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The Association Between Working Habits and Hypertension Among First Generation African Immigrants

Olalekan Kilo
Walden University

Walden University

College of Health Sciences and Public Policy

This is to certify that the doctoral study by

Olalekan Kilo

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Review Committee
Dr. Pelagia Melea, Committee Chairperson, Public Health Faculty
Dr. W. Sumner Davis, Committee Member, Public Health Faculty
Dr. Mary Lou Gutierrez, University Reviewer, Public Health Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2022

Abstract

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MPH, Morgan State University, 2011

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Even though hypertension affects people of all races, it is more prevalent among African Americans. However, recent research has revealed that the prevalence of hypertension is progressively increasing across Africa. African immigrants in the United States are the least-studied immigrant group prone to health inequalities when compared to their African American counterparts. To help bridge this gap, a secondary data analysis of a cross-sectional study was conducted to investigate the association between working habits (hours worked, diet at work), length of stay in the United States, and hypertension rates for first-generation African immigrants residing in the United States. The study was guided by a theoretical framework that adopted a cognitive transactional model of stress. Secondary data were extracted from the 2017–2018 National Health and Nutrition Examination Survey (NHANES); following exclusion criteria based on missing systolic and diastolic blood pressure, country of origin, and age group, 118 participants were qualified for the final analysis. The data collected were analyzed using descriptive, chi-square and binary logistic regression. The study findings revealed no significant association between work habits and hypertension. The study findings also revealed that there was no significant relationship between the length of stay in the United States and the likelihood of a first-generation African immigrant developing hypertension. The results of this study will contribute to positive social change by educating the community on cardiovascular health thereby, improving the physical and mental health of people in the community. This will help increase the health literacy of the community, which in turn will reduce morbidity and mortality rates.

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Dedication

This work is dedicated to my mother, Olayemi Kilo, and my wife Sodjinin Kilo, for their unwavering support and encouragement throughout my doctoral study. I would also like to thank my siblings and friends who encouraged and advised me throughout the process.

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I would like to thank God for giving me the strength and dedication to finally complete my doctoral study. I would also like to thank my chair, Dr. Pelagia Melea, and my committee member, Dr. W Sumner Davis, for their guidance and patience through the entire process.

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Introduction to the Study

Hypertension is the clinical term for high blood pressure that is classically defined as a systolic blood pressure (SBP) greater than or equal to 130 mmHg and/or a diastolic blood pressure (DBP) greater than or equal to 80 mmHg, or a normalized blood pressure as a result of anti-hypertensive medication (Kaul, 2020). Hypertension is one of the deadliest medical conditions Americans are facing today (Wright, 2019).

American culture is founded on individualism (O'Brien, 2015). American people tend to define themselves by their occupation. African Americans fall into a racial group of people who are socially and economically disadvantaged and are affected by health disparities (Noonan et al., 2016). Even though hypertension is present in all races, it is mostly prevalent among African Americans. From 2015 to 2018 among U.S. adults with hypertension, 54.1% were listed as under control, 76.5% were listed as under treatment, 82.7% were listed as being aware that they had hypertension, and 17.3% were listed as undiagnosed (Mozaffarian et al., 2015).

The focus of this study is on work culture as measured by hours worked in a week and number of meals from fast-food restaurants among first generation African Immigrants in the United States and its impact on a higher prevalence of hypertension. The mortality rate from high blood pressure has increased by 11% from 2005 to 2015 among all Americans (Nowbar et al., 2019). When stratified for just African Americans, the mortality rate is nearly 2 fold higher than white Americans (Nwanze-Smith, 2021). Mortality from hypertension is a major issue for black people (African

Americans/Africans) and has a major impact on the mortality rate. The cost of hypertension associated with morbidity is upwards of $100 billion (Nwanze-Smith, 2021).

As for any disease, targeting modifiable risk factors is essential to reducing the incidence and prevalence of disease and to lowering morbidity and mortality through decreasing the probability of developing complications, which for hypertension represent some of the leading causes of premature death (Tulchinsky & Varavikova, 2015). The impact of targeting lifestyle factors as a prevention strategy for hypertension cannot be understated, where evidence from a high-quality meta-analysis has demonstrated that each 10 mmHg lowering of blood pressure leads to a 30% reduction in cardiovascular disease and a 15% decrease in mortality from all causes (Ettehad et al., 2016). While much of the literature has focused upon common modifiable risk factors, such as smoking, physical inactivity, and poor dietary intake, there has been a delay in addressing social and occupational determinants of hypertension, where the experience of stressors in these environments has been shown to be a prerequisite or trigger to developing the disease (Havranek et al., 2015). For Black Americans who observe a disproportionately higher baseline blood pressure than White Americans, research data taken from the TakeControl of Your Blood Pressure Study have revealed that the main contributors to this disparity were age, poor adherence to anti-hypertensive medication, duration of diagnosis, anxiety, and high levels of stress (Asgedom et al., 2016). Moreover, after adjusting for confounders such as BMI, physical fitness, and cigarette smoking status, the contribution of stress remained significantly associated with hypertension (odds ratio 1.5;

95% CI 1.0, 2.1). Notably, a large component of stress among people of African descent arises from disease anxiety and working in western occupations and environments (Sharma, 2018). Stress may also be exacerbated by non-biomedical health beliefs, where research has shown that almost 40% of Africans reported that hypertension could not be cured and taking medication was unnecessary (Sharma, 2018).

While the contributions of acute stress to hypertension have not been fully characterized, chronic stress has been correlated with important pathophysiological changes, which are understood to lead to an increase in blood pressure (Palagini et al., 2015). The postulated mechanism of stress-induced hypertension is thought to involve unabated stimulation of the hypothalamic pituitary adrenal axis and the sympathetic nervous system, which results in the secretion of stress hormones that have been associated with inflammation in the vasculature and endothelial and smooth muscle dysfunction (Ushakov et al., 2016). The importance of addressing occupational stress is essential, as public health research into work-related stress among Black men has shown stress to be associated with a 20-fold higher mortality compared to White persons and is thought to be responsible for the 4-year lower life-expectancy among this ethnic group (Archibald, 2019). Indeed, an exploration of harmful or stressful workplace practices and cultures across different ethnic groups has found that this accounts for 10% to 38% of differences in life expectancy, which is markedly greater than previously thought (Goh et al., 2015). Moreover, research conducted among African American men of middle and older age has shown that those who adopt a strong work ethic and operate within societal definitions of masculinity, tend to observe increased levels of stress, greater morbidity,

and are less likely to engage with lifestyle modification, which is detrimental to the control and prevention of hypertension (Bass, 2020).

Stress is a complex and heterogeneous phenomenon that may be seen as a problem that is perceived to overwhelm an individual's ability to cope with a task or situation; notably, occupational contributions are one of the most common reasons responsible for the experience of stress (Spruill, 2016). Indeed, evidence has shown that the rate of stress due to occupational reasons can be as high as 30% and this not only promotes absenteeism from work but also induces immune and metabolic system dysfunction, conferring ill health and laying foundations for chronic disease, such as hypertension and cardiovascular disease (Elovainio et al., 2015; Goodwin et al., 2013). In a study identifying the specific causes of occupational stress, Bhui et al. (2016) found that the principle causes were related to working conditions, comprising excess workload, insufficient staffing, physical or noisy environments and poor structured hours, and job nature including contact with clients, uncertainty, high demand, commuting, and shift and night work. It was also found that poor management, involving unrealistic demands, pressure, lack of support, maltreatment, and poor communication contributed to it. Importantly, African Americans are exposed to a significant proportion of these aversive occupational cultures, and this increases their risk of stress-related illnesses, such as hypertension, highlighting the need to understand the relationship between occupation and stress in this ethnic group as this may help to inform more effective prevention strategies (Leong et al., 2017).

Background of the Study

Understanding work culture amongst the first-generation African immigrant population can assist in understanding some of the issues regarding hypertension. Since the sixties, approaches have been identified to prevent and treat hypertension, some pharmacological and other non-pharmacological approaches (Muntner & Anstey, 2021). Muntner and Anstey (2021) pointed out that the non-pharmacological approaches have focused on reducing risk factors, improving health education and literacy as well as providing access to health care. However, Jean-Charles (2015) and Shipp (2016) showed that there is an increasing prevalence of hypertension in the African immigrant population.

It is important that people know the effects their occupation is having on their health, so that they are able to successfully adjust and make the appropriate decisions to protect their health. Lack of knowledge may play a part in the increased poor health care outcomes, and a higher risk of mortality among African immigrants (O'Donnell et al., 2010). The Patient Protection Affordable Care Act (2010) illustrated the importance of having comparative and efficient research, greater use of evidence-based medicine, collective decision making, valuable material, and transparency of cost (Andrulis et al., 2016). Communicating the effects of work culture on a person's health can be complicated by a person's cultural, and work ethic. African immigrants are a unique subgroup of the Black community and warrant a more specific approach to health communication based on their culture and health habits (Allen et al., 2017).

Problem Statement

Hypertensive heart disease is the leading cause of death in the United States (Centers for Disease Control [CDC], 2018). The synonym for hypertension is high blood pressure, defined as the force at which the heart pumps blood around the body against the arterial walls (Moraes-Silva et al., 2017). Some first-generation African immigrants adopt the work culture of Americans, and in turn, may adopt the stress that comes along with it. According to Rayner and Spence (2017), there are assumptions by some African immigrants that hypertension is caused exclusively by the American diet. Compared to other immigrant groups, African immigrants are less likely to eat fast food since it is not the staple diet they grew up on (Guendelman et al., 2015). Research is available concerning the relationship between occupational stress and hypertension (Liu et al., 2017), but there is currently no research that investigates the impact to an African immigrant moving from a country where one job was held with shorter work hours and lunch was rarely skipped, to a country where holding multiple jobs is encouraged, skipping lunch is acceptable, and working longer hours is expected.

The United States has one of the highest reported rates of hypertension worldwide; currently the rate is 33% among the 18-39 age groups (Cifkova et al., 2016). This is high when compared to other African/Caribbean countries. For example, Nigeria has an age-adjusted hypertension prevalence of 13.5%, while Jamaica has an age-adjusted rate of 28.6% (Thomas, 2018). African Americans in the United States are 40% more likely to be diagnosed with hypertension and 30% more likely to die from heart disease than their White counterparts (Graham, 2015).

Commodore-Mensah et al. (2018) pointed out the hypertension prevalence is steadily rising in Africa. The article showed a higher hypertension prevalence was seen among African Americans than their African counterparts. The age and sex adjusted prevalence was found to be 33% in African American males and 28% in African males. The study pointed out that the considerably lower prevalence could not be seen as an advantage since prevalence rises with a greater duration of stay in the United States. More research is needed to investigate why the protective factor is diminished with a greater duration of stay in the United States. My research examined the possible association between work culture adopted by African immigrants and hypertension.

Past research on this concept has been focused on the Black American population in regard to work culture (Gold, 2016), and the general population in regard to work culture (Blustein, 2019). Gold (2016) showed that workers' job satisfaction had a direct correlation with race-based stressors. Blustein (2019) highlighted culture being an important component of work stress. Targeting factors related to American work culture is an important prevention strategy to reducing the burden of hypertension on the African community in the United States. Although there are several factors influencing hypertension within African communities in America such as genetics, lack of physical activity, lack of access to healthcare, socio-economic factors and diet (Saklayen, 2018), the impact of working longer hours, fast food and holding multiple jobs, to the prevalence of hypertension cannot be overlooked. There is significant research on the associations between stress and hypertension (Gawlik et al., 2019; Liu et al., 2017.) This research

project assessed if there is an association between the work culture adopted by African immigrants and hypertension prevalence.

The importance of addressing occupational stress is essential, as public health research on work-related stress among Black (African/African American) men has shown stress to be associated with a 20-fold higher mortality compared to White persons and is thought to be responsible for the 4-year lower life-expectancy among this ethnic group (Archibald, 2019). Data from the United States Bureau of Statistics have shown that Black men have the lowest employment to population ratio compared to the other races (Bureau of Statistics, 2016). Holzer (2016) provided survey evidence that Black men receive fewer job offers than any other race/gender group as job applicants, especially in the lower-wage service sector. Pager (2013) also showed that Black men without criminal records receive such callbacks at only approximately the same rate as white men with such records. Guryan (2018) show that Black male earnings are relatively lower in states where whites express racial prejudice (as measured in the General Social Survey), and that such prejudice can account for a fourth of the Black-White wage gap among men.

This leads to higher occupational stress for Black workers. According to the Chetty et al. (2020), it is more likely that a Black employee would be let go for minor errors compared to white counterparts. This stress contributes to life expectancy; in 2016, the life expectancy of Black men was 71.8 compared with 76.3 for White men (Archibald, 2019).

Purpose of the Study

The purpose of this study is to investigate the association between working habits (hours worked, diet at work), length of stay lived in the United States, and hypertension rates for the first-generation African immigrant population residing in the United States. A cross sectional study was used using the control variables of for gender, income, and age.

Research Questions and Hypotheses

RQ1: Is there an association between the number of hours worked in a week and hypertension among first generation African Immigrants, controlled for gender, income, and age?

$H_1$1: There is a significant association between the numbers of hours worked in a week to hypertension among first generation African Immigrants controlled for gender, income, and age.

$H_0$1: There is no significant association between the numbers of hours worked in a week to hypertension among first generation African Immigrants controlled for gender, income, and age.

RQ2: Is there an association between the number of meals from fast food places in a week and hypertension among first-generation African immigrants adjusted for gender, income, and age?

$H_1$2: There is a significant association between the number of meals from fast food places in a week and hypertension among first-generation African immigrants adjusted for gender, income, and age.

$H_0$2: There is no significant association between the number of meals from fast food places in a week and hypertension among first-generation African immigrants adjusted for gender, income, and age.

RQ3: Is there an association between the length of stay lived in the United States and hypertension among first generation African Immigrants adjusted for gender, income, and age?

$H_1$3: There is a significant association between the length of stay lived in the United States and hypertension among first generation African Immigrants, adjusted for gender, income, and age.

$H_0$3: There is no significant association between the length of stay lived in the United States and hypertension among first generation African Immigrants, adjusted for gender, income, and age.

Theoretical Framework

The theoretical framework for this study is the transactional model of stress and coping. It was developed by Lazarus and Folkman (1984); it evaluates the significance of a stressor or threatening events. African immigrants are exposed to many social and environmental stressors, which results in physiological effects to their health. The transactional model of stress and coping can be used to describe the African immigrant's response to American work culture. The framework proposes strategies to reduce stress by identifying that a stressor is really a threat and focusing on maximizing coping. The primary appraisal works on identifying if it is a threat, and the secondary appraisal focuses on if the individual has the ability to control or change the threat. In this study,

examples of the initial stressors African Immigrants have been cost of goods, cultural changes, diet, social issues, and language barrier. The copying strategy would involve working hard to overcoming these stressors, which involve holding multiple jobs, improving literacy, and keeping informed. Some Africans immigrants may feel they cannot control the threat then question if their lack of control is a threat.

The hypothesis presumes that if the number of hours worked in a week, and food is acquired from a fast-food establishment, there is an association with higher hypertension prevalence; identifying these two independent variables as stressors and coping can be maximized around reducing overworking. The primary appraisal works on identifying if working more hours and fast food are a threat, and the secondary appraisal focuses on if the individual has the ability to control or change their workload and lunch habits.

Nature of the Study

This study focused on the analysis of secondary data. The study was cross sectional and was based on data collected from an existing survey. The dependent variable is hypertension, and the independent variables are the number of hours worked in a week and number of meals from fast food places in a week. The control variables are gender, income, and age. The control variables are based on the recommendations of the National Center for Health Statistics, derived from a study based on the link between fast food consumption and ill health (National Center for Health Statistics, 2015). The study population concentrated on first generation African immigrants living in the United States. The secondary data were extracted from 2017–2018 NHANES.

Literature Search Strategy

MEDLINE was the initial database recommended for health-related literature searches, as it contains almost 29 million articles within excess of 5,000 journals and has been suggested to identify the majority of studies required to complete a review that is free from reporting bias (Lu, 2011). Secondly, EMBASE also houses a large number of biomedical articles and journals but importantly, has been found to identify a proportion of studies that would be excluded if the same search was performed using MEDLINE and thus, its inclusion assists in optimizing the identification of pertinent literature (Bramer et al., 2017). Finally, the Cochrane library of registered trials was used to supplement MEDLINE and EMBASE searching, as it only contains studies of the greatest methodological quality, which would be important to include given that associational research is often compounded by numerous methodological flaws and biases (Bramer et al., 2017; Smith and Noble, 2014). In keeping with optimal review practices, a free-text search of Google Scholar was used to identify any studies missed from database indexing and the citations of all studies defined as eligible for review were screened to reinforce this strategy, which ultimately minimized any concern for review reporting bias (Grewal et al., 2016).

Search Terms

The search terms applied to electronic database and free-text searching were carefully considered and refined, in order to enhance the provision of the literature retrieved, as this can optimize efficiency and reduce delays in research processes and reporting (Rapport et al., 2018). The PEO (population, exposure, outcomes) framework

was used to help define basic search terms, while crude searching of MEDLINE and Google Scholar assists in refining the basic terms into more advanced search terms and phrases (Methley et al., 2014). The advanced search terms were modified to incorporate database syntax, including truncation and auto-mapping to subject headings, as well as using Boolean operators to combine the terms (Bettany-Saltikov, 2016). The final applied search terms were as follows:

"*African American" OR "American immigrant*" OR "Black" OR "Black American" OR "Black African"*

"Factor" OR "risk factor*"*

"high blood pressure" OR "hypertension" OR "HTN"

"Work habit" OR "Occupational stress"

Transactional Model

The transactional model, which was dubbed the "cognitive-transactional model" or the "interactive model" of stress, was proposed by Lazarus and Folkman (1984) with a definition of stress that centered on the interaction between the person and his environment.

The earliest definition of the term stress refers to the external "pressure" that is applied to a certain body. It is the inability to maintain appropriate mental and behavioral settings for maximum performance (Driskell et al., 2018) As a result, the stressor is included as a constituent feature of this model. A stressor can be a situation where an

individual perceives (knows) as potentially dangerous, or a stressor could be unconscious and not necessarily perceived.

This may well be both external and internal. Likewise, the stressor may well be real and concrete as well as imaginary. In turn, a person may be subjected to significant stressors, of great magnitude or by stressors of lesser quantity but of high frequency. Both circumstances (not exclusive) will condition, as appropriate, according to the resources available to the subject, the phases of stress and acute or chronic distress.

The model examines how major life events and everyday disruptions affect emotions, with a focus on cognitive assessment and stress management. There are two sorts of cognitive assessments: primary and secondary appraisals. Coping is a reaction to the threat that might have an impact on the person-work relationship or the level of emotional pain. Personality traits, depressive symptoms, social support, and workplace pressures are all elements that influence coping skills and capacities.

Individuals can use cognitive-behavioral interventions and procedures to detect and become aware of the ideas and emotions that surround them to learn new ways to solve problems and deal with them. Stress is a dynamic term that arises from perceived inconsistencies between environmental demands and available resources to meet them. The model's fundamental component is the cognitive appraisal of both the stimulus and the response.

Literature Review

Numerous immigrant groups reside in the United States, and these groups have long been acknowledged as significant contributors to the society, the economy, and

politics. A substantial surge of African immigrants arrived in the United States throughout the 1970s (Mehta et al., 2016). This immigrant group was known for its social diversity as well as racial, religious, ethnic, and linguistic distinctions. African immigrants make a substantial contribution to American society by working as farmers, teachers, physicians, police officers, construction workers, taxi drivers, and other occupations.

This chapter gives a detailed review of literature of past research studies. Thisbegann with a deep dive into the socio-demographic profile of the subjects in this research, the workplace culture in the African immigrant communities and the relationships with occupational stress and prevalence of hypertension among the immigrants from Africa in the United States.

A Socio demographic Profile of African Immigrants in the United States

The number of African-origin immigrants in the United States has risen dramatically since the 1960s (Mehta et al., 2016). Even though the United States is the world's largest immigration destination, the annual number of new immigrants stays steady, with most immigrants hailing from Western and Eastern Europe, Latin America, and Asia (Chand & Tung 2019; Mehta et al., 2016). 179,000 immigrants of Indian origin came into the United States in 2015 out of 1.38 million total immigrant arrivals. Indian had the largest immigrant population entering the United States than any other nation in 2015 (Commodore-Mensah et al. 2018). According to Anderson and Lopez (2018), over 2 million US residents were born in Africa, and more than half of the foreign-born population in the United States is African.

According to Adekeye et al. (2018), these African immigrants, who predominantly consist of African Americans and Caribbean immigrants, are frequently lumped together with other phenotypically similar populations in the "black" category. Between 1970 and 2016, the size of the black population in the United States doubled, to more than 20 million (Dube, 2019; Vespa et.al., 2018 p.4). Today, African Americans comprise 12% of the population in the United State (Verdery et al., 2020).

Since 1990, several waves of migration have contributed to the rise in the number of African-born immigrants. African immigrants who came to the United States after 1990 have been mainly from West African countries (such as Sierra Leone, Liberia, Gambia, Ghana, Nigeria, and Togo). Among these West African countries, the two most predominant countries for African immigrants are Nigeria and Liberia (Lucassen 2017; Tirupathi et al., 2020). Studies show that they move in search of opportunity and sometimes safety (Lucassen 2017; Verdery et al., 2020). This refers to the fact that their native countries are in developing countries, and they are looking for greener pastures elsewhere. African immigrants are one of the fastest growing immigrant groups in America despite research and policy attempts to address inequities in health among immigrant communities (Commodore-Mensah et al., 2018). Omenka, et al. (2019) pointed out that African immigrants in the United States are the least-studied immigrant group.

African immigrants in the United States reside in all regions of the United States, including the Northeast, the West, the Midwest, and the South. Compared to their counterparts in the overall population, Buvivier et al. (2017) found that African

immigrants in the United States have a lower income level, higher rates of HIV, diabetes, hypertension, cancer, psychiatric disorders, mental health disorders, and other chronic health problems; African immigrants also have a higher risk for suicide and a lower risk for other adverse outcomes like death (Al-Mateen & Rogers, 2017).

Nearly three-fourths of African immigrants moved to the United States between 2000 and 2009; nearly two-thirds were from Nigeria (Mehta et al., 2016). From the study of Caarls et al. (2018) on transnational family life, the authors argued that Nigerian immigrants, unlike immigrants from other West African countries, are young with an average age of around 36.5 years, and predominantly female (78.5%); over two-thirds of Nigerian immigrants work in service industries, including health and educational services. This profile is consistent with other groups of African immigrants in the United States.

The Nigerian immigrant community is the most educated of all migrant groups in terms of educational attainment. Nigerian immigrants were found to likely be university graduates and college students than in other communities of Asian migrants. From a study performed by Ojikutu et al. (2020), almost 65% of Nigerian immigrants are with tertiary qualifications or having at least a Baccalaureate degree. The number of immigrants living in the United States with high educational attainments is the highest in the world; this has contributed to the increasing income opportunities among the Nigerian immigrants.

Workplace Culture in African Immigrant Community

The US labor force is filled with a diverse set of workers who have learned and enjoyed the versatility and great job experiences African immigrants have provided, thousands of American employers with skills and experience beyond the initial entry-level job requirements. The immigrant workforce is increasingly connected to the American labor market by virtue of immigration from diverse countries, and the presence of African immigrants within the American workforce is essential to maintaining a solid working relationship between the Americans and African immigrants.

In 2015, African immigrants in the United States earned $55.1 billion and paid $10.1 billion in federal taxes (New American Economy, 2018). This further shows that recent immigrants and natives make roughly the same in dollars and have about the same level of education, income, and experience (New American Economy, 2018).

Underemployment and understaffing are common problems among unskilled African immigrants in the United States. Low-wage jobs are disproportionately held by immigrants; as a result, they have been subjected to lower workplace earnings. This is slowly changing due to the percentage decline in unskilled labor; over time the gap will reduce with their counterparts.

Mosugu (2020) used content analysis to investigate the diversity of African immigrant professionals as well as the multidimensionality of their workplace needs. The author discovered that many of the immigrants who were unskilled workers were asylum seekers / refugees from East Africa countries. African immigrant professionals are an

important part of the American industry and economy, and the American community owes a lot to African immigrants who have traditionally held important roles in society.

Mosugu (2020) further highlights that since year 2000, around 2 million individuals from the sub-Saharan African community have entered the United States, many of them on a work-visa program under the H-2A visa program. The analysis that follows offers an important comparison of the characteristics of new immigrants with those of native-born Americans. It shows that the new immigrants are more productive workers, earn much higher wages, work longer hours, have fewer criminal convictions, and contribute to the nation's economy more efficiently than natives who are the children of immigrants hence in an era when the labor market is becoming more diverse, African immigrants are more likely to be employed than the other immigrant groups. Despite this, research on workplace diversity should be expanded to cover concerns such as inequality, access to talent, discrimination, social exclusion, and organizational learning methods that will improve the well-being of various immigrant populations (Woldeab et al., 2019).

Poverty and Racial Disparities for African-Born and White New Immigrants

Immigration is a major driver of the growth of poverty and inequality in the United States. New immigrants tend to pick up low skilled wage jobs due to low level education or lack of English proficiency. This further dilutes the lower skilled jobs available for Americans thereby affecting the laws of supply and demand. Once supply outweighs demand, pay reduces therefore furthering the inequality gap. About one-third of the new African immigrants earn less than $35,000 per year, about 7% earn between $40, 000 and $95,000 per year. For African-born residents, poverty and racial disparities

are particularly acute. The poverty rate for African-born immigrants is around 35% for men, 37% for women. Poverty among new immigrants is much higher than the official poverty rate of 11.4% (Income & Poverty in United States, 2020).

Immigrant workers are more often at risk of not finding gainful work (Rai et al., 2019; Dawson, 2021). This is largely due to high incidence of non-standard employment, the relative concentration of immigrant workers in certain sectors and occupation in United States, and greater exposure to informal employment and wage penalties (Hall & Greenman, 2015). The migration of skilled workers is also important as these may replace some non-skilled workers at certain sectors of the economy (Mohajan, 2019). More so, skilled foreign workers are increasingly needed in higher-skilled occupations, especially in technology and pharmaceuticals, in order to meet consumer demand for higher-skill work. In addition, higher education tends to employ highly skilled workers, as well as those with higher levels of education. Foreign labor in low-skill jobs is often low paying due to the relatively high level of competition between workers and lack of flexible working schedules or flexible work permits (Rai et al., 2019).

Work/Occupational Stress

Giudis et al. (2018) defined stress as a negative emotional state which can affect the health and work life; a combination of distress, disgust, and anger. It is an emotional or mental state due to the interaction between biological, psychological, and social factors; where stress is an emotion experienced in a specific environment, work stress is a part/function of this interaction (Gnerre et al, 2017). Work stress refers to the psychological effects that an employee experiences when their workplace environment or

work has become a source of distress. Work stress occurs when the employee's job is demanding, characterized with gradual or sporadic loss of enthusiasm for work or there are other work-related challenges (Brunner et al. 2019).

The Effects of Occupational Stress on Employees and Employers

Workplace stress is a major cause of stress-related diseases, including cardiovascular disease, stroke, cancers, diabetes, and depression (Park et al., 2019; Mamadiyorova & Shermatov, 2021). Yeboah-Kordee et al., (2018) asserted that work-related stress affects people's performance and can lead to undesirable behaviors like smoking and drinking, as well as sadness and anxiety, when they are unable to manage the conflicting expectations and duties of their professions. Tesfahun and Abebe (2021) posited that although physical health deteriorates in the long term from chronic stress, cognitive and emotional aspects are also deteriorated, which contribute to increase the risk of diseases.

Many employees who face work stress do not experience work stress because they suffer from a lack of job satisfaction. Some employees are not able to meet the demands of their workplace or health-related challenges, and these results in job stress. Pransky et al, (2016) stated that when people leave work due to health limitations, the impact on the employer is the loss of the employees' knowledge, skillsets, and experience; these losses are becoming increasingly important and economically significant as the population ages.

According to Smith et al. (2017), there are several external factors that impact work stress such as the economy and how the company is doing, that employees may not

be able to control. According to Yeboah-Kordee et al. (2018), 83.68% employees report that their occupations cause them a great deal of stress and have a detrimental impact on their performance. As a result, businesses view occupational stress as a challenge, and because high levels of stress lead to lower output and other staff issues, it is critical that managers find a solution to the problem of occupational stress. Based on their findings, Ray et al. (2017) argued that workers in non-standard employment arrangements may be more stressed than workers in standard employment arrangements because workers in non-standard employment arrangements have different characteristics and working conditions than workers in standard employment arrangements such as insurance policies, annual leave, pension funds etc.; type of employment is also an important predictor of job stress, and stressed workers reported more days lost due to poor physical and mental health. It is in the interest of both the workplace and workers that there are emphasis on improving quality working environment and reducing stress between standard & nonstandard employees since it affects productivity. In this case, it is relevant to know that the company's environment is related to the quality of each of its employees, and therefore, the degree of company satisfaction and the degree of safety at work of all employees. Another thing to take into account is that of the working environment, and its perception by each of the employees is a good indicator of the degree of satisfaction and the degree of safety in the workplace for all the employees. Workplace cultures, policies, practices, and structures all create a context for the stress in the place of work; the most common sources of stress are the work itself, the employee performance, and interpersonal relationships (Qian & Fan, 2018). The effects of work

stress vary according to the individual, some workers experience mental and physical symptoms. Psychological problems such as stress, anxiety, depression, and psychosomatic illness are common. The effects of stress on the individual are also a major factor in determining the level of productivity and the quality of life. When an employee works in a high-stress, competitive, or stressful work environment, the negative effects on the individual can greatly affect his or her overall health. Other factors are not as evident in studies on the job stress of workers but may be a factor in the quality of health and general quality of life of employees.

Occupational Stress Among African Immigrants

According to studies on occupational stress among African immigrant workers, many of them suffered work-related stress. In a systematic review, Doki et al. (2018) claimed that living and working in the host country is more stressful for foreign-born workers than for native workers, and that it is critical for immigrant workers to understand the psychological symptoms and stress factors that affect them when working abroad. In a similar study, Sterud et al. (2018) compared the relationship between working conditions and occupational health in immigrant and native workers, reporting that immigrants have a higher risk of sick leave and disability pension in the workplace than natives. These studies show that immigrant workers face more work related hazards and poor working conditions than natives; they also show immigrants have a higher rate of sick leaves and disability pensions. According to Mucci et al. (2019), health professionals must focus their attention and commitment on the protection of foreign workers, given the trend of increased migratory flows and the rise in the prevalence of

occupational accidents/stress and illnesses among foreign workers caused by unfavorable working conditions such as, high levels of work demand, working in tight spaces, unfair treatment at work, and the use of racial slurs. According to Arici et al. (2019), a global response is needed to ensure that bad occupational health and safety outcomes among migrant workers are addressed, preferably through intervention studies.

Prevalence of Hypertension Among African Immigrants in The United States

Hypertension, defined as a systolic blood pressure (BP) of more than 130mmHg and a diastolic blood pressure (BP) of more than 80mmHg, is a major but preventable risk factor for kidney failure and cardiovascular disease (CVD). It is also the leading cause of premature death worldwide, particularly in the United States (Mills et al., 2020; Ude & Schwab, 2020). In the United States (US), cardiovascular disease (CVD) is a major cause of mortality, accounting for one out of every six deaths (Ude & Schwab, 2020). Zhang and Moran (2017) found that the lowest prevalence of hypertension (20%) was found in South American immigrants and the highest prevalence was found in Southeast Asian immigrants in a study of hypertension epidemiology and temporal trends in younger adults compared to older adults in the United States between 1999 and 2014 (29.1%). Mexico/Central America/Caribbean immigrants were observed to have the highest prevalence of diabetes. It was also observed that this population had high obesity prevalence. Since diabetes and hypertension share similar risk factors, this put them at a higher risk of hypertension. Lower hypertension diagnosis was reported among female Asian immigrants than their European counterparts (Commodore-Mensah et al., 2018). The total prevalence of documented hypertension was 24 percent in the 2013 NHIS, with

Asian and White individuals reporting lower rates than Africans. By 2050, only 12% of males and 9% of females are expected to be in a healthy weight range (Commodore-Mensah et al. 2018). Commodore-Mensah et al. (2018) pointed out that among young adult men, the treatment and control of hypertension improved by approximately 20% in regard to awareness and about 30% in terms of control. The findings showed that a lower hypertension treatment and control among young adult men than women were driven by fewer healthcare visits. The public health findings show that education and outreach could prevent hypertension among young adult men. This would in turn prevent the development of cardiovascular disease. The findings also showed differences in the prehypertension rates among young adult men & women. The young adult men had a much higher prevalence of pre-hypertension than young adult woman. When awareness, control and treatment were measured among the two groups, the young adult men had a much lower awareness, treatment, and control than the young adult women. According to a similar study by Ostchega et al. (2021), the prevalence of hypertension in adults increased with age in both men and women. In addition, men had a higher prevalence of hypertension than women at all educational levels. Divney et al. (2018) found that the pattern of increased hypertension prevalence with increasing acculturation was more pronounced among Latino men and Asian women when they looked at the confluence of acculturation and gender on hypertension prevalence. Although there was a strong steep trend of increasing hypertension with increasing acculturation among Latino men that was not seen among African American men, there was a much steeper increase in hypertension prevalence among Asian American women, rising from 27% among those

with low acculturation to 41% among Asian women with high acculturation. Because several of the acculturation-gender groups in this study had a limited sample size, caution is advised when interpreting the results. Similarly, the acculturation variables used in this study are proxy measures that do not capture the dynamic, nonlinear effects of integration that immigrant groups experience at any given time or throughout their lives.

In a study comparing cardiovascular disease risk factor prevalence between African immigrant and African American adults in the United States, Turkson-Ocran et al. (2020) pointed out that the standardized prevalence of hypertension was lower for African immigrants when standardized for age. The same results were seen when the rates of other variables were compared to African American population. Examples of these variables are Diabetes mellitus, overweight/obesity, hypercholesterolemia, physical inactivity, and current smoking when controlled for gender. African immigrants were younger, better educated, and employed, but they were less likely to have health insurance. One of the fastest increasing immigration groups in the United States is African immigrants. Despite the fact that African immigrants are more likely to get cardiovascular disease (CVD), they are less likely to die from it than non-African Americans or foreign-born rivals, according to previous study. Although the frequency of CVD in blacks has been studied extensively, yet less is known about ethnic sub-populations of blacks in the United States (Payton et al., 2020).

The RODAM study of Ghanaians in rural and urban Ghana, as well as three European cities, is the only current epidemiological study of its sort that analyzes the prevalence of hypertension among Blacks in different geographical regions, according to

Commodore-Mensah et al (2017). African Americans (AAs), African immigrants (AIs), and Afro-Caribbeans (ACs) are all members of the Black racial group. African Americans have one of the highest rates of hypertension in the world, and hypertension is responsible for more than half of the increased cardiovascular disease mortality in African Americans. In the United States, the Caribbean immigrant group had a lower median household income ($41,000) than both overall African immigrants and African Americans in 2014. In Afro-Caribbean, there was an inverse link between income and diagnosed hypertension. Public health strategies must be employed to enhance hypertension screening. Income and education level were the most important socioeconomic determinants in hypertension and diabetes among African Americans. In Afro-Caribbean, income was the most important socioeconomic determinant in hypertension. Due to genetic mixing, cultural differences, and discrepancies in social determinants of health, African Americans, African immigrants, and Afro-Caribbean have varied health outcomes despite sharing African heritage.

Hypertension and Workplace Stress

Hostile work conditions and job instability (e.g., fear of losing a job), as well as time restrictions, risks, and other work circumstances, are all examples of occupational stresses. High job/stress levels have been associated to hypertension, an increase in ambulatory blood pressure, and an increased risk of cardiovascular disease in numerous races and ethnicities (Cuevas et al., 2017).

Female Ghanaian migrants are more prone to stress at home and/or at work, which can lead to hypertension and other health problems. Awuah et al. (2019) in a study

that looked at the relationships between psychosocial factors and hypertension among Ghanaian non-migrants and migrants. Gao et al. (2020) suggests that studying physiological markers of emotional responses to stress found that women had a lower BP response to stress than men. Ghanaian migrants have access to a health-care system that can detect and treat depression and other mental illnesses. Women are more likely than males to experience undiagnosed and untreated depression, which increases their risk of hypertension and other health problems.

Bursztyn (2020) discovered that security-like occupations with a male majority, such as the military, police, and firefighters, have a higher prevalence of hypertension. The study also showed that Women who had a lot of influence over their jobs were more hypertensive if they had a lot of domestic responsibilities. Noise at work has been connected to elevated ambulatory blood pressure in industry workers who had previously been diagnosed as normotensive. This could explain why work stress has an effect on mortality even in those with well-controlled cardio metabolic risk factors. According to Bursztyn (2020), industrial employees' home blood pressure was significantly higher in the winter than their non-smokers counterparts, particularly those who work in factories with air conditioning (thus reducing seasonal temperature changes) .Particulate matter and NO2 exposure have both been associated to an increase in diastolic blood pressure. In employees with hypertension, high levels of ozone, a contaminant in the air, were linked to aortic stiffness. The point is to show that there are common effectors on blood pressure, which are often overlooked; sometimes these effectors are environmental or occupational. Knowledge about these effectors can give practitioners the tools they need

to combat hypertension and an understanding of what exactly their subjects are exposed to.

Definitions of Key Terms

African immigrant: A person who is born in a country on the continent of Africa but has relocated to the United States (Nyang, 2018).

Black Persons: A person whose ancestors were originally from Africa that has a notable darker skin tone and belongs to the black racial construct group. (Ohito, 2021).

Hypertension: Hypertension is a blood pressure reading that consists of the systolic reading greater than 130 mmHg and the diastolic reading greater than 80 mmHg (Kaul, 2020).

Income: Total Money received through work or investment in a year

Race: A social construct that groups people into different classification based on skin color.

Assumptions

The first assumption in this study is that all the participants told truthful information in the survey. The second assumption is that the participants did not misunderstand questions in the survey. The third assumption is that the African Immigrant population were identified by two variables, race, and country of birth. Race equaled Non-Hispanic black and Country of Birth was outside the United States. The third assumption is the perception that hypertension is a serious health issue that African Immigrants will care about. The assumptions listed in this study are based on assumptions listed in reviewed literature using NHANES data.

Scope and Delimitations

The scope of the study included African immigrants aged 0 – 150 years, it excludes all of the other participants of the study who are from developing countries with similar hypertension issue. This is a quantitative study that relies on secondary data was extract and pool data from the 2017–2018 NHANES, which only captures those 2 years.

Limitations

There are limitations for this study. One limitation is the geographical location where the data are from. A possibility is that the participants live in that location and the outcomes will not be generalizable to general population of African Immigrants. Possibility arises that the African Immigrants could be from Europe, Asia or the Caribbean's, and not actually the continent of Africa. Another limitation is using prescription for hypertension as a surrogate variable for hypertension since there are some people who have hypertension and do not taking medicine for it. Another limitation is utilizing a secondary retrospective analytical design and reliance upon pre-existing data obtained through the NHANES. While secondary analytical studies can produce useful evidence both rapidly and with low incurred costs, their validity and reliability are often impaired by a number of design flaws. In addition, the NHANES developers and authors may have subjected the data to a rigorous cleaning process, such as deleting important demographic data such as medical information, due to concerns that its publication and re-analysis could potentially lead to personal identifying information, which would constitute a breach of confidentiality and raise ethical concerns. In addition, this may also

mean that the dataset is inherently flawed by residual confounding given that secondary analytical authors are unable to account for deleted variables in statistical analyses.

The aim of the study is to investigate the association between hypertension and work culture among African immigrants. Another treat to internal validity was bias from the interviewer.

A threat to external validity is that majority of the Africans in the study were Nigerians given their high population in the United States as opposed to other countries. All the factors mentioned above could limit the conclusion of the associations been applied to a similar population.

Significance

This study can help fill the current knowledge gap concerning African immigrants who are Americanized and may have a higher hypertension rate than their counterparts just arriving from Africa. Studies have shown that there is a higher prevalence of hypertension in the African American population than in the population still residing in West Africa (Bosu, 2015). This study is important because there are currently 2.1 million African immigrants living in the United States (McCabe & Kristen, 2015).

The study can help the public health community better understand why African Immigrants in the United States have a higher prevalence of hypertension than Africans living in Africa. Insights from this study can be used with results from other studies previously conducted on hypertension and stress to further educate individual on reducing their workload and improving on their work life balance.

This study is in line with the goal of Healthy people 2020 in decreasing the hypertension rate of U.S residents (USDHHS, 2015). African immigrants who come into the United States experience a culture shock which puts them at a social disadvantage. Managing this condition among the African immigrant community will align with another Healthy People 2020 goal of achieving health equity and reducing health disparities (USDHHS, 2015). This study could also be used to educate health practitioners on addressing hypertension in terms of work stress to African immigrants in the United States.

According to Carlos et al. (2016), working habits are behavioral methods and elements applied by employees in contributing to job performance standards at their company. These methods might sometimes include working overtime, fast food diet, in order to meet a higher job performance standard. There are a number of studies on working habits; however, there are no studies that exclusively focus on the effects of working habits on the hypertension rate of African immigrants. Udah et al. (2019), stated that African immigrants often struggle to obtain the western dream and work hard to overcome any barriers. Those barriers are made worse by socio economic status, cultural barriers, and level of education. Udah et al. (2019) suggested the development of comprehensive communication procedures to influence and relate to these immigrant communities in order to help promote public health and eliminate health disparities. Individuals who are unfamiliar with the impacts of having unhealthy work habits are more prone to over working, fast food diet and have a sedentary lifestyle (St-Onge et al., 2017). Consequently, it's important that individuals have the appropriate health literacy

skills to assume responsibility for their healthcare needs. Social change implications include encouraging the initial diagnosis of hypertension, and educating African immigrants on the roles that age, gender, income, and education might play in regard to work habits and hypertension.

Summary

This chapter delved into background of hypertension, purpose of the study as well as its significance. An in-depth analysis also covered areas such as research questions, problem statement, theoretical framework, and limitation. This chapter also highlighted how acquired work habits, specifically among African immigrants can lead to unfavorable health outcomes. The transactional model of stress and coping was also discussed as the theoretical framework, and the terms of the study were defined. The literary gap, scope of the study, assumptions, limitations, and delimitations were also discussed in this chapter. The chapter concluded by giving an in-depth literary review on work habits, hypertension, and occupational stress among the African Immigrant population.

Hypertension is one the most burdensome risk factors responsible for the majority of cardiovascular disease cases and accounting for significant morbidity, mortality, and socioeconomic losses, worldwide. Given the individual and societal implications of hypertension in Black people, this secondary analytical study explored the relationship between work stress/culture and hypertension by extracting and analyzing data from the CDC's NHANES for the year 2017 -2018. The study focused on Africans who had

recently immigrated into the country given that the development of hypertension may have been exacerbated by acculturation.

Social Change Implications

The social change implications of this study would bring awareness to African Immigrants about the impact of overworking on their health. The social change implications also includes immigrants being aware of the roles that age, gender, income, play in regard to working habits and hypertension.

Social change implications from the conclusions of this study include the need for health care staff responsible for the initial diagnosis of hypertension to be aware of the roles that work culture plays in addition to income, and education, diet and physical activity in regard to the hypertensive diagnosis. It is the responsibility of health practitioners to understand that the information they are giving must be modified for the current community who has cultural beliefs and strong work ethic. Furthermore, an improved method of explaining the impact of work culture on hypertension, from an individual that is culturally competent and sensitive could help increase the number of individuals who not only understand their diagnosis but also take steps towards living a healthier life.

According to the DHHS (2016), hypertension is the leading cause of morbidity among black people in the United States. Even though this rate is reducing, knowledge and skills are necessary to be able to incorporate health, education, cultural, and social influences into his or her decision making (Jordan, et al., 2017). There are a number of assessments used to determine an individual's understanding about hypertension;

however, studies show that there is a gap that African immigrants often struggle with health literacy and cultural barriers, which are made worst by socio economic and cultural barriers of accessing and comprehending applicable health information. Kreps & Sparks (2013) suggested the development of detailed communication procedures to properly influence and relate to these communities to help promote public health and eliminate health disparities. As a result, it is important that individuals have the appropriate skills to assume responsibility for their health care needs.

Section 2: Research Design and Data Collection

Introduction

This study investigates an association between working habits (hours worked, diet at work) and hypertension rates for the first-generation African immigrant population residing in the United States. Knowledge about these effectors will provide important information about hypertension trends and risk factors, thus equipping health practitioners and the concerned parties with the information they need to combat hypertension and understand what their subjects are exposed to. This section will detail the research design and rationale for the study, the study's sampling design and procedures, methodology regarding the study population, an overview of the study's instrumentation, and operationalization of constructs and variables. The data collection process, analysis plan, and ethical procedures will also be discussed in detail.

Research Design and Rationale

This study used a cross-sectional study design. A cross-sectional design is an observational study used in epidemiological studies to examine the association (cause-and-effect relationship) between a disease (or any other health-related state) and other variables of interest (Burke & Christensen, 2014). Cross-sectional studies provide a snapshot of the frequency of a disease or other health-related characteristics such as exposure variables in a population at a given point in time (Celentano & Szklo, 2019). This quantitative research approach primarily follows the confirmatory scientific method because it focuses on hypothesis testing and theory testing of objective theories by examining the relationship among variables, thus, allowing for the analyzed data to either

nullify or support the study's hypotheses (Leavy, 2017). In addition, this quantitative research approach can focus on one or multiple causal factors simultaneously. The design selection was based on scientific rigor, cost-effectiveness, efficiency, and practicality. Given the study goals and objectives, the type of population (first generation African immigrants), disease and working habits-related issues being addressed, the cross-sectional study design proved the most relevant and efficient design to carry out this study.

Methodology

Population

The sample population chosen for this study included first-generation African immigrants 18 years old and above living in the United States selected to participate in the 2017-2018 NHANES through a statistical process using United States census information. They were 16,211 participants in the survey from 30 different survey locations. 9,254 completed the interview; from this number 8,704 were examined (CDC, 2022). The health examination was done in a mobile examination center (MEC) because it provided an ideal and standardized environment for collecting high-quality data. Audio computer-assisted personal self-interview (ACASI) and computer-assisted personal interview (CAPI) questionnaires were administered at home and in the MECs (NHANES, 2022). Unlike the questionnaires administered at home, questionnaires administered to participants during the visit to the examination center covered more sensitive areas such as reproductive health and illegal drug use.

Sampling and Sampling Procedures

A multistage probability design that was complex in nature was used in the sampling process. No prisoners were used in the sampling process, only residents from the 50 states and Washington DC. The multistage probability sampling design effectively finds the right survey sample and is also convenient for researchers in collecting primary data from a geographically dispersed population (Leavy, 2017). Four stages were followed to obtain the required sample. The first process involved sampling and selecting counties. The second process involved selecting a group of households that were clustered together. Next, specific households within segments were selected, and finally, the selection of individuals within a household. Random selection of one adult, 16 years of age or older, to be interviewed was done (CDC, 2022). This study will use information obtained from a sample of 118 individuals from the NHANES 2017 to 2018 survey.

(a) Sampling Frame

Inclusion criteria- All study participants were first-generation African immigrants living in the United States with hypertension who consented to participate in the 2017 to 2018 NHANES. Information from the responses were collected in the survey questionnaire to determine the hypertension history of the study participants.

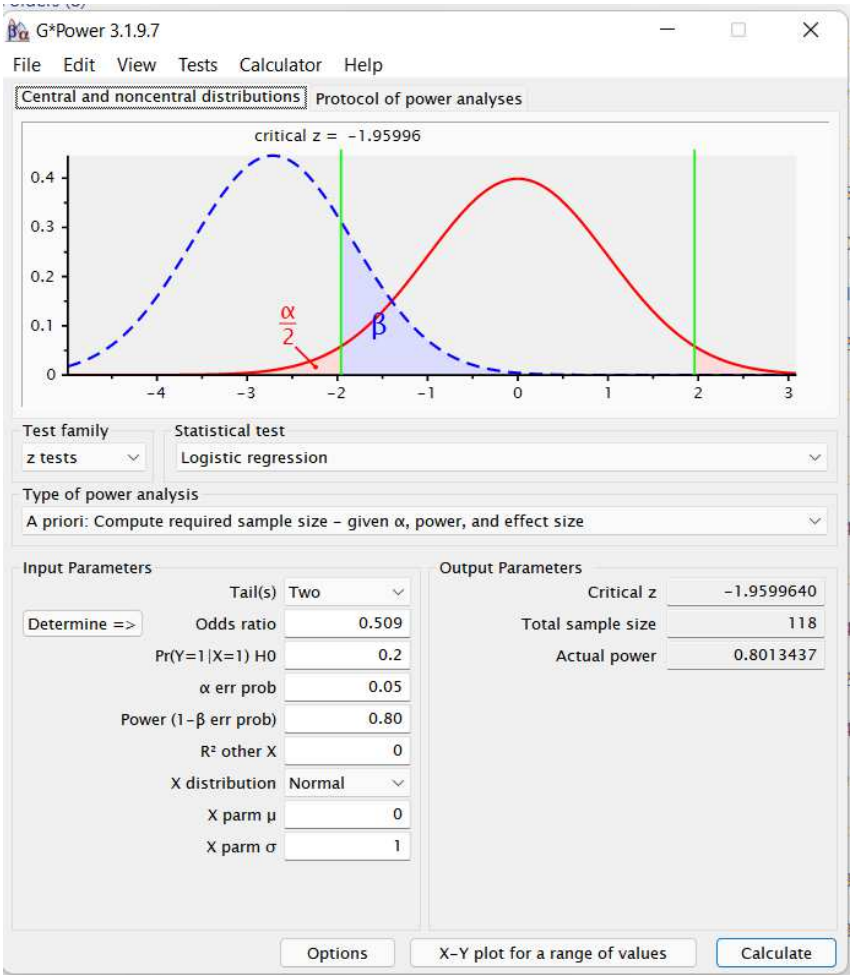
Exclusion criteria- Participants with missing data on blood pressure, aged <16 years, and the individuals who declined to be included in the study or withdrew their consent were excluded. The study excluded individuals from developing countries who were not of African descent

Power Analysis

A prior power analysis was done to determine the minimum sample size for the study. In order to ensure that the test would detect an effect, statistical power of 80% (0.80) was used and a significance level (α) of 5% (0.05) as the maximum level of rejecting a true null hypothesis. Other selections included the logistic regression statistical test, 2-tail testing, an odds ratio of 0.509, and a normal X distribution. An odds ratio of 0.509 means there is a 49.10% decrease in the odds of an outcome with a given exposure. Studies by Aiello et al. (2017); Priyadarshini (2017) also used similar selections in their respective research. The G*Power 3.1.9.7 calculator was used in conducting the power analysis. The figure below shows the power analysis input parameters and central and non-central distribution graph.

Figure 1

Power Analysis Input Parameters and Central and Non-Central Distribution Graph



Sample Size Determination

In the 2010 United States census, 38.9 million people out of 308.7 million in the United States (13%) identified as Black alone (United States Census Bureau, 2011). A total of 16,211 persons were selected in 2017-2018 to participate in a survey by the NHANES survey from 30 different survey locations. Participants who completed the interview were 9,254, and 8,704 out of the 9,254 got examined. After excluding participants with missing systolic and DBP, 4,730 participants were the only ones who

were included in the final analysis. From this sample, I excluded all those born within the United States and all races except Black. This exclusion emerged 134 foreign born African immigrants. Finally, I excluded respondents below 16 years of age to get 118 participants who qualified for the final analysis.

(b) Procedures for Recruitment, Participation, and Data Collection

A complex, multistage probability sampling design was used to recruit study participants. First, all the 3,006 counties in the United States were divided into 15 groups based on their characteristics, making up 15 NHANES counties. In the second stage, smaller groups from the 15 counties were formed. Next, all households were identified then samples were chosen. Lastly, the selected households were contacted and asked questions such as age, gender, and race of everyone in the household. The computer process randomly selected 'some, all, or none of the household members' (NHANES, 2022). Data were collected from a representative sample of the civilian non-institutionalized U.S. population interviewed through personal interviews at home and physical examinations in the MECs. The responses to the questionnaires used in the NHANES were used in this study. The data set was moved to the Statistical Package for Social Science (SPSS) for better storage, easier data coding, management, and analysis.

Instrumentation

The NHANES used questionnaires to carry out their survey. The questionnaires were administered both at home and at MECs. A CAPI system (interviewer-administered) was used to survey participants at their homes to ascertain their

demographic data. ACASI and CAPI questionnaires were administered at MECs to collect more information, including the information that covers sensitive areas.

Study Variables

Independent Variables

An independent variable(s) is a variable that is presumed to cause a change to occur in another variable (dependent variable). Independent variable(s) is an antecedent variable because, in order to produce a change in a dependent variable, an independent variable(s) must come before it (Burke & Christensen, 2014). Independent variables in this study are the number of hours worked in a week, the number of meals eaten in a fast-food restaurant in a week and the length the subjects live in the United States.

The Number of Hours Worked in a Week

It referred to the total number of working hours that an employee works for his/her employer per week. The study participants' options to pick from were recorded as a continuous variable in the questionnaire. The options included 1-5 hours (coded as 1), 6-40 hours (coded as 2), 41-79 hours (coded as 3), and 80 hours or more (coded as 4).

The Number of Meals Eaten in a Fast-Food Restaurant in a Week

It was defined as the total number of meals an employee eats in a fast-food restaurant per week. Participants had options to pick from in the NHANES questionnaire. The options included none (coded as 1), less than 5 meals per week (coded as 2), and more than 5 meals per week (coded as 3).

The Length of Time Lived in the United States

Time lived in the United States was recorded as a continuous variable. The study participants specified their selections on the options in the survey questionnaire among them less than 1 year (coded as 1), 1 to 19 years (coded as 2), 20 to 49 years (coded as 3), and 50 years or more (coded as 4).

Dependent Variable

A dependent variable is a variable that is presumed to be influenced by one or more independent variables. The dependent variable is the variable that is "contingent on" the antecedent variable(s) (independent variable) (Burke & Christensen, 2014). A dependent variable is used to measure the effect of one or more independent variables. This study seeks to determine whether the number of hours worked in a week, the number of meals eaten in a fast-food restaurant per week, and length of stay in the United States among foreign born African Immigrants can influence the number of hypertension cases among workers. Hypertension is the dependent variable in this study, and it was measured as a binary (Yes/No), with yes being systolic and DBP greater than 130/80mmHg, and no if the blood pressure is lower or equal to 130/80mmHg.

Hypertension

It was defined as blood pressure above 130/80mmHg SBP greater than or equal to 130 mmHg and/or DBP greater than or equal to 80 mmHg) (NHANES, 2022). The first reading of blood pressure was used. The variable BPXSY1 and BPXDl1 was used to address the hypertension in NHANES. The study participants were coded between 72 to

236 for the systolic pressure and 0 to 120 for the diastolic pressure. The dependent variable was measured as a dichotomous variable (Yes/No).

Covariates

Covariates are characteristics (excluding the actual treatment) of the participants in this study. In this study, covariates include age, gender, and income. Collecting data on covariates before conducting the actual study helps determine how the treatments (length of time lived in the US, number of hours worked in a week and the number of meals eaten in a fast-food restaurant per week) affect the dependent variable (hypertension), thus increasing the accuracy of the results. Potential covariates in this study are discussed as follows.

Age

Age was defined as 16 years and older in the study, as indicated in the NHANES questionnaire demographic data. Data were recorded as interval variable in the study with 16 to 35 years (coded as 1), 36 to 49 years (coded as 2), 50 to 79 years (coded as 3) and 80 years and above (coded as 4) while respondents below the age of 16 were excluded from the sample by filtering out their responses from the data set.

Gender

It was examined as a categorical dichotomous variable, male (coded as 1) and female (coded as 2). The study participants specified their selections on the NHANES questionnaire.

Income

Income was recorded as a continuous variable measured by comparing the annual family income (in dollars) to the poverty level and ranked according to the participant's response. The ranks included under $20,000 (coded as 1), $20,000-64,999 (coded as 2), $65,000-$99,999 (coded as 3), and $100,000 and over (coded as 4).

Country of Origin

It was recorded as a categorical nominal variable; born in the 50 U.S. states or Washington, DC (coded as 1), and others (coded as 2). The study participants specified their selections on the survey questionnaire.

Data Analysis Plan

In general, my data analysis plan includes descriptive statistics which will include means and ranges, while comparative analyses will use unpaired t-testing for continuous data and Chi-squared testing for categorical data. Statistical significance was defined using the standard alpha of 0.05, with values <0.05 being considered significant, while those >0.05 were considered insignificant. Statistical validity was calculated using post-hoc analysis, which will show that a power of 95% was achieved for the sample of 118 subjects.

More specifically, first, I will use descriptive analysis, which will show the frequency and percentage distributions to analyze the demographic characteristics of the sample. Descriptive statistics would be used to apply to the first generation African Immigrant sample of the NHANHEs 2017 -2018 data set. We can infer the results of the sample population to apply to the whole population. The first step in any statistical

analysis of secondary data is to determine the level of measurement; it tells us what statistical tests can and cannot be performed (Mertler et al., 2021). For my first research question, the number of hours worked variable that was used in the study had an interval level of measurement, meaning it is ranked, its values are evenly spaced. For my second research question, the number of meals from fast food places in a week variable will have an interval level of measurement. For my third research question, the length of stay lived in the United States variable will have an ordinal level of measurement. Numbers or symbols can be used to categorize them, they are not mutually exclusive (Russell, 2020). They can be ranked; there is relationship between the units of measurement.

The dependent hypertension variable will have a nominal level of measurement; it was dichotomous (Yes/No). Since it has a nominal, the values are mutually exclusive and do not fall into more than one category (Porcu & Giambona, 2017). There is no relationship or unit of measurement with them.

These variables would provide narrative that could either support or dispute my hypothesis. They could show trends or relationship that could help me answer my social change questions or develop new ones.

Secondly, I will perform Chi-square test of independence as my bivariate analysis. I will utilize it because both my dependent and independent variables are categorical variables (Mertler & Reinhart, 2016). The dependent variable is the hypertension, it is measured as a nominal categorical variable while the independent variables are length of stay lived in the United States, the number of meals from fast food places in a week, and the numbers of hours worked in a week, and they are measured as

categorical variables. The Phi /Cramer's V would also be used for used for effect size (Ialongo, 2016). Depending on whether it is a high, medium or low effect size, 'it will inform us whether the independent variables have a high, medium or low effect on likelihood of hypertension in African immigrants.

Third, I will use binomial logistic regression as my multivariable analysis, since I have a single dichotomous dependent variable (Hypertension) and continuous independent variables (number of hours worked, length of stay lived in the United States, and the number of meals from fast food places in a week). Binomial logistic regression was used because I want to see the relationship between one dichotomous dependent variable and three categorical independent variables (Ranganathan et al., 2017). It would take into account the effect when multiple variables are taken into account in order to be able to analyze how each factor's addition affects the significance of the result.

The NHANES data wasanalyzed descriptively, and the findings were presented in weighted percentages and unweighted frequencies. Data files were compiled by merging relevant data that contained variables of interest. In order to ensure that the study findings were a true representative of the non-institutionalized US population, an analysis wasdone following the analytical guidelines by using appropriate survey weights. Associations of the independent variables with hypertension were assessed through the Chi-square test. All the analysis were done using IBM SPSS Statistics version 24, and two-tailed p-values less than 0.05 were considered statistically significant.

Threats to Validity

Internal Validity

Internal validity shows the extent to which the causal relationship observed between the independent and dependent variables exists, thus establishing trustworthy evidence of cause and effect (Cohen et al., 2018). In order to ascertain that one variable caused an effect observed in another variable, all other possible causes must be controlled. These other possible causes are threats to internal validity because they represent rival or competing or alternative explanations for the results obtained. When such alternative explanations exist, it is impossible to reach a causal explanation with any degree of certainty, leading to highly suspect results that cannot and should not be taken seriously (Celentano & Szklo, 2019). It is necessary to control for and eliminate the systematic influence of these threats. One of the threats to internal validity in this study includes confounders due to their tendency to exaggerate the effect on the dependent variable. Another threat to internal validity is the researchers' influenced performance of study participants due to their expectation whereby researchers act to influence outcomes. Another threat to internal validity is subject attrition, which occurs when the subject drops out of a study before its completion there by affecting the outcome effect (Burke & Christensen, 2014). Attrition causes systematic differences between people who leave the study and those who continue, introducing bias into final results. The extent to which the instrument is accurate in its measurement and the degree to which the measuring instrument itself may be responsible for outcomes is another threat to internal validity.

A threat to internal validity is the geographical location where the data are from. A possibility is that the participants in that location and not generalizable to general population of foreign-born African Immigrants. Another possibility that arises based on the data set is that the foreign-born African Immigrants could be from Europe, Asia or the Caribbean's, and not actually the continent of Africa. Another threat to internal validity is using only the first recording of the respondent's blood pressure in the data set. Several factors could cause the first recording of the blood pressure to be inaccurate. Another limitation is utilizing a secondary retrospective analytical design and reliance upon pre-existing data obtained through the NHANES. While secondary analytical studies can produce useful evidence both rapidly and with low incurred costs, their validity and reliability are often impaired by a number of design flaws. In addition, the NHANES developers and authors may have subjected the data to a rigorous cleaning process, such as deleting important demographic data such as medical information, due to concerns that its publication and re-analysis could potentially lead to personal identifying information, which would constitute a breach of confidentiality and raise ethical concerns. In addition, this may also mean that the dataset is inherently flawed by residual confounding given that secondary analytical authors are unable to account for deleted variables in statistical analyses. Another treat to internal validity is bias from the interviewer. Confounding is always a threat to internal validity because there is a possibility that the association between variables could be exaggerated (Feest, 2019). The confounding factor in this study could be a covariant or another variable that had an effect on the dependent variable.

In order for Internal Validity within the study to be preserved, IBM SPSS will be used to restrict sample with subjects that had the same confounding variables thereby decreasing the confounding effect. In the study, the samples were controlled for age, gender and income.

External Validity

The extent to which the study results can be generalized to and across populations of persons, settings, times, outcomes, and treatment variations (Burke & Christensen, 2014). The main threat to external validity is the non-randomization of samples. Most studies fail to randomly sample individuals' populations, settings, times, outcomes, and treatment variations because of the expense, time, and effort involved (Leavy, 2017). To ensure that results from the 2017-2018 research study can be generalized, NHANES identified a target group of individuals. Then a random selection of samples from the populations was done to have a representative sample of these populations. In this study, a threat to external validity is setting validity whereby a majority of the Africans in the study were Nigerians given their high population in the United States as opposed to other countries, which may affect the generalizability of the study results.

Ethical Issues

Ethics are the principles and guidelines developed to assist researchers in conducting ethical studies. Ethics also help in ensuring that professionalism is maintained throughout the research process; hence it is helpful to address them at different stages of the research (Creswell, 2014). Attention needs to be directed toward ethical issues before conducting the study, at the beginning of the study, during data collection and analysis,

and in reporting, sharing, and storing the data. The survey was conducted according to the Helsinki 1964 declaration by ensuring the protection of human participants. The study was approved by the National Center for Health Statistics (NCHS) research ethics review board (NHANES, 2022). Informed consent to participate in a study was obtained for all the participants who participated in the survey. Participants were informed of the purpose of the study, procedures, risks, benefits, alternative procedures, and limits of confidentiality. Data was de-identified, ensuring that participants' information was kept confidential and at the same time maintaining their identity anonymous. This study uses existing pre-collected data containing non-identifiable data about human beings. The data was received from the NHANES 2017-2018 via the CDC website. It will be obtained after completing training and data user agreement with Walden University IRB. Once training has been received from CDC website, and the data user agreement with Walden University is signed, I will extract the data from the CDC website and save the information on a secured hard drive. The researcherwill be only one who has the password access to the secure hard drive. Data will be destroyed 5 years after completion of the study.

Protection of Human Participants

The protection of human participants is very important in research because conducting research with humans can create physical and psychological harm (Burke & Christensen, 2014). Human participants are protected throughout the research process by ensuring the confidentiality of their information and anonymity, respecting participants' decisions and protecting them from harm, ensuring that there is justice throughout the

research process through fairness in carrying out procedures and in the research recruitment process. The NHANES ensured the protection of the participants by seeking consent from them before they took part in the study. In addition, information confidentiality, keeping their identity anonymous using respondent sequence numbers instead of their names or any other information that would make them identified also helped in human participant protection. This study uses secondary data from NHANES, which contains non-identifiable data; hence, human participants are protected in this study.

Summary

This section has discussed the research design selected for the study and its rationale in detail. The sampling frame (inclusion and exclusion criteria), sampling procedures used to recruit study participants, data collection process, and the instruments used to assess the effect of independent variables on the dependent variable have been addressed. Power analysis was also conducted to show the minimum sample size for the study. The study variables, both dependent and independent variables, were discussed in detail, including the potential covariates. Potential threats to validity, both internal and external validity, and ways of minimizing them were covered. Finally, ethical issues and measures that were used in ensuring the protection of human participants and data analysis plan, including its management and storage plan, were also discussed in this chapter.

Section 3: Presentation of the Results and Findings Section

Introduction

The purpose of this research project was to investigate the association between working habits (hours worked, diet at work), and hypertension rates for the African immigrant population residing in the United States. A cross-sectional study was applied to a sample of 118 respondents, using the control variables of age, gender, and income. This chapter presents the research findings based on the NHANES 2017-2018 data that was collected according to the research questions and hypotheses outlined below:

RQ1: Is there an association between the number of hours worked in a week and hypertension among first generation African Immigrants, controlled for gender, income, and age?

$H_1$1: There is a significant association between the numbers of hours worked in a week to hypertension among first generation African Immigrants controlled for gender, income, and age.

$H_0$1: There is no significant association between the numbers of hours worked in a week to hypertension among first generation African Immigrants controlled for gender, income, and age.

RQ2: Is there an association between the number of meals from fast food places in a week and hypertension among first-generation African immigrants adjusted for gender, income, and age?

$H_1$2: There is a significant association between the number of meals from fast food places in a week and hypertension among first-generation African immigrants adjusted for gender, income, and age.

$H_0$2: There is no significant association between the number of meals from fast food places in a week and hypertension among first-generation African immigrants adjusted for gender, income, and age.

RQ3: Is there an association between the length of stay lived in the United States and hypertension among first generation African Immigrants adjusted for gender, income, and age?

$H_1$3: There is a significant association between the length of stay lived in the United States and hypertension among first generation African Immigrants, adjusted for gender, income, and age.

$H_0$3: There is no significant association between the length of stay lived in the United States and hypertension among first generation African Immigrants, adjusted for gender, income, and age.

Accessing the Data Set for Secondary Analysis

The time frame through which the data were collected including response rate was a 2-year time frame from January 2017 to December 2018. A user agreement was completed between CDC and Walden University; I was able to obtain the raw data set.

Changes in Methodology

A few changes were made to the data collection as described in Section 2. Out of the sample size of 134, there were a few respondents who did not meet the age

requirement of 16 years and above; these were excluded to remain with a sample size of 118 that was used in the analysis. As per Table 1, 98 out of the 118 cases were included in the logistic regression analysis. For all the independent and dependent variables in the model, SPSS automatically excluded variables that had missing values from the regression analysis. For the purposes of bivariate and regression analysis, missing values were managed through the use of expectation maximization (EM) data imputation algorithm which substitutes the missing data with their most likely value based on the available complete data set.

Table 1

Case Processing Summary

Unweighted cases		N	Percent
Selected cases	Included in analysis	98	83.1
	Missing cases	20	16.9
	Total	118	100.0
Unselected cases		0	0
Total		118	118

a. If weight is in effect, see the classification table for the total number of cases.

Table 2

Classification Table

		Predicted	
Observed		Hypertension	Percentage correct

			No	Yes	
Step 1	hypertension	No	51	6	89.5
		Yes	15	26	63.4
	Overall percentage				78.6

a. The cut value is .500

The dependent variable was computed as a function of both the systolic and DBPs. I used SPSS logistic operators to compute the hypertension variable. Individuals with SBP greater than 130 mmHg and/or DBP greater than 80 mmHg) were labeled as having hypertension, which was then coded as a binomial (yes/no) variable as presented in Table 2 above. Individuals with isolated diastolic or systolic high blood pressure were also labeled as having hypertension; this comprises respondents with SBP greater than 130 mmHg and normal DBP, or respondents with DBP greater than 80 mmHg) and normal SBP. To manage missing values (20) for the hypertension variable, data from the variable 'ever told you had hypertension' was incorporated.

Results

Descriptive and Demographic Characteristics of the Sample

A total of 118 respondents were included in the descriptive analysis. Descriptive statistics for this sample population (N=118) are presented in Table 3 below, which shows the demographic characteristics of the sample, the independent variables (length of time in the United States, number of hours worked in a week and number of meals from fast food places in a week), and their contribution to explaining the dependent variable classification. Variables entered include age in years, gender that is whether male or female, annual family income, length of time in the United States, number of hours

worked in a week and number of meals from fast food places in a week. Respondents that refused to answer or did not have answers for the questions, data was imputed via the EM data imputation algorithm.

Based on the findings as presented in Table 3, 66 respondents were female (44.1%) while male respondents were 52 (55.9%). The age distribution of the respondents shows that 25 (21.2%) respondents were aged between 16 and 35 years, 33.9% of them aged 36-49 years, a majority 44.1% aged between 50-79 years, whereas only 1 (0.8%) respondent was aged 80 years and above. A majority of the respondents (34.7%) earned between $20,000 and $64,999 followed closely by the $100,00 and over annual income range at 22.9%. Results further indicated that only 1.7% of the respondents had over five meals from fast food places in a week. 80.5% of the sample respondents worked 6-40 hours in a week, 16.1% of them worked 41-79 hours a week while only 1.7% worked 80 hours and above in a week. A total of 55 (46.6%) respondents had lived in the United States for a period of 20 to 49 years, 43.2% of them had spent 1-19 years in the States, while only 3.4% (four) of them had been there for more than 50 years.

Table 3

Descriptive Statistics

Variables		Frequency	Percent
Age	16-35 years	25	21.2
	36-49 years	40	33.9
	50-79 years	52	44.1
	80 and above	1	.8

Gender	Male	52	44.1
	Female	66	55.9
Annual family income	Under $20,000	13	11.0
	$20,000 to $64,999	41	34.7
	$65,000 to $99,999	17	14.4
	$100,000 and over	27	22.9
	Missing values	20	16.9
Number of fast food meals in a week	None	34	28.8
	Less than 5	82	69.5
	5 and above	2	1.7
Number of hours worked in a week	1-5 hours	2	1.7
	6-40 hours	95	80.5
	41-79 hours	19	16.1
	80 hours or more	2	1.7
Length of time in the United States	Less than 1 year	8	6.8
	1-19 years	51	43.2
	20-49 years	55	46.6
	50 years or more	4	3.4

Bivariate Analysis

For my bivariate analysis, I performed a Chi-square test of independence to determine the association between the independent categorical variables: length of time lived in the United States, number of hours worked in a week and number of meals from fast food places in a week, and the dependent variable hypertension.

Table 4

Chi-Square Tests and Symmetric Measures

	(N) Valid cases	Phi & Cramer's V	Pearson chi-square	Asymptotic significance (2-sided)
Number of fast food meals in a week	118	.039	.177	.915
Number of hours worked in a week	118	.124	1.814	.612
Length of time in the United States	118	.339	13.534	.004

The results in Table 4 above indicate a Pearson Chi-Square correlation coefficient of ($X^2(1) = 13.534$, $p<.05$) proving that there is a statistically significant association between the length of time lived in the United States by African immigrants and hypertension. Furthermore, Phi and Cramer's V coefficient of p=.339 shows a moderate association between the two variables.

There was no statistically significant association between hypertension and the two independent variables; number of meals from fast food places in a week ($X^2(1) = .177$, $p>.05$) and number of hours worked in a week ($X^2(1) = 1.814$, $p>.05$), though the Phi and Cramer's V coefficients of p=.039 and p=.124 respectively, showed a weak association between the two variables and hypertension.

Multivariable Analysis

Binomial logistic regression was conducted to show the association between the dependent variable (hypertension) and the three independent continuous variables (length of time lived in the United States, number of hours worked in a week and number of

meals from fast food places in a week) controlled for age, gender, and annual family income.

Table 5

Variables in the Equation Step 1a

							95% C.I. for odds ratio	
	B	S.E	Wald	df	Sig.	Odds ratio	Lower	Upper
Age - 16-35 years (ref)			9.580	3	.022			
36-49 years	.847	.827	1.048	1	.306	2.333	.461	11.804
50-79 years	2.276	.843	7.283	1	.007	9.739	1.865	50.873
80 and above	21.876	24952.733	.000	1	.999	3.165E+9	.000	.
Gender - Female	.160	.555	.083	1	.773	1.174	.395	3.485
Annual income - Under $20,000 (ref)			5.119	3	.163			
$20,000 to $64,999	1.672	.967	2.990	1	.084	5.325	.800	35.446
$65,000 to $99,999	.998	1.067	.874	1	.350	2.712	.335	21.959
$100,000 and over	.281	1.029	.075	1	.785	1.325	.176	9.951
Fast food meals in a week – None (ref)			1.311	2	.519			
Less than 5	-.684	.659	1.077	1	.299	.504	.138	1.837
5 and above	.515	2.022	.065	1	.799	1.674	.032	88.015
Hours worked in a week – 1 to 5 hours (ref)			.768	3	.857			
6 to 40 hours	-1.116	1.530	.532	1	.466	.328	.016	6.572
41 to 79 hours	-.729	1.573	.215	1	.643	.482	.022	10.538
80 hours or more	-21.714	27482.070	.000	1	.999	.000	.000	.
Length of time in US – less than 1 year (ref)			4.123	3	.249			

1 to 19 years	2.383	1.451	2.697	1	.101	10.839	.631	186.244
20 to 49 years	2.919	1.471	3.939	1	.047	18.529	1.037	331.058
50 years or more	22.803	18843.471	.000	1	.999	8.006E+9	.000	.
Constant	-3.871	2.445	2.506	1	.113	.021		

Table 5 above shows the B-value, standard error, Wald test, degrees of freedom, significance, and odds ratio for the independent variables used in the study (number of meals from fast food places in a week, number of hours worked in a week and length of time lived in the United States), the dependent variable (hypertension), and the control variables age, gender and annual family income.

The likelihood of African American immigrants having hypertension increased with age as depicted by the gradually increasing odds ratios across the participants' age groups (sig = .022, $p<.05$). Individuals aged 36-49 years and 50-79 years respectively were 2.3 and 9.7 times more predisposed to contracting hypertension. As compared to males, females had a 17% increased probability of testing positive for hypertension while for annual income, the odds ratio (likelihood) decreased with advancement into high-income brackets.

Logistic regression results further indicated that none of the three independent variables had a statistically significant influence on the probability of having hypertension amongst African immigrants as all of them had a sig value of $p>0.05$. Odds ratio results showed that participants that consumed 5 or more fast food meals in a week had the highest odds ratio and were 1.7 times more likely to have hypertension as compared to those that did not indulge in fast food meals from restaurants and pizza places. Interestingly, for hours worked on a weekly basis, the odds ratio revealed an

inverse relationship whereby the more hours worked by individuals the lesser the chances of them having hypertension. Results also showed that the longer the time lived in the United States was associated with a higher likelihood of having hypertension where African immigrants that had lived in the United States for 1 to 19 years and 20 to 49 years respectively were 10.8 and 18.5 times more likely to have hypertension as compared to those who had lived in the US for less than a year, while those who had lived the longest of about 50 years or more had the highest odds ratio.

Based on their beta values, a longer time lived in the United States was associated with an increased likelihood of having hypertension. Similarly, increased consumption in the number of meals from fast food places would increase the likelihood of an African immigrant having hypertension.

Table 6

Model Summary

Step	-2 log likelihood	Cox & Snell R square	Nagelkerke R square
1	98.219[a]	.300	.404

a. Estimation terminated at iteration number 20 because maximum iterations have been reached.

The independent variables were continuous variables with different intervals applied accordingly, whereas the dependent variable was a dichotomous variable, coded as a yes or no. According to the model summary presented in Table 6 above, 40.4% (Nagelkerke R2) variation in the probability of first-generation African immigrants having hypertension can be explained by the independent variables in the model. The model was

also able to correctly predict 78.6% of the cases included in the study, as evidenced in Table 2.

Summary

Based on the bivariate analysis findings, the independent variable length of time lived in the United States was found to have a moderate effect on hypertension while number of fast food meals and hours worked in a week had a low effect on hypertension. Logistic regression findings in Tables 5 and 6 revealed that none of the independent variables had a significant influence on the dependent variable hypertension as evidenced by the sig values of $p>.05$. However, based on their beta values, the two (number of meals from fast food places and length of time lived in the United States) were found to play a role in affecting the likelihood of African immigrants having hypertension.

- The number of hours worked in a week did not have a significant influence on hypertension. I therefore accepted the null hypothesis that there is no significant association between the number of hours worked in a week to hypertension among first-generation African Immigrants, controlled for gender, income, and age.
- The number of meals from fast food places in a week did not have a significant influence on hypertension. However, a unit change in the number of meals from fast-food places in a week would result in an increase in the likelihood of an African immigrant having hypertension. I therefore accepted the null hypothesis that there is no significant association between the number of meals from fast

food places in a week and hypertension among first-generation African immigrants, controlled for gender, income, and age.

- The length of time in the United States had no significant influence on hypertension among First Generation African immigrants. Longer time lived in the United States would however result in an increase in the likelihood of an African immigrant having hypertension. I therefore rejected the null hypothesis that there is no significant association between the length of time lived in the United States and hypertension among first-generation African Immigrants, controlled for gender, income, and age.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

This chapter presents a summary of major findings from this study based on research objectives, key findings, and the conclusion for the thesis, and provides recommendations on possible future topic areas to be explored by other researchers in this field. It covers conclusions drawn and policy recommendations derived. To test all the three hypotheses, bivariate and binomial logistic regression analyses were done and the results interpreted.

I sought to evaluate work culture amongst the first-generation African immigrant population to assist in understanding some of the issues regarding hypertension. The study looked at the number of hours worked in a week, the number of meals from fast food places in a week, and the length of time in the United States as the independent variables that affect the likelihood of first-generation African immigrants having hypertension. The main objective of the research was to understand whether there was a significant association between the dependent variable, hypertension, and the three independent variables.

To test the null hypothesis, both bivariate analysis, Chi-Square measure of association and binomial logistic regression were conducted. Results of the binomial logistic regression were reviewed which led to the rejection of the alternative hypotheses ($H_1$1, $H_1$2, $H_1$3) in favor of the null hypotheses ($H_0$1, $H_0$2, $H_0$3) of Research Questions 1, 2 and 3 respectively.

Interpretation of Findings

This study was guided by a theoretical framework that adopted a cognitive transactional model or interactive model of stress proposed by Lazarus and Folkman (1984) with a definition of stress that centered on the interaction between a person and his environment. The model examined how major life events and everyday disruptions affect emotions and further identified different kinds of stressors, coping mechanisms, and capabilities. Personality traits, depressive symptoms, social support, and workplace pressures were listed as elements that influence coping skills and capacities. In relation to this study, the independent variables, that is, the number of hours worked in a week and the number of meals from fast food places were identified as stressors, and though they did not have a significant influence on the dependent variable hypertension, the three were found to play a role in affecting the likelihood of African immigrants having hypertension.

Descriptive statistics analysis findings indicated that a majority of the respondents were aged 16 years and above, as we only had one respondent aged 80 years and above. Gender distribution among the respondents was quite fair with females making up 55.9% of the total. Respondents were also evaluated for their annual family income levels and the length of time that they had lived in the United States. The variables age, gender, and income were used as control variables to exclude their possible effects on the dependent variable, hypertension. It was observed that out of the 118 respondents, 59 (50%) of them had lived in the United States for 20 years or more.

I analyzed the association between the independent variables and hypertension among first-generation African Immigrants using the Chi-Square measure of association. The results showed that there is a moderate association between the length of time in the United States and the likelihood of a first-generation African immigrant having hypertension. These findings are in accordance with conjunction with Commodore-Mensah et al.'s (2018) study, which pointed out that the considerably lower hypertension prevalence in African males (28%) as compared to their African American counterparts (33%) could not be seen as an advantage since prevalence rises with a greater duration of stay in the United States. Moreover, some first-generation African immigrants adopt the work culture of Americans over time and in turn, may adopt the stress and diseases that come along with it, which explains the moderate association between the length of time in the United States and the likelihood of a first-generation African immigrant having hypertension.

I found that there was no significant association between the number of hours worked in a week and hypertension among first-generation African Immigrants. According to studies conducted by Smith et al. (2017), several external factors impact work stress such as the economy and how the company is doing, that employees may not be able to control. Beyond increased workload that may result in an increase in the number of hours worked in a week, these external factors ought to be considered when evaluating occupational stress, as workplace stress was found to be a major cause of stress-related diseases, including cardiovascular disease, stroke, cancers, diabetes, and depression (Mamadiyorova & Shermatov, 2021; Park et al., 2019).

Binomial logistic regression results indicated that there was no significant association between the number of meals from fast food places in a week and hypertension. However, as evidenced in Table 5, a unit change in the number of meals from fast food places in a week would result in a significant increase in the likelihood of an African immigrant having hypertension as indicated by increasing odds ratio across the variable categories. These findings are backed by studies done by Rayner and Spence (2017), which suggested that there are assumptions by some African immigrants that hypertension is caused exclusively by the American diet. Furthermore, compared to other immigrant groups, African immigrants were less likely to eat fast food since it is not the staple diet they grew up on (Guendelman et al., 2015).

Limitations of the Study

Based on both the descriptive and inferential analysis, the results of this study were insignificant regarding the association between the length of time lived in the United States, number of hours worked in a week, the number of meals from fast food places in a week and hypertension, which could have been due to several limitations. Given the age bracket of respondents ranging above 16 years, this study assumed that all the respondents were employed or working. Therefore, the question on the number of hours worked in a week could have been irrelevant to the unemployed or non-working respondents, rendering the regression results inaccurate.

This quantitative study relied on secondary data extracted from the 2017–2018 NHANES, which only captures those 2 years' surveys from 30 different survey locations. The NHANES data source's latest updates on the health statistics were from 2017 to

2018 making the study base its findings on data dating back to 4 to 5 years ago. Participants who completed the interview were 9,254, and 8,704 out of the 9,254 got examined. After excluding participants with missing systolic and DBP, 4,730 participants were the only ones who were included in the final analysis. From this sample, I excluded respondents based on country of origin and age (below 16 years of age) to get 118 participants who qualified for the final analysis. Besides, only 98 out of the 118 cases were included in the logistic regression analysis because for all the independent and dependent variables in the model, SPSS automatically excluded variables list-wise. Handling the missing values by imputation could also have introduced some bias in the data, and consequently the results of the study.

There were also inadequate data and literature studies on the impact on African immigrants moving from a country where one job was held with shorter work hours, lunch was rarely skipped, to a country where holding multiple jobs is encouraged, skipping lunch is acceptable, and working longer hours is expected. According to Omenka et al. (2019), African immigrants in the United States were the least-studied immigrant group, even though much stride has been taken by government to reduce inequities in health among immigrant communities in the United States.

Another factor that might have contributed to limitations on the conclusions drawn from the analysis is the possibility that a majority of the Africans in the study could be Nigerians given their high population in the United States as opposed to other countries. This is a limitation because we do not want to generalize the behavior and culture of one African country to be representative of the entire continent of Africa.

According to (Mehta et al., 2016), nearly three-fourths of African immigrants moved to the United States between 2000 and 2009; nearly two-thirds were from Nigeria. Additionally, there was the possibility that the African Immigrants could be from Europe, Asia, or the Caribbean, and not the continent of Africa.

Recommendations

Based on the study findings and limitations discussed, I would recommend using secondary or primary data that comprises a working population. That way, it would be possible to clearly illustrate the association between increased workload, and consequently working hours in a week and hypertension. Preferably, future research can focus on labor-intensive industries, with well-known cases of employees clocking more than 40-hours of work in a week. The number of hours worked in a week can only be considered one of the occupational stressors, thereby explaining why there was an insignificant association between this variable and hypertension. Future studies should focus on breaking down the correlation between individual workplace stressors and hypertension in order to pinpoint labor or workplace and health policies that call for review or improvement, as the impact of workplace stressors, including long hours of work, on the prevalence of hypertension cannot be overlooked.

The NHANES, an important data source for health research, should also regularly update its databases with statistics up to at least 2 years back so that researchers have the most updated information at their disposal. Besides, study populations should be more diverse, and well distributed to reduce instances of geographical bias, and ensure greater accuracy in responses and results thereof. Past research on hypertension prevalence has

been focused on the Black American population regarding work culture (Gold, 2016), and the general population in regard to work culture (Blustein, 2019). I would suggest that researchers shift their attention and efforts to studying African immigrants, a fast-growing population in the United States.

Lastly, there is a need to consider job satisfaction as an independent variable in future research given that it is a major determinant of occupational stress. Gold (2016) showed that workers' job satisfaction had a direct correlation with race-based stressors. Compared to their counterparts in the overall population, Buvivier et al. (2017) found that African immigrants in the United States have a lower income level, higher rates of HIV, diabetes, hypertension, cancer, psychiatric disorders, mental health disorders, and other chronic health problems. Including job satisfaction as an independent variable could produce valuable results useful in understanding the association between working habits, and hypertension among first-generation African immigrants as job satisfaction greatly impacts an individual's working habits.

Implications for Professional Practice and Social Change

My recommendation for professional practice is to include cultural competence education in their practice to better understand the population you are working with and to give effective and quality care to the patients. Understanding the cultural differences that exist between African Americans and African Immigrants would provide organizations with skills and tools to troubleshoot issues faced by the respective populations. African Immigrants and African Americans have a high rate of hypertension but have some differing risk factors.

In regard to methodological implications, I would recommend a qualitative study on work habits and hypertension among first-generation African Immigrants. A qualitative study will give the researcher an opportunity to observe a population's habit in a natural setting (Kellehear, 2020). It will give the researcher a more intense reflection of life and paint a vivid picture between work habits and hypertension.

In regard to theoretical implications, I would recommend a cross-sectional study with a similar survey to NHANES but conducted in an African Immigrant community. This would allow more participation from the population we want and would lead to an increase in the sample size thus making it more generalizable.

The social change implications of this study would bring about positive social change through community leaders bringing awareness about the impact of work habits on health. The results of this study will contribute to positive social change by educating the community thereby improving the physical and mental health of people in the community. This will directly increase the health literacy of the community which in turn will reduce morbidity and mortality rates. This will reduce the burden to the health system and improve the contribution of healthy working individuals to the local economy. If this social change is adopted by other African immigrant communities in the United States, it could potentially reduce the burden on the health system at the national level and also provide revenue for other areas of the economy thereby improving the job market.

Conclusion

Workplace culture refers to a company's common values, beliefs, attitudes, and assumptions. Individual upbringing, as well as social and cultural background, have an impact on this. In as much as the impact of work culture as measured by hours worked in a week and the number of meals from fast-food places on hypertension was found to be insignificant in this study, we cannot understate the fact that these two variables play a role in the likelihood of a first-generation African Immigrant having hypertension. The development of hypertension may have been exacerbated by acculturation as supported by bivariate results in this study that show the length of time in the United States had a moderate effect size on the likelihood of a first-generation African immigrant having hypertension. Similar cases were identified by Divney et al. (2018), who found that the pattern of increased hypertension prevalence with increasing acculturation was more pronounced among Latino men and Asian women when they looked at the confluence of acculturation and gender on hypertension prevalence. In light of these findings, public health policies should be put in place to address inequities in healthcare among immigrant communities. There is also a need to sensitize African Immigrants in the United States on possible work stressors that they may encounter as they settle and adopt the American work culture, to help them cope while maintaining a healthy work and personal lifestyle.

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