



(RESEARCH ARTICLE)



Assessing the risks of hypertension amongst West African immigrants in the United States

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GSC Biological and Pharmaceutical Sciences, 2022, 19(03), 109–119

Publication history: Received on 05 April 2022; revised on 10 May 2022; accepted on 12 May 2022

Article DOI: <https://doi.org/10.30574/gscbps.2022.19.3.0177>

Abstract

Background: Cardiovascular disease is the leading cause of death in the United States(US) and Worldwide, and hypertension (HTN) is the main contributing factor. HTN causes a systemic increase in mean arterial pressure, and it occurs in response to both modifiable and non-modifiable risk factors. HTN is called the “silent killer” due to the absence of obvious signs and symptoms. Increased HTN has been at epic proportions among African-born immigrants(ABI), and African Americans(AA) in the US. Despite the prevalence of HTN among the ABI population, these group of immigrants are unrecognized and underrepresented because of one common racial identifier, AA. Although HTN can be managed, 60% of patients with HTN are not aware they have the condition.

Purpose: The purpose of this article is to elucidate the association of length of stay in the US and prevalence of HTN among ABI population in the US.

Methods: A secondary dataset was retrieved from the survey conducted by the Centers for Disease Control and Prevention and the National Health Institute Survey 2014 (n= 112053). We used descriptive and inferential statistics, binary logistic, and multiple regression analysis to quantitatively test the multiple variables and the hypotheses.

Results: There are statistically significant associations between physical inactivity, food insecurity, and length of stay in the US by the ABI population and HTN.

Conclusion: Acculturation plays a very critical role in the development of HTN among ABI populations that reside in the US greater than 5 years. HTN is preventable and manageable by adopting positive life-changing behaviors.

Keywords: Essential Hypertension 1; Modifiable Risk Factor 2; Food Insecurity 3; Physical Inactivity 4; African-born Immigrants 5

1. Introduction

In recent decades, the World Health Organization (WHO) confirmed that HTN is largely due to increased modifiable risk factors in those populations (WHO, no date [nd]). The most common modifiable risk factors include unhealthy diets, excessive salt consumption, diets high in saturated fat and trans fats, low intake or lack of fruits and vegetables, physical inactivity, consumption of tobacco and alcohol, overweight or obesity and non-compliance.

In addition to modifiable risk factors, there are also non-modifiable risk factors, such as age, gender, race/ethnicity, and genetic disposition. Data from the National Health and Nutrition Examination Survey suggested that the prevalence of

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HTN increased with age, from 7.5% to 33.2% to 63.1% among adults aged 18–39, 40–59, and 60 and over, respectively. This pattern was found among both men and women. The survey also confirmed that prior to menopause men had a higher prevalence of HTN than women; adults aged 18–39 (9.2% compared with 5.6%, respectively) and 40–59 (37.2% compared with 29.4%, respectively). Yet men had a lower prevalence of HTN than women among adults 60 and over (58.5% compared with 66.8%, respectively), The Centers for Disease Control and Prevention (CDC, 2016).

An estimated 1.13 billion people worldwide have HTN, and the burden of this chronic condition is felt disproportionately in low- and middle-income countries (LMICs), where two thirds of cases are found. HTN is highest amongst the Sub-Saharan Africans, affecting over 46% adults, and the lowest (35%) in the developed countries. Prevalence of HTN in U.S. among adults, men, women, and individuals over 18 years of all gender ranged from 14% to 41% in 2013-2014. Depending on the definition of HTN as accepted by the medical communities and the WHO medical practitioners; 41% either reported having HTN or having a measured blood pressure that is $\geq 140/\geq 90$ mmHg (CDC, nd). According to the (WHO, nd) countries with higher income have lower incidences of HTN compared to countries with low-and middle-income countries (LMICs). It is estimated that 31.1% of adults (1.39 billion) worldwide had HTN in 2010 [1]. The prevalence of HTN among adults was higher in LMICs (31.5%, 1.04 billion people) than in high-income countries (28.5%, 349 million people). It was suggested that *HTN is more prevalent in LMICs because more people live in those countries with limited health care resources than in high-income countries.* (WHO, nd) This phenomenon is like the health disparities that exist in rural regions of the United States. Significant populations of Black immigrants in the US come from different regions of African continent with different lifestyles, different circumstances, and different health conditions.

1.1. Purpose of the Study

The purpose of this article is to elucidate the association of length of stay in the United States and prevalence of HTN among African-born immigrant population in the USA. HTN has emerged and labeled as one of the non-communicable leading causes of cardiovascular diseases, Type II diabetes, kidney failures, and risk factors for hosts of chronic disease. Despite the increasing prevalence, African-born immigrants are under researched.

1.2. The Significance of HTN

The 2014 National Health Institute Survey (NHIS) was structured and designed to answer the causes of HTN among immigrants of African descent. The study demographic comprises of four regions of the United States: Northeast, North Central/Midwest, South, and West as recognized by the United States Census Bureau. These areas were targeted to have equitable sampling process known as Primary Sampling Units (PSUs). The 2014 NHIS survey participants consisted of a total of (n= 112,053) of various racial demographic compositions. Of the total number of the participants, 92,859 representing (83%) self-identified as US citizens, native Black or African Americans (AA), Whites, and Hispanics. Self-identified African-born immigrants in the research were (n =744) representing only (0.7%).

In the Descriptive Statistics analyses, results for frequencies, percentages, and summaries were extracted and presented in the tables below. NHIS survey questions were framed to allow the participants to self-rate their health conditions and behaviors. Answers were based on self-rated responses as 1-Yes and No-2, and No Response. No response signified participants declined to answer the question.

HTN is the single dependent dichotomous variable in this study. The participants were asked of this health related HTN question. If they have been told they have HTN during their regular doctor's appointment visit.

Table 1 presented the frequencies and the percentiles responses. Missing Data occurs when no data values are stored or not available to report. The remaining 75,354 (67.2%) missing data were primarily the result of failure to locate an eligible respondent. The conditional response rates for the relative frequencies percentage were calculated by dividing the number of responses for "No" answer, (24,254/112,053), by the total number of persons who were available for the survey. This calculation format was used to determine the Relative and Absolute frequencies (%) for the rest of the tables.

1.3. HTN Morbidity Rate

No response errors are described as the participants refusal to be interviewed, absence from their homes, or responses are lost for unexplained reasons.

In my research, I found that foreign-born Black immigrant men and women were less likely than US-born Black men and women to be aware of having or being diagnosed with HTN. This could have significant implications for health surveillance efforts and for research on health inequities among Black immigrant populations.

Non-modifiable factors such as age, gender, race/ethnicity cannot be altered, but with greater awareness and lifestyle modifications HTN can be managed. It has been well-documented that lifestyle factors play a crucial role in the development of HTN, and steps should be taken to provide interventions and increase awareness among Black populations in America and in poor countries. Dietary Approaches to Stop HTN (DASH) is a component of both the U.S. based National Heart, Lung, and Blood Institute and the United States Department of Health and Human Services). The goal of DASH is to prevent and control HTN. The DASH diet is rich in fruit, vegetables, whole grains, low-fat dairy foods and/ or Mediterranean dishes. The DASH diet also includes white meat, fish, poultry, nuts, and beans, and limits sugar-sweetened beverages, red meat, and saturated fat foods. In addition to its effect on blood pressure, DASH recommended foods are designed to be a well-balanced approach to eating for the public. Although DASH is recommended by the United States Department of Agriculture (USDA) as a healthy eating plan for modifying lifestyles, we must also consider food security and insecurity in any given household in the United States. It should be noted that food security is not just about having enough food to eat (freedom from hunger), it should also be safe, nutritiously healthy, culturally acceptable, and obtained from a sustainable food system.

Table 1 Have you ever been told you have HTN? ($n = 112053$)

| HTN Morbidity | †Relative Frequencies | ‡Absolute frequencies (%) |
|------------------------|-----------------------|---------------------------|
| No | 24254 | 21.6 |
| Yes | 12396 | 11.1 |
| Number of Participants | 36650 | 32.7 |

† Describe the number of observations each variables occurs. ‡ Described the number of times in (%) participant responded

The USDA, in consultation with other federal agencies, academics, and members of the policy community, developed the food insecurity measure used in the United States because of the myriad of negative health outcomes associated with food insecurity. Understanding the existence of certain negative health outcomes that stem from food insecurity is of direct importance to health care professionals and to the policy makers and program administrators charged with improving health and well-being. After the introduction of the Food Security Supplement of the Census Bureau's Current Population Survey (CPS-FSS) CPS-FSS, dozens of papers have examined whether food insecurity is associated with poor health outcomes [2]. Controlling for other confounding factors, such as income, is especially important because many of the determinants of food insecurity are also determinants of health. There is a lack of research on the impacts of food insecurity on health outcomes among the West African immigrant population.

The project asked the West African immigrant population the following food insecurity variable questions in the survey:

Do you worry whether our food would run out before we got money to buy more?

Did you or the other adults in your household ever cut the size of your meals or skip meals because there was not enough money for food?

Did you ever cut the size of any of the children's meals because there was not enough money for food?

Did any of the children ever not eat for a whole day because there was not enough money for food?

Food insecurity questions were based on whether the families ate less than they should or worried they may not have enough, have enough, and or did not have money to buy food in a month period before the foods runs out. Prevalence of food insecurity was 87.8% and inversely associated with household income. Table 2 below, present the frequencies, percentages, nonresponses, and missing data from the participants' responses to the following question. Missing Data occurs when no data values are stored or not available to report. The remaining 84,808 (75.5%) missing data were primarily the result of failure to locate an eligible respondent.

Did the family ever eat less than they should because there is not enough money to buy food in the last 30 days?

Table 2 Food Insecurity among African Immigrant Population in the US from Very Low to High Food Insecurity (n = 112053)

| ¥Food Insecurity among African-born Immigrant populations | Relative Frequency (%) | Absolute Frequency (%) |
|---|------------------------|------------------------|
| High Food Insecurity | 13575 | 12.1 |
| Low Food Insecurity | 8084 | 7.2 |
| Very low food Insecurity | 5491 | 4.9 |
| Number of Responses | 27150 | 24.2% |

¥ Food Insecurity questions were based on household food availability in a 30-day (1 Month) period. If they have enough food from the beginning of the month to the end of any given month end

2. The Morbidity and Mortality of HTN

HTN continues to be a significant health issue particularly among non-Hispanic Black men and women in the United States despite the effective and preventive measures available. Black men have the highest prevalence of premature death and disability from HTN in the United States (US). The HTN-related death rate among non-Hispanic black men was 47.1 per 100,000 compared with 17.6 per 100,000 for non-Hispanic white men in 2015 [3]. HTN has been identified as a strong independent risk factor for heart disease, stroke, a predictor of premature death, and disability from cardiovascular complications. Untreated HTN potentially increases the risk of mortality and morbidity for heart and stroke. These conditions are first and third leading causes of death in the United States, respectively.

In 2017, the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC 7) set the new blood pressure guidelines. The current HTN clinical guideline of >140/90 mmHg puts over 75 million (32%) American adults in Type 2 HTN category. The new clinical guidelines were developed by the American Heart Association, American College of Cardiology and nine other health professional organizations. These guidelines stressed the importance of the common home monitoring with validated devices that can be purchased at the local drug stores and with the help of appropriate training of healthcare providers, the self-monitored individuals should be able to read and understand normal or abnormal numbers. For years, HTN was classified as a blood pressure reading of 140/90 mm Hg or higher, the updated guideline classifies HTN as a BP reading of 130/80 mm Hg or higher.

American Heart Association, ([AHA], nd). But with a new clinical definition of high blood pressure, normal [130/80 mmHg Systolic/Diastolic readings] about 1 in 3 American adults are at-risk for elevated blood pressure that are higher than normal but not significant to be considered HTN category. The ranges are diastolic: [80–89 mmHg; systolic: 140 mmHg or higher], and higher categories are [systolic: 120–139 mmHg; diastolic: 90 mmHg or higher] (CDC, nd). Blood pressure is regarded as normal if the level is 120/80 mmHg or less. Blood pressure between 120/80 mmHg and 138/89 mmHg is regarded as pre-HTN, which denotes increased risk of HTN, whereas a blood pressure of 140/90 mmHg and above is HTN [4]. The updated guidelines eliminate the term preHTN and instead uses the term elevated BP for a systolic BP of 120 to 129 mm Hg and a diastolic BP of less than 80 mm Hg.

HTN was a primary or contributing cause of death of more than 410,000 Americans in 2014, estimated to be about 1,123 deaths per a day. Approximately (54%) of people with HTN have the condition under control at the cost of \$48.6 billion each year. This total includes the cost of healthcare services, medications to treat high blood pressure, and work absences (CDC, nd).

Over the past decades and to date, there have been many self-migrated black immigrants from Sub-Saharan African countries to the United States in search of a better life and unlimited opportunities. The recent African-born immigrants who arrived in the United States usually arrived in better health and eager to learn and acculturate to the new environment [5, 6]. Studies supported that immigrant of African origins have low incidences of HTN, but over the course of their stay, they develop systemic HTN and other chronic diseases, stroke, kidney failure, Type II diabetes, CVD, and heart attack. As profound as the issues with HTN among the immigrant populations are, there is no specific social science research or studies of this population to determine the rationale. There is also evidence that recent immigrant groups are healthier than the immigrants residing in the U.S. for longer periods, possibly due to adopting unhealthy eating and lifestyle habits through the acculturation process (7). *“Immigrant adults tend to have better health than native-born adults despite lower incomes, but the health advantage decreases with length of residence”* [8]. A plethora of studies have examined HTN across multi-racial ethnic groups but rarely investigate African-born immigrants' population, perhaps

due to the use of a single racial identifier; “African-Americans.” While some previous research suggested that foreign-born Blacks from Africa and the Caribbean have more favorable health outcomes (i.e., overall mortality, perinatal health, cancer obesity, cardiovascular disease, allostatic load) than their U.S.-born counterparts, these studies have been small and limited to specific sites, and recent national-level data remains understudied. However, with an increased cases of hypertension prevalence rising which has been associated with increased length of stay in the US this advantage in African immigrants may be lost with increased length of stay. The constructive paradigm in my view is this group needs to be clearly identified by nativity in all such research to help narrow factors leading to rapid increases in HTN among the Black immigrant population.

Aim of the study

In my research, I identified the importance and the need to understand the health issues facing the African immigrant population as substantially relevant, this population have not been researched. HTN is at epic proportions among this population. The aim of this study is to examine physical inactivity and length of stay in the US as modifiable risk factors for HTN.

HTN among African immigrants was the focus of this study which was guided by this one research question: Is there an association between length of stay in the United States and the development of HTN among African-born immigrants when accounting for age and education?

I hypothesized that there is an association between length of stay in the United States and the development of HTN among African-born immigrants when accounting for age and education.

3. Methods

The study was based on a cross-sectional survey, quantitative, descriptive, and non-experimental. Secondary dataset was drawn from the entire sample conducted by the Centers for Disease Control and Prevention and the National Health Institute (CDC/NHI) in 2014. Statistical analyses for this study were conducted using IBM- SPSS version 17.0. Using descriptive statistics, inferential statistics, binary logistic, and multiple regression analysis to quantitatively test the multiple variables and the hypotheses.

Quantitative methods allowed me to measure any associations that may exist between dependent variable HTN and the independent variables physical inactivity, length of stay in the US, health status, and food insecurity. Covariates in the study were age, educational attainment, marital status, and sociodemographic factors, however the covariates were minimally analyzed. A purposive sample of African Americans (AA), including, African immigrants, non-Hispanic Blacks, and Asian descendants were surveyed. The primary sampling units (PSUs) consisted of a county, small contiguous counties, and the metropolitan areas, this was designed for equitable representation of the targeted populations. A total number of 44,552 households containing 112,053 persons, in 45,597 families were eligible upon participants’ vetting (CDC, nd).

Participants were asked to self-evaluate length of stays or (years spent) in the U.S. The outcome of interest for this study was if each of these indicators has an association with the dependent variable, development of HTN. The question was asked of the participants if they had ever been told they have HTN by their healthcare providers. The dependent variable was a single analysis on its own, no independent variable was included. The unstandardized Hosmer-Lemeshow goodness-of-fit was not statistically significant, Chi-Square (X^2) = 57.095 ($p > 0.005$) indicating that the model was correctly specified. Additionally, the -2 log Likelihood although not significant, can be used to make comparisons with the rest of the statistical analysis between the variables. The exponentiation of B coefficient, also known as the odd ratio, is the change in the odds for each unit of time of the variable. The Cox and Snell and the Nagelkerke $R^2 = 6945.821$, was statistically significant if $p < 0.05$. It is worth noting that values less than 1.000 indicated a decreased odd for an increase in one unit of the independent variable. Table 3 provided the results of the logistic regression analysis for “Ever been told you had HTN.”

Lower Limit (LL) and Upper Limit (UL) for ranges for confidence interval.

The primary independent variable in the equation overall result for the length of stay or years spent in the U.S. and the dependent variable of Ever been told you had HTN were found to be statistically significant ($p < .05$). The exponentiation of B coefficient explains the change in the odds for each increase in one unit of the independent variable; it means for every 5 years increment that the immigrant spent in the US, they have 84% chances of developing HTN, or the greater

the chances of exposure to HTN; essentially, the odds ratio increases. The results showed there was a strong association between length of stay and the dependent variable HTN, therefore, the null hypothesis was rejected.

A binary logit was performed on the following variables, length of stay or years spent in the US (YRSINUS^a), (moderators of age, and education) as continuous and ordinal regression. The exponential values predict the probability of an event occurring. Values less than 1.00 indicate a decreased odds ratio for an increase in one unit of developing HTN. The Exp(B) of 1.152 = [1.152-1.0 = .152 x 100 = 15.2%] represents the odds of having HTN for each unit reduction in the independent variable, the odds of having HTN increases by a factor of 15.2%, signifying that length of years spent in the U.S. is strongly associated to the development of HTN. Table 4 provided the statistical analysis for the dependent variable, length of stay or years spent in the US after adjusted Exp(B) values for age and education.

Age is the odds for each increase for one unit, which means, .074 (7.4 %) times' odds of age being a factor for developing HTN. Among the participants in the survey. Age is statistically significant; 7.4% signified there is a moderate association between age and the causes of HTN.

For Education^c, [$p < 0.005$], [-2 Log-likelihood = 5814.123, Nagelkerke $R^2 = .299$], and [Hosmer and Lemeshow $R^2 = [27.111]$, [sig. = 0.001], statistically, values less than 1.000 indicate a decreased odd for an increase in one unit of the independent variable. It suggests a decreased odd ratio for an increase in one unit of the independent variable, essentially, less vulnerability to the morbidity of the condition. Education has a value of 0.974 = -0.026 (-2.6%) times decreased odds of education associated with development of HTN. This suggested strong indication that those with higher education are more likely to control HTN; $p < 0.005$, the value was statistically significant; the null hypothesis was rejected, and alternative hypothesis was accepted.

Foreign-born participants were significantly less likely than US-born participants to report awareness of having high blood pressure ($P < .001$). We observed a significant positive relationship between the proportion of life spent in the US and being aware of having HTN ($\beta = 0.863$; 95% CI, 0.412–1.314; $P < .001$). This relationship remained after adjusting the model for salient independent variables ($\beta = 0.337$; 95% CI, 0.041–0.634; $P = .03$).

The prevalence of HTN is 21.0% (57/272), while the prevalence of modifiable risk factors of HTN such as smoking, alcohol consumption and obesity are 15.8% (43/272), 43.4% (118/272) and 18.8% (51/272) respectively. There is a statistically significant association between HTN and smoking ($P < 0.001$), as well as HTN and alcohol. ($P < 0.001$), on the other hand socio-demographic variables were significantly associated with smoking ($P < 0.001$).

4. Results

Food insecurity is a significant public health issue among African-immigrants and among the low-income households in the US, and it has been associated with decreased nutrient intake. The National Food Assistance programs should focus the efforts on households living in and near poverty lines where food insecurity is prevalent and more emphasis on the households with children.

In addition to dietary intervention strategies, other modifiable risk factors must be considered. Because there is a lack of research on the impacts of exercise on health outcomes among the West African immigrant population, the project survey asked this population the following physical inactivity variable questions:

How often do you participate in Moderate to Vigorous Physical Activity? The questions asked were specific to time spent in moderate- to vigorous-intensity daily physical activity.

For example, participants were asked if they participated in fast walking, calisthenic exercises, fast bicycling, jogging, strenuous swimming, or any aerobic sporting activities that increases their heart rates during the past 7 days. Questions were asked based on the time (e.g.) 1-per day, 2 per week, 3- per month, and 4-per year for a total of at least 10 minutes per the specified periods or never? Table 3 presented the frequencies and percentages of the participants' responses for Moderate to Vigorous physical activity for 10 + minutes. Missing Data occurs when no data values are stored or not available to report. The remaining 76516/76522 (68.3/68.3%) missing data were primarily the result of failure to locate an eligible respondent.

How often do you participate in Moderate to Vigorous Physical Activity?

Table 3 Moderate vs Vigorous physical Activity 10+ minutes ($n = 112053$)

| Moderate vs Vigorous Physical Activity | Relative Frequency (%) | Absolute Frequency (%) |
|--|------------------------|------------------------|
| Never* | 14247/19567 | 12.7/17.5 |
| Daily ¹ | 5242/2441 | 4.7/2.2 |
| Weekly ² | 14955/12187 | 13.3/10.9 |
| Monthly ³ | 876/1024 | 0.8/0.9 |
| Yearly ⁴ | 217/312 | 0.2/0.3 |
| Number of Responses | 35537/35531 | 31.7/31.7 |

Participants were asked to self-evaluate how often there were engaged in Moderate to Vigorous Physical Activity (PA); * Never admitted they have never engaged in PA; 1 Engaged in Moderate or Vigorous PA daily; 2 Engaged in Moderate or Vigorous PA once a week; 3 Engaged in Moderate or Vigorous PA once a month; 4 Engaged in Moderate to Vigorous PA once a year

4.1. Physical Activity

The results of this study suggested that there are decreases in vigorous physical activity, and physical inactivity leads to HTN amongst the West African immigrants in the US.

There is a lack of research on the impacts of length of stay in America on HTN amongst the West African immigrant population. In the study, I hypothesized that foreign-born Blacks would be less likely to have HTN than the African American-born counterparts; and that among foreign-born Blacks, longer lengths of residency in the U.S. would be associated with increased odds of HTN. *The project asked the West African immigrant population the following length of stay variable questions in the survey. The questions that were asked were divided into 5 years of increments for Length of Stay in the US. For example, (< 1 year), but (< 5 years), (5 - 10 years), and (≥ 15 years). Table 4 presented the responses for frequencies and percentiles from the participants. Length of Stay in the United States or (years spent in the US). Missing Data occurs when no data values are stored or not available to report. The remaining 93,565 (83.5%) missing data were primarily the result of failure to locate an eligible respondent.*

How many years have you lived in the United States?

Table 4 Length of Stay or Years Spent in the United States

| Length of Stay in the United States | Relative Frequency (%) | Absolute Frequency (%) |
|-------------------------------------|------------------------|------------------------|
| < 1 Year | 274 | 0.2 |
| 1 <5 years | 1746 | 1.6 |
| 5 - 10 years | 2246 | 2.0 |
| 10 - 15 years | 3110 | 2.8 |
| ≥15 years | 11112 | 9.9 |
| Number of Responses | 18026 | 16.1 |

(< 1 year), individuals lived in the US less than 1 year; (1 < 5 years), individuals lived in the less than 5 years; (5-10 years), individuals lived in the US between 5 - 10 years; (10-15 years), individuals lived in the US between 10-15 years; (≥15 years), individuals lived in the US for over 15 year

4.2. Length of Stay in the United States

The results of this study suggested that length of stay in America amongst the West African immigrant population was significantly associated with the prevalence HTN. *The result of this study suggested that the length of stay in the US is significantly leaked to HTN among the immigrant population.* One of the many disparities in public health research is Blacks in general are not commonly considered in most research studies and clinical and public health interventions. It is therefore imperative that future research studies and public health programs should consider studying African-born immigrants and place of birth when evaluating their health to better characterize their risk of HTN rather than clustering under one racial identifier name of "African American."

Health Status: Participants were asked to self-evaluate their health status if they were better, worse, or about the same a year ago. The result below suggested there are no significant changes in their health status. Missing Data occurs when no data values are stored or not available to report. The remaining 61976 (55.3%) missing data were primarily the result of failure to locate an eligible respondent.

Compared to 12 months ago, would say your that your health is better, worse, or about the same?

Table 5 Health Status Compared to 1 Year Ago (*n* =112053)

| Health Status Compared to a Year Ago | Relative Frequency (%) | Absolute Frequency (%) |
|--------------------------------------|------------------------|------------------------|
| Better ^A | 9483 | 8.5 |
| Worse ^B | 3355 | 3.0 |
| About the same ^C | 37155 | 33.2 |
| Number of Response | 49993 | 44.6 |

A Better: participants felt they enjoyed better health the year of the survey than the year before; B Worse responses felt they were worse the year of the survey than the before; C About the Same responses felt that there were no differences in their health status from a year ago and the year of the survey

Figure 1 and 2 below examined correlation of two variables: African-born immigrants’ Years Spent in the United States and their general health status compared to a year ago at the time the survey was conducted. The first graph shows an increased health deterioration of African-born immigrants as they continued their resident or become permanent resident of the United States. Health deterioration correlated with changes of lifestyle, behaviors, and acculturations.

The second plot examined their general health status over one year period. Participants were to self-evaluate their health status to see if there are noticeable or observe any changes in their physical ability or changes in the way they usually do things. Self-evaluated questions are “threatening questions.” Threatening questions are usually associated with behaviors and the responses tend to have considerable bias or underreported. A significant percentage (33.2%) responded that there were no changes in their health status.

Participants’ general health status compared to 1 year ago at the time of the NIH survey, 8.5% indicated that they were better now than a year ago, 33.2% indicated they were about the same, while 3.0% indicated their health have gotten worse. Health Status questions were not specific to a particular health conditions or issues, the questions were based on their general health status. It was difficult to examine each response as to why some are better, worse, and or remained the same over a year period.

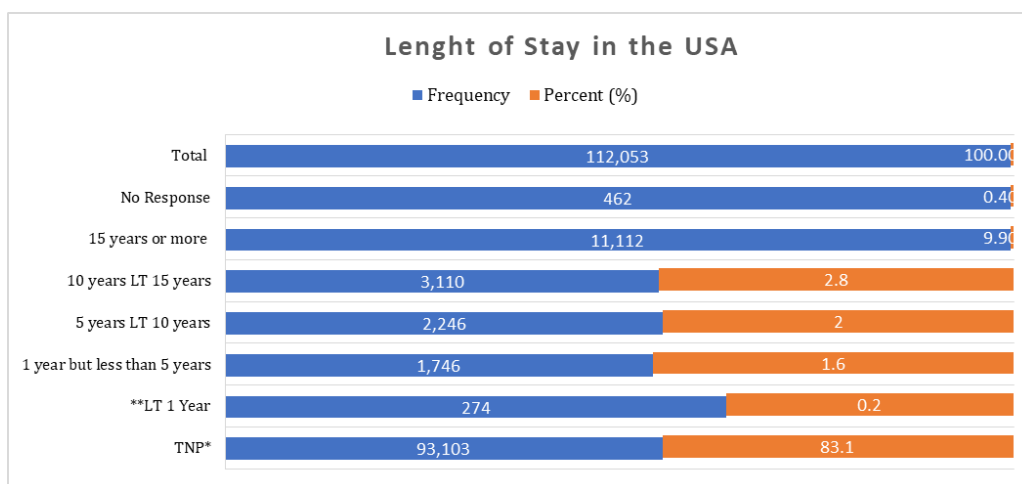


Figure 1 Length of Stay in the USA

Figure 1 above predicted the statistical analysis of Length of stay in the US, less than 1 year and over 15 years of residency. ABI with over 10 years of residency is more likely develop HTN condition.

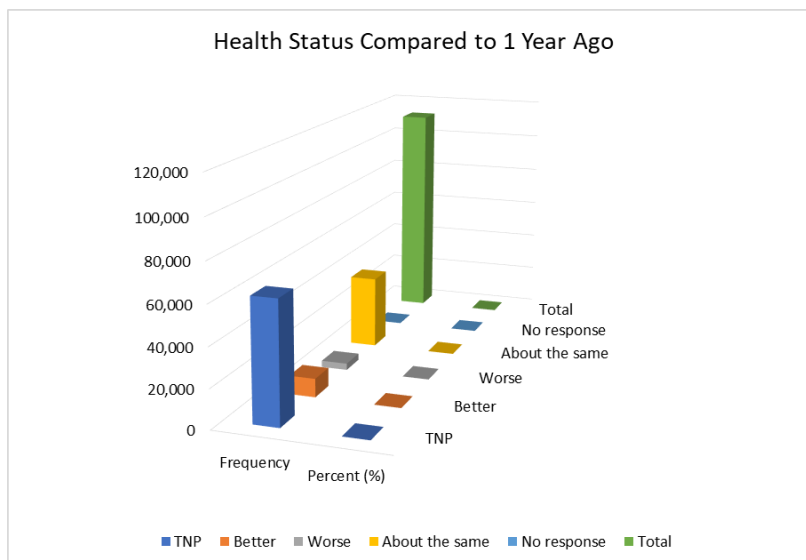


Figure 2 Health Status Compared to 1 year ago

Figure 2 presented self-evaluated better health status comparison to 1 year prior to a year prior to the year this study was conducted. The rating was based on good, better, and worse conditions.

HTN can be treated and controlled with personalized medications, increased trust in the medical system, improved patient-healthcare provider relationships, and lifestyle changes. It can be equally as deadly if all these measures are ignored.

The World Health Organization ranked HTN as the leading risk factor for cardiovascular disease (CVD) across all regions of the world. In poor countries, there is an increased prevalence among men and women as young as 35 years and older (WHO, nd) It should be noted that not all HTN death-related data are captured due to non-availability of surveillance or ill-equipped systems to record causes of death in poor countries. As a result, some countries still lack surveillance data for HTN and other risk factors (WHO, nd), therefore, the morbidity and the mortality rates are grossly under-reported.

It is often common that US health disparity literature frequently has one racial identifier for Blacks; all Blacks in the US are homogeneous, therefore clustered into one racial identifier "African Americans" despite diversity by nativity, ethnicity, and experiences of the social determinants of health. Blacks could however be identified by nativity, Black Americans, Africans (e.g., Nigerian American, Ghanaian American, etc.), British Blacks, and the West Indies or Caribbean Blacks. The one racial identity has limitations, it threatens proper representation of the Black immigrant population in social research, and it creates disparities in public health surveillance among men and women who may have significant health conditions including HTN. HTN incidence is disproportional among Black populations regardless of their nativity compared to non-Hispanic Whites, and non-Hispanic Blacks (WHO, nd)

In the general context, the number of African immigrants in the United States has been steadily growing, over 60% between 1960 and 2007, estimated at 1.4 million. Most immigrants come from Nigeria, Ethiopia, Egypt, Ghana, and Kenya. (American Immigration Council, n.d.). States with the highest African immigrant populations are New York, California, Texas, Maryland, and Virginia. Significant numbers of African immigrants are gainfully employed in almost all sectors of the American workforce yet, Black immigrant populations in the US have not been adequately studied for HTN to date.

In the 2014 CDC/National Health Institute Survey (NHIS) of minority population health study, across the United States, the survey consisted of 112,053 from over 45,000 households, less than 7% or 770 people claimed to be of African origins, a strong indication of less African representation in the study (CDC, nd). Comprehensive research of African immigrant populations and their country of origin should be conducted to understand whether high rates of HTN among African immigrants represent heterogenous or environmental causation. It is essential to discuss and understand HTN as it affects a greater population of African Americans including African-born immigrants in the United States.

5. Discussion

There is evidence that health status of African immigrants deteriorates after migration to the United States, like the African Americans in general. Numerous studies have pointed to the persistent socio-economic inequalities and ethnic

disparities as significant factors in health outcomes. Depression is also described as a factor that contributes to healthy lifestyles, and thus poor health. There is evidence that our physical and emotional environments impact our lives either positively or negatively. This paper explores whether there are unique factors among African immigrants coming to the United States that can be addressed by public health and medical interventions to improve health outcomes in the population.

HTN is prevalent among African-born immigrants in the United States. In a convenient sample survey conducted over a 2-year period at a social gathering of African immigrants ≥ 50 and ≤ 80 years of age were interviewed. Information gathered suggested that 3 out of 5 men admitted having preHTN or have been diagnosed with full-blown HTN, Type II diabetes and are taking some regimens. Among women of the same age group, 4 out of 5 women have preHTN, Type II diabetes, and/or have been diagnosed with HTN. When asked if having come to the United States was responsible for these health conditions, the answer was resounding with the majority admitting “what else, would you imagine anything else”?

Overwhelmingly, it was believed that changes in their diet, (age, although, as a confounder), and in their words “American lifestyles” are to be blamed. Among these groups of men and women, were those that are obviously overweight, and in their 70s but have no issue with HTN or any of these chronic conditions. *Among African immigrants residing in a large metropolitan area, we found that 85%, 45%, and 64% of participants reported screening for hypertension, diabetes, and high cholesterol, respectively, in the prior 12 months. In addition, African immigrants who had lived for 10 years or more were two times more likely to have been screened for high cholesterol in the past 12 months compared to those who had lived in the U.S. for less than 10 years [9].*

Physical activity is a modifiable behavior that may aid in the prevention of HTN. It serves as an important determinant of morbidity from CVD, strokes, and diabetes. Recent epidemiologic evidence has demonstrated a consistent, temporal, and dose-dependent relationship between physical activity and the development of HTN. Experimental evidence from interventional studies has further confirmed a relationship between physical activity and HTN as the favorable effects of exercise on blood pressure reduction have been well characterized in recent years [10]. Lifestyle factors such as diet and physical inactivity contribute to this burden, further highlighting the need for prevention efforts to curb this public health epidemic. Regular physical activity is associated with lowering blood pressure, reduce cardiovascular risk, and cardiac remodeling [11]. In general, the modifiable lifestyle has been an issue to adhere to among the African immigrants of middle-aged and older. They tend to be embedded in our cultural nativity and probably less likely to take advantage of patient-physician relationships and enjoy the benefit of preventive measures.

Additionally, understanding family history holds significant and potential tools that can unseal the issue of chronic diseases in this population. To further understand the etiology of HTN among this group and the generation left behind. Comprehensive research from the sending countries or countries of origin could be the key.

In the study, I compared African immigrants’ time in the US and effects, I noticed some gradients and significant correlation with the time spent in the US and their health status. The longer the immigrants lived in the US, 10yrs plus, the greater their health status deteriorated and became vulnerable to chronic diseases.

6. Conclusion

This discussion posits that acculturation plays a very critical role in the development of HTN among African immigrant populations that reside in the US for over 5 years. To explore this further, one could compare HTN prevalence among Africans in their country of origin, which is beyond the scope of this paper. The importance of communicating to African immigrant population and to African Americans that HTN can lead to a series of serious health conditions and early death if not properly managed. HTN is preventable, manageable, and treatable by adopting positive life-changing behaviors, eating a balanced diet, and encourage in a routine physical activity. Regular visits to the healthcare providers can help in early detection and in reducing the development of HTN and complications of related chronic diseases.

Increased rates of mental health problems and depression, diabetes, cardio-diseases, and hyperlipidemia; worse outcomes on health exams; being in poor or fair health; and poor sleep outcomes are associated to HTN condition.

Compliance with ethical standards

Acknowledgments

Let me start with my co-author Dr, Chastity Bradford, I can never thank you enough for your dedication, relentless efforts, and patience to this article. Despite your enormous responsibilities, you still find time to be there for me.

I wish to thank my Dissertation Chairlady, Dr. D. Naser, Walden University, who was a pillar at the time of my dissertation journey, my Preceptor, Dr. P. Nolan, Brown University, and finally, my friend and advisor, Dr. Andrew Zekeri, at Tuskegee University.

Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Secondary dataset from the Centers for Disease Control and Prevention and the National Health Institute (CDC/NHIS). Data are in public domain for public use.

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