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Impact of Acculturation on Body Mass Index in Haitians

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Walden University

College of Health Sciences

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Nirva Berthold

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Walden University

2018

Abstract

Impact of Acculturation on Body Mass Index in Haitians

by

Nirva Berthold

MA, Walden University, 2012

BS, Curry College, 2010

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Longer-term immigrants residing in the United States exhibit physical health decline related to higher body mass index (BMI). Theories on immigrant acculturation have been used to examine health patterns by length of stay in the United States. The purpose of this cross-sectional study, guided by the Schwartz model of acculturation, was to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in the Northeast Metropolitan area. The research question was used to examine the effects of acculturation and length of stay on BMI in the convenience sample of 116 Haitian men and women, aged 18 years and older, who had relocated to the United States for 3 years or more. Data were collected using a demographic questionnaire and medical records from a participating health clinic and then analyzed by conducting a multiple linear regression. According to study results, acculturation, length of stay, age, gender, and physical activity were not significant predictors of BMI change. An ancillary analysis using the subscales of acculturation revealed similar results. This study may provide positive social change by enabling health providers to understand the beliefs, values, and practices of Haitian immigrant groups and the acculturation pattern of individuals when providing care for this population.

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Dedication

He who begins a good thing is able to bring it into completion. First, I dedicate this accomplishment to my Lord and Savior. My instructor and my counselor, I thank you for stretching my mind to a distance that I never knew it could have reached. For you have taught me how to light my life on fire for the world to see. I also dedicate this dissertation to my husband, Jean, my children Briannah and Nhicolas who have developed patience and have provided me with love and support throughout this journey.

Last but not least, I dedicate this dissertation to my mother-in-law Nicole, my mother Marie Lourdes-Therese, my brother Bernard, and sisters Jeannie and Mindy. Though I experienced some really doubtful dark days, I kept the faith as I moved forward to one day see the light. Now the Journey is complete through God's amazing promise. I encourage you to keep the faith, be vulnerable and let God stretch you.

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Chapter 1: Introduction to the Study

Introduction

Obesity is a health issue in the United States, and it affects people of all races and ethnic groups. According to Radford, Jones, and Winterstein (2015), the Center for Disease Control (CDC) began keeping records on body mass index (BMI) statistics on the population in 1985; by 2012, all 50 states had an average obesity rate of more than 25%. Although being overweight or obese affects the health of all populations, Lind et al. (2016) found that comorbid conditions, such as diabetes and cardiovascular disease, are greater in minority groups than nonminority groups who are overweight.

The United States is growing more culturally diverse. The U.S. immigrant population grew from an estimated 19.7 million in 1990 to 40.8 million in 2012 (Newman, 2015) contributing to the growing racial/ethnic mix in the U.S. population. The U.S. Census (2016) reported that 29.2% of the U.S. population were minorities. Minority refers to people who reported their ethnicity and race as something other than non-Hispanic White. Although the U.S. immigrants enter the country with a lower incidence of being overweight, the prevalence of obesity rose with increased length of habitation in the United States (Afaible-Munsuz, Mayeda, Perez-Stable, & Hann, 2014). The purpose of this study was to examine the effect of acculturation and duration of time living in the United States on BMI. This study was also designed to raise awareness for health providers who treat Haitian immigrants of the need to tailor treatments toward the level of acculturation.

This study was designed to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. The study's theoretical framework was based on Schwartz's model of acculturation. According to the model of acculturation, there are multiple mediators between acculturation, duration in the United States, and BMI: (a) ethnic and cultural identity, (b) cultural values (family cohesion), (c) cultural practices (English language proficiency), and (d) acculturation stress. According to Lee, Oneill, Ihara, and Chae (2013), immigrants integrate socially and culturally into U.S. society. Lee et al. examined English language ability, discrimination, health behaviors, and family cohesion and found that these mediators were pathways between U.S. duration and health outcomes. However, Lee et al. did not study BMI changes. These four mediators were relevant to this study by clarifying in what ways the effect of length of stay in the United States and acculturation was associated with BMI changes. To collect data, a quantitative, cross-sectional method was used, and data were analyzed using Statistical Package for Social Science (SPSS).

Chapter 1 will cover the background of the topic, the problem of obesity, the problem statement, and the purpose of the study. The research questions will be listed, and the theoretical framework will be described. Chapter 1 covers the nature of the study, definitions of key terms, assumptions, scope and delimitations, limitations, and the significance of the study.

Background

The United States receives more immigrants each year than any other country around the world. In 2010, 13% (40 million) of the U.S. population was foreign-born (US Census, 2016). Haitians are one of the fastest-growing Caribbean immigrant populations in the United States as a result of the earthquake that struck on January 12, 2010 (Lubetkin, Zabor, Brennessel, Kemeny, & Hay 2014). The Haitian Caribbean population now represents 1.5% of the overall foreign-born population in the United States (*Online Journal of Migration Policy Institute*, 2014).

Oza-Frank and Narayan (2010) suggested that there are 8 million foreign-born overweight individuals in the United States, and 1 million are also affected by obesity-related complications such as diabetes. According to Cruz, Hernandez-Lane, Cohello, and Bautista (2013), obesity is a health issue in the United States, and its prevalence is greater among minority groups than nonminority groups.

Scholars (Oza-Frank, Stephenson, & Venkat Narayan, 2011; Venkatesh, Weatherspoon, Kaplowitz, & Song, 2013) have examined populations such as Latino, Mexican, African, Asian, and Korean immigrants concerning the effect of acculturation on BMI and the relationship between weight changes and length of stay in the United States. However, scholars have not examined the possible relationship between weight change, BMI, and length of stay in the United States in the Haitian immigrant population. This study was designed to assist public health care professionals to better understand the importance of measuring acculturation and its effect on BMI changes in this vulnerable

population. In addition, the results of this study can inform nurses and other health care providers on how to give care to the Haitian immigrant population.

Problem Statement

Obesity is a health issue in the United States, and it affects people of all races and ethnic groups. Obesity, as defined by the CDC (2016), is any weight that is considered unhealthy at a given height. In measuring obesity, the standard measure has been through the use of the BMI, which uses a calculation of body fat percentage, dividing the square of a person's height in meters (feet and inches) into weight in kilograms (CDC, 2016). A person is obese if the BMI is equal to or higher than 30 (CDC, 2013). Other measures of obesity have been recommended. For example, waist circumference is another screening tool that is used to measure body weight status. According to the CDC (2013), excess body fat is indicated if the waist circumference for a man is greater than 40 and is greater than 35 for nonpregnant women.

Although measurement strategies are not taken to diagnose obesity-related conditions, the nature of obesity has been established. Obesity places millions at risk for heart disease, stroke, diabetes, and other complications (Cruz et al., 2013). According to Cruz et al. (2013), complications of being overweight or obese takes a toll on the health of all populations. However, the prevalence of obesity and complications, such as Type 2 diabetes, are greater among minority groups than nonminority groups who are obese. One minority group that has been impacted by obesity is the Haitian community in the United States. *The Online Journal of Migration Policy Institute* (2014) reported the Haitian population at 200,000 in 1990 and 606,000 in 2012. Although scholars have addressed

the levels of obesity among the Haitian population, several researchers (Afable-Munsuz et al., 2014; Le-Scherban, Albert, Osypuk, Sanchez, & Diez Roux, 2014; Oza-Frank et al., 2011; Ro & Bostean, 2015; Venkatesh et al., 2013) found that the shift to a more diverse neighborhood creates a higher potential for exposure to social and cultural resources. Both weight and cardiovascular disease tend to rise with longer length of stay in the United States. Le-Scherban et al. (2014) found that immigrants tend to settle in neighborhoods with a large population of the same ethnic group with which they identify. However, with longer length of stay, many of those immigrants move out to neighborhoods that include immigrants from other ethnic groups (Le-Scherban et al., 2014).

Acculturation is defined as culture modification of an individual, group, or people by adapting to or borrowing traits from another culture (Jasti, Chang Hyun, & Doak, 2011). The phenomenon of interest in this study was the correlation of acculturation, length of stay in the United States, and BMI changes in the Haitian immigrant population residing in a large metropolitan city in the Northeast.

Purpose of the Study

The purpose of this quantitative, cross-sectional study was to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. According to Quick and Hall (2015), cross-sectional scholars seek to find the common outcomes. Acculturation and length of stay in the United States was the independent variable, and BMI was the dependent variable. Age, gender, height, and activity levels were additional covariates

that were examined in this study. I used the Stephenson Multi-Group Acculturation Scale (SMAS) and examined the four mediators that come from the Schwartz model of acculturation, all through which may be relevant to the association of the relationship of acculturation, length of U. S. stay, and weight changes among Haitian immigrant population: (a) ethnic and culture identity, (b) cultural values (family cohesion), (c) cultural practices (English language proficiency), and (d) acculturation stress.

Research Questions and Hypothesis

There was one primary research question with hypotheses to examine the relationship between the effect of acculturation and length of stay on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast.

What effect does acculturation and length of stay in the United States have on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast?

H₀1: Acculturation and length of stay in the United States have no effect on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast.

H_a1: Acculturation and length of stay in the United States have an effect on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast.

Theoretical Framework

The Schwartz model of acculturation was used to guide the development of this study. The Schwartz model includes immigrants' cultural identity within cultural groups and their attachments, such as cultural values and cultural practices (Ro & Bostean, 2015). Components of the model that were tested using a questionnaire included (a)

ethnic and cultural identity, (b) cultural values (family cohesion), (c) cultural practices (English language proficiency), and (d) acculturation stress.

Acculturation has been shown to have a relationship with factors related to sociocultural adaptation, cultural identity, family cohesion, and acculturation stress (Gaskins, Baskin, & Person, 2012; Kuo, 2014; Weisskirch, 2013). For immigrants, coping and stress are conceptualized as characteristics of the migration process. Under the Schwartz model of acculturation, immigrant integration and health patterns were examined through hypothesized mediators between U.S. duration and body mass changes. According to the model, there will be significant mediators showing the association with acculturation, longer stay, and weight changes (BMI). This framework can be used to distinguish associations among acculturation, duration, and weight for ethnic and migrant populations.

According to Schwartz et al. (2011), only some choices of acculturation are under the immigrants' control. Circumstantial factors, such as family values and cultural backgrounds, make a difference in what immigrants' desire to keep or reject from their home culture (Schwartz et al., 2011). The Schwartz model has been used in studies on the correlation between acculturation, length of stay, and BMI among immigrant groups (Ro & Bostean, 2015). More details on the instrument used in this study to address each of the components of the Schwartz model are included in Chapter 2.

Nature of the Study

This study had a quantitative cross-sectional, design. Although other quantitative study designs were considered, I focused on investigating the effect of acculturation and

length of time in the United States on BMI at one point in time. Age, gender, and physical activities were the covariates. Data on BMI were collected at the clinic from the medical records by the primary care physician and were provided to me to examine BMI at initial visit and current BMI. Data were collected using a demographic survey and the SMAS to examine the four mediators from the Schwartz model of acculturation as mediators of the correlation between acculturation and BMI change. SPSS and Microsoft Excel were used to perform multiple linear regression analysis to investigate the effect of acculturation and length of stay in the United States on BMI changes in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. Scholars (Afable-Munsuz et al., 2014; Oza-Frank et al., 2011; Ro & Bostean, 2015; Venkatesh et al., 2013) have found health outcomes among immigrants to be influenced by acculturation and increased duration in the United States. Thus, it was important to examine the relationship between acculturation, length of stay in United States, and BMI in the Haitian population.

Definitions

Acculturation: A process in which immigrants adapt after entry and contact to dominant society (Agbemenu, 2016).

Bidimensional: Keeping a person's cultural identity from the dominant society is self-determined. The dominant society holds no influence (Agbemenu, 2016).

Body mass index (BMI): BMI is a form of screening method used to measure for normal or healthy weight, underweight, obesity, and overweight (CDC, 2017).

BMI calculation: Weight in pounds/ (Height in inches²) *703) equals BMI (National Heart Lung and blood institute [NHIBI], 2017).

BMI change: Current BMI minus the baseline BMI=BMI change. Positive numbers suggest that there was an increase in weight from baseline to current, indicating an increase in BMI. A negative number indicates that there was a decrease in weight from baseline to current, which indicates a decrease in BMI.

Immigrants: A person who immigrates to a new country permanently (Lubetkin et al., 2014).

Haitian immigrant population: Haitian Creole-speaking immigrants (Lubetkin et al., 2014).

Length of stay in the United States: Duration of time residing in the United States (Ro & Bostean, 2015). In this study, length of stay in the United States was self-reported.

Unidimensional: Culture identity is moved from one culture to another (Agbemenu, 2016).

Vulnerable population: Those more subject to criticism who at greater risk for poor health care access and health status (Fitzgerald, Myers, & Clark, 2017).

Assumptions

Assumptions are characteristics that are accepted as true but cannot be proven (Merriam-Webster Dictionary, 2016). According to Torres and Wallace (2013), acculturation stress is related to negative health outcomes. I assumed that Haitian immigrants migrate to the United States with a different culture and language. It was assumed that Haitian immigrants desire a high quality of life with acculturation. Another

assumption was that the participants surveyed had been seen by a health care provider for at least 3 years.

Scope and Delimitations

I examined the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. Four mediators from the Schwartz model of acculturation were examined with a demographic survey, and with the SMAS was used to examine the effect of acculturation on BMI. According to Lu et al. (2015), acculturation at the individual level is associated with health behavior, and the level of acculturation facilitates greater assimilation into the community. Health promotion and health-related assessment occurs at the community-level; therefore, health care professionals providing care for the Haitian population should understand the immigrants' acculturation status due to its impact of health. With 907,790 Haitian Caribbean immigrants in the United States in 2012, they were the second largest immigrant population in the United States (Sanon, Mohammed, & McCullagh, 2014). There is a high concentration of Haitian immigrants in Miami Florida, followed by New York and Boston Massachusetts (Sanon et al., 2014). The focus of this study was on a large metropolitan city in the Northeast because this phenomenon was a prevalent issue in the Northeast city.

The population included in this study were the Haitian immigrant populations living in a large metropolitan city in the Northeast who were seen in one clinic where a large population of Haitian immigrants received health care. It was not feasible to obtain data from Haitian immigrant populations living in the New England region of Rhode

Island, New Hampshire, Vermont, Connecticut, and Maine. This exclusion may affect the level of external validity, and the study results may not represent the effect of acculturation and the impact of length of stay in all Haitian immigrant populations residing in the New England region within the United States.

Obesity has affected individuals from all populations; nonetheless, the occurrence of obesity and its health complication, such as Type 2 diabetes, are greater among minority groups than nonminority groups who are obese (Cruz et al., 2013). Although immigrants enter the country with a low frequency of being overweight, the occurrences of obesity and diabetes rises with increased length of habitation in the United States (Oza-Frank et al., 2011; Venkatesh et al., 2013).

Limitations

According to Connelly (2013), both strength and weakness are found in all studies; limitations focus on the internal and external validity of the study. One of the limitations of this study was the lack of accessing the sample size needed for the study. Rather than a random sample, a convenience sample size was used, which may limit the generalizability of the study findings to a wider population. The second limitation may be the study design; cross-sectional studies are limited because they are conducted at one-time point (Quick & Hall, 2015). Therefore, it is not possible to determine causation.

Generalizability may also be limited as changes in BMI only reflected participants who had been in the country for at least 3 years, and data on participants' current and initial clinic visit height and weight were collected from the medical records at the one point in time. A third limitation might be language issues, because the instrument was

given to respondents in English. Limitations decrease the validity of a study, and although they cannot be controlled, the findings must be viewed with an understanding of the limitations that exist for the study. The research results are still applicable if the researcher discloses limitations (Connelly, 2013).

Significance

Vulnerable populations face early death due to chronic diseases, low socioeconomic status, and lack of resources and education (Flaskerud & Winslow 2010; Nyamathi, Koniak-Griffin, & Greengold, 2007). Lu, Donglan, van Meijgaard, MacLeod, and Fielding (2015) identified that immigrant health outcomes can be influenced based on their level of acculturation. Life-threatening financial instability, sociopolitical events, and hopelessness have driven many Haitians to relocate to other countries, predominantly the United States (Allen, Marcelin, Schmitz, Hausmann, & Shultz, 2012). In this study, I addressed those immigrants who relocated to the United States from Haiti and who settled in a large metropolitan city in the Northeast area. Scholars have not examined the effect of acculturation on weight and BMI in this vulnerable population; therefore, there was a need for research on acculturation and BMI among Haitian immigrants in a large metropolitan city in the Northeast area.

Care given by health providers, including nurses, must reflect the understanding of the beliefs, values, and practices of different immigrant groups and acculturation pattern of individuals. According to the Buscemi (2011), accrediting bodies such as the Joint Commission on Accreditation of Health Care Organizations are examining cultural understanding by providers when it comes to screening, assessment of pain, depression,

and other health-related issues. This study contributed to knowledge of how acculturation is associated with health issues. It will initiate an advocacy role from health care providers to promote policy changes that will enhance screening programs to become more culturally competent with the use of acculturation instruments, such as the SMAS, at the bedside or in the communities.

The findings of this research will lead to long-term positive social change by facilitating an increase in knowledge for nurses and for nursing as a discipline. The results may raise awareness of the importance of measuring acculturation and its association with health behaviors. In addition, the study results may contribute to the understanding of providing transcultural, competent, and quality care to the Haitian immigrant population.

Summary

The purpose of this quantitative study was to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. The rates of BMI rise with increased length of habitation in the United States. Many Haitian immigrants have left the country of Haiti to settle in the United States, and they integrate with different cultural behavior and beliefs. The results of this study may lead to positive change by providing health care providers engaging the Haitian immigrant population with a better understanding of their culture, values, health behaviors, and their understanding of the benefit of using precautionary health care services.

This study was a quantitative, cross-sectional design. The research question investigated in this study was the following: What effect does acculturation and length of stay in the United States have on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast? The Schwartz model of acculturation was used as the theoretical foundation to guide the development of this study. The Schwartz model includes immigrants' cultural identity within cultural groups and their attachments, such as cultural values and practices. Four mediators of the Schwartz model were examined to discover if acculturation and the impact of length of United States stay affect changes on BMI.

Literature written about this phenomenon are reviewed in Chapter 2 in an attempt to uncover the comparative factors influencing the increased incidence of BMI changes in Haitian immigrant populations living in the United States.

Chapter 2: Literature Review

Introduction

This study was designed to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan city area. Four mediators from the Schwartz model of acculturation were examined with a demographic survey, and with the SMAS, because immigrants' acculturation and duration in the United States may be associated with BMI through all four mediators.

The four mediators measured were (a) ethnic and cultural identity, (b) cultural values (family cohesion), (c) cultural practices (English language proficiency), and (d) acculturation stress. Haitian immigrants prefer not to know about illnesses and are reluctant to reach out to health care providers for proper screening and prevention of diseases; therefore, tumor growth and malignancies are more likely to be found in later stages in this population (Lubetkin et al., 2014). The aim of this study was to provide information to the Haitian immigrant population living in the United States about the risk of obesity and its ties to acculturation and length of stay in the United States. The study was also designed to gain insights into the chronic diseases that may result from obesity, as well as the long-term benefits of preventative resources that health care services provide to the population. In addition, this study offered information to health care practitioners to assist them in the treatment of the Haitian population and prevent diseases.

In Chapter 2, the relevant literature will be reviewed, and the variables, topics, and issues will be discussed in terms of acculturation, length of stay in the United States, BMI, chronic diseases, and Type 2 diabetes.

Literature Search Strategy

Due to the gap of literature regarding acculturation and duration in the United States and their association with BMI in the Haitian immigrant population, the literature review for this study also included Mexican, Hispanic, Asian, Europeans, immigrants from Denmark, and the Korean population. Like the Haitian population, the Hispanic populations are also vulnerable to poor health outcomes due to the process of acculturation as they immigrate to the United States (Melius, 2016).

Using CINAHL Plus with Full Text, EBSCO databases, Medline, ProQuest, PubMed, and Google Scholars, I searched for studies on the influence of acculturation, migration patterns, immigrant health behaviors, and immigrant length of stay on BMI. I used articles from between 2009 and 2016. I used keywords like *immigrants, Haitian immigrants, Caribbean Haitian immigrants, obesity, weight gain, vulnerable population, acculturation, migration, cultural identity, ethnic groups, English proficiency, family cohesion, chronic disease, U.S. duration, U.S. length of stay, and BMI* to conduct my search.

Information on this issue was found in several published research papers that met the inclusion criteria. Studies were included if they analyzed any of the following points: (a) acculturation, (b) years since migration and BMI changes, (c) family cohesion and English proficiency on health outcomes, or (d) prevalence of obesity and chronic diseases

among several ethnic groups in the United States (including Korean, Asian, Mexican, Europeans, Hispanics, Filipinos, Indians, and Haitian immigrants). The theoretical framework model included immigrants' cultural identity, values, practices.

Theoretical Foundation

The Schwartz model of acculturation was used as a framework to investigate the relationship between length of time in the United States, acculturation, and BMI. Based on health research on acculturation, Schwartz proposed the framework to examine the associations of cultural processes with wellbeing (as cited in Yamagishi, 2014). Schwartz et al. (2013) viewed acculturation as a process of transforming cultural identity. The term acculturation refers to alignment of a person's culture of origin and the society of the receiving country. According to Schwartz et al., acculturation of first-generation immigrants is the process of adapting to new values, culture, and practices. First-generation immigrants are challenged with discerning which practices, values, and behaviors to keep or reject from the new culture. Second-generation and latter-generation immigrants have lived most of their whole lives in the receiving country. Thus, acculturation for second-generation immigrants refers to the challenges of balancing the stories they know of their cultural heritage with the influences of their present homeland (Schwartz et al., 2013).

According to Zhang and Tsai (2014), two models of acculturation have surfaced over the past few decades: the term unilinear or bipolar, also known as one-dimensional, and the term bilinear or multidimensional, also known as bidimensional. The one-dimensional model dates back to 1921, and it is described as immigrants having only two

options—to let go of their culture of origin in order to take on the new host culture or to remain in their culture of origin. However, scholars focused on the process of understanding the multidimensional characteristics of acculturation, which is described as immigrants adapting to the host culture while maintaining their own culture of origin (Zhang & Tsai, 2014). Berry (1990) popularized the bidimensional model of acculturation by illustrating immigrants' contact with the host culture while maintaining their own culture of origin.

Schwartz et al. (2013) captured the multidimensional concept of acculturation as an identity process in three areas. The first process is cultural practice, which refers to maintaining and speaking a person's own language of heritage, receiving enlightening cultural viewpoints, connecting with a person's own cultural custom, having friends and romantic associates of the same culture, and participating in a person's own culture's media (Schwartz et al., 2013). The second is cultural values, which are assessed by individuals' report of cultural traditions and customs, as well as the individuals' beliefs of their own needs, followed by the needs of family and friends (Schwartz et al., 2013). Cultural values across groups can involve (a) independence and individualism that refer to an individual separating him or herself and placing his or her needs ahead of others and (b) collectivism and interdependence that refer to the state of a person's feeling of connection with others and prioritizing others' needs over his or her own (Schwartz et al., 2013). The third is cultural identifications, which indicate the degree to which individuals allow themselves to fit in, belong, and feel an attachment not only to their culture of origin but also to that of the United States (Schwartz et al., 2013). An example of cultural

identification is that a person can learn English because it is essential and still not identify him of herself as a person from the United States (Schwartz et al., 2013).

The Schwartz model differentiates between three sections of cultural identity: (a) cultural identification, which refers to the connection within cultural groups and the high values acquired from these connections; (b) cultural values, which are the principles that are connected with groups; and (3) cultural practices, which include language use, social affiliations, media preferences, cultural traditions and customs, and context of reception (Ro & Bostean, 2015). With a longer stay in the United States, this model indicates that these three components of cultural identity can change. Based on resources available, socially and psychologically, the outcome may lead to poor health (Ro & Bostean, 2015).

The Schwartz model was used as framework to guide this study by exploring four mediators: cultural identity/ethnic identity, cultural values/family cohesion, cultural practices/English language proficiency, and acculturation stress/contexts of reception. Acculturation and length of residence in the United States may be associated with changes in BMI. The Schwartz model has been used to explain the correlation between acculturation and length of stay and BMI among immigrant groups. Ro and Bostean (2015) used the Schwartz model of acculturation to examine six mediators' influence on the length of stay in the United States and BMI with Latino and Asian immigrants. Ro and Bostean found an association between cultural and economic characteristics with duration of U.S. residence, but the same factors had a weak association with BMI.

The SMAS was the bidimensional instrument used to address each of the components of the Schwartz model in Chapter 3. The scale has 32 items and includes two

different subscales. The first subscale consists of 17 items, which assess for immersion in an ethnic society, and the second subscale has 15 items, which assesses for the dominant society immersion. Figure 1 shows the Schwartz model.

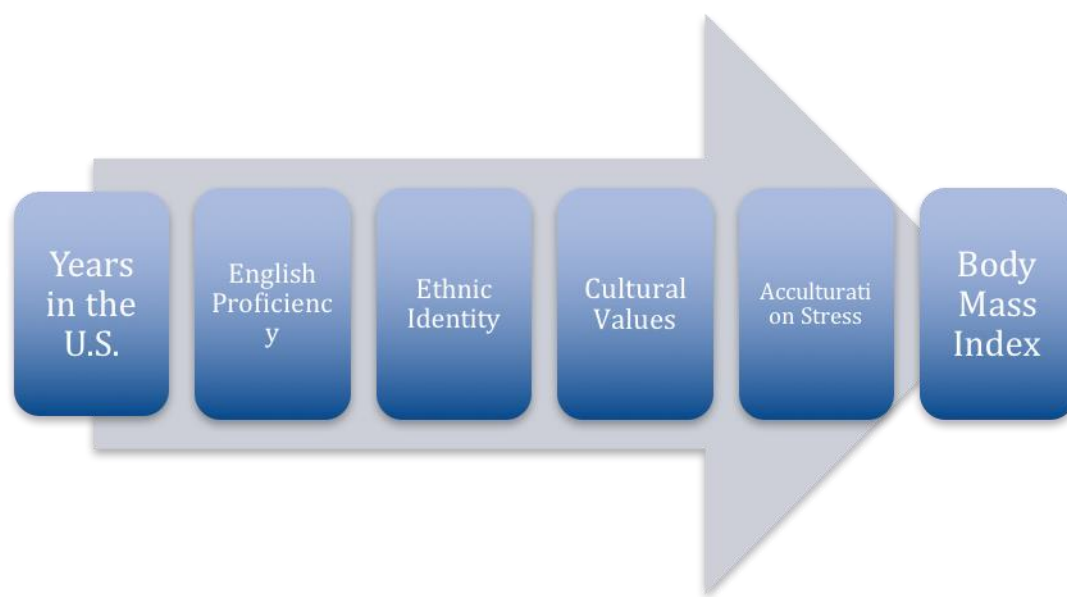


Figure 1. Diagram of Schwartz model.

Overview of Obesity in Haitian Immigrant Population

The United States receives more immigrants each year than any other country (Oza-Frank et al., 2011). In 2010, 13% (40 million) of the population in the United States was foreign-born; in 2016; this population represented 13.4% (43.2 million; U.S. Census Bureau, 2016). Haitians are one the fastest growing Caribbean immigrant populations in the United States as a result of the earthquake that struck on January 12, 2010 (Lubetkin et al., 2014). The Haitian Caribbean population now represents 1.5% of the overall foreign-born population in the United States (*Online Journal of Migration Policy Institute*, 2014). Immigrant populations face many health challenges, such as stroke, heart

disease, and diabetes; obesity is particularly problematic due to the risks that may accompany the condition (Cruz et al., 2013).

According to Cruz et al. (2013), obesity is a health issue in the United States; its long-term effects can cause extra stress on the heart, lung functions, and joint functions, and it may also alter the functions of many other internal mechanisms. Obesity prevalence is greater among minority groups than nonminority groups in the United States (Hofmann, 2016). Scholars have examined the impact of acculturation and length of residency of immigrants in the United States. Although immigrants enter the country with a low frequency of being overweight, the occurrence of obesity and diabetes rises with increased length of habitation in the United States. Tsujimoto, Kajio, and Sugiyama (2016) assessed the associations between the length of time in the United States and the prevalence of obesity and diabetes. The sample included adults ($n=37,639$) and children/adolescents ($n=28,282$). Tsujimoto et al. found that obesity and diabetes increased with length of time in the United States in the adults and for children/adolescents; greater than 20 years in the United States showed a significant association with higher obesity rates. The study did not address the Haitian population.

Xi, Takyi, and Lamptey (2015) found a significant increase in initial BMI in the Asian and Hispanic immigrant population as the length of time in the country increased; yet, the researchers did not address the Haitian population. Nguyen, Smith, Reynolds, and Freshman (2015) examined the relationship between obesity and acculturation in foreign-born Asians in the United States and found that the hypothesized links of measuring acculturation with both variables positively predicted obesity in the Filipino subgroup.

The above studies were conducted on Latino, Mexican, African, Asian, and Korean immigrant populations concerning the effect of acculturation and length of stay in the United States on BMI. However, studies have not been done on the relationship between weight and BMI and longer U. S. stay in the Haitian immigrant population. This study was designed to assist public health care professionals to understand the importance of measuring acculturation and its correlation with BMI changes in this vulnerable population. In addition, nurses and other health care providers can use the results of this study to approach Haitian immigrants while understanding this group's culture and health habits.

Weight and Obesity

Any weight that is higher than what is considered healthy for a given height is defined as overweight or obese. Obesity affects 36.5 % of U.S. adults, or one-third of the population (CDC, 2017). Waist circumference and BMI are two screening tools used to measure excessive body fat and weight status for potential obesity-related developing conditions (CDC, 2016). A BMI of 25.0 to 30.0 or higher, or a waist circumference greater than 40 in a man or greater than 35 in nonpregnant women, indicates excess body fat or obesity (CDC, 2017). Non-Hispanic Blacks are the primary groups to be affected (48.1%) by obesity, and it is the leading risk factor for strokes, heart disease, cancer, and Type 2 diabetes (CDC, 2017). Health care providers must capture data during a patient's office visit on his or her socioeconomic background, demographics, the length of time residing in the new country, culture, height, weight, and BMI in order to provide a baseline for monitoring the patient's progress (Radford et al., 2015). According to Kirby,

Liang, Chen, and Wang (2012), the prevalence of obesity in the United States has disproportionately affected certain races and ethnic minority groups, which includes 50% of African Americans, 28.7% of Hispanics, and 8.1% of non-Hispanic Asians. The population of immigrants from Haiti living in the United States has increased, and many who relocated to the United States are at a greater risk of being affected by excessive weight.

Agbemenu (2016) and Singh, Siahpush, Hiatt, and Timsina (2011) examined tendencies in overweight, obesity prevalence, and BMI among African immigrants and 30 other immigrant groups. Agbemenu and Singh et al. found that the risk of overweight and obesity increased with increasing duration of residence in the United States. Shin (2011) showed that Korean men who have become acculturated to the U.S. culture consumed a higher intake of fast food due to not eating dinner at home, therefore storing more body fat and becoming overweight.

Oza-Frank et al. (2011) and Venkatesh et al. (2013) found that diabetes and obesity increased in Mexicans with the length of residency. Jasti et al. (2011) examined a convenience sample of 195 Korean immigrants and showed that weight gain was not related with acculturation in the acculturated Korean women; men had a greater tendency of becoming acculturated and more overweight due to a high intake of fast foods.

Agbemenu (2016), Kirby et al. (2012), Oza-Frank et al. (2011), Shin (2011), Singh et al. (2011), and Venkatesh et al. (2013) documented the high prevalence of obesity between immigrant groups according to ethnicity, race, social economic factors, immigration status, and duration in the United States. The Haitian population is a growing group in the

United States. It is important for clinicians to understand BMI and health patterns in this group.

Acculturation

According to McDermott-Levy (2009) and Zhang and Tsai (2014), the term acculturation was seen in the literature in 1920. U.S. anthropologists reported the cultural interaction of Native Americans, and the social science research council gave a definition of acculturation that stated “Acculturation comprehends those phenomena, which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original cultural patterns of either or both groups” (McDermott-Levy, 2009, p. 149). In this definition, acculturation was presented as a neutral concept that affected both groups. However, when two cultural groups are compared, the immigrating group is generally the one to experience changes in a culture pattern.

In the 1980s, Berry proposed a bidimensional model of acculturation. Berry described culture responses and indicated two processes that occur once cultural interaction begins (as cited in Agbemenu, 2016; as cited in Buscemi, 2011; as cited in Zhang & Tsai, 2014). At a group level, immigrants gradually adapt to cultural practices, institution, and social structures, and the adaptation is reached to lessen conflicts between patterns of host culture and country of origin. At the individual level, cultural change is recognized in personal behaviors and values with continued contact with the host culture (Agbemenu, 2016; Buscemi, 2011; Zhang & Tsai, 2014). Based on these two dimensions, four types of adaptations are used by immigrants to reduce conflicts: (a) assimilation,

where immigrants are looking to reject their own culture by seeking more contact with the dominant culture; (b) rejection or separation, which takes place when immigrants separate themselves from the dominant culture in an attempt to preserve their culture of origin; (c) integration, also referred to as biculturalism, occurs when the immigrant participates and plays a role in the social system and yet still honors some aspect of the original culture; and (d) marginalization, which happens when the immigrant loses interest and alienates from both cultures (Agbemenu, 2016; Buscemi, 2011). Concepts related to acculturation are (a) acculturation stress, (b) linguistic acculturation, (c) and academic acculturation (Archuleta, 2015; McDermott-Levy, 2009). It is outside the scope of this study to provide existing definitions on academic acculturation; thus, definitions were limited to acculturation stress and linguistic acculturation. Acculturation has been used as a variable in psychology, sociology, epidemiology, medicine, business, education, and nursing to address health outcomes associated with acculturation or culture change (Agbemenu, 2016; Buscemi, 2011; McDermott-Levy 2009).

The bidimensional model proposed by Berry (1990) assesses the significance of the four-cell typology (integration, assimilation, separation, and marginalization). The model includes both orientations regarding original home and host cultures. Acculturation is defined as the process of experiencing changes in a cultural pattern with continuous and prolonged exposure to a new culture (Agbemenu, 2016; Archuleta, 2015; McDermott-Levy, 2009). Having a good understanding of acculturation can help in the promotion of health-related initiatives and culturally competent care to immigrant communities.

English Language Proficiency

Immigrants leave their home countries and come to the United States for different reasons. Some leave in search of better economic or educational opportunities or due to political reasons. Some also travel during later years in life, which makes it more difficult to learn new language skills. Language and culture can be a barrier that keeps new and less acculturated immigrants from benefiting from community resources that are designed to prevent health disparities. Scholars have reported a correlation between physical activities, health outcomes, and linguistic acculturation (Lu et al., 2015; Nguyen & Leigh, 2013; Ro & Bostean, 2015). Lu, Donglan, Van Meijgaard, Macleod, and Fielding (2015) examined the association between obesity and physical inactivity with the interactions of speaking English primarily at home and in the community. Lu et al. showed that median household income and speaking English at home and in the community primarily was connected with a less likelihood of physical inactivity, which lessened the association with obesity. Scholar need to focus on understanding the effects of linguistic isolation on the access to resources and social learning at a community level (Lu et al., 2015).

Nguyen and Leigh (2013) examined ethnicity/race, health, and English proficiency in adult Latino and Asian groups in the United States. Nguyen and Leigh showed that the older adults experienced discrimination due to their lack of English proficiency, placing them at risk for many health comorbidities. Subsequent risk for health disparities in both groups of immigrants was reported due to the effects of poor English proficiency, ethnicity, and race (Nguyen & Leigh, 2013). Language is a commonly used proxy to measure the level of acculturation among groups of different

immigrants (Lebrun, 2012). Once the English language is attained, settling and connecting with the national identity is no longer a threat, and the language proficiency allows access to health care and use of community services (Lebrun, 2012).

Discrimination experienced by immigrants due to language status can impact health outcomes (Lebrun, 2012; Lu et al., 2015; Nguyen & Leigh, 2013; Virull-Fuentes, Miranda, & Abdulrahim, 2012). Adaptation to the English language plays a role with migration into the U. S. norm and is usually an indicator of progressive acculturation process (Nguyen & Leigh, 2013).

Ethnic Identity

Ethnic identity is a factor in the study of acculturation, health studies, and psychology/counseling because it aids in the identification of an individual's commitment to groups of the same descent (Brown et al., 2014). Researchers have identified shared characteristics to be an important marker of social identity in multiethnic groups in the United States (Xu, Farver, & Pauker, 2015). The level of acculturation and the ethnic identity of immigrants influences health outcomes. Gaskins et al. (2012) and Kirby et al. (2012) reported that cultural rituals, behavior, and activities among Hispanics, non-Hispanic Blacks, and Asian Indians immigrants show a positive relationship between community ethnic/racial grouping and BMI.

According to Wen, Kowaleski-Jones, and Fan (2013), for Hispanic immigrants, ethnic identity diminishes over time during length of stay in the United States. Hispanic lifestyle is different prior to migration because they tend to follow healthier lifestyles. For example, Hispanic immigrant smoking rates and alcohol consumption rates are lower,

and their diet includes more fiber and less fat. However, obesity prevalence is positively associated with their length of stay in the United States (Wen et al., 2013). Serafica (2014) examined diet acculturation in Asian, Korean, Japanese, Chinese, and Thai and suggested that immigrants who maintained traditional patterns eat of diet had high consumption of fruits and vegetables, but still had high potassium and sodium intakes, which is associated stroke and hypertension. The Western acculturated immigrants increased their intake of fruits and vegetables but also eat higher fat dietary food (Serafica, 2014). Huq, Stein, and Gonzalez (2016) suggested that although ethnic identity in adolescents is supported mainly by family support, across generations, ethnic identity weakens, leading to negative health outcomes. Ethnic identity may be a safeguard against unhealthy Western high fat intake diets, health habits, and behaviors that may deteriorate health.

Family Support/Cohesion

Culture and family values are important for families who have migrated to the United States. Solidarity and close relations are a hallmark of Latino and Mexican family (Dillon, Rosa, & Ibanez, 2013). Immigrants face challenges from undocumented status, language barriers, discrimination, and acculturation stress. Cultural protective factors that have been found to be effective against health disparities in Latino immigrants are strong family connections after entering the United States (Dillon et al., 2013). For example, depression, anxiety, alcohol abuse, and suicide are all adverse health outcomes that are linked with acculturation stress and difficulties with the English language. However, family acceptance, support, and caring are salient factors that help immigrants adjust

successfully to a new culture (Dillon et al., 2013). Children of immigrants who translate for their parent benefit from building positive relationships by maintaining family expectation, values, and heritage (Weisskirch, 2013).

The 2010 earthquake in Haiti caused many Haitian immigrants to relocate to the United States. Several researchers conducted studies to examine this population's needs during this time of stress. Schwartz, Bernal, Smith, and Nicolas (2012) examined the process of acculturation and family cohesion among Haitian immigrants after migration, and showed that Haitians seek help with personal and mental health problems from friends, neighbors, or family members first before reaching out to social workers or other professional health care providers. This pattern represents a treatment barrier and may contribute to poor health outcomes.

Immigrants and ethnic minorities find support when closely connected with family during adjustment to new country and acculturation stressors (Dillon et al., 2013; Ibanez, Dillon, Sanchez, Rosa, Tan, & Villar, 2015). Although family cohesion is reported to decrease across time while living in the host country, immigrants with a higher level of acculturation stress still needed to rely on family support in order to manage the stressors (Ibanez et al., 2015).

Acculturation Stress

Acculturation stress is a term used to define the stressful course of adjustment that immigrants experience who moved away from their country of origin to a new culture (Dillon et al., 2013; Nicolas & Smith, 2013). Incoming immigrants are expected to adapt to a new culture, living environment, and set of values. The receiving culture may scorn

the individual immigrant for not orienting sufficiently into their culture, and the community from the heritage-culture may be dissatisfied with the individual immigrant for separating from their culture of heritage (Stephenson, 2000). During this adaptation period, acculturation stress may be caused by learning a new language; immigration legal status (or lack thereof); difficulty accessing health care; discrimination while pursuing better occupation; the need to acquire education; a lack of financial opportunities; and unfair treatment due to nationality, race, and skin color (Dillon et al., 2013; Nicolas & Smith, 2013; Torres & Wallace 2013). Negative health outcomes are associated with the effect of acculturation stress, such as anxiety, depression, and suicide in several ethnic minority groups, such as Chinese, Indians, Korean, Asians, Fillipinos, Cambodians, and Pakistanis (Archuleta, 2015; Dillon et al., 2013; Nadimpalli & Hutchinson, 2012; Torres & Wallace 2013). Few scholars have examined Haitian immigrants' experiences with acculturation stress and linguistic acculturation distress.

Literature Review Related to Key Components

This study was designed to examine the relationship between acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in Boston, Massachusetts and four mediators from the Schwartz model: (a) cultural practices (English language proficiency), (b) ethnic and culture identity, (c) cultural values (family cohesion), and (d) acculturation stress. Scholars have revealed associations between length of stay in the United States, acculturation, and BMI changes. Mediators such as English language proficiency and acculturation stress were among those found in the literature as contributors to weight gain.

Wong, Chou, Sinha, Kamal, and Ahmed (2014) explored the link of obesity, hypertension, and diabetes by BMI in Asians, non-Hispanic Whites, Blacks from multiethnic backgrounds, and Hispanics. Wong et al. showed significant disparities within race and ethnicities in BMI distribution; the prevalence of obesity, hypertension, and diabetes was significantly higher, at 68.7% in Blacks; 67% for Hispanics, 54.1% for non-Hispanic Whites, and 37.1% for Asians (Wong et al., 2014). Obesity rates increase with length of time since immigration (Singh et al., 2011; Xi et al., 2015). Xi et al. (2015) found that children from new Hispanic immigrants with low acculturation were at risk for obesity because the parent's eating habits were unhealthy. Melius (2016) uncovered a trend of increasing BMI levels from year to year after immigrant arrival in the United States. Rosas, Sanchez-Vaznaugh, and Sanchez (2015) examined the association between BMI with length of U. S. residence, and nativity across six Asian ethnic groups (Japanese, Fillipinos, Koreans, Chinese, Vietnamese, and South Asians). Rosas et al. showed no significant association with BMI with South Asian Group, and obesity was found to be higher in natives as opposed to immigrants.

Speaking less English led to isolation from the community, lower physical activities, and higher BMI. Lubetkin et al. (2015) measured the role of language, race/ethnicity, and years of residence in the United States with patient activation scores in English language, Spanish, and Haitian Creole speaking patients. The score levels varied based on participants' comfort in speaking, reading, and thinking in the English language. For example, Haitian Creole-speaking Caribbean Blacks obtained lower scores of 61.4,

Spanish speakers obtained a score of 61.5, and English-speaking Caribbean blacks obtained a score of 68.9 (Lubetkin et al., 2015).

Lebrun (2012) examined the effects of language proficiency and length of stay among immigrants residing in Canada and the United States. In both countries, immigrants who had a longer stay of 10 years or more of residence and were fluent in both of the country's official languages had more access to health care and used their community's preventative care more willingly. The universal health care coverage available in Canada was not enough to engage patients in their plan of care, but rather English proficiency and the effects of length of stay in the country contributed to the patients' use of health care (Lebrun, 2012).

Immigrant youth integrate into U.S. culture faster than their parents. The youth tend to embrace the host culture and reject the culture of origin, while parents tend to hold on to the culture of origin. This inconsistency in acculturation creates conflicts and maladjustment for the youth due to tension from their home culture norms; their ethnic identity weakens throughout upcoming generations (Updegraff & Umaña-Taylor, 2015). As immigrants resettle, they tend to form a community based on race and ethnicity, which shows a sense of social support system and social identity. Communities with tight-knit systems that are similar to the systems from their home countries have higher average BMI and are more likely to be obese (Kirby et al., 2012). Hispanics, and non-Hispanic Black minorities tended to live in communities with no grocery stores, and the communities had fewer gyms and fitness centers (Kirby et al., 2012).

Summary and Conclusion

In the literature review, I explored issues and theory concerning acculturation, length of stay in the United States, BMI, English proficiency, ethnic identity, family cohesion, and acculturation stress. I focused on individual immigrants, family, values, cultural practices, and behavioral, social, and environmental factors while dealing with acculturation in new country and BMI changes among the Haitian immigrant population.

I focused on immigrant groups such as Latino, Mexican, African, Asian and Korean immigrants. Studies on Haitian immigrants were limited, and those that were found, only focused on the population's reluctance to screen for primary disease prevention, and also on Haitian U. S. migration after the 2010 earthquake. Studies done on earthquake victims provided insight on the challenges that health care providers faced in regards to the population's state of mental health and acculturation stress. For health care providers to promote an effective approach to health prevention for Haitian immigrant populations, more information is needed on acculturation, length of stay in the United States, and the impact of these factors on BMI. The aim of this study was to promote positive social change by adding new knowledge about the Haitian population to the literature that already exists.

In Chapter 3, I describe the methods and design of the study.

Chapter 3: Research Method

Introduction

The purpose of this quantitative, correlational, cross-sectional study was to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. This chapter provides an explanation of the study methodology. The design is addressed, as well as characteristics of sample, sampling procedures, information about the instrumentation, and threats to validity.

Research Design and Rationale

According to Ingham-Broomfield (2016), a research design is selected based on the nature of the issue or problem being addressed. The design informs the strategies and methods used to collect data and conduct the analysis (Ingham-Broomfield, 2016). I chose a quantitative, correlation, cross-sectional study design to examine the relationship between acculturation and length of stay in the United States on BMI changes in a sample of Haitian immigrants living in a large metropolitan area in the Northeast. Length of stay in the United States and acculturation were examined in the context of weight or BMI. In addition to acculturation and length of time in the United States, age, gender, and physical activity were the covariates. A demographic questionnaire was given to participants, and age, gender, and physical activity were collected as self-reported during the time of the doctor's visit. Data on BMI were collected at the clinic from the participants' medical records by the primary care physician and were provided to me to examine BMI at the initial visit and currently.

According to Quick and Hall (2015), a cross-sectional study can be conducted to discover the prevalence of an outcome within a population at a one-time point. To inform a current research question, the researcher's examination of sample and data is done at a present time. The purpose of this study was to survey a group of Haitian immigrants with a demographic survey and the SMAS. The survey has been previously validated and tested for reliability. In this study, both surveys were used to collect data and to examine the four factors from the Swartz model of acculturation as mediators of the relationship between U. S. length of stay and BMI. The four components from the model were (a) ethnic and culture identity, (b) cultural values (family cohesion), (c) cultural practices (English language proficiency), and (d) acculturation stress.

The effect of acculturation on body weight, and the relationship of weight and U.S. length of stay, have been studied in African, Asian, Korean, Latino, and Mexican immigrants (Oza-Frank et al., 2011; Venkatesh et al., 2013). However, scholars have not correlated acculturation, weight and BMI, and length of stay in the United States in the Haitian immigrant population. This study may promote positive social change through measuring acculturation and its association with BMI in Haitians living in the United States as a means to provide culturally-specific information to nursing and professionals working with the population.

Research Questions and Hypothesis

There was one primary research question with hypotheses to examine the relationship between the effect of acculturation and length of stay on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast.

What effect does acculturation and length of stay in the United States have on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast?

H₀1: Acculturation and length of stay in the United States have no effect on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast.

H_a1: Acculturation and length of stay in the United States do have an effect on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast.

Population

Life-threatening financial instability, sociopolitical challenges, and hopelessness have driven many Haitians to relocate to other countries, predominantly the United States. As a result of the 2010 earthquake in Haiti, it is estimated that the U.S. Haitian Caribbean population represents 1.5% of the population in the United State at the present time (Lubetkin et al., 2014). Despite the significant number of Haitians residing in the United States, few studies have been conducted on the link between community support, health status, and health behaviors that may negatively impact their health (Massar & Holzmann, 2013) According to Cruz et al. (2013), obesity is a health issue in the United States, and its prevalence is greater among minority groups than nonminority groups.

This study was aimed to examine and provide insight on the relationship between BMI and length of stay in the United States in the Haitian immigrant population.

Participants were Haitian immigrants who had relocated to the United States, specifically in the Northeast metropolitan area. The target group number was 116 participants, aged 18 to 78. This age range was selected due to the likelihood of participants having the ability to read and to understand the English language.

Sample and Sampling Procedure

The network that was used to recruit the participants was the health clinic of a local physician and medical associates, located in a large metropolitan city in the Northeast. The sampling method of choice for this study was a convenience sampling. According to Farrokhi and Mahmoudi-Hamidabad (2012), the advantages of convenience sample are that they are a low cost and quick and easy method of unit selection. The disadvantages are the inability to estimate how well the groups are representative of the population and the possible introduction of bias (Farrokhi & Mahmoudi-Hamidabad 2012). In this study, a convenience sample of Haitian men and women who had been in the country for 3 years or more was included.

Inclusion Criteria and Exclusion Criteria

Those eligible to participate in the study included men and women aged 18 and up who were born in Haiti and who had resided in the Northeast, metropolitan area for at least 3 years. They also must have had the ability to read and understand the informed consent form and survey questionnaire in English. Those ineligible to participate included those younger than 18 years of age, Haitians who were not born in Haiti but identified themselves as Haitian, and those born in Haiti who migrated to the United States for fewer than 3 years.

Procedures for Recruitment, Participation, and Data Collection

The physician who practiced at the health clinic signed permission and consent papers from Walden University to collect BMI data from the participants' medical records. I posted a flyer outside and inside of the health clinic, and I gave participants an

informed consent to complete and a sociodemographic questionnaire in order to collect information about their age, gender, physical activity, and length of stay in the United States. Current weight and initial weight in clinic records were obtained from the medical records. Participants were also asked to complete the SMAS, which was the instrument used to address each of the components of the Schwartz model. The SMAS consists of 32 items assessing aspects of behavior and attitude of acculturation across ethnic groups. Responses to each item on the scale are based on a 4-point Likert scale that includes 1= *false*, 2= *partly false*, 3= *partly true*, and 4= *true*. The SMAS consists of two subscales: ethnic society identification (ESI) and dominant society identification (DSI). The scores from the SMAS are made according to the two subscales. The scores range from 1 to 4, which are determined by calculating mean item responses. Lower scores reflect greater acculturation (Stephenson, 2000).

Sample Recruitment

The aim was to measure the effect of acculturation, length of time in the United States on weight (BMI) using the SMAS and a demographic survey in the Haitian immigrant population. To recruit participants for the questionnaire survey, each participant was approached with the research flyers after he or she signed in and was waiting to be seen in the clinic. I explained to each participant the research interest, the criteria for eligibility, and the purpose of the study. I then provided a consent form to each participant, along with both the demographic and the SMAS questionnaire. Completion of the questionnaire confirmed participants' consent. The sample consisted of 116 participants from the local medical clinic.

Sample Size

The sample size was calculated using the a-priori sample size calculator GPower3 developed by Buchner, Faul, and Erdfelder (2016) for the analysis of multiple linear regression. The sample size was determined using the F test family, and the statistical test selected was multiple linear regressions: fixed model/ R^2 increase. The sample size needed to detect a medium sized individual predictor effect size of part r -squared of .06 in an overall medium size multiple= R -squared of .13 with five predictors, alpha = .05, power = .80. This study required a sample size of 116 participants to produce a power of .80.

Data Collection

A demographic questionnaire containing five items to determine age, gender, height, years in the United States, and activity levels was administered after the consent was obtained. The data from the participants' medical records were obtained from the clinic. In addition, the SMAS survey questionnaire with 32 items was given to the 116 participants to collect data on the participants' involvement with their own culture and engagement with the dominant host culture. Responses to each item of the scale were based on a 4-point Likert scale: 1= *false*, 2= *partly false*, 3= *partly true*, and 4= *true* (Stephenson, 2000). According to Creswell (2009), some of the advantages of the quantitative survey design include (a) it is cost effective; (b) data collection has room for improvement; and (c) through this design, smaller groups of individuals have an advantage of identifying characteristics of a large population. Participants exited the study with no further requirements, such as debriefing or follow-up interviews.

Instrumentation and Operationalization of Constructs

The SMAS (Stephenson, 2000) was used to measure acculturation, which was the independent variable. The SMAS was originally developed and evaluated with a sample of 436 participants from five diverse ethnic groups, and it produced two factors to consider: ESI and DSI (Stephenson, 2000). The SMAS scale includes 32 items in two subscales. The first subscale consists of 18 items, and the second subscale has 14 items. The items in each subscale measures the domains of attitude/language, behavior/food, media, and interaction.

The participants rated each item using a Likert scale ranging from 1 to 4 points. The scores for each item were added, and the sum was then divided by the number of questions (32). The result was the mean item response. A low score indicated greater acculturation to host culture or very little cultural identity, while a higher score indicated a well-established orientation to ethnic society or high cultural identity (Stephenson, 2000).

The SMAS has strong internal consistency; the alpha score was .97 for items contributing to subscale 1 and .90 for subscale 2. When the subscales were combined, the coefficient alpha was .86, demonstrating strong reliability (Stephenson, 2000). Analysis of the first two studies (first- and second-generation participants) generated ESI and DSI, two-factor solution of the SMAS, which remained strong across groups (Stephenson, 2000). The mean patterns were consistent in the third study, which involved third generation participants. Although the fourth study, which involved fourth-generation participants, showed ESI scores to be higher and DSI to be lower, the differences were

not statistically significant (Stephenson, 2000). The SMAS holds potential as a tool to detect a relationship between generational differences and DSI and ESI subscale performance. The instrument demonstrated strong validity and should help direct other culturally designed and delicate assessments to better understand and care for different ethnic minority groups.

Data Analysis Plan

SPSS was the software used in this analysis. To avoid missing data prior to running the analysis, a table that contains the variables' names and values was created using Excel. Z-scores and standardized scores were created under the descriptive tabs in SPSS to search for outliers, which are scores that exceed the value of the variables and that can cause both Type 1 and Type 2 errors.

Research Question: What effect does acculturation and length of stay in the United States have on BMI among Haitians who have immigrated in a metropolitan city in the Northeast?

To address the RQ in this study, the six main predictors were age, gender, height, physical activity, acculturation, and the length of stay in the United States. For these predictors, the dependent variable was BMI. According to Schwab (2012), to evaluate the correlation between two or more independent variables on a dependent variable, linear multiple regression analysis is used. To address the RQ, multiple linear regression analysis was used. Multiple regression (R or R^2) can determine the strength of the correlations between two or more independent variables and the dependent variables; however, all of the independent variables must be entered at once into the equation

(Schwab, 2012). To determine generalization to the Haitian population represented in this study, I used an *F*-test to analyze the relationship of the predictor variables and the dependent variable.

When given the value of one variable, regression is used to develop an equation in order to foresee the value of the other variable. According to Field (2013), a multiple regression is an addition of simple regression in which an outcome is foretold by a linear combination of two or more predictor variables. In the model, the outcome is expressed as *y* and each predictor is expressed as *x*. Regression was used in this study to explain the relationship between the predictor variables (acculturation and length of stay in the United States) the covariates (age, gender, physical activity), and the dependent variable (BMI). SPSS and Excel were used to analyze the variables as continuous and to report the data.

According to Field (2013), underlying assumptions must be met in order for a regression model to generalize. To further test the model for generalization, cross validation was needed. The first assumption was linearity where the outcome should be linearly related to the independent variable. Running a scatterplot of the standardized residuals as opposed to the *Y* predictor value showed that relationship. In the second assumption, the variables should be distributed normally. To check this assumption, a scatterplot can be used, because it addresses assumptions of multivariate instead of continuous score. Residual values can be plotted on a histogram, and the Kolmogorov-Smirnow test can also be conducted on the residuals. If data in this assumption are not distributed normally, then a nonlinear, log transformation can be used to correct this issue

(Field, 2013). The third assumption was little or no multicollinearity, in which independent variables are not independent from one another. Correlation, tolerance, variance inflation, and condition index are four criteria that are checked if multicollinearity occurs. The fourth assumption was independent errors, also described as autocorrelation, in which for any two interpretations, the residual terms are found to be not independent from each other (Field, 2013). Once the assumption of independence is violated, the significance and confidence intervals become invalid. The Durbin-Watson test was used to test serial correlations between errors for this assumption. The fifth assumption was homoscedasticity, in which the residuals at each level of the predictors should be the same variance (Field, 2013). A scatter plot was a good way to test homoscedasticity.

Scholars who have examined health outcomes have used regression methods. For example, Venkatesh et al. (2013) conducted a mixed method study to better understand the relationship of acculturation to glycemic control in a sample of 30 Asian Indian adults with diabetes. Adaptation to nutrition and diet in a new country is a common adjustment among immigrants and the change may impact health. Venkatesh et al. showed positive effect between glycemic control and the interaction of acculturation with BMI.

Bharmal et al. (2015) examined the relationship between duration of U. S. residence and risk factors associated with coronary vascular disease (CVD) among South Asian immigrants. Bharmal et al. showed that duration of U. S. residence had a strong correlation with overweight, obesity, and other risk factors that may lead to CVD among South Asian immigrants.

Miya and Ailee (2015) conducted a study among Asian immigrants. A multistage probability sample was used with a final sample of 1,028 to examine the occurrences of psychological distress, health care usage, and the relationship with sociodemographic factors among older Asian immigrants. Multiple linear regressions were used. Miya and Ailee showed that outreach programs and effective mental health services should be reinforced and developed.

Threats to Internal and External Validity

Internal and external validity can create a problem in any given study (Houser, 2015). Validity represents the most satisfactory way a scientific test measures what it is intended to measure (Houser, 2015). Selection of participants in this study was done using a convenience sample, which represents a threat to the internal validity because selection was not done randomly. To protect internal validity, the population represented Haitian immigrant individuals who had been in the United States for at least 3 years or greater. External validity represents the second threat to this study because the setting only included a large metropolitan city in the Northeast and no other parts of New England, thus affecting the generalizability of the study's target population.

Threats to statistical validity have relevance for the selection of statistical methods used to accept or reject a hypothesis. Selection of statistical methods may increase the likelihood of a Type I error, or rejecting the null hypothesis when it is true (Burkholder, n.d; Houser, 2015). Statistical procedures can also be used to reduce the likelihood of Type I errors. Common methods that were used in this study included (a)

using an adequate sample size, (b) assessment of effect size, (c) use of reliable instruments, and (d) attention to assumptions about the data (Houser, 2015).

Ethical Procedures

Prior to data collection, guidelines on obtaining approval from the Institutional Review Board at Walden University were followed. In this study, an identification number was assigned to each participant in order to preserve confidentiality. The participants' numbers were used to identify the data collected, and their names were separately stored in a locked cabinet. Prior to distribution of examination, I asked participants to read and sign an informed consent explaining the purpose and the procedures of the study, information on confidentiality, and a statement informing them of their right to discontinue the study at any time.

Summary

This study was designed as a quantitative, cross-sectional method to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. A-priori sample size calculator G power³ was used in multiple linear regression to measure the strength of the correlations between the six predictor variables on the dependent variable in a sample of 116 participants. Participants were recruited from a Haitian health clinic in the city of Boston, Massachusetts. The age of the participants was 18 years of age and up. A demographic questionnaire was used to control for the covariates; the SMAS was the instrument selected because the items of the scale were relevant to the measurement of acculturation of the target population.

Internal and external validity are two types of threats that may cause a problem in this study. Although a convenience sample was used in this study, efforts were made to protect the internal validity by using inclusive criteria that also helped to avoid bias. The effect size of independent variables on dependent variable were assessed, and the recruitment of participants included Haitian men and women in an effort to reflect the targeted population.

Chapter 4 follows, and the results of this study are introduced.

Chapter 4: Results

Introduction

The purpose of this quantitative, cross-sectional study was to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. I examined the relationship between the effect of acculturation and length of stay on BMI in a sample of Haitian immigrants living in a large metropolitan city in the Northeast. The subscales of acculturation, ESI, and DSI were evaluated. The results of the analyses will be presented. First, the research question and hypotheses will be reiterated. Next, the data collection will be described. Finally, descriptive statistics and results of hypothesis testing will be presented.

Research Question: What effect does acculturation and length of stay in the United States have on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast?

H_0 1: Acculturation and length of stay in the United States does not have an effect on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast.

H_a 1: Acculturation and length of stay in the United States does have an effect on BMI among Haitians who have immigrated to a large metropolitan city in the Northeast.

Data Collection and Management

All data were collected from a health clinic of a local physician and medical associates located in a large metropolitan city in the Northeast. The inclusion criteria

consisted of Haitian immigrants in the Northeast, who were 18 and over, were able to read and understand English, and were seen in one clinic where a large population of Haitian immigrants received health care services. The SMAS and a demographic questionnaire were given to 116 participants ($n = 116$, 100%), with a response rate of 100%. Current weight and initial participant weight were obtained from medical records in the clinic. Data collection took 2 months to complete with no challenges. There were no discrepancies from the originally proposed data collection procedures.

Prior to running statistical analyses, outliers were examined for the continuous variables of interest. An outlier was considered a value that falls outside the range of ± 3.29 standard deviations from the mean (Tabachnick & Fidell, 2013). There were three outliers detected (one extreme high outlier for the ESI SMAS subscale and one extreme high and one extreme low outlier for the BMI change score) that were removed from the respective continuous scores. These cases were not included in the regression analysis.

External Validity

Nonprobability sampling was used in this study. Nonprobability sampling is gathered in a process that does not give all individuals in the population equal chances of being selected; thus, generalization to a larger population is limited (Salkind, 2010). The type of sample categories chosen, and the population included in this study, were Haitian immigrants living in the metropolitan city in the Northeast. I excluded Haitian-born populations living outside of the Northeast region. Therefore, the generalizability of the study did not reflect Haitian immigrant populations living in the United States.

Results

Descriptive Statistics

Of the 116 participants, over half were female ($n = 62$, 53%). Participants responded to a question asking about their level of activity. Over one-half of the participants indicated that they were active sometimes ($n = 52$, 44.8%) or very often ($n=22$, 18.9%), making up the largest percent of responses on the question. A majority of participants had lived in the United States 10 years or more ($n = 100$, 86%). Full frequencies and percentages are presented in Table 1.

Table 1

Frequencies and Percentages of Gender, Physical Activity, and Length in the United States (n = 116)

Variable	<i>n</i>	%
Gender		
Female	62	53.45
Male	54	46.55
Missing	0	0.00
Physical Activity		
Not at All	42	36.21
Sometimes	52	44.83
Very Often	22	18.97
Missing	0	0.00
Length of Time in the US		
3-5 Years	11	9.48
5-10 Years	5	4.31
10 Years or More	100	86.21
Missing	0	0.00

Note. Due to rounding errors, percentages may not equal 100%.

The following baseline measures were taken from the 2015 health records. The participants were, on average, 51.76-years-old ($SD = 14.42$). The average baseline weight in pounds for participants was 161.53 ($SD = 37.49$ lbs). The average current weight in pounds was 184.65 ($SD = 38.20$ lbs). The average height was 166.16 in. ($SD = 9.82$ cm). The average baseline BMI was 26.83 kg/m² ($SD = 6.79$ kg/m²). The average current BMI was 30.60 ($SD = 6.67$ kg/m²). These results are summarized in Table 2.

Table 2

Ranges, Means, and Standard Deviations of Age, Weight, Height, and BMI

Measure	Age	Baseline	Current	Height (inches)	Baseline	Current	BMI Change
		Weight (lbs)	Weight (lbs)		BMI	BMI	
<i>n</i>	116	116	116	116	116	116	114
Min	18	85	110	121.92	13.72	17.75	-21.47
Max	83	320	360	203.2	53.25	61.79	3.44
<i>M</i>	51.76	161.53	184.65	166.16	26.83	30.6	-3.69
<i>SD</i>	14.42	37.49	38.20	9.82	6.79	6.67	5.01

The SMAS includes 32 items measured on a 4-point Likert scale, which may be combined in three composite scores: a total acculturation score and two subscale scores (Stephenson, 2000). The first subscale, ESI, consists of 18 items combined into a mean composite score. The second subscale, DSI, consists of 14 items combined in a mean composite score. The total acculturation score consists of all 32 items combined in a mean composite score. The possible range for each composite score is 1.00 to 4.00, with higher scores indicating a lower level of acculturation (Stephenson, 2000). High scores indicate that the participants have not adapted to their new culture well, while low scores indicate that participants have adapted to their new culture (Stephenson, 2000). Scores ranging from 1.00 to 2.50 indicate high acculturation, while scores of 2.50 to 3.00 indicate lower acculturation, and scores above 3.00 would indicate low very acculturation (Stephenson, 2000).

The average for the total acculturation score was 2.98 ($SD = 0.25$), suggesting that participants had somewhat low total acculturation. The average of the acculturation subscale DSI was 2.32 ($SD = 0.59$), indicating that participants had somewhat higher DSI acculturation than total or ESI acculturation. The average of the acculturation subscale

ESI was 3.50 ($SD = 0.18$), indicating very low ESI acculturation. The full range, means, and standard deviations are summarized in Table 3.

Table 3

Ranges, Means, and Standard Deviations of SMAS Scores

Variable	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
Acculturation Score	116	2.44	3.53	2.98	0.25
Ethnic Society Identity (ESI)	115	2.89	3.83	3.50	0.18
Dominant Society Identity (DSI)	116	1.29	3.79	2.32	0.59

BMI Change and Acculturation and Predictor Variables

To address the research question, a multiple linear regression analysis was conducted to explain the relationship between the predictor variables, which were acculturation, length of stay in the United States, and BMI change. For this analysis, the continuous predictor variable was acculturation score. The covariates were age, gender, physical activity, and length of stay. As physical activity and length of stay were categorical variables with more than two categories, the variables were dummy-coded for entry into the regression model. Physical activity was dummy-coded into the variables *sometimes* and *very often*, with *not at all* as the reference category. Length of stay was dummy-coded into the variables *5-10 years* and *10 years or more*, with *3-5 years* as the reference category. The continuous dependent variable was BMI change.

BMI and BMI Change Score Calculation

BMI is a form of screening method used to measure for normal or healthy weight, underweight, obesity, and overweight (CDC, 2017). To calculate BMI, I used height in

feet and inches, divided by weight in pounds, which equals BMI in kilograms (NHLBI, 2017). I calculated BMI change by subtracting the participants' current weight with their baseline past weight to show if there was a positive/increase or a negative/decrease number in BMI change.

Prior to conducting the regression, the assumptions of normality, homoscedasticity, and absence of multicollinearity were assessed. Normality was evaluated using a Q-Q scatterplot, as suggested by Bates, Mächler, Bolker, and Walker (2014). Normality can be assumed if the data points generally conform to the diagonal normality line. The scatterplot shows deviation from normality. However, minor deviations from normality can be accepted, as the F test used in regressions is robust against violations of the normality assumption provided the sample size is large ($n > 50$; Stevens, 2016). The Q-Q scatterplot for normality is presented in Figure 2.

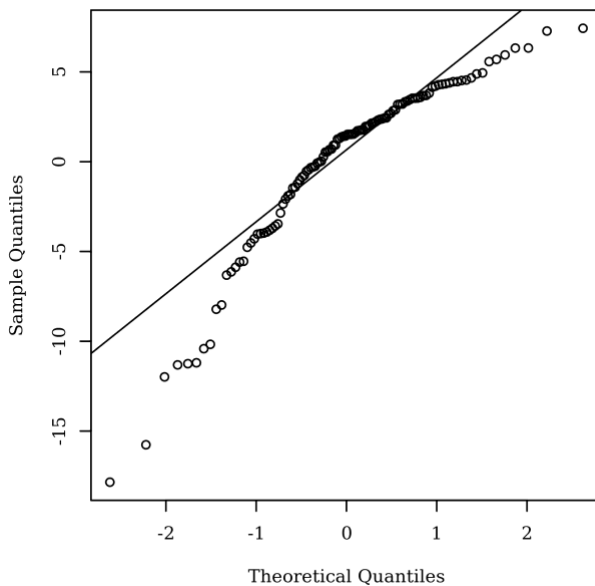


Figure 2. Q-Q scatterplot testing normality.

Homoscedasticity was evaluated through a scatterplot of the residuals, as suggested by Bates et al. (2014). The assumption is met if the points appear randomly distributed with no apparent cone-shaped pattern. The assumption of homoscedasticity was met. Figure 3 presents the scatterplot of predicted values and model residuals.

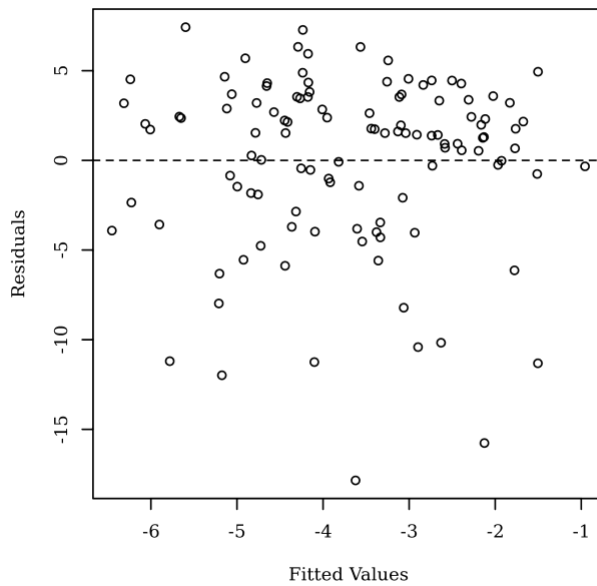


Figure 3. Residuals scatterplot testing homoscedasticity.

Absence of multicollinearity amongst the predictors was examined using variance inflation factors (VIFs). These VIF values should be 5.00 or below (Menard, 2009). All predictors in the regression model have VIFs less than 5.00. Table 4 presents the VIF for each predictor in the model.

Table 4

Variance Inflation Factors for Age, Gender, Activity, Length, and Acculturation Score

Variable	VIF
Age	1.63
Gender	1.19
Activity	1.16
Length	1.39
Acculturation Score	1.38

The results of the overall linear regression model were not significant, $F(7,106) = 1.06$, $p = .394$, $R^2 = 0.07$, indicating that the combination of age, gender, activity, length of time in the United States, and acculturation score were not significantly related to BMI change. There were no individually significant predictors; thus, the null hypotheses cannot be rejected. Table 5 summarizes the results of the regression model.

Table 5

Results for Linear Regression with Age, Gender, Activity, Length, and Acculturation Score Predicting BMI Change

Variable	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	95% CI
(Intercept)	6.93	7.29	0.00	0.95	.344	[-7.52, 21.37]
Age	0.04	0.04	0.13	1.07	.286	[-0.04, 0.13]
Gender (ref: female)						
Male	0.62	1.02	0.06	0.61	.543	[-1.40, 2.65]
Physical Activity (ref: not at all)						
Sometimes	-0.11	1.09	-0.01	-0.10	.918	[-2.26, 2.04]
Very Often	1.11	1.39	0.09	0.80	.427	[-1.65, 3.87]
Length of Stay (ref: 3-5 years)						
5-10 Years	-0.14	2.96	-0.01	-0.05	.962	[-6.02, 5.74]
10 Years or More	-2.04	1.84	-0.14	-1.11	.269	[-5.69, 1.60]
Acculturation Score	-3.90	2.20	-0.20	-1.77	.080	[-8.27, 0.47]

Relationship Between BMI Change and Acculturation Subscales

To examine the relationship between BMI change and the subscales of acculturation, a second regression was conducted with the subscales of acculturation score and DSI and ESI as predictors. The covariates and dependent variable remained the same. Normality and homoscedasticity results were similar to the previous regression, and both assumptions were met. The Q-Q scatterplot for this regression is presented in Figure 4. Figure 5 presents the scatterplot of residuals for this regression. There was no multicollinearity in the model, as VIF values were below 5.00 (see Table 6).

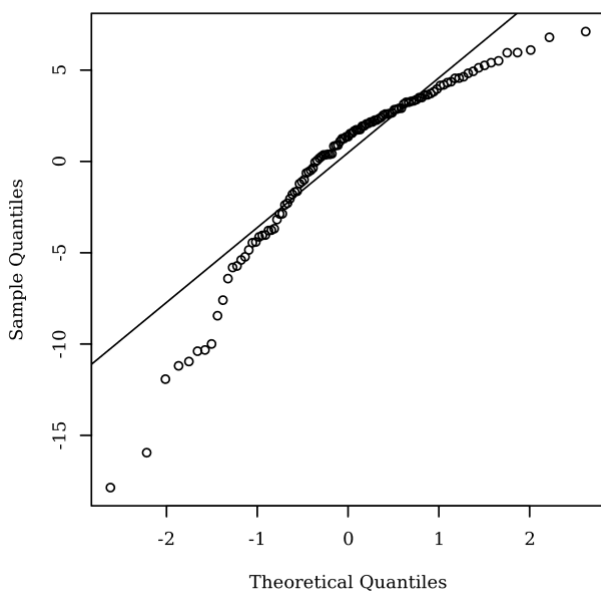


Figure 4. Q-Q scatterplot testing normality for the ancillary analysis.

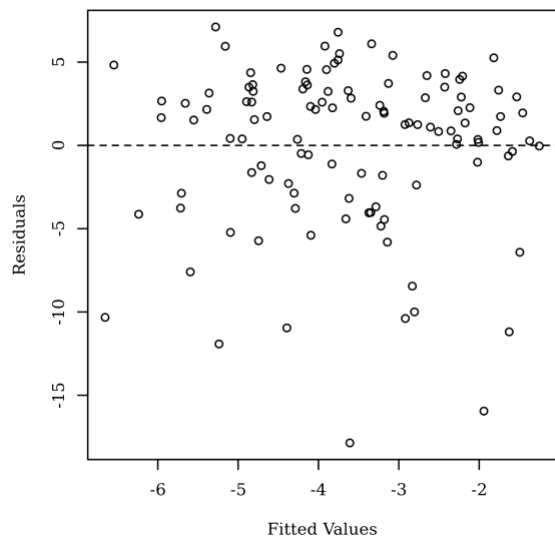


Figure 5. Residuals scatterplot testing homoscedasticity for the ancillary analysis.

Table 6
Variance Inflation Factors for Age, Gender, Activity, Length, DSI, and ESI

Variable	VIF
Age	1.64
Gender	1.19
Activity	1.16
Length	1.40
DSI	1.47
ESI	1.13

The results of this linear regression model were not significant, $F(8,104) = 0.96$, $p = .475$, $R^2 = 0.07$. The combination of age, gender, physical activity, length of stay, and the subscales of acculturation (DSI and ESI) were not significantly related to BMI change. Additionally, no individual predictor was significant, and the null hypothesis could not be rejected through this ancillary analysis. Table 7 summarizes the results of this regression model.

Table 7
Results for Linear Regression with Age, Gender, Activity, Length, DSI, and ESI Predicting BMI Change

Variable	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	95% CI
(Intercept)	0.16	10.90	0.00	0.02	.988	[-21.45, 21.78]
Age	0.04	0.04	0.11	0.90	.373	[-0.05, 0.12]
Gender (ref: female)						
Male	0.48	1.02	0.05	0.47	.641	[-1.55, 2.51]
Physical Activity (ref: not at all)						
Sometimes	-0.07	1.09	-0.01	-0.07	.947	[-2.23, 2.08]
Very Often	1.01	1.39	0.08	0.73	.468	[-1.74, 3.76]
Length of Stay (ref: 3-5 years)						
5-10 Years	-0.08	2.96	-0.00	-0.03	.979	[-5.94, 5.78]
10 Years or More	-1.89	1.84	-0.13	-1.03	.306	[-5.53, 1.75]
DSI	-1.79	0.97	-0.21	-1.85	.067	[-3.71, 0.13]
ESI	0.43	2.84	0.02	0.15	.880	[-5.21, 6.07]

Post-Hoc Analysis of Multiple Regression Analysis

Because a priori power analyses used for sample size estimations only estimate effect size, the actual power achieved can be different than what was estimated (Ialongo, 2016). Every individual sample will produce a unique effect size (Ialongo, 2016). Post-hoc power analyses indicated that the achieved power of the regression with 116 participants was 0.51, while achieved power of the regression with outliers removed from the dataset (113 participants) was similar at 0.50, as suggested by Faul, Erdfelder, Buchner, and Lang (2014).

Summary of Results

The effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in Boston, Massachusetts was examined using a multiple linear regression. In the results of the analysis, I found that there was no relationship between acculturation, length of stay, and BMI change. An ancillary analysis using the subscales of acculturation instead revealed similar results. In response to these findings, the null hypothesis cannot be rejected.

In Chapter 5, these results will be interpreted in relation to the relevant literature. A discussion of the limitations of the study and this study's contribution to positive social change will be provided. This chapter will provide recommendations for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Obesity is a health issue in the United States that affects people of all races and ethnic groups. Although being overweight or obese affects the health of all populations, Lind et al. (2016) found that comorbid conditions, such as diabetes and cardiovascular disease, are greater in minority groups than nonminority groups who are overweight. Minority refers to people who reported their ethnicity and race as something other than non-Hispanic White. Although immigrants enter the United States with a lower incidence of being overweight, the prevalence of obesity rose with increased length of habitation in the United States (Afable-Munsuz et al., 2014).

The purpose of this study was to examine the effect of acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan area in the Northeast. To accomplish this goal, 116 individuals who identified themselves as Haitian immigrants were sampled using a quantitative, nonprobability convenience sampling. Of this sample, 53% were female and 47% were male. The largest grouping was active sometimes ($n = 52$, 45%). The majority of participants had lived in the United States 10 years or more ($n = 100$, 86%).

The purpose of the final chapter is to provide the meaning from the results of the study in relation to the literature and the theoretical framework. In Chapter 5, I will also reintroduce the purpose and the nature of the study and will discuss the findings, limitations, recommendations, and the study's contributions to positive social change.

Interpretation of the Findings

This study was designed to examine the relationship between acculturation and length of stay in the United States on BMI in a sample of Haitian immigrants living in a large metropolitan area. Four mediators from the Schwartz model were used. These mediators included cultural practices (English language proficiency), ethnic and cultural identity, cultural values (family cohesion), and acculturation stress. Scholars have revealed associations between length of stay in the United States, acculturation, and BMI changes (Afable-Munsuz et al., 2014; Le-Scherban et al., 2014; Oza-Frank et al., 2011; Ro & Bostean, 2015; Venkatesh et al., 2013). Mediators such as English language proficiency and acculturation stress were found in the literature as contributors to weight gain. However, in the current study, English language was a component of the DSI subscale, while acculturation stress was a component of the ESI subscale. I determined that those who retained their ethnic identity had a lower acculturation score and were less likely to gain weight. According to Lee et al. (2013), immigrants integrate socially and culturally into U.S. society. Lee et al. considered English language ability, discrimination, health behaviors, and family cohesion. Lee et al. showed that these mediators were pathways between duration of stay within the United States and health outcomes. Lee et al.'s use of English language ability—referred to within the DSI subscale as English language proficiency—was a significant mediator regarding health outcomes. Despite the similarity in terms of findings between Lee et al.'s research and the current study, Lee et al. did not study BMI changes within the Haitian population or other similar groups. Rather, Lee et al. grouped their participants by demographic

identifiers such as Hispanic, Asian, White, Black, and multiracial/other. Although Haitians may have been included in Lee et al.'s sample, they were not reported as such within the results. Ultimately, three of the four mediators were relevant to the current study by showing that those who had retained their cultural identity had positive health outcomes with lower acculturation score and lower weight gain. Although I focused on English language ability, health behaviors, family cohesion, and BMI change, I did not find significance; therefore, my results do not support the findings of Lee et al.

The combination of age, gender, activity, and length of stay were not significantly related to BMI change; thus, the null hypotheses cannot be rejected. As measured by the linear regression model, the combination of age, gender, physical activity, length of stay, and the subscales of acculturation (DSI and ESI) were not significantly related to BMI change. Additionally, no individual predictor was significant. Therefore, the hypothesis that there is an association between the length of stay, acculturation, and BMI changes was not supported. The null hypothesis could not be rejected. Similar to my study's findings, Rosas et al. (2015) found no significant association with length of stay in the United States and BMI across six Asian ethnic groups (Japanese, Filipinos, Koreans, Chinese, Vietnamese, and South Asians), Rosas et al. suggested that there was a need for including additional behavioral measures for future research, such as dietary habits, types of exercise, and medication adherence.

Ro and Bostean (2015) found an association between English proficiency and five mediators—household income, family cohesion, ethnic identity, discrimination, and acculturation stress—and length of stay in the United States and BMI among Latino and

Asian populations. Although I had questions that focused on family cohesion and ethnic identity, other questions were included in ethnic identity and were not individually addressed so my findings cannot be compared to Ro and Bostean's study. In their study, height and weight were self-reported by the participants, and BMI was calculated using the CDC standard formula: $\text{weight in pounds} / \text{height in inches}^2 * 703$ (Ro & Bostean, 2015). Data from the National Latino and Asian American Survey were used as the instrument to conduct a path analytic method to concurrently test six hypothesized mediators between duration and BMI: English language ability, household income, family cohesion, ethnic identity, acculturative stress, and discrimination for both Latino and Asian immigrants (Ro & Bostean, 2015). The significant relationship between English proficiency and BMI was in contrast to the measured aspects of acculturation, which showed no association with BMI. Consistent with Ro and Bostean's study, I found no association between the total acculturation score and BMI. Knowledge is limited regarding the effects of acculturation and length of stay in the United States among Haitian immigrants. There is a need for further studies to examine the association between the length of stay/acculturation and the incidence of BMI change. My study showed no significant association between DSI, ESI, and BMI. Future studies are needed to examine acculturation among the Haitian population, BMI, and length of stay in the United States with a larger population.

Haitian Immigrant Acculturation into Host Culture

I found that the Haitian immigrants surveyed scored higher on the EIS compared to the DSI scale. Haitians in this study had retained more of their ethnic identity rather

than acculturate to the dominate society identity, although no statistically significant differences were found between the relationship of acculturation to BMI. This could be due to the various factors that contribute to acculturation that immigrants experience when arriving and eventually settling into a new country. In terms of acculturation at a group level, immigrants gradually adapt to cultural practices, institution, and social structures, where adaptation is reached to lessen conflicts between patterns of host culture and country of origin (Agbemenu, 2016; Buscemi, 2011). At the individual level, acculturation is achieved in personal behaviors and values with continued contact with the host culture (Zhang & Tsai, 2014).

In this dual-role process, immigrants choose one of four ways to acculturate into the host nation: assimilation (when immigrants embrace the host nation's culture wholeheartedly), separation (where immigrants separate themselves from the dominant culture to preserve their original culture), integration (where immigrants participate in the social system yet honor their original culture), and marginalization (where immigrants lose interest and become alienated from both cultures; Agbemenu, 2016; Buscemi, 2011).

My Study Results Related to the Conceptual Framework

The findings of my study provided support for the Schwartz model that views acculturation as a process of transforming cultural identity. According to Schwartz et al. (2013), acculturation of first-generation immigrants is the process of adapting to new values, culture, and practices. First-generation immigrants are challenged with discerning which practices, values, and behaviors to keep or reject from the new culture (Schwartz et

al., 2013). This was prevalent in the findings, as participants all retained cultural ties to the homeland, thereby rejecting certain behaviors and norms of the host country.

Limitations

Limitations were found in this study, as is common in studies of a quantitative nature (Quick & Hall, 2015). Convenience sampling was used as the sampling strategy because it gave more opportunity to access the sample size needed for the study. Cross-sectional studies are limited because they are conducted at various points in time, which does not provide sufficient evidence as to when participants were exposed to the change that might have caused a negative outcome (Quick & Hall, 2015). Therefore, it is not possible to determine causation. As this was a nonprobability strategy, the findings of this study cannot be generalized as an evaluation that represent the population.

Generalizability may also be limited as changes in BMI only reflected participants who had been in the country for at least 3 years. After a post hoc power analysis, it was found that the statistical power of the study was a limitation. Based on an a priori sample size calculation, it was originally assumed that there would be a power of .80, based on an estimated medium effect size used within the calculation. However, a medium effect size was not found, and the achieved power of the analysis for this sample was low, at .51. There was a reduced ability to detect a statistical relationship, if one existed. Because the post hoc power analysis indicated low power (0.51), a Type 2 error may have occurred resulting in a failure to reject the null hypothesis when a difference existed.

Recommendations

Based on the findings of this study, there are multiple recommendations for future research. The first recommendation is that future researchers collect data from the Haitian immigrant population living in areas outside of an metropolitan area of the United States, rather than focus solely on the metropolitan areas. In doing so, researchers can increase the sample size for generalization of the study results. The second recommendation is for my study to be replicated to include a larger sample size; different length of time in the United States; and for the correlation between acculturation, length of time in the United States, and BMI to be measured prospectively and retrospectively.

Dietary habits, level of education, and economic status should also be examined as covariates in future studies on this topic. Although the SMAS scale used in the study already separated dominant ethnic group identity into subscales, it is recommended that researchers use their own questions that reflect family cohesion and English language to understand acculturation better as this survey was not designed to use the items in the subscales as individual items. The final recommendation is to consider future studies to generalize beyond the local population of Haitians because there are not enough studies on the Haitian community. It may be possible to use a larger sample that may be representative of Haitians.

Implications for Positive Social Change

The findings of this study can be used to make health practitioners aware of acculturation and the effect it can have on an individual's adjustment to the U.S. culture and how to measure acculturation and investigate the long-term effects of length of stay

in the United States on health outcomes in Haitian immigrants. There are high concentrations of Haitian immigrants in Miami, New York, and Boston (Sanon et al., 2014). Although immigrants enter the country with a lesser frequency of being overweight than the native population, the occurrence of obesity and diabetes rises with increased length of habitation in the United States (Afable-Munsuz et al., 2014; Oza-Frank et al., 2011; Venkatesh et al., 2013). Lu et al. (2015) identified that immigrant health outcomes can be influenced based on the individual's level of acculturation. Although I did not find a significant correlation between acculturation and BMI, more research is needed to investigate the relationship between acculturation, immigrant length of stay in the United States, and BMI.

This research adds knowledge to the literature by revealing that the Haitian population did not show declining health with acculturation and longer length of stay in the United States. Future researchers should examine additional predictors, such as level of education, dietary habits, and economic status as alternative explanations. Although I did not find a significant relationship between acculturation and length of stay in the United States and BMI, health care providers should use an acculturation scale to examine additional behavior measures on ethnic and cultural identity, cultural values (family cohesion), and cultural practices (English language proficiency; Rosas et al. 2015). The results of my study may affect positive social change by providing health care providers with a means of not only measuring acculturation in immigrant groups, but also by investigating the long-term effect of length of stay in the United States and the fluctuation in BMI change as a chronic disease prevention approach.

Summary

The aim of this study was to provide information to the Haitian immigrant population living in the United States about the risk of obesity and its ties to acculturation and length of stay in the host nation, as well as bringing greater insight to health care providers of the chronic diseases that may result from BMI change. The findings of my study are supported by similar studies, but are not supported by other studies regarding the length of stay in the United States being related to BMI changes in Haitian immigrants. Because there were mixed results, more research is needed. In addition, the Schwartz model of acculturation was used as the conceptual framework to examine the relationship of acculturation through four mediators (ethnic and cultural identity, cultural values, cultural practices, and acculturation stress) and BMI change, which was measured by the bidimensional SMAS. This study reported new knowledge about the Haitian immigrants living in the Northeast metropolitan area and should generate longitudinal immigrant health research interest in order to establish Haitian immigrants' health status across length of stay in the United States. Immigrants' acculturation levels and length of stay in the United States have a long-term effect on BMI. Although I did not find this significant correlation, I recommend that more research be conducted to investigate the correlation between acculturation, length of time in the United States, and BMI.

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Appendix A: Recruitment Flyer

**Correlation between acculturation, Length of time in the United States on weight Study**

Be part of an important research study on length of time in the U.S. and weight

- *Were you born in Haiti?*
- *Are you 18 years of age or older?*
- *Have you been in the United States for 3 years or more?*
- *Are you fluent in English language?*

If you answered YES to these questions, you may be eligible to participate in an informational research study.

The purpose of this research study is to examine the effect of acculturation, length of stay in the U.S on body mass index in a sample of Haitian immigrants living in Boston Massachusetts. The benefits of this study will be to promote positive social change towards nursing care and professional health practices. No medications will be given.

*This study is being conducted for my Walden University Dissertation at **Resil Medical Associate, Dorchester Ave, Dorchester, MA 02124***

*Please call Nirva at **(617) 435-4633** for more information*

Appendix B: Demographic Survey Questionnaire

Tell us about you

How old are you? -----

Gender?

- a. Male
- b. Female

How long have you been in the United States?

- a. 3 to 5 years
- b. 5 to 10 years
- c. 10 years or more

Do you exercise?

- a. Very often?
- b. Sometimes
- c. Not at all

Appendix C: Permission to use Instrument

From: Nirva Berthold
Sent: Saturday, August 5, 2017 2:27 PM
To: mstephen@berkshirecc.edu
Cc: Nirva Berthold
Subject: Permission Request

Dear Dr. Stephenson

My name is Nirva Berthold, I live in Boston Massachusetts, and I am a Ph.D. Nursing candidate at Walden University with a focus in Interdisciplinary Health. I am currently working on my dissertation, which is focused on examining the association between acculturation, duration in the U.S., and body mass index among Haitian immigrants residing in Boston Massachusetts.

I have been fascinated by your work, in particular, "Development of the Stephenson Multigroup Acculturation Scale (SMAS)". In reviewing the above article, I noticed that the SMAS scale can be used to examine acculturation for the population group in my dissertation.

With your permission, I would like to employ the Stephenson Multigroup Acculturation Scale (SMAS) as the instrument for my study. Could you please grant me permission to use it? Thank you in advance for your assistance.

Sincerely,

Nirva Berthold Ph. DC
[\(617\) 435-4633](tel:(617)435-4633)

From: Nirva Berthold
Sent: Friday, August 25, 2017 1:05 PM
To: Margaret Stephenson
Cc: Nirva Berthold
Subject: Re: Permission Request

Good afternoon Dr. Stephenson,

I thank you very much!
I will definitely let you know of the study results.
Nirva

From: Margaret Stephenson <mstephen@berkshirecc.edu>
Sent: Tuesday, August 22, 2017 1:56 PM
To: Nirva Berthold
Subject: RE: Permission Request

Dear Ms. Berthold,

You are welcome to use the Stephenson Multigroup Acculturation Scale (SMAS) in your research.
I would be very pleased to know the results of your study.
Good luck with your work.

Margaret Stephenson