. The benefits of strict dietary adherence cannot be overemphasized, especially among African Americans because of the high prevalence of type 2 diabetes in the population. The participants in this study reported that they were knowledgeable of Type 2 diabetes and the need for dietary adherence. However, some of the participants voiced having problems in maintaining adherence because of their cravings for unhealthy foods.

Prevention of diabetes complications. Diabetes patients sometimes experience debilitating health conditions from complications from the disease that can pose serious challenges to daily living. Conditions like neuropathy, which causes pain in the hands and legs; foot ulcers; poor circulation, which can lead to limb amputation; and severe kidney disease and the need for dialysis are complications that patients with diabetes live

with on a daily basis (Fort et al., 2013). Individuals with Type 2 diabetes who practice healthy eating habits have fewer complications and have better health outcomes. Setting personal dietary goals facilitates adherence. Arends, Bode, Taal, and Van de Laar (2013) noted that patients who set goals were more likely to be successful at self-management. Participants' descriptions of their struggles with diabetes complications, and their determination to stay healthy by eating healthy foods were touching and commendable.

Research Question 3

Several themes emerged regarding the ways that the African American adults' views of diabetes self-management affected their adherence to nutritional therapy. The themes of communication with providers, high cost of healthy foods, family support, and resilience invigorated and increased the participants' self-efficacy in managing their diabetes. These themes had a positive impact on the participants by stimulating their adherence to nutritional therapy to prevent diabetes complications and improve their quality of life. Barriers to diabetes self-management in adherence to nutritional therapy increased the potential onset or worsening of diabetes complications.

Understanding the barriers to adherence to nutritional therapy will enable researchers and health providers to develop and use effective strategies to overcome such barriers and increase patients' adherence to nutritional therapy. Perceived barriers are hindrances to action and inhibit the use of preventive resources (Halali et al., 2016). Some barriers that the participants reported included the high cost of healthy foods, the small meal portions recommended by the meal plan, binge eating, and bland taste of the diabetes diet. High cost as a barrier to healthy eating was supported by Brownlee-Duffeck

et al. (1987) and Halali et al. (2016), researchers who surmised that the perceived high cost of treatment was a barrier to adherence and was linked to poor metabolic control.

Cues to action and self-efficacy help patients to overcome limitations. Cues are motivators that propel individuals to action, and self-efficacy refers to patients' ability to perform and maintain actions to prevent disease (Glanz et al., 2015). Health care providers can help patients to increase their self-efficacy by taking a patient-centered approach. Health providers should incorporate patients' preferences, cultural and religious beliefs, and goals in patient education. Overcoming these barriers would increase patients' self-efficacy and have positive impact on dietary adherence. Some of the participants who acknowledged these barriers also agreed that overcoming them would minimize their diabetes complications and improve their well-being.

Providers Communication. Communication between health care providers and diabetes patients is crucial to dietary adherence. Patients who have a cordial and trusting relationship with their providers have confidence in the prescribed treatments and are willing to use health resources more frequently (Becker et al., 1974). Participants reported that their physicians taught them about Type 2 diabetes, dietary therapy, and diabetes complications and also referred them to diabetes educators. All of the participants shared that their health care providers had a major impact on their uptake of dietary therapy. According to the participants, the providers' emphasis on dietary management in the control of blood sugar levels and the prevention of diabetes complications was the single most important motivator in their adoption of dietary therapy. Participants shared that the information provided by their physicians and

diabetes educators helped them to understand the need to incorporate diet into the self-management of their diabetes. Piette, Schillinger, Potter, and Heisler (2003) asserted that physicians who provide specific education and plans of treatment motivate patients with diabetes to adhere to treatment. Increasing patients' awareness of the effective use of diet in diabetes care is vital to curtailing diabetes complications.

High cost of healthy foods. The high cost of healthy foods can have a severe impact on diabetes management and patients' adherence to dietary therapy, especially for low-income diabetes patients. Anekwe and Rahkovsky (2014) found an association between high food prices and the poor regulation of blood glucose levels among low-income individuals with Type 2 diabetes. The researchers noted that as the cost of healthy food increased, patients shifted their food consumption preferences from healthy foods to high-energy and fat-dense foods.

These foods, although cheaper and more accessible, can cause frequent high and uncontrolled blood sugar levels as well as subsequent severe diabetes complications (Knight et al., 2015). Finkelstein, Strombotne, Zhen, and Epstein (2014) argued that people consume unhealthy high energy-dense foods because these foods are cheaper and readily available in poor neighborhoods. The lack of healthy foods in these neighborhoods is responsible for the prevalence of obesity and Type 2 diabetes among the population. Finkelstein et al. called for the government to intervene by subsidizing the cost of healthy foods in low-income neighborhoods to curb the problem of diabetes. The participants in the current study lamented that the high prices of healthy foods were thwarting their efforts to adhere to a diabetes diet.

Family support. Family support gives patients with diabetes the strength and encouragement to deal with the disease. The involvement of family members in the care of patients with diabetes helps to ensure the maintenance of prescribed treatment protocols and the subsequent improvements in health. The participants reported that family support was significant in their management of diet and sustained adherence. Many of the participants said that family members helped to purchase and prepare their meals. They added that family members followed the prescribed meal plans, including portion size and frequency. This finding was in agreement with Ahrari, Moshki, and Bahrami's (2014) conclusion that patients with strong family support adhered more to diet and fluid restrictions and had better results in laboratory values. Similarly, Christensen, Wiebe, Smith, and Turner (1994) asserted that increasing family support by a single point resulted in a 13% reduction in the negative impact of renal failure and the rate at which hazardous toxins are released in the body. According to Christensen et al., patients who did not have family support had a mortality rate 3 times higher than that of patients who had family support. Encouraging family involvement in the care of diabetes patients would promote self-care and persistence in dietary adherence.

Resilience. Resilience refers to the ability of individuals to recover from crises and resume normal lives (Hakimian, Shahreza, & Hazar, 2015; Nawaz, Malik, & Batool, 2014). Type 2 diabetes patients who are resilient do better than patients who lack resilience. They are more persistent in their self-care and use self-management strategies to improve their health. They also take an active role in the management of the disease and enjoy a higher quality of life.

Almost all the participants in the study exhibited resilience and determinedly followed dietary strategies to prevent diabetes complications and live healthier lives. Fear of disability and incapacitation from diabetes complications motivated them to be resilient and adhere to nutritional therapy.

Conceptual Framework

The HBM served as the conceptual framework of this study and guided the formulation of the RQs, data analysis, and interpretation and discussion of the findings. The HBM explains people's health behaviors toward illness and the use of preventive health interventions (Orji et al., 2012). The constructs of the HBM predicted that the perceptions of susceptibility to diabetes complications, the severity of the complications, the belief in the efficacy of nutritional therapy, the ability to manage dietary therapy, and cues to action would increase the likelihood that the sample of six African American adults with Type 2 diabetes would support nutritional therapy. Conversely, perceptions of the barriers and the lack of self-efficacy would hinder the use of preventive health resources.

Based on the findings, perceived susceptibility to diabetes complications influenced the participants' uptake of nutrition intervention and adherence to therapy. Participants who viewed themselves as susceptible to developing diabetes complications actively engaged in dietary therapy. Similarly, perceived severity of diabetes complications with loss of body parts and poor quality of health were strong motivators to dietary adherence. Perceived effectiveness of diet in the prevention of

diabetes complications and self-efficacy in dietary management all contributed to the adoption of and adherence to dietary therapy.

Other factors that enabled adherence to diet included trusting relationship between health care providers and the patients, communication with physicians and diabetes education, strong family support, and resilience had major impact on participants' adherence to diet. Rapport with physicians along with good communication helped to shape participants' perception of their susceptibility to the disease as well as the severity of diabetes and its complications. Iteration of the need for dietary adherence by primary care physicians were stimulus for the participants to uptake dietary therapy. Diabetes educators promoted dietary management and diabetes self-management which encouraged dietary adherence. All the participants who attended diabetes classes regularly expressed confidence in dietary efficacy in the prevention of diabetes complications and maintenance of the self-management of their diets. Barriers limiting the participants' adherence to a diabetes diet included portion size, cost of healthy foods, meal plan, chronicity of diabetes, need for long-term dietary adherence, and lack of family support.

Limitations of the Study

Limitations of the study included the small sample size, recruitment process, setting, recall bias, and other possible biases. The small sample of six participants made it difficult to present the experiences of all African American adults with Type 2 diabetes, thus limiting the generalization of the study to the target population. The second limitation was the recruitment process. Participants were recruited through flyers that

were posted in three physicians' offices, but I could not verify the participants' diagnosis of Type 2 diabetes because the physicians and their employees were not involved in the recruitment process. The study was limited to information collected from the participants on dietary therapy in the prevention of diabetes complications. The third limitation was the study setting. The recruitment of only African American adults living in a large city in southeast Texas excluded adults from other ethnic groups who might have had similar experiences, thus limiting the applicability of the findings to members of the African American population only. The fourth limitation was recall bias, meaning that I had asked the participants to self-report and recall experiences of the phenomenon under investigation that they might have exaggerated or forgotten. Cultural perceptions also might have influenced the ways that the participants understood and answered the interview questions, thus prohibiting generalization of the findings to other racial and ethnic groups. The study is limited on findings from participants living in a large city in southeast Texas and studies in smaller cities or rural areas may yield different outcomes.

Recommendations

I conducted this phenomenological study to obtain the perceptions of a sample of African American adults with Type 2 about diet-only therapy in preventing diabetes complications. The findings highlight the significance of dietary therapy in the prevention and control of diabetes complications. Strict adherence to diet prevents or delays the onset of diabetes complications and might ameliorate ones already in existence. I recommend that health care providers should teach patients about the significant role of dietary adherence in their management of Type 2 of diabetes. Physicians and other health

care providers should help patients to understand the implications of Type 2 diabetes, the severity of diabetes complications, and the patients' susceptibility to diabetes complications. Results showed that patients were the most receptive of information upon the initial diagnosis of Type 2 diabetes. I recommend that physicians be honest and clear with patients about the severity of Type 2 diabetes at the onset of the disease and remind them at each follow up. Healthcare providers should integrate patients' cultural and dietary preferences into meal planning to promote dietary adherence.

Strong family support emerged as a positive indicator of long-term dietary adherence. Results showed that most of the participants became weary of following the recommended diet after the early phases of their disease had passed. Castro-Sanchez and Avila-Ortiz (2013) noted that adherence to a diet heavy in vegetables and vegetable fat was challenging in the long term because patients would revert to animal fats and meat. Because Type 2 diabetes is a progressive chronic disease, it is necessary for family members to be involved in patients' dietary management to ensure sustained adherence. Patients who do not have family support should be encouraged to form a secure social network that can hold them accountable.

Resilience was yet another important finding. Patients should be encouraged to be positive about the disease and be involved in their own care. Family members and social support networks should be taught the importance of helping patients with Type 2 diabetes to develop resilience. I recommend the replication of this study in rural areas or small cities compare the findings with this study.

Implications for Social Change

The findings can generate positive social change among African American adults with Type 2 diabetes. I conducted the study to obtain the perceptions of six African American adults with Type 2 diabetes about diet-only therapy in preventing diabetes complications. African Americans have a high prevalence of Type 2 diabetes and bear a higher burden than other ethnic groups of its complications (Chatterjee et al., 2015). Poor dietary behavior has been associated with Type 2 diabetes, and adherence to dietary therapy has been shown to reduce the prevalence of the disease, along with the morbidity and mortality rates associated with diabetes. The findings contribute to the extant literature on dietary therapy in the management of Type 2 diabetes, the prevention of diabetes complications, and the promotion of a high quality of life and well-being among patients with Type 2 diabetes.

Adherence to nutritional therapy has important social change implications. The findings can motivate individuals to change poor dietary behaviors and adopt healthier dietary habits to prevent diabetes complications and ensure more positive health outcomes. Health care providers can apply the findings by providing patients with more patient-centered education to promote the adoption of dietary interventions and long-term adherence to a diabetes diet. More positive health outcomes could help to reduce the disability and death rates of diabetes patients in the African American population. The subsequent decrease in the medical costs of treating Type 2 diabetes and its complications could impact individuals, family members, communities, and different levels of government. Adherence to a diabetes diet within the family and the community

could result in better weight control and a reduction in the incidence of obesity, a significant precursor of diabetes Type 2 (Tang et al., 2015). The results also could increase patients' knowledge, decision-making skills and self-efficacy in nutrition management. Finally, researchers might find this study useful as a reference for future investigations into nutritional therapy.

Conclusion

I conducted this phenomenological study to obtain the perceptions of African American adults with Type 2 diabetes about diet-only therapy in preventing diabetes complications. Three RQs were formulated to explore participants' experiences guided by the conceptual framework of the HBM. Six participants took part in the study, which was conducted in a large city in southeast Texas. I collected my data through face-to-face interviews with the six participants. Ten themes emerged from the data analysis. All of the participants perceived Type 2 diabetes to be a frightening disease with serious consequences, and their belief that they were vulnerable to developing diabetes complications motivated their dietary adherence.

The participants considered dietary therapy an effective strategy in the prevention of diabetes complications. Participants also communicated that their primary physicians were foundational to their dietary adherence and that diabetes educators provided them with useful knowledge about nutritional management. Participants who had strong family support fared better in dietary management and adherence. Family involvement also promoted feelings of acceptance and self-worth among the participants that further facilitated dietary adherence. The desire to live healthy lives free of diabetes

complications was another important factor in the decision to comply with dietary adherence.

Understanding patients' perceptions of dietary therapy in managing diabetes and preventing its complications is pivotal to dietary adherence. Knowledge obtained from this study showed that most of the participants were aware of the severity of diabetes and understood the need for appropriate communication with health providers to enhance compliance. With insight from this study, health providers could have a deeper understanding of their role in patients' self-management and the goal of healthier lives. Health care providers can encourage family involvement in patients' self-care to help to maintain long-term adherence. Strict dietary adherence among diabetes patients would lead to a decrease in the incidence and prevalence of Type 2 diabetes and reduce the burden of diabetes complications among the African American population.

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Appendix A: Interview Questions

Q1. How did you feel when your doctor told you about your diagnosis of Type 2 diabetes ?

a) How does having Type 2 diabetes affect your view of the seriousness of diabetes complications?

Q2. Can you describe how you view Type 2 diabetes and its impact on healthy eating?

a) How does the thought of having diabetes complications affect how you eat?

b) Can you explain any complication that you may have had and how it affects your diet?

c) How do you feel about making changes to your diet?

d) Can you explain how your views on the seriousness of diabetes complications motivate you to maintain prescribed diet?

Q3. How does Type 2 diabetes impact your overall health?

a) How would you describe your understanding of diabetes complications on health?

b) How would developing diabetes complications affect your overall health?

Q4. How do the instructions you receive from your health care providers help you manage your diet?

a) How do you manage your diabetes to maintain good blood sugar control?

b) Can you tell me your understanding of why you use diet in the management of your diabetes?

c) How does following your providers' instructions on dietary management impact your self-confidence in managing your diabetes?

Q5. How would you describe diabetes diet?

a) Can you explain how maintaining diabetes diet can prevent diabetes complications?

b) Can you explain how poor blood sugar control can cause diabetes complications?

Q6. How does the support you receive from your family regarding your diet help you in managing your diabetes?

a) Can you explain how your family's involvement in your diabetes care helps you with adherence to recommended diet?

b) How would you explain why you decide to maintain recommended diabetes diet?

c) Can you explain any challenges you have that may prevent you from maintaining prescribed diabetes diet?

d) Can you explain how planning your diet and setting goals has helped you adhere to diet?

Appendix B: Telephone Screening

Hello, my name is Cornelia Inyang. Thank you for inquiring about my research study.

1. Please who am I speaking with?
2. Are you African American adult?
3. How old are you please?
4. Have you been diagnosed with Type 2 diabetes, if years when were you diagnosed?
5. Have you received or currently receiving any medical treatment for your diabetes?
6. Has your health care provider given you information on diabetes diet?
7. Do you have any medical condition that may prevent you from participating in research studies?
8. Are you able to relate your diabetes experience accurately and honestly with others?
9. This research study involves a face-to-face interview, are you agreeable to this form of study?
9. Note that your participation in this study is voluntary and you have the right to withdraw from the study at any time.
10. Before conducting any interview with you I will need you to give your consent. What is the best way to send you the consent form document (email, regular mail or scan) so you can take your time to read it for your understanding?
12. Where would you be comfortable for the interview to take place (public place like library or rented location)?

Thank you for taking part in this telephone questionnaire. Please feel free to contact me with any questions or if you change your mind on participating in the study.

Appendix C: Interview Protocol

1. I ensured the environment was conducive and audio machine was functioning properly before participants arrive.

2. I welcomed the participants and introduced myself:

Welcome to this interview and thank you for your participation in the study. My name is Cornelia Inyang and I am a Ph.D. student in Public Health at Walden University. I am conducting this phenomenological study in partial fulfillment of the University's requirements to award me a doctorate degree. The purpose of the study is to understand better how African American adults with Type 2 diabetes perceive diet in the management of diabetes and prevention of diabetes complications. Thank you for completing the demographic questionnaire and for your time.

3. I reviewed the consent form, interview duration and participation in the study:

Before we begin the interview, I would like to review the consent form with you so you can ask any questions for clarification of the purpose and intent of the study. This study seeks to understand your experience with Type 2 diabetes and use of diet to prevent diabetes complications. The study does not involve any experiments but only questions and responses. Some questions may revive bad memory of some experiences with diabetes complications, and you may feel uncomfortable and wish to stop the interview, please let me know if this happens.

Participation in this study is voluntary and you are not obligated in any way to participate in the study. All your responses in the study are confidential and would be kept in a secured cabinet. To protect your identity, I will remove all your personal identifying

information from the interview form and replace with alphanumeric instead. You can stop me at any point if you have questions. I am the sole interviewer and I will be taking notes, and with your permission would audio tape the interview. If you are still interested in the study, I will like you to sign the consent form with your full name and signature with date and time in the spaces provided. By signing the consent form, you are certifying your participation in the study. I will also sign and give you a copy of the consent form for your record and will secure my copy in a locked cabinet.

4. I explained to interviewee the process of the interview:

The interview will last for 45 to 90 minutes but we can stop if you feel you are exhausted or need a break. There are six interview questions with subquestions to explore your experiences of diabetes complications and perceptions of dietary therapy to prevent diabetes complication. At the end of the interview, I will give you a gift card for \$10 as a thank you for participating in the study. Do you have any concerns or questions before we will start the interview? We will now begin the interview with the first question.

5. At the end of the interview, I performed a member feedback for accuracy of the data and contact information:

I will like to review and clarify some of your responses to the questions for your feedback and clarification of my understanding of your experience. I am confirming my contact information and emergency contact information for follow up and questions. Thank you very much for participating in this study.