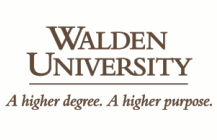

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Preventing Obesity and Type 2 Diabetes in Immigrant Populations

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Abstract

Preventing Obesity and Type 2 Diabetes in Immigrant Populations

by

Maxwell Kapenda Chikuta

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

There has been a rise in obesity-related diseases in African immigrants throughout the United States. Although research has been done to identify risk factors associated with many ethnic groups in the United States, only a few studies exist that explore obesity and type 2 diabetes diseases among Central African immigrants. This qualitative case study used interviews with 17 Central African immigrants living in the northeastern U.S., to explore their social, cultural, and behavioral factors that influence the prevalence of obesity. The conceptual framework for this study was social constructivism and the health belief model. The primary research question addressed the potential underlying causes for an increase in obesity and type 2 diabetes among Central African Immigrants. The secondary research questions explored how culture, illiteracy, and religion contribute to the problem of obesity in Central African immigrants, and what strategies could be effective in preventing and reducing the increase of obesity and type 2 diabetes in this population. Interview responses were transcribed and entered into NVivo software for data analysis. The results revealed that socioeconomic issues, cultural differences, and language gaps were the primary risk factors. Feeling stressed and overwhelmed and a lack of communication were also found to be significant. The compiled and analyzed data could provide health administrators and health educators with a platform for advancing policies and programs to foster greater health and well-being among Central African immigrants and thus contribute to the overall social welfare of Central African immigrants.

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Doctor of Philosophy PPA – Public Policy and Administration

Public Health Policy

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Dedication

This dissertation is dedicated to:

My grandfather Levy Muteba Koji (MHSRIEP), and my grandmother Marceline Kavunga N'gambo, for giving me a second chance to live a normal life. Who taught me how to be a responsible citizen and showed me that hard work is the only way to happiness.

My parents, Mother Therese Muteba Musenga, and Father Simon Kapenda Mandjata (MHSRIEP), for their encouragement, supports, and belief in me that one day, I will be a great leader, even though they don't have any formal education.

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I humbly confess that I could have not made it here without the support of Mr. Robert Wood, the formal director of Portland Adult Education in Maine, for helping pay for my GED exam in 2003.

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Chapter 1: Introduction to the Study

Introduction

This study sought to explore obesity, a term describing any excess weight beyond what is recommended for good health (American Heart Association, 2017), and type 2 diabetes, a long-term metabolic condition recognized by an individual having high blood sugar, insulin resistance, and general lack of insulin (Sewali et al., 2015), among adult Central African immigrants. Immigrants from Angola, Burundi, Democratic Republic of the Congo, Republic of Congo, Rwanda, and Zambia were interviewed for the study. Unless otherwise specified, individuals from these countries are referred to as Central African immigrants (Centers for Disease Control and Prevention [CDC], 2013).

Despite the nutrition programs that promote healthy eating, and the physical activity programs offered, there are religious and cultural barriers that prevent immigrants from participating in them (Abioye-Akanji, 2016; CDC, 2013; Sewali et al., 2015). Using Portland, Maine, as an example, the CDC (2013) reported that "It is hard to assess rates of overweight and obesity among Maine's racial and ethnic minorities due to small sample sizes, though some reports indicate that the obesity rate among blacks in Maine is approximately 37%" (para. 2). Even though this CDC report highlights the percentage of Blacks in Maine, there is no report that delineates Central African immigrants from others because the "race," Black, is not well defined. Furthermore, due to cultural differences, illiteracy, and religious barriers, this group of immigrants has not been well informed about the nutritional programs and activities available for preventing or

improving obesity and type 2 diabetes (Benton-Short, Price, & Friedman, 2005; Okafor, Carter-Pokras, Picot, and Zhan, 2013; Wafula & Snipe, 2014). Therefore, this study is important not only for Central African immigrants, but for taxpayers as well, who often must pay for avoidable health services.

Chapter 1 addresses the following topics: background of the study, the problem, and purpose of the work, the research questions, the conceptual framework, nature of the study, definitions, assumptions, delimitations, limitations, and significance of the study.

Background

In this study, I addressed African immigrants in the United States, and the topic of health. I explored data available on this subject as it related to the prevalence of cardiovascular disease (CVD) risk factors found within the immigrant Central Black population in Portland, Maine. In a study by Pottie (2011), the author looked at the different ethnicities of immigrants coming to the United States and Canada to see if type 2 diabetes was more prevalent in certain groups. In screening and treating newly arriving immigrants, they discovered that those from South Asia, Latin America, and Africa are more at risk for diabetes at a younger age. Additionally, these groups are two to four times more likely to develop type 2 diabetes in comparison to Canadian-born Whites (Pottie, 2011).

Sewali et al. (2015) used a 2013 report from the CDC that helped clarify the difficulty with quantifying the rates of obesity in the United States due to the limited numbers of immigrants and sample sizes coming from individual African countries. This

study addressed the limited amount of data available on this population as it relates to the prevalence of CVD risk factors found within this population. Sewali et al.'s (2015) study also explored social, cultural, and behavioral factors that influence the prevalence of CVD risk factors and health behaviors of African immigrants.

The works of Vander-Veen (2015), Hamilton (2013), and Kaplan, Ahmed, and Musah (2015) also provided an overview of data, which pointed to factors that contribute to obesity and other health risks for African immigrants in the United States. Vander-Veen's (2015) research underlined the lack of information regarding associations among resilience, acculturation, a process in which two cultures come into contact with one another where the smaller culture usually adapts to the larger culture (Van Hook & Baker, 2010), and obesity health risks. The author provided the result of a study of highly educated Black African female and male immigrants. The survey of participants of the study revealed a direct correlation between levels of acculturation, and resilience and incidences of obesity. Specifically, the research illuminated the fact that higher tiers of both acculturation and resilience were related to lower levels of obesity. In expounding on how these two factors are associated with better health, Obrist and Buchi (2008) concluded, "resilience reduced the stress of moving into another country and it moderated acculturation" (p. 255). Overall, it appears that the length of time in the United States, the stress of acculturation, barriers to health care, and language barriers all seem to make a great difference in assessing the health risk factors and health behaviors of African immigrants in the United States.

Problem Statement

There has been an overall rise in obesity-related diseases in African immigrants throughout the United States (O'Connor et al., 2014). Although research has identified risk factors associated with obesity and type 2 diabetes among many ethnic groups within the United States, only a limited number of studies have focused on exploring these problems among Central African immigrants (Sewali et al., 2015). One reason for this lack of studies is probably what the CDC (2013) reports: It is difficult to quantify the rates of obesity in the United Statesdue to the limited numbers of immigrants and sample sizes coming from individual African countries. This study is unique because it addresses risk factors for Central African immigrants, rather than seeking to use piecemeal methods to analyze data sets that are too small. This study also explored social, cultural, and behavioral factors that influence the prevalence of obesity and type 2 diabetes in Central African immigrants (Sewali et al., 2015). These findings can generate better health and well-being in Central African immigrants in Portland as well as in the United States.

Purpose Statement

The purpose of this qualitative study was to explore the reasons for an increase in obesity and type 2 diabetes among the Central African immigrant population in the United States, based on a case study design that used Portland, Maine, as an example. Interviews with these immigrants in Portland provided insight into their perceptions. The completed study could provide health administrators and health educators with a platform for advancing policies, which, through practical approaches, could serve to foster greater

health and well-being in Central African immigrants in Portland, Maine, as well as in other areas in the United States. Results from the study were expected to reveal more efficient practices for ensuring good health and could encourage policies and programs to improve access to knowledge, healthier foods (the means to prepare them), and exercise facilities and programs (Benton-Short et al., 2005).

Research Questions

This study's primary research question was as follows: What are the underlying causes of an increase in obesity and type 2 diabetes among Central African immigrants in Portland, Maine? There were two secondary research questions:

1. Could issues such as culture, illiteracy, and religion contribute to the problem of obesity and type 2 diabetes in Central African immigrants?
2. What type of experiences as reported by Central African immigrants in Maine may be effective in reducing problems with obesity and type 2 diabetes?

Conceptual Framework

The conceptual framework for this study was social constructivism and the health belief model (HBM; Glanz, Rimer, & Lewis, 2002). The concept of constructivism is based on the tenets of Socrates's dialogues with his students (Crotty, 2013). Constructivism is a paradigm that focuses on reflection and inquiry and is used in education today. The two pioneers of constructivism in this century are Jean Piaget and John Dewey, who established theories of childhood development and education based on this theory (Crotty, 2013). The work of these two theorists and educators has refined

constructivism, which interprets knowledge as that which is created, developed, and diffused through social interactions (Lincoln & Guba, 2013). When dealing with human systems, there are multiple perceptions of the world and relationships that affect the research. As noted by Schneider, Ingram, and DeLeon (2014), individuals use social constructivism to assign value, via emotional experiences or problems, to individuals or organizations. Given that constructivism is a method to explain how individuals "construct" new meaning based on prior understandings (Mann & MacLeod, 2015), this framework will indicate how Central African immigrants perceive their experiences relating to health in the United Statesas Portland, ME is one of many cities experiencing Central African immigration.

The HBM is a model that uses elements of social sciences and health psychology to explain health behaviors. Primarily, the HBM focuses on an individual's attitudes and beliefs (Wills, 2015). The originators of the HBM were social psychologists Hochbaum, Rosenstock, and Kegels (1952), who worked in United States Public Health Services and developed the model to understand why a free tuberculosis health-screening program was unsuccessful (Hochbaum et al., 1952). Although researchers use the model to address a wide range of topics in public health, and other areas of the social sciences, in this study, it functions as a way to explore social, cultural, and behavioral factors that influence the prevalence of obesity in Central African immigrants (Wills, 2015). Both social constructivism and HBM were beneficial in this study: They helped explain the social

construction of beliefs and health behaviors by focusing on the attitudes and beliefs of Central African immigrants in Portland, Maine.

In exploring the primary research question for this study—the underlying causes of an increase in obesity and type 2 diabetes among Central African Immigrants in Portland Maine—the conceptual framework provided rich insight into the way that Central African immigrants respond to being in a different culture. Furthermore, constructivism and the HBM were appropriate frameworks for approaching the two secondary research questions in this study: Could issues such as culture, illiteracy, and religion contribute to the problem of obesity and type 2 diabetes in Central African immigrants? What type of experiences, as reported by Central African immigrants in Maine, may be effective in reducing problems with obesity and type 2 diabetes? Both models appropriately framed the central study topics of obesity and type 2 diabetes and helped explain the health-related behaviors that contribute to these issues.

Nature of the Study

Qualitative research methods are appropriate for use in studies that benefit from rich data (Creswell, 2014). Qualitative methods are exploratory in nature (Yin, 2014). Researchers use this methodology to understand the true reasons and motivations for a phenomenon and to gain deeper insight into a problem or question than many other methodologies (Creswell, 2014). Therefore, using the qualitative method in this study was beneficial for collecting data useful in both depth and abundance to appropriately assess the perceptions and behaviors of the participants regarding health. Choosing a

qualitative research method over a quantitative or a mixed research method allowed for a deeper understanding of the phenomena, because researchers use quantitative or mixed method approaches to test hypotheses (Yilmaz, 2013). A qualitative approach was appropriate to explore obesity and type 2 diabetes among Central African immigrants in Portland, Maine.

Several qualitative paradigms were examined to determine the appropriate method to use in this study. In this analysis, the case study approach was preferable to ethnography, grounded theory, phenomenology, and narrative based on the purpose of the study and the type of data required. A study of the underlying socioeconomic causes of the increase in obesity and type 2 diabetes among Central African immigrants would benefit from the data-rich method of the qualitative case study tradition. Therefore, the case study design was the most suitable method of inquiry, according to Creswell (2014).

Definitions

Acculturation. Van Hook and Baker (2010) asserted that acculturation is a process in which two cultures come into contact with one another and frequently one adapts to the larger culture.

Central African immigrants. Fairly new arrivals in another country (in this case the UNITED STATES) from Angola, Burundi, Democratic Republic of the Congo, Republic of Congo, Rwanda, and Zambia (CDC, 2013).

Constructivism. A paradigm that interprets knowledge as that which is created, developed, and diffused through social interactions (Lincoln & Guba, 2013).

Culture shock. Feeling disorientated by sudden exposure to a culture with which an individual is unfamiliar and which may have different beliefs and attitudes and may use a different language, (Abioye-Akanji, 2016).

Health belief model. A model that uses elements of social sciences and health psychology to explain health behaviors. Primarily, an individual's attitudes and beliefs about health (Wills, 2015).

Obesity. A term that "is used to describe the health condition of anyone significantly above his or her ideal healthy weight" (American Heart Association, 2017, para. 1).

Type 2 diabetes. A long-term metabolic condition recognized by an individual having high blood sugar, insulin resistance, and general lack of insulin (Sewali et al., 2015).

Assumptions

This study was based on two assumptions. The first assumption was that enough interviews were conducted to support the study. Transcripts of individual interviews were the means of ensuring data saturation. According to Yin (2014), data saturation occurs with the use of at least 10 participants in a qualitative study. Given 10 is the minimum required; I was able to achieve an even deeper understanding of the phenomenon by having 17 participants take part in the study. Having so many participants allowed me to achieve saturation. The second assumption was that the participants were honest in their responses, as dishonesty can ultimately result in skewed data. I ensured that the resulting

data was not skewed by using the purposive sampling method. Researchers use purposive sampling in qualitative research for the selection of a representative population (Yin, 2014). The purposive method focuses on the selection of individuals, or groups of individuals, who are knowledgeable about a phenomenon and was therefore appropriate for this study. I provided participants with the opportunity to identify potential inconsistencies within the written transcriptions of the interviews as well and were invited to add to the data and to make corrections.

Scope and Delimitations

The purpose of this study was to explore the reasons for an increase in obesity and type 2 diabetes among the Central African immigrant population in Portland, Maine, and by way of example, the United States. The study sought to reveal thought processes, beliefs, and lifestyle-related health choices that lead to negative health consequences for this population. The results of the study could give health administrators and health educators a platform for advancing policies, which, through practical approaches could foster greater health and well-being in Central African immigrants in Portland, Maine, as well as in other areas in the United States. Results from the study may help to create health programs and seminars directed at improving the health of the Central African population in Maine. The setting for these programs would be available for adoption at varying levels and venues, from community health facilities to governmental programs. Furthermore, the findings of the study could inform future studies to offer all new immigrants an opportunity to experience health.

This study was bound by certain selection criteria to identify strategies that could promote the health of Central African immigrants in Portland, Maine. I sought individual interviews for 12–20 participants. I used purposive sampling and to identify participants who (a) lived in Portland, Maine, (b) have been in the United States for at least 1 year, but no more than 5 years, (c) have experienced a decline in their general health, and (d) were interested in sharing their experiences. Portland was chosen because there has been an influx of immigrants into the area for the past 16 years, and the health status of many of these individuals warrants further analysis to determine ways to promote better health.

Transferability of the findings from this study could serve to inform future research in immigrant health practices, policies, and programs. The knowledge gained from this study may offer insight related to what Central African immigrants experience in the United States, regarding health, health perceptions, and health behaviors.

Limitations

Limitations are aspects of a study that are beyond a researcher's control (Marshall & Rossman, 2015). The methodology of this study afforded three limitations.

The first limitation was that I, as a single researcher, conducted the study. Thus, the data were interpreted through only one perspective (although committee members oversaw data triangulation and analysis). The second, and often related limitation, was that the same researcher who collected the data (conducted the interviews and gathered observational data), was the sole analyst. This is a point of entry for researcher bias. Ideally, there is a separation between researcher tasks, which makes the introduction of

bias more difficult. To mitigate this bias, I designed the research instrument with review and input from two subject matter experts with whom I had professional relationships. I examined documents, conducted interviews, and conducted fieldwork. I used the data collection methods of interviews and observations, which I coded, analyzed, compared, and interpreted to gain a better understanding of obesity and type 2 diabetes among Central African immigrants in Portland, Maine.

The third limitation was that, I, as a Central African and hospital administrator, with my knowledge and skills, with my experience and perspectives, with my attitudes and beliefs, as well as study background, affected how I collected and processed data, which, in turn, ultimately shaped the results of the research. However, to reduce bias, I was open and inquisitive, and sought to validate participants' understanding of the questions and my interpretation of their responses. I also presented preliminary findings of my research to the subject matter experts, who reflected on the work.

Significance

This study filled a gap in the research by focusing on the growing number of obese Central African immigrants with type 2 diabetes in the United States, using Portland, Maine, as an example. Although previous research has identified risk factors associated with many ethnic groups in the United States, only a limited number of studies explored obesity and type 2 diabetes among Central African immigrants (Sewali et al., 2015).

This study explored risk factors for Central African immigrants, rather than risk factors for immigrants from *individual* Central African countries, which could skew the data. This study also explored social, cultural, and behavioral factors that influence the prevalence of obesity in Central African immigrants (Sewali et al., 2015). The results of this study could contribute to social change by addressing the needs of Central African immigrants, ultimately leading to better overall quality of life for those individuals and their communities, as well as by reducing avoidable health care costs.

Summary

Obesity and type 2 diabetes among adult Central African immigrants in the United States is problematic. I reviewed the data on this subject as it related to the prevalence of CVD risk factors found within the immigrant Central African population in Portland, Maine. The purpose of this qualitative study with case study design was to explore the reasons for an increase in obesity and type 2 diabetes within this population and in the United States using semistructured interviews. More information was revealed through exploration of the research questions and the conceptual frameworks of social constructivism and the HBM (Glanz, Rimer, & Lewis, 2002). I conducted, with a goal of filling a gap in the research by focusing specifically on the growing number of obese Central African immigrants with type 2 diabetes in the United States, using Portland, Maine, as an example.

Chapter 2 consists of a review of the literature, designed to provide a better understanding of the health issues related to Central African immigrants in the United

States. In Chapter 3, I reviewed the methodology for the study and in Chapter 4; I analyzed participants' perceptions of the topic organized by research question. Finally, in Chapter 5, I presented the implications of the findings, recommendations for future research, and the implications for social change.

Chapter 2: Literature Review

Introduction

The purpose of this qualitative study was to explore the reasons for an increase in obesity and type 2 diabetes among the Central African immigrant population in the United States, based on a case study design that used Portland, Maine, as an example. United StatesCentral African immigrants (from Angola, Burundi, Democratic Republic of the Congo, Republic of Congo, Rwanda, and Zambia) living in Portland, Maine, were interviewed, unless otherwise specified or referred to as Central African immigrants (CDC, 2013). Although there are nutrition programs to promote healthy eating, and the physical activity programs that are offered, religious and cultural barriers prevent immigrants from participating in them (Abioye-Akanji, 2016; CDC, 2013; Sewali et al., 2015). Furthermore, and due to the cultural differences, illiteracy, and religious barriers, this group of immigrants is not well informed about the nutritional programs and activities available for preventing or improving obesity and type 2 diabetes. Although prior research has identified risk factors associated with many ethnic groups in the United States, only a limited number of studies exist that explore obesity and type 2 diabetes among Central African immigrants (Sewali et al., 2015).

The CDC (2013) reported that it is difficult to quantify the rates of obesity in the United States due to the limited numbers of immigrants and sample sizes coming from individual African countries. While difficult to quantify, there has been an overall rise in obesity-related diseases in African immigrants throughout the United States (O'Connor et

al., 2014). This literature review explored social, cultural, and behavioral factors that influence the prevalence of obesity in Central African immigrants (Sewali et al., 2015). The sources reviewed support the research problem and framework, suggesting that Central African immigrants coming to the United States are at greater risk for, and experience, obesity and type 2 diabetes. Furthermore, an unfamiliarity with the language, a potential predisposition to obesity, a lack of knowledge about how to eat a healthy diet in a different country with new challenges, and dissimilar cultural beliefs are the primary drivers for the poor nutrition of immigrants in their new country, the United States (Dubowitz et al., 2007). In the hope that the findings can generate better health and well-being among Central African immigrants in Portland, as well as in the United States, the topics covered in this literature review were as follows: the conceptual framework of the study, an overview of the issue, country of origin, health behaviors, length of time in the United States, the stress of acculturation, the health of Central African immigrant youth, barriers to health care, language barriers, and health education/prevention programs.

Literature Search Strategy

Given the limited information on health available specifically for Central African immigrants, this literature review explored health issues relating to different immigrant groups. While some of the literature supports the premise of this study through common findings, others show how differences in African regions offer insight into the unique position of Central African immigrants. The academic sources cited in this literature review primarily included scholarly journals and books. The following electronic

databases were used: Academic Search Elite, EBSCOhost, and ProQuest. Search terms included the following, either separately or in combination: *acculturation, African immigrants, Central African immigrants, cultural differences, family structure, health, health care, health care barriers, language barriers, obesity, socioeconomics, stress, culture shock, type 2 diabetes,* and *youth*..

Conceptual Framework

The conceptual framework for this study of social constructivism and the HBM (Glanz, Rimer, & Lewis, 2002) are both critical to understanding the choices made by Central African immigrants. To clarify further, the concept of constructivism occurred based on the tenets of Socrates's dialogues with his students in Socratic dialog (Crotty, 2013). Constructivism is a paradigm used to focus on reflection and inquiry and is used in education today. The two pioneers of constructivism in this century are Jean Piaget and John Dewey who established theories of childhood development and education with the use of this theory (Crotty, 2013). The work of these two theorists and educators have refined constructivism, which interprets knowledge as that which is created, developed, and diffused through social interactions (Lincoln & Guba, 2013). As constructivism explains how individuals 'construct' new meaning upon prior understandings (Mann & MacLeod, 2015), this framework will be used to explore how Central African immigrants perceive their experienced relating to health in the United States.

Using constructivism to focus on reflection and inquiry was an appropriate method for exploring why this population experiences obesity and type 2 diabetes in

relocating to the United States. As knowledge is created, developed, and diffused through social interactions (Lincoln & Guba, 2013) what types of social interactions are Central African immigrants experiencing, or not experiencing in the United States that influences their health choices? Moreover, why might this be the case? Using social constructionism to assign value, via emotional experiences or problems (Schneider et al., 2014) allowed me to appreciate the unique circumstances of Central African immigrants in Portland more fully, Maine. As constructivism has been used to explain how individuals 'construct' new meaning upon prior understandings (Mann & MacLeod, 2015), this framework was used to frame how Central African immigrants perceive their experiences relating to health, the choices they make, and what may be motivating those choices.

The second part of the conceptual framework, the HBM model, uses psychology to explain health behaviors. Primarily, the HBM focuses on an individual's attitudes and beliefs (Wills, 2015). The originators of the HBM were social psychologists Hochbaum, Rosenstock, and Kegels (1952). They worked in United States Public Health Services and developed the model to understand why a free tuberculosis (TB) health screening program was unsuccessful (Hochbaum et al., 1952). HBM includes key descriptors that serve to define health behaviors. These consist of perceived susceptibility, perceived seriousness, perceived benefits of taking action, barriers to taking action, and cues to action. In brief, perceived susceptibility refers to level of danger an individual believes he or she is in, based on exposure to certain health risks (Wills, 2015). For the second descriptor, perceived seriousness, Wills (2015) asserts that an individual's perception of

how, and in what areas, a health concern will affect them is of importance. For example, will a certain condition or disease affect an individual's level of pain and discomfort, financial responsibilities, ability to work, the family, relationships, and future circumstances? Perceived seriousness in a main component examined in the HBM model.

Third, the perceived benefits of taking action, relates to an individual's willingness to take action once the disease or condition has been accepted. Furthermore, the level of action they chose to engage in also relates to the belief regarding whether the action will have enough positive consequences (Wills, 2015). The fourth descriptor, barriers to taking action, has been described by Wills (2015) as an individual's unwillingness to take action to promote health based on expense, inconvenience, unpleasantness, painfulness, or the possibility of emotional upset. All or any of these circumstances can dissuade individuals from being proactive about their health.

The fifth and last key descriptor of HBM is cues to action (Wills, 2015). A cue to action is what is used to determine what prompts an individual to take action on behalf of their health. These cues can be internal or external and fuel the individual's level of seriousness about the health concern. Although the HBM model is used most to address sexual risk behaviors and the spread of HIV/AIDS, it is gaining recognition in other fields. In this study, researchers used it to explore social, cultural, and behavioral factors that influence the prevalence of obesity in Central African immigrants (Wills, 2015). Using both conceptual frameworks were beneficial in this study for observing the social

construction of belief and how health behaviors can be explained by focusing on the attitudes and beliefs of Central African immigrants in Portland, Maine.

As the HBM model uses elements of social sciences, and health psychology to explain health behaviors, this framework works in tandem with constructivism to interpret the health choices made by Central African Immigrants. The HBM focuses on an individual's attitudes and beliefs (Wills, 2015). The HBM was used in this study to explore social, cultural, and behavioral factors that influence the prevalence of obesity in Central African immigrants to lend clarity to this phenomenon (Wills, 2015). Using both conceptual frameworks was beneficial in this study for observing the social construction of beliefs and how health behaviors can be explained in focusing on the attitudes and beliefs of Central African immigrants in Portland, Maine.

In assessing the HBM and constructivism in relationship to similar studies to the one conducted here, two stand out. In a study done by Wang and Li (2015), and although their focus was more related to health food marketing, their analysis was useful in examining health perceptions and behaviors of immigrants. The purpose of their study was to use the HBM in relationship to personal stress and environmental cues. Wang and Li gathered the data through quantitative face-to-face surveys of 384 health food consumers in Taiwan. Although not conducted with Central African immigrants, the results from their structural equation modeling technique showed a positive relationship between health perceptions and behaviors (Wang & Li, 2015). The findings ultimately revealed, “Personal stress and visible health problems substantially influence consumers’

perceived susceptibility to and severity of health problems, and perceived susceptibility consequently leads to consumer continued consumption" (p. 303). As such, this study contributed to the way health and healthy behaviors are both perceived and acted upon.

In 2012, Kehm, Hearst, Sherman, and Elwell (2016) developed a FAV-S pilot study. This study also used the HBM to explore a dietary intervention program for low-income Somali mothers in the United States. The targeted topics of the study were "self-efficacy in ability to serve more fruits and vegetables, knowledge and beliefs about healthy eating, and perceived barriers to accessing healthy foods" (p. 53). In this study, Kehm et al. (2016) examined self-efficacy, perceived barriers, knowledge, and beliefs. The participants received surveys, verbally, in Somali, as well as pre- and post-intervention tests. Twenty-Five Somali women participated in the study, and the findings suggested that a culturally tailored approach is effective at increasing self-efficacy and fruit and vegetable consumption in the Somali community. One of the primary successes for this study was that the intervention strategies focused on shifting beliefs systems around health and well-being, essentially changing the perceived constructs of eating fruits and vegetables.

Lastly, Abioye-Akanji found that African immigrants' ethnic views regarding both physical and mental health care often interfered with better health. For example, Abioye-Akanji found that rather than turning to Western medicine doctors for solutions to diabetes, some Africans turned to "natural" healers who were able to free them of the "evil-spirits or bad blood" (p. 8). The author also reported that immigrants often avoided

seeking mental health care and relied instead on other family members to help solve their psychological problems.

Whether addressing mental or physical health, social constructivism and the HBM played a significant role in health behaviors and in understanding how Central African construct their world views. As beliefs are social constructs, both conceptual frameworks were beneficial in this study for observing how health behaviors manifest. Using the appropriate selection criteria and exploring the variables explained the attitudes and beliefs of Central African immigrants in Portland, Maine, in relation to the prevalence of obesity and type 2 diabetes.

Overview of the Issue

The studies below, which address immigrants in the United States, African immigrants, and the topic of health, look at the data available on this subject as it relates to the prevalence of cardiovascular disease (CVD) risk factors found within the immigrant African population in the United States. In a study, by Pottie (2011) the authors looked at the different ethnicities of immigrants coming to the United States and Canada to see if type 2 diabetes was more prevalent in certain groups. In screening and treating newly arriving immigrants, they discovered that those from South Asia, Latin America, and Africa are more at risk for diabetes at a younger age. Additionally, these groups are two to four times more likely to develop type 2 diabetes in comparison to Canadian-born Whites (Pottie, 2011). Sewali et al. (2015) used a 2013 report from the CDC that helped clarify the difficulty with quantifying the rates of obesity in the United

States—due to the limited numbers of immigrants and sample sizes coming from individual African countries. This study addressed the limited amount of data available on this population as it relates to the prevalence of CVD risk factors found within this population. Sewali et al.'s (2015) study also explored social, cultural, and behavioral factors that influence the prevalence of CVD risk factors and health behaviors African immigrants.

The works of Vander-Veen (2015), Hamilton (2013), and Kaplan, Ahmed, and Musah (2015) also provided an overview of data, which point to factors that contribute to obesity and other health risks for African immigrants in the United States. Vander-Veen's (2015) research underlined the lack of information regarding associations between resilience, acculturation, and obesity health risks. In her article, the author provided the result of a study of highly educated Black African female and male immigrants. There was a rigorous survey of participants and questioning revealed a direct correlation between levels of acculturation and resilience and incidences of obesity. More specifically, research illuminated increased that higher tiers of both acculturation and resilience were related to lower levels of obesity. In expounding on how these two factors are associated with better health, Obrist and Buchi (2008) concluded, "Resilience reduced the stress of moving into another country and it moderated acculturation" (p. 255). Overall, it appears that the length of time in the United States, the stress of acculturation, barriers to health care, and language barriers all seem to make a greatest difference in

assessing health risk factors and health behaviors of African immigrants in the United States.

Country of Origin and Health Behaviors

Revisiting the article by Sewali et al. (2015), the authors used a quantitative design, which gathered data from "996 African immigrants in the United States, (37.9% Somalis; 26.8% Ethiopians; 14% Liberians; 8.5% Sudanese; 5.1% Kenyans and 7.8% others group)" (Sewali et al., 2015, p.3). They utilized a cross-sectional survey conducted in the Twin cities of Minnesota. The use of logistic regression models assessed the relationship between demographic characteristics and immigration-related aspects such as: how long an individual had been in the United States, whether they were proficient in English, their income level, their health insurance status, and the prevalence of any CVD risk factors. The method also used incorporated self-reported health behaviors. Some of these included whether the individual smoked, was physical active, whether they attempted to maintain a healthy diet, and whether they exercised regularly (Sewali et al., 2015).

For this article, Sewali et al. (2015) also compared data taken from a survey run by New Americans Community Services (NACS), "a local community service agency that serves African immigrants, refugees and asylees, from 2006 to 2007 in the Twin Cities area, focusing on neighborhoods with a high concentration of African immigrant families" (p. 4). The questions posed by this study addressed both health status and health care-seeking behaviors of African immigrants. The authors conducted the survey

personally at the participants' homes, using either English or their native language (Sewali et al., 2015). For this work, the 966 individuals used in the study added to the inferential findings, and the data correlated well with what the authors intended to study. The researchers found that there were few self-reported cases of diabetes, hypertension, and smoking (Sewali et al., 2015). Nevertheless, Sewali et al. found substantial differences according primarily to the country of origin. For example, Sewali et al. wrote that:

> Using Somalis as our referent country of origin group, we found that Liberians and Kenyans were more likely to report having diabetes or hypertension. On all measures of health behaviors, Liberians were more likely to engage in more health protective behaviors than other individuals. (p. 6).

In this study, Sewali et al.'s findings were explained well in comparing the prevalence of CVD risk factors and protective health behaviors among six different African immigrant groups, they found that "East African immigrants in our study had a low prevalence of cardiovascular risk factors (hypertension or diabetes) after adjustment for other factors" (Sewali et al., 2015, p.7). The results showed that while African immigrants do have a low prevalence of chronic diseases compared with white, United States born individuals, there were variations in cardiovascular risk factors associated with exact location in Africa (Sewali et al., 2015). For instance, immigrants from different locations in Africa, mainly Liberia, reported having higher incidences of obesity and other CVD risk factors. Some of what the authors posited was that their findings

related to African immigrants from the western part of Africa having different dietary habits than those from the east (i.e. Somalia) compared to individuals from the eastern part of Africa where Somalia is located (Sewali et al., 2015).

Sewali et al. also informed the reader that there is a need to continue exploring the differences between African immigrants, concerning CVD risk factors and health behaviors, based on several factors. Most importantly though were those factors relating to country of origin. Sewali et al.'s (2015) study focused on comparing the occurrence of self-reported CVD risk factors, and health behaviors, between six different African immigrant groups in Minnesota. This study sought to explore CVD risk factors, and health behaviors to understand why there is a prevalence of ill health in African immigrants given the many nutrition programs and healthy activities offered. The results of this study showed that while African immigrants do have a low prevalence of chronic diseases compared with white, U.S. born individuals, there were variations in cardiovascular risk factors associated with exact location in Africa, suggesting differences in culture between African immigrants (Sewali et al., 2015).

This article provided ample evidence to support both the strengths and the limitations of the study. The evidence was reliable and valid, especially given that the researchers found that groups of African immigrants cannot be classified as one group, but rather need to be evaluated based on individual cultures and countries of origin. This relates to the work in this study, which was related to assessing health and health behaviors in immigrants from Central Africa.

On a similar topic, biology also plays a role in how well Africans may adapt to life in the United States. Roseboom et al. (2001) conducted an in-depth study of different countries, different diets, and divergent views of obesity. These authors highlighted that certain cultural practices and even genetic predispositions—often based on the effects of living in nutritionally poor environments—can affect how cultural and natural selection favor certain genes more than others. For instance, natural selection may favor genes that store energy as fat or those genes that even support a slower metabolism (Roseboom et al., 2001). This article is important in that the researchers give several potential reasons why obesity is such a problem in immigrant populations. It seems apparent African cultures receive independent evaluation although some commonalties may still be found.

Socioeconomic status. In shifting the focus to other factors, which may relate to varying levels of health for African immigrants, the work of Hamilton (2013) is revealing. Hamilton's research, addressed the impact that birth country conditions have on immigrant health. Hamilton reported that "disparate social and economic conditions in their birth countries, particularly countries' racial composition" (p. 820). have a notable impact on levels of health. While research demonstrates that people arriving from Africa may experience lower levels of pre-migration racial discrimination (in comparison to blacks emigrating from other regions of the world such as Europe), social and economic factors may have negative impacts on health for immigrants living in the United States. For example, Hamilton reports that black immigrants from countries with lower levels of income inequality have better health in the United States.

A study by Lynn (2002), found that health and safety considerations for immigrants in cities are often characterized by poverty and crime, as opposed to residents of neighborhoods. A primary cause of medical health issues is that most immigrants tend to settle in UNITED STATES cities, at least at first, and the poverty experienced by some of these newcomers affects their overall well-being. Lynn asserts that collaborations between health care workers and the local law enforcement can make a difference in community building, especially with immigrants and low-income residents.

Length of time in the United States

Two articles, one written by Commodore Mensah et al., (2016) Okonu et al. (2016) and another by Tshiswaka, Whembolua, Conserve, and Mwamba (2014) identify research correlations between length of residence in the United States and health risks. In utilizing National Health Interview Survey data collected from 2010 to 2014 on over fifty thousand immigrants, Commodore-Mensah et al. sought out to investigate the notion that longer stays in the United States were correlated with negative health outcomes. The authors' research made a distinction between immigrants living in the United States for less than ten years, and those living in the country for more than ten years. The study revealed that those who had lived in the United States for more than ten years experienced an increased prevalence of hypertension, overweight/obesity, and diabetes mellitus. Commodore-Mensah et al. (2016) also found data pointing to associations between stays of 10 years or longer in the United States and elevated levels of hypertension.

The work of Tshiswaka, Whembolua, Conserve, and Mwamba (2014), used in other sections of this literature review, contains data germane to the study of length of time in the United States and varying levels of health. The authors found that longer stays in the United States were correlated with lower levels of health insurance. More specifically, Congolese Immigrants who were living in the United States for more than five years had a statistically significantly lower number of health insurance enrollments. Tshiswaka et al. provided some possible explanations for the lower number of insured to include differences in employment sectors and the implementation of the Affordable Care Act. Lastly, the author found that lower levels of health insurance enrollment were correlated with poorer health for African immigrants.

As an additional contribution to understanding African immigrant's health in the United States, the work of Kaplan, Ahmed, and Musah (2015) pointed to the long-term negative health effects of living in the United States. While many immigrants' health levels are initially higher than those of Blacks, the work of Kaplan et al. shows a correlation between the times lived in the United Sates and increased health risks. Immigrants, exposed to the typical lifestyle of native U.S. populations, often experience "changes in health behaviors, including the quantity and quality of food consumed, diminished physical activity and inadequate sleep" (p. 260) as well other influences connected to the process of emigration such as disruptions to family structures and stressors associated with being undocumented appear to lead to poor health outcomes (p. 260). Finally, Antecol and Bedard (2006) asserted that obesity could also be related to the

length of time an immigrant has been in the United States. What they found in this study was that the longer an adult immigrant remained in the United States, the greater the likelihood that they would experience being overweight or become obese (Antecol & Bedard, 2006).

The Stress of Acculturation

Stress is commonly associated with immigrating to a new country (Dubowitz et al., 2007). Many immigrants coming to the United States experience culture shock and experience dramatic changes in their lifeways. Abioye-Akanji (2016) found that the process of migration was the number one cause of stress among African immigrants and evidenced how acculturation, economic hardships, a lack of health insurance, and obligations to family still residing in Africa all added to stress levels. Carter (2002) noted that these factors, as well as others can contribute to poor nutrition among immigrants, and that there is a correlation between immigration, unhealthy diets, reduced activity, and obesity. To further support this premise, in a study conducted on Latino immigrants, Hernandez et al. (2003) found that immigrants who are parents face challenges due to a lack of knowledge about what is a healthy weight for their children is a contributor to engaging in unhealthy diets and sedentary practices. Hernandez et al. reported that what another culture perceives to be healthy is not necessarily a healthy weight in the United State, creating stress in yet another area.

Commodore-Mensah et al. (2016) highlighted those stressors stemming from "migration and cultural behavioral changes" impact levels of health (p. 5). More

specifically, the researches demonstrated how these factors cause changes in diet and physical activity, which ultimately lead to higher blood pressure. In the work by Morrison and James (2009), they posited host country social services and health care providers needed to understand that immigration and acculturation processes could act as stressors on a family. As family members acculturate according to different strategies (generational or gender specific, for example) problems can arise. In another study by Dubowitz et al. (2007), which relates to the stress of acculturation, the authors addressed constraints to food access by immigrant women. This work explored UNITED STATES and foreign-born women in the context of their daily life activities to better understand their physical and economic access to food and how this can add stress to a family new to a country. Dubowitz et al. studied mechanisms and pathways used to prepare and purchase food. Some of these aspects included (a) limited time for food shopping, cooking, and family activities, and (b) challenges with transportation to stores and in having childcare. These factors have been related to creating stress (Dubowitz et al., 2007).

Not only are there differences in how the genders may acculturate, but there is also variation depending on an individual's country of origin. The implications of this research suggest that help for immigrants include the following practices: consider the appropriateness of community-level interventions, place an emphasis on confidentiality, have awareness of the stressors created by acculturation, understand the different acculturation strategies being employed different families, and assist in negotiating the

integration of their new multicultural reality (Morrisson & James, 2009). The insight and suggestions made to address the issue of immigrating to a new country provide an excellent resource for the study on Central African immigrants and health.

Health of African Immigrant Youth

Several authors have studied acculturation, and the adaptation of immigrant youth. In their work, Berry, Phinney, Sam, and Vedder (2006) asserted that the success of adapting to life in a new country affects the depth of acculturation youth feel toward the dominant culture. It is important to understand the relationship between adapting and acculturation. The implications of this study are that youth needs to retain both a sense of their cultural heritage and identity while establishing closer ties with the larger dominant culture to acculturate in the best way possible. In reviewing the works of Calvo and Hawkins (2015), Van Hook and Baker, writers of "Big Boys and Little Girls: Gender, Acculturation, and Weight among Young Children of Immigrants" (2010), and Zlotnick, Goldblatt, Shadmi, Birenbaum-Carmeli, and Taychaw (2015), an examination of the elements contributing to poor health outcomes for African immigrant youth occurred.

Calvo and Hawkins (2015) examined disparities in pediatric care of immigrant children. In a sample of more than eighty-five thousand children, the authors' evidenced that first, second, and third generation Black immigrant children consistently received less time with their health care providers when compared to third generation White children. Calvo and Hawkins also demonstrated that immigrant children are less likely to have access to health care and health insurance. Additionally, the authors found that

immigrant children with parents who are Limited English Proficient tended to receive an inadequate amount of time with their health care providers. Lastly, Calvo and Hawkins established that immigrant parents lack "a regular place for health care more often and reported excellent health status less frequently than children with native-born parents" (p. 2227).

Calvo and Hawkins (2015) examined factors which affect levels of health care provided to children, and Van Hook and Baker (2010) added to the set of data concerning immigrant youth and obesity by hypothesizing about the relationships between levels of acculturation (social integration) and the incidence unhealthy weight gain. To test their theories, Van Hook and Baker used data collected from 20,000 children in the Early Childhood Longitudinal Study Kindergarten Cohort. In using such data, the researchers discovered that despite protective effects against obesity garnered through social isolation, "immigrant parents' limited capacity to identify and manage this health risk(s)" and their socialization in different cultures offset such potential benefits to their children (p. 205).

Zosuls, Ruble, and Tamis-LeMonda (2014) added to the subject by explaining why parental educational and modelling deficiencies have such a great impact on the health of immigrant youth. Zosuls et al. explained that life-long habits form during childhood and demonstrated how immigrant parent deficiencies in effectively socializing their youth often led to negative health outcomes. Lastly, and consistent with data provided in other sections of this literature review, Van Hook and Baker (2010) found

linkages between the incidences of obesity time lived in the United States. In focusing Kindergarten children, the researchers discovered that sons of immigrant parents weighed more than their native-born counterparts and those immigrant male children were more likely to become obese over time.

In having considered both pediatric health care and obesity among immigrant youth, the work of Zlotnick et al. (2015) holds value. In some senses, Zlotnick et al.'s study of cardiovascular risks mirrored the work of Van Hook and Baker (2010). For example, both sets of researchers examined how social integration affects the health of immigrant youth. More specifically, Zlotnick et al. found that negative changes in health behavior to include an increased use of "processed foods and sugary drinks" and the substitution of "screen use for physical activity" played an active role in putting immigrant youth at risk for heart problems (p. 1). Furthermore, and not a focus of Van Hook and Baker's study, Zlotnick et al. also considered the effects that racism have on social integration and cardiovascular health. Zlotnick et al. found that racial stressors were omnipresent in young immigrants and impeded societal integration, which ultimately led to poorer health outcomes.

Additionally, and per Dekker et al. (2011) increased risks for cardiovascular disease were directly linked significant disparities between the immigrants' native diet and that of the United States. Lastly, Zlotnick et al. (2015) found that metabolic differences between county of origin and the United States explained how diets high in fat and sugar, such as those typically found in the United States had such a significantly

adverse effect. These findings appeared to hold true regardless of from which African culture an immigrant is. What is most important is that there are cultural differences that influence how Central African immigrant youth adapt to the U.S. culture.

Barriers to Health Care

The following portion of the literature review provides a better understanding of the health care barriers, contributing to poor health among Central African immigrants living in Portland Oregon. The utilization of several articles relating to this topic and varying levels of health among the immigrant population revealed that immigrants have limited access to health care, as well as difficulties in utilizing the United States' health care system. The article written by Boise et al. (2013) made a solid contribution to this review through its study of health care for African immigrants in Portland, Oregon.

Boise et al. (2013), made a notable contribution to this literature review through their studies of African refugees and immigrants residing in Portland Oregon. The authors were painstaking in making distinctions between data stemming from health care for Blacks and information, which pertained to the health care of their primary target of study (African immigrants). Bosie et al. studied 56 African immigrants from 14 countries, one being the Congo, resulting in a plethora of relevant data. From lack of service availability to not knowing where to go for health care and from inaccessible health care costs to an inability to understand health care systems, practices, principles, and structures, Boise et al. demonstrated how immigrants' health is negatively impacted.

More specifically and using interviews, immigrants reported not knowing the location of walk-in clinics and trying to rely on friends for accurate information. Questioning also revealed the need to pay out of pocket despite having health insurance, concerns about credit scores affected as the result of non-payment, and a general lack of clarity about health care costs. Lastly, Boise et al. defined the root causes of a lack of health care for African immigrants as caused by "systemic problems with the health care system, such as the lack of jobs and health insurance" and also pointed out that "the U.S. health care system is driven by profits, not the need to serve all people in need" (p. 375).

The work by Wafula and Snipe, authors of "Barriers to Health Care Access Faced by Black Immigrants in the US: Conceptual Considerations and Recommendations" (2014), adds to the data by evidencing barriers faced by immigrants who attempt to traverse though the United States' at times difficult health care system. Wafula and Snipe (2014) added to the work of Boise et al. by pointing to the multitude of challenges faced by African immigrants. The authors wrote of obstacles such as lack of health insurance, insufficient number of translators, and "discrimination based on race or accent" (p. 689). According to Wafula and Snipe, it is often the health care staff members who discriminate against immigrants and the source of such discrimination stems from incorrect assumptions regarding the patient's legal status in the United States.

The authors add that these assumptions often create mistrust among immigrants, and, consequently, health care services are often underutilized. Wafula and Snipe also cited stigmas, which immigrants hold concerning specific diseases, and they make a

connection between such stigmas and the underutilization and or lack of quality health care. To conclude, and consistent with the findings of Boise et al., Wafula and Snipe highlighted how the United States' health care system is intimidating for African immigrants, often leaving them unclear about how to navigate through the system.

Additionally, the works Tshiswaka Whembolua, Conserve, and Mwamba (2014), and Morrison et al. (2012) added to this review by providing evidence, which shows commonly found health care access barriers. Pertinent data was found through a review of the work of Tshiswaka et al. (2014), who studied Congolese immigrants living in Illinois. The authors pointed to the economic crisis of 2008's impact on health care coverage, an event that, along with countless others living in the United States, also affected African immigrants. Additionally, and per Derose, Escarce, and Lurie (2007), "residential location, stigma, marginalization, and policies related to eligibility for public-funded health programs all can hinder the likelihood of having health insurance among immigrants" (p. 1259).

In considering the work of Morrison et al. (2012), evidence pointed to African immigrants' risk for "low completion of preventative health services" (p. 968). More specifically, the authors studied emergency department and primary care visits, rates of exams, vaccinations, and screenings, as well as immigrant women's "awareness of existing preventative services" and "conceptual framework(s) for disease prevention", all which pointed toward a lack of comprehensive health care (p. 972). To conclude, and consistent with the findings of Wafula and Snipe (2014), Morrison et al. found that a lack

of interpreters impeded both African immigrants' access to and the quality of health care services.

Lastly, a review of the work Stewart and London (2015) makes a final contribution to a growing body of evidence, which points to health care barriers for African Immigrants. These authors found that the rate of uninsured African-born immigrants far exceeded that of people immigrating from both Latin American and the Caribbean. Stewart and London stated, "recently-arrived elderly black immigrants fall through the cracks of insurance coverage" (p. 1391). Additionally, and as with several of the previously mentioned authors, Stewart and London find that a lack of sufficient health care for immigrants often originates from being uniformed about insurance eligibility. This portion of the literature review provides evidence of barriers to health care for African immigrants living in Portland, Oregon. The review of these articles points to a connection between access to health care systems and levels of health. Challenges faced by immigrants are numerous and appear to directly contribute to poorer health.

Language Barriers

The following portion of the literature review made connections between language barriers found in African immigrants and their level of health. Such connections typically involve the way in which a person's limited knowledge of the native language interferes with their ability to garner effective health care. The work of Wafula and Snipe (2014) demonstrates how the delivery of health care information can affect physical and mental health.

Wafula and Snipe (2014) wrote of the multitude of African immigrant languages represented in the United States and demonstrated how this multiplicity can "present a barrier to black immigrant patients" (p. 693). The authors also pointed to the difficulties immigrants face when health care systems fail to target specific (immigrant) populations with necessary information. A third factor evidenced through Wafula and Snipe's study is the lack of educational programs needed to help increase both immigrants' language skills and understanding of health care programs. Furthermore, the researchers discovered that although a person's accent is not directly correlated with their capacity to speak (and understand) a new language, it has proven to put immigrants at a disadvantage when attempting to gain access to health care. Lastly, Wafula and Snipe found connections between the way in which health care is reflected and is accessible to those in need. As the delivery of health care in the United States obviously mirrors Western culture, provision of services can be lost in translation thereby diminishing positive health outcomes.

Another article, titled "The Relationship of Language Acculturation (English Proficiency) to Current Self-Rated Health Among African Immigrant Adults," by Okafor, Carter-Pokras, Picot, and Zhan (2013) is central to the examination of associations between language ability and health and hence, provides a notable contribution to this review. In their article, the authors identified the need for research which showing correlations between language ability and immigrants' level of good health (Okafor et al., 2013). In their attempts to provide such needed research, Okafor et al. conducted a study

which found that “28.8% of African immigrants reported speaking English less than very well” in the United States as of 2007 and found relationships between low language acculturation and poor current self-related health (p. 499). Similarly, and as excepted, the authors found associations between increased levels of language acculturation and higher levels of self-related health. The work conducted by Okafor et al. concretely established relationships between African immigrants’ lower levels of language acculturation and chronic diseases such as diabetes.

Studies by Hamilton (2014), Amit, and Bar-Lev (2015), present ways to better comprehend links between language and African immigrant health outcomes. Hamilton (2014), Amit, and Bar-Lev (2015) discuss these two works, which point to associations between levels of health in African immigrants and language acculturation are discussed most by. The focus of Hamilton’s was on showing relationships between language level and earnings. As expected, the author found that “the language heritage of black immigrants’ birth countries (is an) important determinant(s) of their initial earnings and earnings trajectories in the United States” and that all cohorts of black immigrants receive smaller wages than native blacks” (p. 3). Hamilton also established that immigrants’ earnings never reached the levels of native whites. As wage or earning differences often predict the quality of health care received, immigrants are likely to be at a great disadvantage given their lack of earning power. As where the work of Hamilton focused on immigrant earning power, studies conducted by Amit and Bar-Lev highlighted the relationship between language acculturation and sense of belonging. The authors work

indicated possible connections between language ability, sense of self, and (mental) health deficiencies.

Having enough command of the native language is paramount to leading a healthy lifestyle. This literature review used four articles, which demonstrated associations between African immigrants' varying capacities to speak and understand English and their ability to access high quality health care. Research illuminated a direct correlation between lower levels of language acculturation and the diminished use of the United States' health care system. Such diminished utilization is inevitably linked to poorer health outcomes for African immigrants.

Health Education/Prevention Programs

In consideration of education and prevention's impact on the health of African immigrants living in the United States, the works of Abioye-Akanji (2016) examined factors which contribute to type 2 diabetes among African immigrants residing in the United States and considered how health education and prevention programs can increase positive health outcomes. Abioye-Akanji (2016) found that among the leading contributors to the development of type 2 diabetes, deficits in being able to effectively manage stress and cultural beliefs were on the top of the list and such elements often lead to poor diets and a lack of physical activity.

Regarding poor diets, Abioye-Akanji (2016) discovered that both a lack of knowledge regarding portion sizes and deficits of vegetable consumption often contributed to poor health outcomes. Concerning eating insufficient amounts of

vegetables, Abioye-Akanji also found that “fear of pesticides and lack of familiarity with many of the vegetables grown in the United States” (p. 7) played a central role the existence of diets lacking necessary nutrients. Concerning physical activity, Abioye-Akanji (2016) provided a plethora of medical information showing how physical exercise (or the lack thereof) connects to type 2 diabetes however, the author failed to provide data explaining why African immigrants do not exercise enough to sustain better health. This limitation may indicate the need to further explore the reasons behind certain health perceptions and behaviors of Central African immigrants regarding health.

Lastly, and in consideration of Abioye-Akanji’s (2016) data regarding health education and prevention programs, the author’s work focuses on the implementation of a culturally tailored educational program intended on improving the health of African Immigrants with type 2 diabetes. Abioye-Akanji conducted educational sessions with patients and measured results using American Association of Diabetes self-care behaviors such as “healthy eating, physical activity, and stress management” (p. 4). The educational program helped promote life-style changes, which in turn contributed to diabetes prevention and effective management of the disease.

In the study conducted by Rhodes, Chang, and Percac-Lima (2016), there is an expansion of the knowledge base regarding educational health programs and their relationship to better health. The authors studied the incidence of obesity among African immigrants and evidenced the need for health interventions following resettlement. Regarding the development of obesity, Rhodes et al. found that the Body Mass Index of

African refugees residing the in the United States consistently increased for five years following resettlement. Similarly, the findings of Abioye-Akanji (2016), Rhodes et al. also discovered that the development of excess weight and obesity were attributed in part to diets lacking vegetables and rich in caloric-dense foods. Additionally, Rhodes et al. found that "cultural perceptions about obesity as a marker of health and beauty in countries of origin" or obesity viewed as an inherited, unchangeable also appear to contribute to increased BMI, obesity, and other related health problems (p. 1389).

Concerning the need for, and use of, health education or programs, Rhodes et al. (2016) found a series of deficiencies for newly arrived immigrants. According to the authors, the provision of information about the risks of obesity and nutrition as well as a more comprehensive utilization of the initial eight-month Medicaid coverage window during the resettlement process could prove to be invaluable in setting the tone for years to come. Furthermore, in a quasi-experimental study conducted by Persaud (2015) the emphasis was on promoting a culturally- sensitive diabetes self-management education. The study gathered data from 128 adults between the ages of 35 to 60 in Toronto. All the participants had a history of Type 2 diabetes, which they used to assess the effect of health education using both pretests and posttests (Persaud, 2015). The findings revealed that providing culturally-tailored education to the diabetic type 2 population decreased health implications related to type 2 diabetes and a granted immigrants a better quality of life, knowledge, self-care, and understanding of health and disease. Given the increasing number of immigrants to North America from various parts of the world, Benton-Short,

Price, and Friedman (2005) discussed the claim that the success of any prevention program geared at targeting weight related problems depends on its ability to meet the diverse needs of ethnic communities, particularly recent newcomers.

Summary

The literature reviewed in this chapter contributed valuable information to the study of Central African immigrants in the United States who are at risk for obesity and type 2 diabetes. As previously noted, there are many reasons for the phenomenon of poor health in African immigrants. In the review of these articles, the factors most highlighted have been the Conceptual framework of the study, an overview of the issue county of origin and health behaviors, length of time in the United States, the stress of acculturation, health of African immigrant youth, barriers to health care, language barriers, and health education/prevention programs.

As noted, there has been an overall rise in obesity-related diseases in African immigrants throughout the United States, and this study was unique because it addressed risk factors for African immigrants. In this manner, the literature review for this study, while not extremely large, did identify a gap in understanding by focusing specifically on the growing number of obese African immigrants with obesity and type 2 disease risk factors and health behaviors in the United States, using Minnesota as an example. As previously noted, although research does identify risk factors associated with many ethnic groups within the United States, only a limited number of studies existed which explored CVD risk factors and health behaviors of Central African immigrants, making this an

important literature review. Ultimately, the literature review focused on making the insights of others more significant in both their contributions and assertions that more study needs to take place on a broader and more inclusive scale. Chapter 3 contains a discussion of the methodology design I intended to use for this study. I discussed the population of interest, how I planned to recruit and protect participants, and how I obtained and analyzed the data to answer the research questions.

Chapter 3: Research Method

Introduction

The purpose of this qualitative study was to explore the reasons for an increase in obesity and type 2 diabetes among the Central African immigrant population in the United States. To provide insight into this health problem, the case study approach was used; Central African immigrants in Portland, Maine, were interviewed to gain insight into their perceptions. The completed study could give health administrators and health educators a platform for advancing policies, which, through practical approaches, could foster greater health and well-being among Central African immigrants in Portland, Maine, as well as in other areas in the United States. Results from the study may reveal more efficient practices for ensuring good health and may encourage policies and programs that aim to improve access to knowledge, healthier foods (and the means to prepare them), and exercise facilities and programs (Benton-Short et al., 2005). In this chapter I outline the setting, research method and design, and the role of the researcher. I present the methodology and procedures for data collection. Finally, I discuss the data analysis, the study's strengths and limitations, issues of trustworthiness, and ethical procedures.

Research Design and Rationale

The primary research question that guided this study was: What are the underlying causes of an increase in obesity and type 2 diabetes among Central African Immigrants in Portland, Maine? The secondary research questions were:

1. Could issues such as culture, illiteracy, and religion contribute to the problem of obesity and type 2 diabetes in Central African immigrants?
2. What type of experiences as reported by Central African immigrants in Maine may be effective in reducing problems with obesity and type 2 diabetes?

Using the conceptual framework of social constructivism and the HBM, these questions were addressed in light of the study variables: residence status, time in the United States, country of origin, gender, and age. Exploring the data in the context of these variables, and using the lens of social constructivism and the HBM, have allowed me to gain a clear understanding of what influences perceptions of health and choice in behaviors in these groups. Conducting research in this manner will encourage greater understanding of why certain Central African immigrants make certain health choices.

To develop a study, a researcher can use three different methods (Creswell, 2014): qualitative, quantitative, and mixed methods. For this study, I used the qualitative method to explore the causes of the increase in obesity and type 2 diabetes among Central African immigrants in the United States. To allow for a deep understanding of the lived experiences of the population, using the qualitative method over a quantitative or mixed method approach is useful (Yilmaz, 2013). In the following paragraphs, I outline the method I chose (qualitative), provide a rationale for choosing this method over quantitative or mixed methods, and provided additional detail about using the qualitative method in relationship to my study.

The qualitative method differs from quantitative methods of research because it relies on a different philosophical approach, uses different data, typically text and image data not generally found in quantitative research, and uses unique data analysis approaches (Creswell, 2014). Nkwi, Nyamongo, and Ryan (2001) succinctly noted that "qualitative research involves any research that uses data that do not indicate ordinal values" (p. 1). In other words, qualitative research refers to the when, how, what, and where of a phenomenon. Ritchie, Lewis, Nicholls, & Ormston (2013), referred to qualitative research as the construction of things by way of description, symbols, metaphors, characteristics, definitions, concepts, and meanings.

Between both qualitative and quantitative research methods, qualitative research has many advantages that provide a deeper understanding about how participants comprehend their experiences in the world. I sought to understand the subjects of the study and their perceptions and experiences. Conversely, the objective of a quantitative approach is to examine the relationship between dependent and independent variables to test a hypothesis with statistical assumptions (Creswell, 2014).

Regarding the differences in how data is gathered and analyzed, qualitative investigations offer a more descriptive account of the phenomenon being studied from my perspective of as well as the perspective of the reader. How participants experience the world is described with rich detail and insight using the qualitative method (Stake, 2013). Therefore, the data is more meaningful given the enhanced understandings provided by qualitative rather than quantitative methods (Stake, 2013). Stake further

noted that qualitative methods gain a true understanding of issues that is not possible with quantitative, statistically based investigations. The approach of qualitative methods provides a holistic understanding of the problem studied, including providing multiple perspectives on the problem, identifying the factors involved in the topic, and generating an emergent larger perspective regarding the problem (Creswell, 2014). Additional advantages of qualitative methods include the utilization of open-ended questions and probing, which provides participants a chance to elicit replies that are genuine, meaningful, and elaborately explained (Yin, 2013).

Finally, a mixed-method approach combines qualitative and quantitative techniques in a single study (Creswell, 2014). However, a more data rich method will provide more in-depth responses to address the research problem. As such, neither quantitative nor mixed methods approaches would be appropriate for this study. Choosing a qualitative research method over a quantitative or a mixed research method will allow for a deeper understanding of the phenomenon studied (Yilmaz, 2013).

Per Ritchie et al. (2013), qualitative research is a type of scientific study that consists of an investigation that seeks answers to a question systematically, using a predefined set of procedures. The process includes collecting evidence, producing findings not determined in advance, and produces findings generalizable beyond the immediate bounds of the study (Ritchie et al., 2013). While this line of investigation may seem more compatible with quantitative research methods, the qualitative method allows for more interaction between participants and researcher, while gathering robust data sets.

Moreover, the qualitative method provides information about lived experiences of individuals (Ritchie et al., 2013). Participants describe and explain their experiences related to the research topic, providing the humanistic element needing in a study, often concerning behaviors, beliefs, opinions, emotions, and relationships (Merriam, 2009). Description of qualitative research is also effective in procuring data about certain groups of people when distinguishing their religion, ethnicity, gender roles, socioeconomic status, and social norms, something not richly included in quantitative work (Ritchie et al., 2013).

There has also been a debate regarding the use of objectivity in qualitative research (Merriam, 2009). Merriam noted qualitative research focuses on the participant's understanding of his or her experiences, as the purpose of the research, rather than what researchers' perception of the individual's experience. Merriam (2009) also suggested that the researcher is the primary instrument utilized to gather and analyze data. The expectation of biases that might occur when a researcher poses questions as the instrument for data collection must be addressed where validity and reliability are concerned. Qualitative research operates on the belief that biases presented by the researcher must be considered, accounted for, and monitored to determine their effects on data collection and analysis (Merriam, 2009). In this manner, researcher bias in fact becomes a critical element of qualitative research.

Creswell (2014) noted that researcher bias can emerge from the self-reflection researchers sometimes use to explain how their interpretation of the data. A researcher's

personal experiences and background—elements such as their gender, culture, socioeconomic background, history, and so on can influence a study. As both Creswell (2014) and Merriam (2009) cautioned about falling into subjective assessments, data gathering, and analysis must be closely monitored. Overall, qualitative research methods are appropriate for use in studies that benefit from gathering rich data (Creswell, 2014). Therefore, using the qualitative method in this study on the health status of Central African immigrants was beneficial for collecting data useful in both depth and abundance.

The case study design was the most appropriate methodology for this study. An examination of several qualitative approaches occurred to determine the most suitable method to use in this study. The case study design is the most appropriate design for this study. Use of a qualitative framework, and in this study the case study design, allowed for gathering rich data in answer to questions of how and why (Yin, 2014). In this study, the objective was to ask both questions of how and why, ultimately justifying the case study approaches. Using the case study design to explore the underlying cultural, literacy, religious, and biological causes of the increase in obesity and type 2 diabetes among Central African Immigrants in the United States and gave the best results.

The case study design and social constructivism framework, both found within the qualitative tradition, provided the data-rich material needed to accurately explore this phenomenon. A qualitative case study tradition can provide deeper insight into how studying the length of time in the United States, the stress of acculturation, health of

African immigrant youth, barriers to health care, language barriers, and health education/prevention programs relate to obesity and type 2 diabetes among Central African Immigrants. The design of this study and the conceptual frameworks of social constructivism and the HBM, both found within the qualitative tradition, provided the depth of inquiry and material needed to accurately explore obesity and type 2 diabetes among Central African immigrants. Use of the case study design and the Conceptual frameworks chosen for this study provided greater information related to the health choices and behaviors exhibited by the participants of the study.

Role of the Researcher

The role of the researcher is to collect and analyze data, to this end, I made every effort to treat the study, and any information learned, objectively. I also intended to minimize researcher bias by understanding that some bias is always present. In recognizing and embracing any bias, I hoped to remain more objective when interviewing the participants and analyzing the data. My interest in this topic was my first-hand experience being an African immigrant who fell victim to obesity and type 2 diabetes.

For the duration of the study, I collected and analyzed the data for thematic content. I conducted myself professionally, and I intended to remain open and honest. No personal agendas were expressed, and any behavior such as falsifying data, fabricating results, or skewing of data to arrive at the results I wanted to see did not take place. Complete and accurate notes were kept, clearly documenting my research activities. An audio recorder captured the interviews verbatim; I later transcribed the records. To the

best of my knowledge, I recorded and analyzed the data accurately and coded the information I gathered relevantly and without bias.

Methodology

Participant Selection Logic

The setting for this study was Portland, Maine. At the time, the City of Portland was experiencing a large influx of immigrants from all over the world (CDC, 2013). With the growing numbers in the city, there was a rise in obesity and type 2 diabetes, especially within immigrant populations (City of Portland, 2016). Given that, Central African immigrants were the focus of this study, several factors that may have influenced the prevalence of these diseases in this population is under study. Despite many nutritional programs and opportunities to engage in healthy activities, religious and culture barriers served to prevent certain groups of immigrants from participating in programs (Benton-Short et al., 2005). Due to the culture, illiteracy, and religious barriers, this group of immigrants was not so well informed about the activities and nutrition programs, which could have improved and prevented obesity and Type 2-Diabetese among Central African immigrants.

This study used purposive sampling (Merriam, 2009). Researchers use purposive sampling in qualitative research for the selection of a representative segment of population (Palinkas et al., 2015). The purposive method focuses on the selection of individuals, or groups of individuals, who are knowledgeable about a phenomenon and is appropriate for qualitative analysis (Ritchie et al., 2013). To achieve the best results

qualitative research often suggests a minimum of 10 participants to collect enough data of the lived experiences of participants (Creswell, 2013; Merriam, 2009). The sample for individual interviews consisted of a minimum of 12 participants with a maximum of 20. Per Yin (2014), in qualitative studies data saturation is important for confirming that the sample adequate. If 10 or more participants take part in the study, the sample should enable data saturation (Yin, 2014). The justification for the number of interviewees asked to participate is supported by Yin (2014), who suggested that a study could offer valid data for analysis given the depth of information gathered from participants if none of the interviewees has anything new to offer for analysis.

Concerning the characteristics of the study participants, purposive sampling uses what is known as selection criteria, which are prepared by the investigator. These criteria include characteristics found to be significant, and relevant to the purposes of the topic of the research study. Purposive sampling was used to obtain participants and includes participants who (a) reside in Portland, Maine, (b) have been in the United States for at least 1 year, but no more than 5 years, (c) have experienced diminished general health, and (d) are interested in sharing their experiences. The primary impetus for choosing Portland, Maine, is because there has been an influx of immigrants into the area for the past 16 years, and I had specific knowledge of the geographic area and topic.

To ensure that all collection materials are used appropriately and efficiently, triangulation was used. Triangulation serves to use preexisting data and research to build a stronger case for the study. Triangulation occurred by interpreting the data gathered

from multiple sources. The purpose of using methodological triangulation was to confirm that the data collected was complete (Denzin, 2012). The information obtained through conducting interviews and analyzing documents will allow for interpretation of the topic under study. Comparisons between participants and the prior data collected from the CDC and Portland's Health Division helped add validity to the research findings and ensure accurate triangulation.

Instrumentation

Semistructured interviews. The use of semistructured interviews allowed me to explore the experiences and perceptions of Central African immigrants in a flexible manner. Semistructured interviews are a verifiable tool for allowing participants to share their thoughts and opinions related to the research topic (Yin, 2013). An interview protocol guided the semistructured interviews and allowed for open-ended questions (See Appendix A). Additionally, a subject matter expert from the City of Portland reviewed the interview questions for content validity, and I made changes based on her feedback. Semistructured interviewing of this type allowed for greater participant and researcher dialogue surrounding the experiences Central African immigrants, especially in relationship to health and health behaviors.

According to Irvine, Drew, and Sainsbury (2013), there are advantages to conducting interviews face-to-face including (a) the ability to gain trust, (b) politeness, (c) nonverbal communication, and (d) the ability for the participant to express themselves. Manning and Kunkel (2014) stated that conducting participant interviews

allows for a sense of sentiment, feelings, and understanding of participants' experiences. Other methods of data collection may not have had the same effect. Distinctive ways of posing questions with the use of prompting and probing helped mine more information and steered the interviews to more comprehensive and exhaustive levels (Rubin & Rubin, 2012). I asked open-ended, semistructured questions during the interviews, pertaining to immigrant health, to obtain rich data and to achieve a greater understanding of the participants' experiences. An example of a question that was asked is, "In what way are you provided with support and activities related to health and fitness here in the United States?"

To adequately interpret the lived experiences of the participants, I used Rubin and Rubin's (2011) approach to the interview protocol in this study. Using their semistructured interview protocol allowed me to "to and then asking further questions about what he or she hears from the interviewees rather than relying on predetermined questions" (Rubin, & Rubin, 2011, p. vii). The flexibility of Rubin and Rubin's (2011) semistructured interview protocol facilitated posing specific questions about health-related topics in Portland. Maine. As previously noted, the face-to-face semistructured interviews took place in a mutually agreed location. The interviews took place in a previously arranged private room at the Maine Access Immigrant Network above the General Assistance Office in Portland, Maine Office or library, and were conducted in English, French, Lingala, Swahili, or via a combination of these as I speak all four languages. The primary intention was to allow participants to feel comfortable and not

inconvenienced in having to travel any great distance. Interviews occurred individually with only myself and potential participant present, and in whichever location the interviewee felt the most comfortable. The interviews lasted between 30 and 60 minutes and participants had the opportunity to have a second follow up interview or dialogue by phone if they wished to or clarify what they have shared. Additionally, an audio recorder captured the interviews to be transcribed. Interviewees also had the opportunity to review their interview transcripts for accuracy as stated in the informed consent.

The instruments used to conduct interviews consisted of a codebook. The codebook provided a way to keep track of participant answers by assigning a participant designation (number). In this way, I knew which responses to send to each participant for them to review and validate that what I had was what they intended to relay. Additionally, I used the codebook for taking notes by jotting down my thought in the margins. I conducted the questioning in an iterative style to capture rich, thick descriptive data from study participants, to ensure reliability and validity, and until data saturation took place. Member checking also occurred. Member checking or ensuring that participants are sharing exactly what they intend to share, occurred during the interview process.

With permission of the participants through a signed consent form, the interviews were recorded for ease in later transcription. After audio recording the interviews and transcribing the recordings, I asked the participants to member check the interviews to ensure the credibility, completeness of their responses by providing them with a copy of

the transcript after all interviewing and transcription was complete. After transcribing the recordings by closely listening to the recorded audios, I reviewed the transcripts, participant feedback, and related notes taken in the margins of the codebook. Next, I conducted open coding of the data by hand, by a codebook and through review the associated notes, to identify the categories of information shared by the respondents. Coding the data in this way also helped identify possible themes that emerged from the responses. I saved the interview transcripts in a Microsoft Word document and on a thumb drive. The thumb drive, transcripts, and consent form will be stored in a locked location for 5 years. After 5 years, the data will be destroyed. Use of this methodology was a recommendation of qualitative research experts such as Yin (2015) and Stake (2013).

Artifact data. Artifacts can consist of any type of document used by an organization (Stake, 2013). Document analysis allows for extensive data comparison (including the data acquired from the interviews), which increases the credibility of interpretation (Harper & Cole, 2012). As qualitative research is exploratory in nature, it provides insight into the underlying opinions, motivations, and reasons behaviors. One advantage of using a qualitative multiple case study method to analyze documents is the ability to explore and compare data over time (Adams et al., 2015). In this case, data from the CDC related to health in Central African immigrants in Portland, Maine, and in the United States as a whole, was collected, and analyzed, to deepen the understanding of the

phenomenon being studied. Data collected from the City of Portland, Maine, was also used for this purpose.

In line with Creswell (2013), analyzing documents from the CDC and the City of Portland was useful in qualitative studies and allowed researchers to utilize any existing documentation related to the phenomenon studied. Using such material provided greater understanding of an issue in context (Creswell, 2013). An analysis of the respective artifacts (CDC and City of Portland data) co-occurred with an analysis of the interview data to provide additional detail and depth about the phenomenon. Triangulation of the data also occurred as interview and artifact review was compared and corroborated.

Procedures for Recruitment, Participation, and Data Collection

Using case study designs place an emphasis on using multiple sources as a data collection method (Creswell, 2013; Yin, 2013). I implemented two different data collection tools. These consisted of semistructured interviews and artifact data from the CDC data for Maine and from the City of Portland. This format facilitated gathering in-depth data, and the data sources were appropriate for this study to allow provide rich data in relationship to the phenomenon studied. Semistructured interviews allowed for collection of individual-level responses to the experiences of Central African immigrants in relationship to health and health behaviors. Artifact data from the CDC for Maine provided information regarding Central African health statuses and artifact data from the City of Portland provided Central African immigration information.

The recruitment for interview participants occurred by requesting the participation of potential interviewees introduced to the project via groups that took place every Tuesday at the city of Portland's Maine Access Immigrant Network above the General Assistance Office in Portland, Maine Office where families in need, frequently immigrants, come for assistance. Although these individuals are from various parts of the world, the invitation was only extended to immigrants from Central Africa during an announcement I made at the end of the session. I also provided flyers at the time at which the announcement is made (See Appendix C). The announcements and the flyers were in English as well as interpreted in the three main languages spoken in Central African countries: French, Lingala, and Swahilii. The flyers included the criteria for participation, those who (a) reside in Portland, Maine, (b) have been in the United States for at least 1 year, but no more than 5 years, (c) have experienced a negative change in their general health, and (d) are interested in sharing their experiences. Additionally, the flyers asked potential participants to call or email to express their interest. In addition to the Tuesday groups, I distributed the flyers to religious and faith groups encouraging involvement in the study. I continued attending the Tuesday groups, distributing flyers, and making the announcement until I had at least 12 volunteers.

After those interested in participating in the study responded to me via email or a phone call, through the contact information provided, I (a) explained the purpose of the study, (b) asked participants if they meet the criteria to participate in the study, and (c) asked participants if they would meet with me in a face-to-face interview in a location

that is comfortable for them. These interactions took place through email or by speaking on the phone. For potential participants, I interacted with via email; I sent them an email officially inviting them to participate in the study. For individuals, I contacted them through a phone dialogue or through an e-mail interaction; I brought the consent form to the interview and asked for their signed permission at that time.

Data Analysis Plan

Qualitative analysis of data requires a commitment to an ongoing process that is both thoughtful and consistent (Creswell, 2014). To accurately begin data analysis, I intended to transcribe the interview data myself and, more specifically, to type up the interview notes within 24-48 hours of conducting interviews. Once the interview portion of this study was complete, I went over the transcripts a minimum of three times to begin a preliminary assessment of the data. I used the review process of the data to establish any obvious patterns, while concurrently looking for relationships between cases—all with an expectation of conducting a cross-case analysis of the materials (Creswell, 2013; Yin, 2013). Each case used in this study was reviewed independently to reveal noticeable patterns, including the ultimate review and exploration of the documents and the observations associated with each case (Stake, 2013). I then aggregated patterns found within the individual cases and compared them to all other cases in this study to allow common themes to emerge (Yin, 2013). Found themes were used to understand the unique experiences of individuals of Central African immigrants in Portland, Maine.

Given the emergent, dynamic nature of qualitative studies, data analysis was being an ongoing process. Creswell (2013) explained that ongoing coding is key to identifying emerging trends in the data. Open coding is the first coding step in analyzing the data. Open coding consists of the researcher reviewing the transcribed interviews and memos and identifying categories of information shared by the participants (Creswell, 2013). Information provided by respondents was then analyzed by NVivo, a software designed to analyze qualitative data. All hand-written notes and recordings were also used to develop transcripts and those transcripts were then inductively coded. A matrix of responses was developed and the response from the three sets of participants were integrated to interpret the findings.

Thematic analysis was used to code and interpret the data, along with the aid of NVivo software. The thematic analysis took place using Kvale and Brinkmann's (2009) seven stages of interviewing. These stages consist of thermalizing (the why and what of the inquiry), designing, or planning the study, interviewing the participants with the aid of the interview questions, transcribing the interviews, with or without outside aid, analyzing the data, verifying the data by confirming reliability, and finally, reporting on the findings of the study in a clear and concise manner (Kvale & Brinkmann, 2009). In summary, the analysis consisted of gathering the interview data and grouping it based on the research question addressed. The material gathered from the interviews sought to answer questions originally developed for this study specifically. This data was aligned to directly reflect the individual research questions of the study, as well to gather

demographic and other pertinent information from the participants. I recorded audio and transcribed each individual interview.

Issues of Trustworthiness

To minimize threats to validity, the approach in this study was based on the constructivist framework of the study. Methods were careful undertaken to validate and support the accurateness of the data presented. In approaching the interview transcribing and thematic interpretation of the study, I remained objective throughout both the data collection and analyses phases of the study. To support the integrity of the findings in this study I also used several components to ensure trustworthiness. First, to strengthen the credibility of the findings, I used multiple methods of data collection and sources to validate the work. Additionally, an audit trail, created via my researcher journal, increased the dependability of the findings. In this regard, utilizing an audit trail also allowed for the tracking of data collection and decision-making throughout the research process. Using thick descriptions of each case allowed for the transferability of the findings to other areas and circumstances, and member checking, allowing participants to review their responses; this helped ensure that the results presented are objective. Finally, I retained all consent form information in confidentiality. Five years after the completion of the project, all information will be either deleted or shredded.

There were some potential limitations to the design of this study and the methodology employed. The first is that a single researcher conducted the study. In some sense, this means that there was only one perspective in which the data was interpreted.

Second and often related, the same researcher who collected the data, including conducting the interviews and gathering observational data frequently was the sole analyzer of the collected data. This was a point of entry for researcher bias. Ideally, researcher tasks are separated, which would make the introduction of bias more difficult. Nevertheless, I was the research instrument. I examined documents, conducted interviews, and conducted fieldwork. I used the data collection methods of interviews and observations, which can be coded, analyzed, compared, and interpreted to gain a better understanding of obesity and type 2 diabetes among Central African immigrants in Portland, Maine.

As a Central African and hospital administrator, my knowledge and skills, my experience and perspectives, my attitudes and beliefs—as well as study background indubitably affected how I collected and processed data and ultimately shaped the results of the research. However, to reduce bias, I was open and inquisitive, and aimed to validate participant understand of the questions, and my interpretation of their responses, by asking them about their understandings of what I am asking. To further reduce my bias, I used appropriate software, specifically NVivo, to analyze the data. I also presented preliminary findings of my research to peers as well as to selected city leaders for review.

Certain assumptions also existed, which I did my best to account for in the study. One of these was the assumption that there would be an adequate response rate to effectively analyze the data. Transcripts of individual interviews were the means to ensure a large enough sample in reached. I interviewed twelve participants to achieve the

level of saturation needed to grant the study validity (Yin, 2014). The second and final assumption was that the participants were honest in their responses, as dishonesty can ultimately result in skewed data. I attempted to ensure that the resulting data was not skewed by looking for consistency in what the participants are sharing. I provided participants with the opportunity to identify potential inconsistencies within the written transcriptions of the interviews as well and they were invited to add to the data and to make corrections if necessary.

Ethical Procedures

Before any research began the potential study gained IRB approval (Approval No. 04-02-18-037825). I obtained informed consent from all participants. I made every effort to prevent and avoid any unethical activities such as the violation of non-disclosure agreements and betraying confidentialities. The institutions from which I recruited participants were not disclosed, and no personal identifiers associated with the participants were attached to the research. I remained conscious of any ethical dilemmas, and modified the research design, protocols, and procedures during the planning processes as needed to ensure the procedures were ethical. Defined roles in the proposed project also set boundaries for appropriate and principled behaviors. Clarification of roles occurred using the consent form tool. The informed consent tool contained a description of the study, risks, and benefits accruable to participants, their roles, and rights, as well as a researcher declaration of facts. I clearly and concisely presented this information to enable the participants to make informed decisions about their participation in the study.

Before I started any interviewing with a participant, I clearly articulated the purpose of the study and its expected results (in term of policy or social change), the length of the interview, the necessary consent of the participant, the confidentiality observed by the researcher, any tool (block note, audiotape) to be used during the interview, etc. In the participant consent form, I insisted on the fact that confidentiality will guide my work, that participation was voluntary, and that the participant had the right not to respond to any question or decide to end the interview at any time. At the end of each interview, I made clear to the participant that I intended to share with her or him the notes I took and the transcript of the audiotape so that the participant had his or her say on the final "product" of the interview before any data analysis took place.

Summary

As the purpose of this qualitative study was to explore the reasons for an increase in obesity and type 2 diabetes among the Central African immigrant population in the United States, this chapter served to outline how the study was conducted. The approach used in this study employed a case study design, using Portland, Maine, as an example. To gain insight into the perceptions of the participants, Central African immigrants living in Portland, Maine, were interviewed. Data from the CDC and the City of Portland were all explored in the hope that more efficient practices for ensuring good health and policies and programs that aim to improve access to knowledge could be encouraged regarding healthier foods, and the means to prepare them, and greater access to exercise facilities and programs. This chapter addressed the setting, research method and design, and the

role of the researcher. Additionally, the methodology and procedures for data collection were presented. Finally, there was a discussion of the data analysis, strengths, and limitations, issues of trustworthiness, and ethical procedures. In Chapter 4, I explore the study's findings.

Chapter 4: Results

Introduction

The purpose of this qualitative study was to explore the reasons for an increase in obesity and type 2 diabetes among the Central African immigrant population in the United States. To resolve this health problem, this study employed a case study design, with Portland, Maine, as an example. I interviewed 17 Central African immigrants living in Portland, Maine, to learn their perspectives on the differences between their home country and the United States with respect to eating habits, approaches to exercise, food culture, and public health programs.

The constructivism and the HBM lens through which this study sought to understand its primary research question—the reasons for an increase in obesity and diabetes in the target population—were also accompanied by two secondary research questions. First, I examined whether issues such as the immigrant community's culture, literacy rates, and native religion had anything to do with the increase. Second, I recorded what programs and activities the target population felt were effective in reducing problems with obesity and type 2 diabetes.

Based on this data analysis, three central themes emerged: (a) socioeconomic issues, (b) cultural differences, and (c) language gaps. The two minor themes were revealed: (a) feeling stressed and overwhelmed and (b) lack of communication. The findings revealed several strategies aligned with the conceptual framework, as discussed

in the literature review. The following topics covered in Chapter 4 are: (a) setting, (b) demographics, (c) data collection, (d) data analysis, (e) evidence of trustworthiness, and (f) results.

Setting

The setting for this study was Portland, Maine. Currently, the City of Portland is experiencing a large influx of immigrants from all over the world (CDC, 2013). With the growing numbers in the city, there has been a rise in obesity and type 2 diabetes, especially within immigrant populations (City of Portland, 2016). Given that Central African immigrants are the focus of this study, several factors that may influence the prevalence of these diseases in this population were under study. Despite many nutritional programs and opportunities to engage in healthy activities, religious and culture barriers prevented certain groups of immigrants from participating in programs (Benton-Short et al., 2005). Due to barriers caused by culture, illiteracy, and socioeconomic issues, this group of immigrants was not well informed about the activities and nutrition programs that were available to prevent and improve obesity and type 2 diabetes among Central African immigrants.

Demographics

The data collection method involved a semistructured interview process and a thorough exploration of the literature surrounding the diets of Central African immigrants living in Portland, Maine. The data from this study came from the 17 interview participants, who provided enough information to achieve data saturation. As seen in

Table 1 the participants included 9 females and 8 males, with ages between 35-73, all participants have lived only in Portland, Maine, since immigrating to the United States, and have lived there for 5 years or less. Participants had eight common interview questions to answer. The data collected and analyzed from the interviews and the literature provided rich information that contributed to answering the research question.

Table 1

Participant Demographics

Demographic Information	Data
Males	8
Females	9
Age range	35-73
Portland, ME as the only place of residence in the United States	17
Reside in the United States 5 years or less	17

Data Collection

The data collection method involved a semistructured interview process and a thorough exploration of the literature surrounding the diets of Central African immigrants living in Portland, Maine. All participants had eight common interview questions to answer. The data collected and analyzed from the interviews and the literature provided rich information and contributed to answering the research question. The data from this study came from the 17 interview participants and to ensure validity I compared data provided by participants to prior relevant data collected from the CDC and Portland's Health Division (CDC, 2013).

The use of semistructured interviews allowed me to explore the experiences and perceptions of Central African immigrants in a flexible manner. I used an interview protocol with open-ended questions to guide the semistructured interviews (Appendix A). Additionally, a subject matter expert from the City of Portland reviewed the interview questions for content validity, and I made changes based on her feedback. Semistructured interviewing of this type allowed for greater participant and researcher dialogue surrounding the experiences of Central African immigrants, in relationship to health and health behaviors.

The face-to-face semistructured interviews with each of the 17 participants began with a review and signing of the Informed Consent form. Once participants granted consent, the interviews began, lasting between 30 and 60 minutes and consisting of the following questions:

1. What are some of your beliefs pertaining to healthy eating and exercise?
2. What type of diet do you have here in the United States? Is it different from what you ate in your country? And if so, how?
3. Are you provided with support and activities related to living a healthy lifestyle here in the United States?
4. How do your beliefs about health and health behaviors fit with what you are accustomed to doing and eating in your country?
5. How does your perception/s about yourself as an immigrant influence what you eat and your level of exercise?

6. What are your thoughts about health programs offered in English, versus a program in your language?
7. How would communication of the purpose and benefits of health programs in an easily understood manner aid your participation?
8. Is there anything else you can tell me that relates to eating and exercising here in the United States as opposed to in your county?

All interviews were conducted in English, French, Lingala, Swahili, or via a combination of these, to ensure participants understood all questions and were able to thoroughly answer them. The interviews occurred individually with only myself and the participant present, and the use of an audio recorder ensured the accuracy of all responses and increased the validity of the transcription process. During the interviews, I utilized member checking to clarify participant responses and ask follow-up questions. To ensure participant anonymity and provide an opportunity for taking notes during the interviews a codebook was an integral part of each interview. I provided interviewees the opportunity for a follow up interview or dialogue by phone to clarify the information they shared in the initial interview.

Data Analysis

At the beginning of each interview, I assigned participants a number to protect their identity as recommended by Creswell (2013). I then used the participant codes throughout the data analysis process to both efficiently and accurately assign responses and attribute data results. Although I interviewed 21 participants only 17 of them resulted

in viable information and provided enough data or clarity of surrounding what was being communicated by being articulate and answering all the questions fully. For example, one participant shared “We eat good in Africa.” However, this is not an articulate answer explaining what eating good entails. Therefore, his answer was inarticulate and excluded from the study. To further demonstrate an inarticulate answer, another participant did not respond to two of the questions I asked, leaving me to exclude his unaddressed answers. During the study, I endeavored to use the transcripts of participants that were most complete and clearly expressed meaning for depth of information. According to Yin (2014), the use of at least 10 participants in a qualitative study is a sufficient number of participants to grant data saturation. Therefore, the full use of the answers provided by 17 participants in the study, and the partial use of answers provided by the other 4 participants, was more than adequate to reach data saturation. Although codes will occur ranging from P1 to P21, the majority of the interview data is from 17 participants.

The first step in data analysis involved the accurate transcription of each interview audio recording. To ensure accuracy, I completed all interview transcriptions and began typing up the interview notes within 24-48 hours of conducting interviews. Once the interview portion of this study was complete, to begin a preliminary assessment of the data, I reviewed the transcripts a minimum of three times. I used the data review process to establish any obvious patterns, while concurrently searching for relationships between cases—all with an expectation of conducting a cross-case analysis of the materials (Creswell, 2013; Yin, 2013). I reviewed each case used in this study independently, to

reveal noticeable patterns. This process included both the ultimate review and an exploration of the documents and observations associated with each case (Stake, 2013). I aggregated patterns found within the individual cases and compared them to all other cases in this study, which allowed common themes to emerge. The themes that emerged helped to clarify the unique experiences of individuals of Central African immigrants in Portland, Maine.

Given the emergent, dynamic nature of qualitative studies, data analysis is an ongoing process. Creswell (2013) explains that ongoing coding is key to identifying emerging trends in the data. The first coding step in analyzing the data was open coding, which consists of me reviewing the transcribed interviews and memos and identifying categories of information shared by the participants (Creswell, 2013). Next, the data was analyzed using NVivo, a software designed to aggregate and manage qualitative data. All hand-written notes and recordings were used to develop transcripts and those transcripts were then inductively coded. A matrix of responses was developed and the response from the three sets of participants was integrated to interpret the findings.

Using Denzin's (2012) recommendation, I used NVivo software to analyse the data, triangulate the data, and establish plausible themes. After conducting each interview, I utilized member checking to ensure that my participants they had expressed all the information they intended to share. I then used external literature to verify what the study participants were saying. The data inspection process contributed to developing a summary of the experiences shared by the participants.

Thematic analysis provided a method to code and interpret the data, along with the aid of NVivo software. The thematic analysis took place using Kvale and Brinkmann's (2009) seven stages of interviewing, which include: (a) thermalizing (the why and what of the inquiry); (b) designing, or planning the study; (c) interviewing the participants with the aid of the interview questions; (d) transcribing the interviews, with or without outside aid; (e) analyzing the data; (f) verifying the data by confirming reliability; and finally, (g) reporting on the findings of the study in a clear and concise manner (Kvale & Brinkmann, 2009). I aligned this data to directly reflect the individual research questions of the study, as well as to gather demographic and other pertinent information from the participants. For example, P3's response to the second interview question regarding differences between the individual's diet prior to living in the United States, "In my country the food is health[y], you don't need to exercise so that you can have better health, all the food is natural," also provides insight into the first research question. Participants 8, 12, and 21 also responded in a similar manner, resulting in the beginning of an emerging theme related to cultural differences between the participants' country of origin and life in the United States.

Three main themes emerged from the data, all with more than 75% of the participants providing comments related to the themes. The first theme to emerge was cultural differences and 16 of the 17 participants made comments pertaining to this theme. Participant 2 was the only outlier in this area, not because they did not indicate cultural differences, but because their responses throughout the interview focused on their

role in assisting others, not how cultural differences affected them. For example, in response to question 1 regarding their beliefs pertaining to healthy eating and exercise, P2 responded, “I do believe in prevention, as a community health worker I am involved in prevention and healthy eating by doing workshops.” It is clear from the response that P2 is responding to the questions from the perspective of someone involved in the health or medical field and not as an immigrant adjusting to life in another culture.

The second theme to emerge, socio-economic issues, had 15 of the 17 respondents making comments related to this topic. For example, both P1 and P7 made comments regarding their inability to exercise because of the amount of time they spend working. However, three respondents, P9, P12, and P18 were outliers in that they do not feel their perception of themselves as immigrants plays any role in how they may or may not exercise. Respondents made additional comments regarding the challenge SES plays when it comes to making healthy food choices. In fact, 11 of the 17 participants made some type of comment regarding the cost and subsequent challenges of eating healthy food in the United States versus their home country.

The third theme identified through the data analysis process was language gaps, which primarily focused on their role in preventing individuals from making healthy choices in the United States. Eleven of the participants made comments directly related to a lack of resources and support because of their limited ability to speak and understand English. Participants 1 and 3 even went so far as to suggest the languages that would

improve their ability to understand where and how to find and utilize support for a healthy lifestyle.

Two minor themes emerged from the analysis. Although these themes are minor, more than 25% of the participants made comments within each. The first minor theme highlights that 5 of 17 respondents feel overwhelmed by the demands placed on them in the United States. While 8 of 17 respondents believe there is a lack of communication that results in challenges to healthy living.

Evidence of Trustworthiness

To minimize threats to validity, the approach in this study was based on the constructivist framework, as previously mentioned. During the interview transcription and thematic interpretation processes, I implemented methods to ensure the data was both valid and accurate. I remained objective throughout both the data collection and analyses phases of the study by recognizing and embracing potential bias. To support the integrity of the findings in this study I used the following components: (a) I remained open and honest, (b) no personal agendas were expressed, (c) behavior that would skew the results of the data did not occur, (d) complete and accurate notes were kept, (e) an audio recorded was used to capture the interviews verbatim, and (f) data was analyzed and coded without bias. The following paragraphs address the components of trustworthiness and their role in the study.

Credibility. Credibility is the method researchers use to ensure the legitimacy of the data discovered (Yin, 2015). According to Dasgupta (2015), in a qualitative study

credibility refers to the perceptions of both the participants and the researcher. The credibility of the participant involves their perception of the interview questions and the way they respond, while the credibility of the researcher involves their perception of participant responses (Dasgupta, 2015). To strengthen the credibility of the findings, I used multiple methods of data collection and sources, including an audio recording, a codebook, and member checking. As a Central African and hospital administrator, my knowledge and skills, my experiences and perspectives, my attitudes and beliefs—as well as study background affected how I collected and processed data, ultimately shaping the results of the research. To reduce bias, I was open and inquisitive, and validated the participants understanding of the questions, and my interpretation of their responses, by asking them questions to determine if they understood what I was asking. To further reduce my bias, I used NVivo to analyze the data. I also provided participants the opportunity to identify potential inconsistencies within the written transcriptions of the interviews and invited them to add to the data and to make corrections if necessary.

Transferability. Researchers deem a study transferable when the application of various data presents consistent and replicable results (Portney & Watkins, 2015). To ensure accurate data I looked for consistency in participants responses. Using thick descriptions of each case allowed for the transferability of the findings to other areas and circumstances, and member checking ensured that the interviewee's responses accurately reflected their opinions and the information they provided, which helped ensure that the results presented were objective.

Dependability. Researchers use dependability to ensure the information they are acquiring is reliable (Lishner, 2015). Marshall and Rossman (2014) assert that to achieve dependability researchers must consider both the changes that occur during a study and how these changes affect the research process. I ensured the dependability of the findings through an audit trail, which I created via my researcher journal. Utilizing an audit trail also allowed me to track both the data I collected and the decisions I made throughout the research process.

There were some potential dependability limitations to the design of this study and the methodology employed. The first was that a single researcher conducted the study. In some sense, this means that data interpretation occurred through only one perspective. Second, the same researcher who collected the data, conducted the interviews, and gathered the observational data, also conducted the analysis of the data. This was a potential point of entry for researcher bias. Ideally, the separation of researcher tasks makes the introduction of bias more difficult. Nevertheless, I was the research instrument. In situations like these, Leung (2015) suggested the implementation of member-checking to provide participants an opportunity to review their responses and ensure the reliability of the information, which I completed.

Confirmability. Researchers bring their personal viewpoints to qualitative research and confirmability ensures that the results will either confirm or corroborate the results of studies done in other contexts (Marshall & Rossman, 2014). To ensure confirmability I used the data collection methods of interviews and observations, which I

then coded, analyzed, compared, and interpreted, to gain a better understanding of obesity and type 2 diabetes among Central African immigrants in Portland, Maine.

Results

After an in-depth review and analysis of the collected data, three main themes and the two minor themes emerged from the case studies. The main themes were: (a) socio-economic issues, (b) cultural differences, and (c) language gaps. The two minor themes revealed were: (a) feeling overwhelmed by demands and (b) lack of communication. As shown in Table 2, the themes that emerged through analysis align with the initial research questions developed for the study.

Table 2

Data Alignment between Research Questions and Emerging Themes

Research Questions	Emerging Themes Based on Participant Responses			
	Cultural differences	Cultural differences	Cultural differences/Socio-economic issues	Cultural differences
What are the underlying causes of an increase in obesity and type 2 diabetes among Central African Immigrants in Portland, Maine?	P3: "In my country the food is health you don't need to exercise so that you can have better health all the food is natural."	P8: "I try to watch my diet here more than I used to back home, but there is so much junk and unhealthy food than back home and it is so tempting to eat."	P12: "Diet in US is far more different than my home country – preserved foods with high fats and sugars instead of the fresh food though sometimes availability and economic situations may affect the way you eat."	P21: "Here in the United States, people are exposed to unhealthy foods (junk foods) which are very different in my country because most of the foods we have are all organic

			and natural."
	Language gaps/ Lack of communication	Cultural differences	Cultural differences/
Could issues such as culture, illiteracy, and religion contribute to the problem of obesity and type 2 diabetes in Central African immigrants?	P21: "The health programs in English is good for those who speak English fluently, but I believe that a lot of people will need that same program in different languages for a better understanding."	P16: "We don't need to teach people to eat well in my country because all the food is natural."	P2: "I am coming from the country where families make food every day; from the land (farm) to the kitchen. Unfortunately, wars change diet habit for the most of us. We still are aware in USA."
	Cultural differences	Language gaps/ Lack of communication	Socio-economic issues/Feeling overwhelmed by demands
What type of experiences as reported by Central African immigrants in Maine may be effective in reducing problems with obesity and type 2 diabetes?	P8: "As an immigrant home cooking is very important for me and my children. I make almost everything at home. As far as exercise I feel like American are more into exercise than we are but in the same time we used to move more back home, here we drive everywhere."	P2: "I think some time it confusing people in term of interpreting in English. There's a lack of good resources in our languages." "If possible make more education for new comers in USA."	P7: "I work, work, no time to exercise."

The following subsections include comparisons of the main themes using the conceptual framework, the articles discussed in the literature review in Section 1, and any new studies published since completing the proposal.

Table 3

Summary of Main and Minor Themes

Main Themes	Description of Themes	No. of Respondents
	Socio-economic issues	15
	Cultural differences	16
	Language gaps	13
Minor Themes	**Description of Themes**	**No. of Respondents**
	Feeling overwhelmed by demands	5
	Lack of communication	8

Main Theme 1: Cultural Differences

Any immigrant population is going to notice substantial differences in culture upon arriving in the United States. The Central African immigrants interviewed discussed the differences in food culture between their homes and the United States. Of the immigrants interviewed 12 of the 17 mentioned in some manner how the foods they eat in their home countries are "organic," "natural," or "fresh," going on to describe how they know exactly where the foods they eat come from, whereas in the U.S. food is "processed," "prepared," or "frozen." Participant 16 explained, "We don't need to teach people to eat well in my country because all the foods are natural." This statement highlights a major challenge immigrants face when acclimating to the culture of the United States and provides insight into a cause for their poor health. Additionally, the

data arising from this study provides potential insight into Vander-Veen's (2015) research, which underlined the lack of information regarding associations between resilience, acculturation, and obesity health risks.

Participant 2 further highlighted cultural differences when he mentioned that where he is from, "families make food together every day." Although this difference does not on the surface indicate a potential risk for increased health issues it does provide a stressor that immigrant families encounter, namely that their schedules may not accommodate this cultural tradition. Not only are the way families eat different, but culturally the United States spends less time exercising during normal daily activities. For instance, P8 discussed how since moving to the United States, his family drives much more than they walk. Further, 11 of the 17 the immigrants interviewed asserted that the American lifestyle is much more isolated, individual, and overall, less healthy than the lifestyles in their respective homelands. Participant 1 indicated this isolation with the following statement about support, "Only talking, but no real support." While P8 and P12 posited that while support is offered, it can be difficult to both understand and navigate the options available.

Based on the data, the primary issue pertaining to cultural differences is not one of adopting an unhealthy lifestyle, but rather the assumption of what is a common pre-existing American lifestyle. With 16 of 17 respondents reporting difficulty with American culture, the HBM model remains a useful lens to answer the main and secondary research questions. However, the research derives some causation from the

native cultural differences. While it is realistic, for example, to be able to import a tradition of walking or making food together, it is not as realistic to expect immigrants to know at all times exactly where all of their food comes from. Additionally, the financial challenges facing immigrants plays a major role in their options and choices regarding living a healthy lifestyle.

Table 4

Data Alignment Between Research Questions, Theme 1, and Participants' Responses

Research Question	Theme	General Participant Response
Main Theme 1: Cultural differences		
Q1: What are the underlying causes of an increase in obesity and type 2 diabetes among Central African Immigrants in Portland, Maine?	ST1.1: Exposure to healthy and unhealthy foods is vastly different.	"Here in the United States people are exposed to unhealthy foods (junk foods), which is very different in my country because most of the foods we have are all organic and natural.""
Q2: Could issues such as culture, illiteracy, and religion contribute to the problem of obesity and type 2 diabetes in Central African immigrants?	ST1.1: Difficulty in understanding the health resources available.	"The health programs in English is good for those who speak English fluently, but I believe that a lot of people will need that same program in different languages for a better understanding."
Q3: What type of experiences as reported by Central African immigrants in Maine may be effective	ST1.1: Importance of continuing traditions begun in their home country.	"As an immigrant home cooking is very important for me and my children. I make almost everything at

in reducing problems with obesity and type 2 diabetes?	home."

Main Theme 2: Socio-economic Issues

Data from interviews revealed that Central African immigrants must work lower-status jobs for longer hours, which makes junk food easier to gravitate towards. Participant 7, stated "I work, work, no time to exercise," while P1 reported, "What I eat is junk food and I have no exercise, work, work, work." In America, unhealthy processed food is plentiful, convenient, and inexpensive, which encourages Americans, particularly lower-income Americans, to eat a lot of it. Hamilton (2014) found that African immigrants were at a tremendous economic disadvantage, and, on average, make less money than native-born Americans.

The interviews revealed that for P1, P7, and P12 socio-economic status plays a meaningful role in determining their diet. P7 described themselves as working long hours, living off food stamps, and says regarding the quality of their diet, "In America, we eat anything." Participant 1 also mentioned food stamps as an impediment to their accessibility to healthy food. Rather than making decisions on what to eat based on what is the healthiest option available, these participants must focus on what is economically and practically viable for themselves and their families. Desire to prevent diabetes and obesity does not override the economic struggles people living in poverty experience (Lynn, 2002). Lynn (2002) revealed in a study that as most immigrants tend to settle in

U.S. cities they often face more instances of crime, resulting in a concern for safety outweighing the importance of health and attention to potential medical issues.

As identified by Boise et al. (2013) the root causes for a lack of health care among African immigrants stems from issues within the health care system, namely, the lack of a job and subsequent health care. While the ability or lack of ability to speak English is not the only cause of a lower SES for many immigrants, it is a significant factor as evidenced by socio-economic issues, reported by 15 of the 17 respondents.

Table 5

Data Alignment Between Research Questions, Theme 2, and Participants' Responses

Research Question	Theme	Participant Response
Main Theme 1: Socio-economic issues		
Q1: What are the underlying causes of an increase in obesity and type 2 diabetes among Central African Immigrants in Portland, Maine?	ST1.1: Lack of time to exercise, due to a need to work.	"I work, work, no time to exercise."
Q2: Could issues such as culture, illiteracy, and religion contribute to the problem of obesity and type 2 diabetes in Central African immigrants?	ST1.1: Ability to read and understand ingredient lists.	"I like the knowledge and access to information about the ingredients I eat. That knowledge is not very common in Africa. I also like the variety in the United States."
Q3: What type of experiences as reported by Central African immigrants	ST1.1: Low-wages result in less money for healthy food.	"In my country I eat fresh, here is difficult, food stamps limited."

in Maine may be effective in reducing problems with obesity and type 2 diabetes?

Main Theme 3: Language Gaps

The data shows that language gaps were an issue for 13 of 17 respondents, lending credence to the idea that the language barrier is one of the major causes of the crisis in obesity among the target population. The study suggests that language gaps limit Central African immigrants' ability to engage with health care resources effectively. Participant 1 verified the sentiment by stating, "In English difficult to learn, but my language easy to understand." Being unable to read and speak English in the United States greatly limits an individual's ability to understand what ingredients are in foods, whether those foods are healthy, how to obtain resources to make a daily lifestyle healthier, and their ability to get lucrative employment that may allow for the availability of more effective health care resources (Calvo & Hawkins, 2015).

Research suggests that relative isolation within a tiny community of those who speak the same native language can reinforce negative behavior. Van Hook and Baker (2010) discovered that social isolation results in immigrant parents with a limited capacity to teach their children about health risks, causing these children to continue engaging in behavior that will negatively affect their health. When asked how communication of health programs in an easily understood manner would aid immigrants 7 of the 17 respondents made comments supporting this idea. Participant 7 stated, "it may

facilitate and increase participation," while P2 and P8 made comments regarding the benefits to the whole community. However, a tight knit community can also be effective in reducing obesity by increasing overall well-being and reducing the stress of acculturation immigrants experience.

Table 6

Data Alignment Between Research Questions, Theme 2, and Participants' Responses

Research Question	Theme	Participant Response
Main Theme 1: Language gaps		
Q1: What are the underlying causes of an increase in obesity and type 2 diabetes among Central African Immigrants in Portland, Maine?	ST1.1: Lack of understanding of the language.	"In English difficult to learn, but my language easy to understand."
Q2: Could issues such as culture, illiteracy, and religion contribute to the problem of obesity and type 2 diabetes in Central African immigrants?	ST1.1: Resources only available to those who understand English.	"The health programs in English is good for those who speak English fluently, but I believe that a lot of people will need that same program in different languages for a better understanding."
Q3: What type of experiences as reported by Central African immigrants in Maine may be effective in reducing problems with obesity and type 2 diabetes?	ST1.1: Lack of resources.	"I think some time it confusing people in term of interpreting in English. There's a lack of good resources in our languages."

Minor Theme 1: Feeling Stressed and Overwhelmed

The three major themes previously mentioned attribute to stressful and overwhelming feelings. The assertions set forth by P1, P8, and P12 suggest that while support is available, individuals must advocate for it themselves. This issue clearly identifies why and how an immigrant may feel stressed and overwhelmed. The adjustments immigrants must make, when related to their food sources and whether something is healthy adds to the feelings of stress. This is clearly shown in P 21's response to the differences between their diet in their home country and their diet in the United States, "Here in the United States people are exposed to unhealthy foods (junk foods) which is very different in my country because most of the foods we have are all organic and natural."

Concerns about safety, housing, employment, and the ability to communicate with those around them add stressors to the lives of immigrants that put addressing health risks and concerns at the bottom of a very long list. Vander-Veen's (2015) research shows that when levels of acculturation and resilience are higher, lower levels of obesity occur, which supports the assertion that feelings of stress and being overwhelmed will negatively affect an immigrant's health.

Minor Theme 2: Lack of Communication

Although not directly discussed, lack of communication, particularly regarding health care access, was evident by comments regarding English-only public health resources. Even when an immigrant has access to the resources and can thoroughly

speak, and understand, English there are still barriers when they try to gain access to health care (Wafula & Snipe, 2014). Specifically, the role their accent plays in their interaction with those providing health care resources. Wafula and Snipe (2014) further assert that there are often an insufficient number of translators available and immigrants frequently experience discrimination based on their accent. Additionally, respondents would be unlikely to understand basic health and wellness information, such as a proper exercise routine or proper preventative medicine.

Summary

Thus far, the experience of the Central African immigrant community does not differ significantly from that of other impoverished or low-income Americans. Given the issues reported, it seems reasonable that a great deal of what is transpiring is Ameri-centric. However, not all groups will have the exact same causation of obesity or diabetes and certainly, the strategies for reducing the problem will vary from group to group.

The Central African immigrant population of Portland, Maine, targeted for this study has a lack of access to healthy foods due to poor socioeconomic status, that socioeconomic status prevents them from rising out of their current situation (i.e., a poverty trap), which has increased a sense of anomie and led to poorer health outcomes. Respondents cited language barriers, lack of communication, stress, and cultural differences as attributing to their health care struggles. Interestingly, respondents did not cite religion as an issue.

Chapter 5 discusses applications to professional practice, implications for social change, recommendations for action, and recommendations for further research

Chapter 5: Findings

The purpose of this qualitative multiple case study was to explore the reasons why Central African immigrants in Portland, Maine, experience higher rates of obesity and type 2 diabetes in Maine. This study was important because it sought new strategies to increase the health of the Central African immigrant community. The findings included five themes: three major themes and two minor themes. The main themes were (a) socio-economic issues, (b) cultural differences, and (c) language gaps; the minor themes were (a) feeling stressed and overwhelmed and (b) lack of communication. The study's findings align with the literature and the conceptual framework. An increase in a separatist ideology, which supports less cultural cohesion, the adoption of an American lifestyle, and socioeconomic pressures seem to be the most pressing factors in the causation of obesity and type 2 diabetes in the Central African immigrant population of Portland, Maine. Although assumed otherwise, religion was not a factor. Ultimately, the findings revealed that poverty and differences in both culture and language made Central African immigrants more likely to eat unhealthy food, less likely to visit health care professionals, and less likely to be concerned about health issues. In this chapter, I cover the following topics: (a) interpretations of the findings, (b) the study's limitations, (c) my recommendations for mitigating rates of obesity and type 2 diabetes in Central African immigrant populations, (d) and the study's implications for social change.

Interpretation of the Findings

The findings revealed several strategies aligned with the conceptual framework discussed in the literature review section of this study. While no one issue can definitively explain why Central African immigrants have an obesity problem, a framework can be derived from the research with a reasonable degree of certainty. HRM theory, primarily when considering cost/socioeconomic status, describes the barrier towards rectifying the issue (and its genesis in the first place), answering the primary research question. The first secondary question pertaining to culture, illiteracy, and religion answers in the affirmative, minus religion, which was not cited as a determining factor by the respondents. The second secondary question, pertaining to experiences reported that could be effective in reducing problems with obesity and type 2 diabetes, is answered through HRM theory and an interpretation of the lifestyles lived by the target population, as well as ways in which to ameliorate these issues.

Theme 1: Socioeconomic Issues

The economic determination of the diets of Central African immigrants falls under the concepts established by HRM theory. Wills (2015) described "barriers to taking action," or, an individual's unwillingness to act to promote health due to cost, unpleasantness, physical pain, or the possibility of emotional trauma, as an important part of understanding and explaining health behaviors. In the case of these Central African immigrants, their socioeconomic status prevents them from opting to eat more healthy food.

Social constructivism is also a relevant concept in this discussion. It is used to interpret knowledge that is created, developed, and diffused through social interaction (Lincoln & Guba, 2013). If Central African immigrants are working alongside Americans of a similar socioeconomic status, they may be more inclined to adopt their affordable, unhealthy eating habits. Kaplan et al. (2015) showed how immigrants exposed to the typical lifestyle of native U.S. populations often observe, "changes in health behaviors, including the quantity and quality of food consumed, diminished physical activity and inadequate sleep." All these changes can be seen as relevant to adapting to a lower class or working-class lifestyle, in which time away from work is scarce and money is limited.

Theme 2: Cultural Differences

The literature review suggests that differing interpretations of aspects of American culture may contribute to obesity. Abioye-Akanji (2016) found that a lack of knowledge regarding portion sizes and deficits of vegetable consumption often contributed to poor health outcomes. Concerning eating insufficient amounts of vegetables, Abioye-Akanji also found that "fear of pesticides and lack of familiarity with many of the vegetables grown in the United States" played a central role in diets lacking necessary nutrients (p. 7). Changes in food culture and food availability affect African immigrants' eating habits in ways in which they might not be fully cognizant. Despite vegetables being available to African immigrants, their lack of familiarity with the vegetables common in America and their fear of pesticides leads to unhealthy eating habits.

Further, Rhodes et al. found that "cultural perceptions about obesity as a marker of health and beauty in countries of origin" or obesity viewed as an inherited, unchangeable problem also appear to contribute to increased BMI, obesity, and other related health problems (p. 1389). When people understand obesity as signifying health, likely more meaningfully signifying wealth, they neglect to understand their own malnutrition as a problem. In the United States, while obesity is certainly a problem across demographic lines, obesity disproportionately affects people who can only afford to eat inexpensive junk foods.

As it applies to HBM, these differences in culture can both act as a "barrier to taking action" and as an impediment to perceiving health issues as being serious (Wills, 2015). When African immigrants understand obesity as an aesthetic ideal, they do not understand the threats being obese poses to their well-being. Further, we can interpret African immigrants not understanding or distrusting the healthy foods that are available to them as "barriers to entry (Wills, 2015)." We can also understand beauty standards that encourage obesity in African immigrants as an example of social constructivism, in which the internalized perceptions of a culture influence the health of individuals.

Theme 3: Language Gaps

Understanding English is an extremely important part of leading a healthy lifestyle in America. Literature review research shows a direct correlation between lower levels of English fluency and the diminished use of the U.S. health care system, which, in turn, results in poorer health outcomes for African immigrants. Okafor et al.'s study

concluded, “28.8% of African immigrants reported speaking English ‘less than very well’” as of 2007 in the United States and found significant relationships between low language acculturation and poor self-related health (p. 499).

Language ability is also a determinant of earnings power. Hamilton (2014) found that the “language heritage of black immigrants’ birth countries (is an) important determinant of their initial earnings and earnings trajectories in the United States” and that black immigrants to America earned smaller wages than native blacks and native whites (p. 3). Those with lesser earnings capabilities have limited access to expensive, largely privatized American health care. Walufa and Snipe (2014) also determined that speaking English with an accent limits an individual’s ability to obtain health care, regardless of fluency in English. African immigrants who know English well remain at a disadvantage regarding obtaining health resources.

In the interviews, many Central African immigrants identified difficulties with language as posing a challenge for obtaining healthy food and keeping in shape. In response to the question “What are your thoughts about health programs offered in English, versus a program in your language,” virtually all immigrants interviewed felt either neutral on the subject or supported the implementation of an ESL program. Many of the Central African immigrants interviewed spoke in broken written English, demonstrating language struggles firsthand. P6, who appeared to be reasonably fluent in English, based on her responses, mentioned that she “like(s) the knowledge and access to

information about the ingredients that (she) eats." She continued by mentioning that this information is not widely available in Africa.

Regarding the HBM model, the language gap would qualify, as a "barrier to taking action," for those with limited English skills may not be able to properly benefit from engaging with useful, readily available health resources that could help them prevent obesity and type 2 diabetes. Regarding social construction theory, African immigrants' attachments to their homes and new arrival in the United States creates tension.

Minor Themes

The two minor themes discovered were (a) feeling stressed and overwhelmed and (b) lack of communication. While neither of these themes was discussed directly, implicit evidence from the interviews and information collected from the literature review made both themes worth mentioning. Stress is commonly associated with immigrating to a new culture, and many Central African immigrants experience culture shock and have the move to a different culture interrupts their (Dubowitz et al., 2007). Commodore-Mensah et al. (2016) discussed how high levels of stress stemming from "migration and cultural behavior changes" cause changes in diet and physical activity, which can ultimately lead to major health problems (p. 5). While none of those interviewed explicitly discussed stress, some mentioned being in stressful situations (i.e. receiving food stamps, working in a demanding environment) and all have experienced the stress of having to make an international move.

Boise et al. (2013) did a study in which they explored public health resources available to African refugees and immigrants in Portland, Oregon. Immigrants reported not knowing the location of walk-in clinics, having to rely on friends for accurate information regarding health care offices, needing to pay out-of-pocket for medical expenses despite being insured, concerns about credit scores plummeting due to non-payment, and a general lack of clarity about health care costs (Boise et al., 2013). Based on this study, it would be plausible that at least some of those interviewed lack readily available information that could positively affect their health.

Limitations of the Study

The purpose of this qualitative multiple case study was to explore reasons for rates of obesity and type 2 diabetes in the Central African immigrant population of Portland, Maine. The findings of this research validate earlier and current literature. One limitation identified in this study was the sample size of 17. Conducting group case studies might be another useful approach to gather even deeper insight from participants, and to get a better understanding of how the Central African immigrant community communicates with each other.

Another limitation of this study is that the data collected from participants may not represent all Central African immigrant groups. Researchers cannot make direct observations within a population. The best way for researchers to represent all Central African immigrant groups is to use quantitative sampling to collect data from a larger number of individuals and use inferential statistics, which enables the researcher to

determine the characteristics of a larger population. According to Yilmaz (2013), researchers can collect statistical information by using a sample of a population to make inferences or generalizations that may apply to a variety of populations or to the larger population in general. A quantitative study might also be useful to explore the relationship between variables on strategies construction project managers use for implementing environmentally sustainable practices, which may help future researchers who intend to conduct qualitative research. Researchers may expand the study to other areas outside of Portland, Maine, to confirm or disconfirm generalizing the study's findings. Other limitations were participants' responses, opinions, knowledge, experiences, and worldviews.

Recommendations

The results presented in this study can help create strategies for mitigating rates of obesity and type 2 diabetes in Central African immigrant populations. Health organizations can play a significant role in creating a means of engaging with Central African immigrants directly by following the specific recommendations listed below:

1. Provide multilingual resources regarding obesity and type 2 diabetes
2. Produce targeted resources that engage with the specific struggles and beliefs of that community,
3. Offer resources that allow for clearer and more direct communication with public health resources
4. Offer employment opportunities for immigrants in their organizations.

The themes found in the study, as well as the two minor themes of feeling stressed and overwhelmed and lack of information, support these four recommendations, which might be helpful for those looking to make health care more accessible for Central African immigrants. To foster the use of the four-point plan outlined above, I will forward a findings summary to all participants. I will disseminate the study findings to more audience members in the public health sector, either by visiting various public health providers, conducting public conferences, or through electronic communications.

Implications

The objective of this qualitative multiple case study was to explore why the number of obese Central African immigrants with type 2 diabetes and type 2 diabetes in the United States is growing, using Portland, Maine, as an example. Although research has been done to identify risk factors associated with many ethnic groups within the United States, only a limited number of studies exist which explore obesity and type 2 diabetes among Central African immigrants (Sewali et al., 2015). This study addresses risk factors for Central African immigrants, rather than seeking to use immigrants from individual Central African countries, which could skew the data. This study also explores social, cultural, and behavioral factors that influence the prevalence of obesity in Central African immigrants (Sewali et al., 2015). The results of this study may contribute to social change by addressing the needs of Central African immigrants, ultimately leading to better overall quality of life for those individuals and communities, as well as reducing avoidable health care costs. The information found in the study may help identify

strategies to link populations of African immigrants with accessible community resources to help them make informed decisions about how to remain healthy in America.

Conclusion

The purpose of this qualitative multiple case study was to explore the reasons why Central African immigrants in Portland, Maine, experience higher rates of obesity and type 2 diabetes. The study is valuable for those seeking to implement new strategies to help this community become healthier. The study findings included five themes, three major themes and two minor themes. The centralized themes were (a) socioeconomic issues, (b) cultural differences, and (c) language gaps. The findings of the study aligned with the literature, the current studies, and the conceptual framework. Ultimately, an increase in a separatist ideology, the adoption of American lifestyle, and socioeconomic pressures seem to be the most pressing factors in the causation of obesity and type 2 diabetes in the Central African immigrant population of Portland, Maine. Although suspected otherwise, religion was not a factor. Furthermore, the findings revealed that poverty and differences in both culture and language made Central African immigrants more likely to eat unhealthy food, less likely to visit health care professionals, and less likely to be concerned about health issues.

This study of diet and exercise habits among Central African immigrants in Portland, Maine, could help determine new methods of distributing valuable information regarding health to vulnerable immigrant populations. The findings of this study included centralized themes that might be informative for implementing strategies like distributing

multilingual health information to immigrant populations, sending targeted messages to immigrant groups regarding misconceptions about health and wellness, and trying to link immigrant populations with affordable health care resources. Reducing problems with obesity and type 2 diabetes in the examined population would also be useful in reducing these same issues in different demographic groups across the United States, although not exclusively.

References

Abioye-Akanji, O. G. (2015). Prevention and management of type 2 diabetes among African immigrants in the United States: Using a culturally tailored educational intervention with a focus on dietary plan, physical activity, and stress management. *Doctor of Nursing Practice (DNP) Capstone Projects,* Paper 45. Retrieved from https://pdfs.semanticscholar.org/47a4/782292bebc8d87f8df3c4d56e0633f6bc080.pdf

American Heart Association (2017). Obesity information. Retrieved from http://www.heart.org/HEARTORG/HealthyLiving/WeightManagement/Obesity/Obesity-Information_UCM_307908_Article.jsp#. WPothojyuUk

Amit, K., & Bar-Lev, S. (2015). Immigrants' sense of belonging to the host country: The role of life satisfaction, language proficiency, and religious motives. *Social Indicators Research*, *124*(3), 947-961.

Antecol, H., & Bedard, K. (2006). Unhealthy assimilation: Why do immigrants converge to American health status levels? *Demography, 43*(2), 337-360.

Benton-Short, L., Price, M. D., & Friedman, S. (2005). Globalization from below: The ranking of global immigrant cities. *International Journal of Urban and Regional Research, 29*(4), 945-959. doi:10.1111/j.1468-2427.2005. 00630.x

Berry, J. W., Phinney, J. S., Sam, D. L., & Vedder, P. (2006). Immigrant youth: Acculturation, identity, and adaptation. *Applied Psychology*, *55*(3), 303-332.

Boise, L., Tuepker, A., Gipson, T., Vigmenon, Y., Soule, I, & Onadeko, S. (2013). African refugee and immigrant health needs: Report from a community-based house meeting project. *Progress in Community Health Partnerships: Research, Education, and Action, 7*(4), 369-378.

Calvo, R., & Hawkins, S. S. (2015). Disparities in quality of health care of children from immigrant families in the US. *Maternity Child Health Journal, 19*, 2223-2232.

Carter, R. C. (2002). The impact of public schools on childhood obesity. *The Journal of the American Medical Association, 288*(17), 2180-2180.

Center for Disease Control. (2013). Community profile: Portland, Maine. Retrieved from http://www.cdc.gov/nccdphp/dch/programs/communitiesputtingpreventiontowork/communities/profiles/obesity-me_portland.htm

City of Portland (2016). City of Portland MHP Full assessment report 2014. Retrieved from http://www.portlandmaine.gov/DocumentCenter/Home/View/6805

Commodore-Mensah, Y., Ukonu, N., Obisesan, O., Aboagye, J. K., Agyemang, C., Reilly, C. M... & Okosun, I. S. (2016). Cardiometabolic risk factors in immigrants: A contemporary analysis of the National Health Interview Survey. *Journal of the American Heart Association, 5*(11), 1-10.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.

Crotty, M. (2013). *The foundations of social research,* London. Sage.

Dana Frisillo Vander-Veen, D. F. (2015). Obesity, obesity health risks, resilience, and acculturation in black African immigrants. *International Journal of Migration, Health and Social Care*, *11*(3), 179-193.

Dekker, L. H., Snijder, M. B., Beukers, M. H., de Vries, J. H., Brants, H. A., de Boer, E. J... & Nicolaou, M. (2011). A
rospective cohort study of dietary patterns of non-western migrants in the Netherlands in relation to risk factors for cardiovascular diseases: HELIUS-Dietary Patterns. *BMC Public Health*, *11*(1), 441.

Denzin, N. K., & Lincoln, Y. S. (2011). *The SAGE handbook of qualitative research*. Thousand Oaks, CA: Sage.

Derose, K. P., Escarce, J. J., & Lurie, N. (2007). Immigrants and health care: sources of vulnerability. *Health Affairs*, *26*(5), 1258-1268.

Dubowitz, T., Acevedo-Garcia, D., Salkeld, J., Lindsay, A. C., Subramanian, S. V., & Peterson, K. E. (2007). Lifecourse, immigrant status and acculturation in food purchasing and preparation among low-income mothers. *Public Health Nutrition*, *10*(4), 396-404.

Glanz, K., Rimer, B.K. & Lewis, F.M. (2002). *Health behavior and health education. theory, research and practice.* San Fransisco: Wiley & Sons.

Hamilton, T. G. (2013). Do country-of-origin characteristics help explain variation in health among Black immigrants in the United States? Social Science Quarterly,

95(3), 817-834.

Hamilton, T. G. (2014). Selection, language heritage, and the earnings trajectories of Black immigrants in the United States. Demography, 51(3), 975-1002.

Hernández, B., Cuevas-Nasu, L., Shamah-Levy, T., Monterrubio, E. A., Ramírez-Silva, C. I.,García-Feregrino, R… & Sepúlveda-Amor, J. (2003). Factors associated with overweight and obesity in Mexican school-age children: results from the National Nutrition Survey 1999. *Salud pública de México*, *45*(4), 551-557.

Hochbaum, G., Rosenstock, I., & Kegels, S. (1952). Health belief model. *United States Public Health Service*. Retrieved from http://www.infosihat.gov.my/infosihat/artikelHP/bahanrujukan/HE_DAN_TEORI/DOC/Health%20Belief%20Model.doc

Kaplan, S. A., Ahmed, R., & Musah, A. (2015). When you walk in the rain, you get wet: A qualitative study of Ghanaian immigrants' perspective on the epidemiological paradox. Journal of Immigrant and Minority Health, 17(1), 255-262.

Kehm, R., Hearst, M. O., Sherman, S., & Elwell, K. L. (2016). The FAV-S pilot study increasing self-efficacy and fruit and vegetable intake among Somali women and children. *Health Education & Behavior*, *44*(1), 52 – 58. doi:10.1177/1090198116646367

Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing*. Thousand Oaks, CA: Sage.

Lincoln, Y. S., & Guba, E. G. (2013). *The constructivist credo*. Left Coast Press.

Mann, K., & MacLeod, A. (2015) Constructivism: Learning theories and approaches to research, In J. Cleland & S. J. Durning (Eds.), *Researching medical education*, (pp. 51-65). Chichester, UK: John Wiley & Sons, Ltd.

Marshall, C., & Rossman, G. B. (2015). *Designing qualitative research* (6th ed.). Thousand Oaks, CA: Sage.

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. Hoboken, NJ: John Wiley & Sons.

Morrison, M., & James, S. (2009). Portuguese immigrant families: The impact of acculturation. *Family Process*, *48*(1), 151-166.

Morrison, T. B., Wieland, M. L., Cha, S. S., Rahman, A. S., & Chaudhry, R. (2012). Disparities in preventive health services among Somali immigrants and refugees. *Journal of Immigrant Minority Health*, *14*, 968-974.

Nahavandi, A. (2015). *The art and science of leadership* (7th ed.). Upper Saddle River, NJ: Pearson.

Nkwi, P., Nyamongo, I., & Ryan, G. (2001). *Field research into socio-cultural issues: Methodological guidelines.* Yaounde, Cameroon, Africa: International Center for Applied Social Sciences, Research, and Training.

O'Connor, M. Y., Thoreson, C. K., Ricks, M., Courville, A. B., Thomas, F., Yao, J., ... & Sumner, A. E. (2014). Worse cardiometabolic health in African immigrant

men than Black men: Reconsideration of the healthy immigrant effect. *Metabolic Syndrome and Related Disorders*, *12*(6), 347-359.

Obrist, B., & Büchi, S. (2008). Stress as an idiom for resilience: health and migration among sub-Saharan Africans in Switzerland. Anthropology & medicine, 15(3), 251-261.

Okafor, M. T. C., Carter-Pokras, O. D., Picot, S. J., & Zhan, M. (2013). The relationship of language acculturation (English proficiency) to current self-rated health among African immigrant adults. *Journal of Immigrant and Minority Health*, *15*(3), 499-509.

Persaud, K. (2015, *07 November-11 November 2015*). Changing the Behavior of the Caribbean Immigrants in Toronto. In 43rd Biennial Convention. Las Vegas, NV, USA.

Pottie, K. (2011). Poignant tales of refugees in Canada. *Canadian Medical Association Journal, 183*(3), 350-350.

Rhodes, C. M., Chang, Y., & Percac-Lima, S. (2016). Development of obesity and related diseases in African refugees after resettlement to United States. *Journal of Immigrant Minority Health*, *18*, 1386-1391.

Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (Eds.). (2013). *Qualitative research practice: A guide for social science students and researchers*. Thousand Oaks, CA: Sage.

Roseboom, T. J., van der Meulen, J. H. P., Ravelli, A. C. J., Osmond, C., Barker, D. J. P., & Bleker, O. P. (2001). Effects of prenatal exposure to the Dutch famine on adult disease in later life: An overview. *Molecular and Cellular Endocrinology, 185*(1-2), 93–98. doi:10.1016/s0303-7207(01)00721-3

Schneider, A. L., Ingram, H., & de Leon, P. (2014). Democratic policy design: Social construction of target populations. In P. Sabatier & C. M. Weible (Eds.), *Theories of the policy process.* (pp. 105–150). Boulder, CO: Westview Press.

Sewali, B., Harcourt, N., Everson-Rose, S. A., Leduc, R. E., Osman, S., Allen, M. L., & Okuyemi, K. S. (2015). Prevalence of cardiovascular risk factors across six African immigrant groups in Minnesota. *BMC Public Health, 15*(1), 1-7**.** doi:10.1186/s12889-015-1740-3

Spradley, J. P. (2016). *The ethnographic interview*. Waveland Press.

Stake, R. E. (2013). *Multiple case study analysis*. Guilford Press.

Stewart, K. A., & London, A. S. (2015). Falling through the cracks: Lack of health insurance among elderly foreign- and native-born blacks. *Journal of Immigrant Minority Health*, 17, 1391–1400.

Tshiswaka, D. I., Whembolua, G. L. S., Conserve, D., & Mwamba, M. (2014). Factors associated with health insurance coverage and health insurance knowledge among Congolese immigrants and African-Americans in Illinois. *Journal of Public Health, 22*, 497–450.

Van Hook, J., & Baker, E. (2010). Big boys and little girls: Gender, acculturation, and

weight among young children of immigrants. *Journal of Health Social Behavior, 51*(2), 200–214.

Wafula, E. G., & Snipe, S. A. (2014). Barriers to health care access faced by black immigrants in the US: Conceptual considerations and recommendations. *Journal of Immigrant Minority Health 16,* 689–698.

Wang, E. S. T., & Li, Y. L. (2015). The effect of stress and visible health problems on the intent to continue health food consumption. *British Food Journal, 117*(1), 302-317. doi 10.1108/BFJ-09-2013-0275

Waters, M. C., Kasinitz, P., & Assad, A. L. (2014). Immigrants and African Americans. *Annual Review of Sociology, 40,* 369-390. doi:10.1146/annurev-soc-071811- 145449

Wills, T. (2015). Factors relating to motivation to change behavior in individuals who are overweight: Application of the health belief model. Retrieved from https://cora.ucc.ie/handle/10468/2052

Wilson, T. D. (2008). Research note: Issues of production vs. reproduction/maintenance revisited: Towards an understanding of Arizona's immigration policies. *Anthropological Quarterly*, *81*(3), 713-718.

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, Conceptual, and methodological differences. *European Journal of Education, 48,* 311-325. Retrieved from http://dx.doi.org/10.1111/ejed.12014

Yin, R. K. (2013). *Case study research: Design and methods* (5th ed.). London, England: Sage Publications.

Zlotnick, C., Goldblatt, H., Shadmi, E., Birenbaum-Carmeli, D., & Taychaw, O. (2015). A qualitative study assessing cardiovascular risk factors: The accumulative stressors influencing societal integration of teenage African immigrants. BMC Public Health, 15(1), 1-10.

Zosuls, K. M., Ruble, D. N., & Tamis-LeMonda, C. S. (2014). Self-socialization of gender in Black, Dominican immigrant, and Mexican immigrant toddlers. *Child Development*, *85*(6), 2202-2217.

Appendix A: Interview Questions:

Inclusion Criteria Questions:

1. How long have you been living in the United States?
2. Have you experienced a negative change in your general health?
3. Are you interested in sharing your experiences?

General Interview Questions:

1. What are some of your beliefs pertaining to healthy eating and exercise?
2. What type of diet do you have here in the United States? Is it different from what you ate in your country? And if so, how?
3. Are you provided with support and activities related to living a healthy lifestyle here in the United States?
4. How do your beliefs about health and health behaviors fit with what you are accustomed to doing and eating in your country?
5. How does your perception/s about yourself as an immigrant influence what you eat and your level of exercise?
6. What are your thoughts about health programs offered in English, versus a program in your language?
7. How would communication of the purpose and benefits of health programs in an easily understood manner aid your participation?
8. Is there anything else you can tell me that relates to eating and exercising here in

the United States as opposed to in your county?

Appendix B: Interview Protocol

STEP 1: Welcome and Overview of Purpose of Interview and Protocol (2-3 minutes)

"Hi. First, thank you for being here to participate in this one-on-one interview.

My name is Maxwell Chikuta, and I am a doctoral student at Walden University. I am interested in learning about your thoughts and experiences regarding health and health behaviours, such as diet and exercise, since your arrival in the United States."

"The interview today should take between 30-60 minutes. I am going to facilitate the interview and would you mind if I taped the interview? If you agree to be recorded, your verbal agreement will be a part of the recording as well as acknowledging that you can stop at or withdrawal from the study at any time."

Recording the interview will help me stay focused on our conversation and it will ensure I have an accurate record of what we discuss. After the transcripts are created from the recording, two additional steps will take place."

"First, I will invite individuals who participated to submit additional information that can help provide additional insight into the questions posed. The individual (or I) may want to schedule a follow-up conversation over the phone or via email to clarify or elaborate on any of the responses shared at the interview. This can also take place in a second, follow-up meeting"

"Second, I will erase the audio recording. The typed transcripts will be kept on a computer in a password-protected file for three years. Individuals can decide at any time to discontinue their participation. Please feel free to ask any questions you may have. Shall we get started?"

STEP 2: Introduction (2-3 minutes)

"May I record your answers for this interview? Can you tell me, Are you a resident of Portland? How long have you been living in the United States? Have you experienced a negative change in your general health? Are you interested in sharing your experiences? If so, please tell me about your experience as an immigrant from Central Africa, especially regarding diet and exercise."

STEP 3: Eight Questions Posed to Interviewee (4-5 minutes per question)

1. What are some of your beliefs pertaining to healthy eating and exercise?
2. What type of diet do you have here in the United States? Is it different from what you ate in your country? And if so, how?
3. Are you provided with support and activities related to living a healthy lifestyle here in the United States?
4. How do your beliefs about health and health behaviors fit with what you are accustomed to doing and eating in your country?
5. How does your perception/s about yourself as an immigrant influence what you

eat and your level of exercise?

6. What are your thoughts about health programs offered in English, versus a program in your language?
7. How would communication of the purpose and benefits of health programs in an easily understood manner aid your participation?
8. Is there anything else you can tell me that relates to eating and exercising here in the United States as opposed to in your county?

STEP 4: Closing Questions (3-5 minutes)

"Is there anything you would like share about health-related issues that I did not ask? Do you have any questions for me?"

STEP 5: Thank participants, recap next steps, and member checking will take place (2-3minutes)

"Thank you very much for taking part in this study and for sharing your experiences with me. After your recorded interview is transcribed, I will contact you so that you can read over the interview transcript. This is to ensure that what is written down is what you intended to share. If you feel the information is inaccurate or needs further clarification, we can discuss it further over the phone or in a follow up interview. Thank you again for your participation."