

**Health Care Access and Utilization among African-Immigrants in the District of Columbia
Metro Area in the United States: A Comparative Analysis**

Idris Ahmed Boundaoni

A Dissertation Submitted in Partial Fulfillment
Of the Requirements for the Degree Of
Doctor of Public Administration

College of Public Affairs
School of Public and International Affairs

University of Baltimore
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By

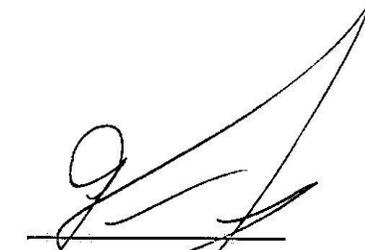
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ABSTRACT

The aim of this study was to investigate health status, health behaviors, and health care access and utilization of African immigrants in the District of Columbia Metro Area (DCMA). The review of the literature revealed a paucity of studies in medical care access and utilization of African immigrants. Most of these research conflate African immigrants' health care issues into their African-American counterparts. Hence, very little is known about African immigrants' medical care access, health care utilization, health behavior, and health status in the United States. This study essays to address that. The study also compared and contrasted the level of medical care access, specific health care behaviors, and health care utilization of African immigrants with that of the civilian non-institutionalized U.S adult population by race.

Two data sources, primary and secondary, were utilized in this study. The primary data for the study was derived from both quantitative and qualitative sources, with priority given to the quantitative source. The secondary data were derived from the 2013 National Health Interview Survey (NHIS) in the Sample Adult dataset. The NHIS data served as a baseline data. To provide an expanded appreciation of the research problems, mixed methods research (quantitative and qualitative) were employed in the study. In 2013, data were collected for first-generation African immigrants aged 18 and over in the DCMA. The target population for the study was 125,209 civilian non-institutionalized African immigrants in the DCMA. African immigrants excluded were those who were less than 18 years, and inmates of correctional institutions. A total of 400 African immigrants were eligible sample size. Survey participants were solicited on the basis of non-probability convenience sampling method. Thus, persons

were selected based on their availability in designated and targeted areas in the DCMA. Data were collected on two hundred and eighty one (281) civilian non-institutionalized African immigrants in the DCMA. Accordingly, the response rate was about 70 percent; the number of completed questionnaire divided by the total number of eligible sample size. The survey instrument consisted of twenty-six (26) structured and standardized questionnaires and one (1) qualitative question. Both internet and face-to-face interviews were used to administer the survey instrument. The internet survey was conducted via the Survey Monkey, while face-to-face survey was conducted at designed locations frequented by African immigrants in the DCMA including African grocery shops, Churches, Mosques, social clubs and social events. The face-to-face survey data was inputted into the SPSS with the aid of Survey Monkey collectors' link. The IBM SPSS statistics 22 was used to perform the data analyses.

Furthermore, Andersen's Behavioral Model of Health Services, a model that has been deployed extensively in public health studies to investigate access to and use of health care services among vulnerable groups, was employed. Independent variables, in this study, were derived from the three major components of the model's individual health care access indicators (predisposing, need, and enabling indicators). The main outcome measures were usual source of medical care (potential access) and the use of health care services (realized access), defined as the use of preventive medical care. Descriptive, bivariate, and binomial logistic regression were used to assess the effect of specific predisposing, need, and enabling explanatory constructs on access to and utilization of health care services of African immigrants in the DCMA.

The results of the dissertation corroborated findings of earlier research with respect to the healthy immigrant paradox. The results suggested that African-immigrants living in the District of Columbia had higher odds of excellent or very good health status relative to the U.S general

population nationwide and the U.S-born in the Northeast region. Conversely, few differences in perceived-health status were found when intra and inter racial as well as regional comparative analyses were performed among African-immigrants and non-Hispanic White, Hispanics, non-Hispanic Black. African-immigrants in the DCMA were less likely to utilize health care services compared with all the major three races in the United States. Further, non-Hispanic White (Caucasians) were more likely than African-immigrants to have higher odds of excellent health status. Approximately 85 percent of African immigrants in the DCMA had a usual source of care. Of those with a usual source of care, 44 percent considered it to be a doctor's office or health maintenance organization (HMO). Compared with other African immigrants in the DCMA, Nigerians (40 percent) were more likely to have a usual source of care. African immigrants in the DCMA who had a usual source of care were more likely to have higher odds of utilizing of health care services than those who did not have a usual source of care. What is more, a little over a third (32 percent) of African immigrants had realized access to health care services in the DCMA. When the results were considered by gender, women (71 percent) were more likely than men (66 percent) to have realized access to health care services within the previous 12 months. The study highlighted that about 92 percent of African immigrants aged 60 and more had realized access to health care services, and about 74 percent are those with health insurance coverage. However, the vast majority of the African immigrants had lower odds of utilizing health care services compared with Whites, African-Americans, and Hispanics. Moreover, the study brought to light that influenza vaccination behavior of African-immigrants in the DCMA was not radically distinct from the U.S adult population. Both African-immigrants in the DCMA and the U.S adult population exhibited lower odds of obtaining influenza vaccination in 2013. Compared with the U.S non-elderly population (19-64 years), African

immigrants in the DCMA reported lower uninsured rate (4 percent versus 18percent). The findings suggested that African immigrants depended heavily on employer-sponsored group health insurance to finance their medical care consumption (10 percent for both Medicaid and Medicare versus 73 percent for employer sponsored health insurance). Another key finding was that African immigrants in the DCMA (63 percent) were less likely to use African folk or traditional remedies to meet their health care needs.

As established in this study, an overwhelming majority of African immigrants in the DCMA had a usual source of health care services. That said, they do not efficiently utilize health care services. Specifically, a large of majority of African immigrants in the DCMA reported not using preventive health care services. The study calls for sustained efforts from state and local health agencies to reverse the trend as ensuring access to primary and preventive care for everyone, regardless of immigration status, in the United States will likely be critical to the success of the novel national health reforms aimed at arresting the galloping trends in health spending, enhancing quality of life for everyone, and mitigating health and health care disparities. Like other vulnerable population, African immigrants in the DCMA face a series of health and health care challenges in the United States. Accordingly, public health research into such issues is imperative, and this will more likely enhance policy makers' appreciation of the health care needs and behavior of African immigrants in the DCMA so as to design and execute effective health programs to improve health care access and utilization for African immigrants in the DCMA.

Future research might essay to assess the impacts of acculturation on African immigrants' health care access, health care utilization, and health behavior. Future research might also consider employing national dataset to investigate health care access and utilization among

African immigrants in the United States. The study enriches current multicultural health policy, social equity, health care access and utilization, and quality health services for all racial and ethnic population sub-groups in the United States. The study proposes health care reform programs aimed at integrating African-immigrants into the U.S health care system to enhance their effective use of routine, preventive health care services.

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INTRODUCTION

Access to comprehensive and quality health care goods and services is essential for securing health equity and for enhancing quality of life for everyone in the United States of America. Disparities in medical services consumption in every given society adversely affect not only individuals but also society as a whole (Warner, 2012, CDC, 2014).

Accordingly, addressing the issue of health care disparities in the U.S health care system has been one of the central foci of government health policy since 1946, when the Hill Burton program required health institutions receiving aid from the government to provide charity care (Warner, 2012).

Thereafter, a myriad of health policies centered on reducing health care disparity were designed and prosecuted, including the Health People 2010, a set of health care goals and objectives to be achieved over the first decade of the new century (CDC, 2014). Eliminating health care disparities for all residents and citizens in the United States underpins Healthy People 2010, and this issue is particularly important for African-immigrants, one of the fastest growing minority populations in the United States (Singer, 2012).

Recent empirical research posits substantial contributions of immigrants to the U.S economy; however, they disproportionately experience a wide disparity in access to health care goods and services in the U.S health system (Documèt and Sharma, 2004; Loue et al., 2005). This is partly because immigrants are disproportionately more likely, than any other population segments, to be uninsured.

As a result, they constitute a larger proportion of the uninsured population (Zuckerman et al., 2011). Specifically, there were about 42.1 million uninsured Americans in 2010, and

virtually one-half (14.4 million) of these uninsured were immigrants (Zimmerman, 2011; GAO, 2001).

According to the 2010 United States population Census, there were 40 million legal immigrants living in the United States, constituting approximately 13 percent of the overall population. The Census Bureau has predicted that the population of foreign-born in the U.S. will double to 120 million by 2050 (Goldman et. al, 2006). The 2010 Census report also observed that the immigrant population is growing more much faster than the native-born in the United States. While the foreign-born population increased 3.4 times between 1970 to 2000, the total U.S. born population increased by only 1.4 times (Lum and Vanderaa,2009).This expansion in immigrant population will surely transform the dynamics of health care policies and programs in the impending years.

A contributory variable in the foreign-born population growth is African-immigrants. African immigrants comprise 4 percent (approximately 1.4 million) of the estimated 40 million foreign-born in the United States (ACS, 2011). Albeit the exact figure is unknown, there are more than 2 million illegal African-immigrants living in the United States (Konadu-Agyemang and Takyi, 2006). In the aggregate, there were approximately 2.4 African-immigrants in the United States in 2010. One in every five residents in the Washington Metropolitan Area (WMA) is an immigrant (Singer, 2012; Singer, et al. 2008). There were approximately 125,209 African immigrants in the District of Columbia Metro area in 2010 (Singer, 2012). A few studies have focused on health care access and utilization issues among African-immigrants, notwithstanding their representation in the general population.

Indeed, immigrants' access to preventive, diagnostics, and treatment services may produce four essential values (Schwabish, 2009; GAO, 2001; Manchester and Schwabish, 2010):

first, immigrants are more likely to avoid avoidable hospital conditions, like pneumonia and uncontrolled diabetes. Second, they are less likely to be diagnosed with a later-stage disease condition such as cancer. Third, offering immigrants access to primary and preventive care services means that they are less likely to use hospital emergency rooms as their last resort for medical attention, which recent research has established partly contributes to the rapid rise in both private and public health expenditures in the United States (Schwabish, et al.,2009;GAO,2001; Manchester and Schwabish,2010).

Further, given their notable contributions to the U.S economy and society, it would be shortsighted to discount the health care expectations and needs of the foreign vulnerable populations or African-immigrants for that matter. Understanding the medical needs and expectations of African-immigrants could help highlight on the pathways of African-immigrants assimilation into the U.S health system, their access to and utilization of essential health care goods and services. Besides, it would help explain the effects of a variety of public policies, ranging from local provision of health care and welfare on the vulnerable immigrant population to the impacts of the immigrant population on federal social insurance programs such as social security and Medicare (Ku, 2009; Mohanty et al., 2005; Skinner, 2010).

Statement of the Problem

African-immigrants constitute a sizable proportion of the U.S. society. There were nearly 1.7 million African immigrants in the United States in 2010 (Singer, 2013). African immigrants, as well as those from other parts of the world, contribute to the economic growth, development, and diversity of the country (KFF, 2004). Notwithstanding their significant roles, major health issues facing African-immigrants have not been provided space in the U.S. public health

discourses. Relatively, health care issues of African immigrants have hardly ever been investigated. More often than not, African-immigrants, with respect to national public health investigations and studies, are conflated with the African-American representation.

In relation to public health issues of the Black population, public health scholars and researchers have a proclivity for extremely focusing on African-Americans. Assuming the Black race in America to be homogenous, public health scholars have devoted much research attention to health care predicaments of African-Americans, and thereby relegating health care issues of African-immigrants to public health policy and research backwater. Besides, lack of reliable and adequate data on health care engagements of African-immigrant in the United States has constrained scholarly research into their health care issues (Goldman, et al., 2006).

Likewise, public health scholars in the United States have exhaustively undertaken research into coverage and access issues among vulnerable and underserved groups. They, however, tend to be parochial in their research projects. To the detriment of African immigrants health care issues, public health scholars have delved into the health care and coverage issues of Hispanics, the largest ethnic minority groups in the United States, and other vulnerable populations such as immigrants from, Korea, Vietnam, India, and China (Carrasquillo et.al., 2000; Lee 2009; Durben and Hummer, 2006; Chen and Vargas-Bustamante, 2011; Choi, 2006; Kessler, 1997).

In the United States, employers voluntarily provide health insurance coverage to employees as a component of their compensation system (Fried & Fottler, 2008). Such compensation system is conditioned on job status and classification level of employees. Hence, employees who are outside stipulated job status and classification threshold and are ineligible for public funded health programs need to purchase private insurance from their own pecuniary

resources (Fried & Fottler, 2008). For most African-immigrants, access to affordable employer-sponsored health insurance coverage, purchasing private health insurance coverage, or qualifying for government funded health program that will grant them access to essential care is either a daunting challenge or legal quagmire (Bustamante et al., n.d.). Furthermore, most immigrants are employed in menial jobs that do not offer health insurance benefits. With their meager remuneration, they cannot afford to purchase their own health insurance coverage in the health insurance market (Skuterud & Su, 2012).

Furthermore, recent changes in federal health care laws preclude certain immigrants from public funded health programs such as most childless adults under Medicaid. Relative to the native born, immigrants are more likely to be uninsured, less likely to have a usual source of medical care, and less likely to have access to essential preventive and primary health interventions, including periodic blood pressure screening, cancer screening, flu-shots, and regular annual medical checkups (Lebrun and Dubay, 2010).

Accordingly, this study aims to highlight a clearer portrait of health care access and utilization issues of African-immigrants in order to project such issues on the U.S public health policy and research radarscope. Besides, it essays to ascertain how African-immigrants in the DCMA access and utilize health care services in the context of the United States public health statutes, programmatic provisions, and financial arrangements.

Purpose of the Study

Contributing to the literature on health care access of the vulnerable and minority populations in the United States, this present study focuses on African-immigrants, in the District of Columbia Metro area (DCMA), whose health care access, health needs, and utilization have attracted comparatively scant attention from public health researchers, public health

practitioners, and public administrators . In particular, the study seeks to examine the integrated influence of predisposing, needing, and enabling health care constructs on health access and utilization of African-immigrants in the DCMA.

Moreover, a comprehensive understanding of the extent and characteristic of health care access issues in the African-immigrant community, in the United States, could serve several purposes:

First, the study can assist in the edification of public health officials and public administrators of disparate health care needs of African-immigrants in the DCMA in particular, in States such as New York, California, Florida, and Illinois where African immigrants are heavily concentrated (Capps et al., 2012), and in the United States as a whole.

Second, the study presents a comparative analysis of health care access and utilization of African-immigrants, which could serve as a tool for effective and innovative health programs to improve health care services for African-immigrants nationwide.

Third, it can set in motion academic and professional research initiatives into African-immigrants health care behavior and needs. There are paucity of public health research and investigations pertaining to African-immigrants, and this study seek to fill this gap, albeit seminally.

Fourth, it can enlighten public health officials, public administrators, and policy makers alike that, within the U.S mainstream health care culture, African-immigrant community has distinctly different health care belief, attitude, and sub-culture. Accordingly, they deserve customizable public health interventions that address their specific health care needs and expectations. In other words, this study can help public administrators at national health sectors

to appreciate health care needs and expectations of immigrants and thereby develop equitable, culturally sensitive health care programs to address such needs and expectations.

Finally, public administrators in the public health agenda setting or formation arena require reliable and empirical information on which to ground health trend analysis and generate policy ideas. Information on African-immigrants' health care needs and expectations within the U.S. health care delivery system is vital to public administrators, in national and state health departments, who require scientific policy inputs to implement targeted programs to overcome health care barriers applicable to vulnerable populations and immigrants. At the national level, this study can aid in designing and implementing evidence-grounded public health policy as well as programs to ensure medical access for all, which is imperative for not only averting the potential adverse consequences of lack of access on the entire population health, but also essential for addressing some of the explanatory variables stimulating the rising per capita health care cost in the United States.

In sum, extensive literature exists on health coverage and access issues of most immigrant population in the United States. Per American Immigration Council (2012), African immigrants constituted 4 percent share of the foreign-born population in the US in 2010. Notwithstanding their increasing proportion as a share of the total immigrant community and contributions to the U.S economy and diversity, little is known about the extent to which African-immigrants gain access to health care and the kinds of challenges they encounter with respect to obtaining health care.

Accordingly, the present study explores health care access and utilization among African-immigrants in the DCMA with the core objectives of emphasizing the need to promote policies that address their health care access and utilization concerns. Moreover, the study is an essay to

galvanize public administrators into extensive exploration of health care issues among African-immigrants and other vulnerable populations in the United States.

Significance of the Study

The US demographic landscape has tremendously transformed into a more diverse and multi-cultural society over the past several decades (Takyi, 2002; Warner, 2010). Accordingly, numerous studies have provided insight on the access to and use of health care services by various demographic segments in the United States. Regarding health care access research and policy issues, immigrants from major immigration sources, including Asia, the Caribbean, Latin America, and Mexico, have gained the lion share of public and scholarly attention than immigrants from the continent of Africa (Takyi, 2002; Burgos et al., 2005; Stone and Balderrama, 2008;). Therefore, this study attempts to reverse this trend by highlighting the imperativeness of investigations into health care issues pertaining to African-immigrants. In essence, studying health care access and utilization issues of African-immigrants contributes to the literature for several reasons:

Firstly, to our knowledge, this is the first study on African-immigrant health care access and utilization in the DCMA and the US. As a result, this study attempts to fill in the research void in health care access and utilization of African-immigrants. Research into African-immigrants access to and utilization of care in the United States is essential to ensure that African-immigrants are provided with opportunity to obtain health care benefits in similar fashion as other qualified non-citizens and citizens.

Secondly, understanding the nature of African-immigrants access to and utilization of care in the United States can help public administrators in national health departments evaluate

the impacts of health policy strategies geared toward vulnerable and underserved population segment.

Thirdly, the study informs public health planning for African-immigrants. It provides preliminary data and information on the dynamics of African-immigrant health care access and utilization that may be useful in developing public health strategies to target not only African-immigrants, but also other vulnerable and underserved sub-populations in the United States. In effect, the study attempts to help focus attention on health care access predicaments of African-immigrants, and thereby help policy makers to construct sustainable, effective, and targeted health care programs to deal with health issues of African-immigrants.

Finally, as the population of foreign-born increases across the nation (Warner, 2010), understanding their foreign-born access to and utilization of health care services is extremely important inasmuch as it will enhance our appreciation of how well immigrants or African-immigrants for that matter are being assimilated and incorporated into the formal United States medical and health care delivery system.

In sum, the black population, in the United States, is heterogeneous. It incorporates diverse members of immigrants from disparate countries, predominantly from Africa and the Caribbean (Gabrel, 2011). Each sub-group within the Black demographic segment in the United States experiences disparate socio-economic and public health issues. Like other demographic groups in the United States, ethnicity, class, gender, and generation are some of the differential points of the Black population (Gabrel, 2011). Nevertheless, recent scholarship on black health care access issues pays scant or no attention on such differentials and heterogeneity. This study aims to contribute to filling the lacuna in the scholarship in this area. Thus, it attempts to investigate whether differential of health care access and utilization exist among African-

immigrants vis-à-vis other demographic elements such as Whites, African-Americans, and Hispanics. If health care access disparity exists, what explains such variations and what are the public health policy implications for public administrators in various government levels, tasked with developing, implementing a number of governmental health programs to ensure equal, effective medical care access, and utilization for the United States populace.

Public Administration Significance

When Woodrow Wilson (1887) articulated the notion of politic-administration dichotomy, public administration was in its embryonic stage. The dichotomy conceptualizes the bifurcation of labor and authority between elected officials and public administrative officials (Demir and Nyhan, 2008). Thus, while elected official's main role is enacting laws with the view to providing human services; public administrators' primary function is prosecuting efficiently policies and programs determined by elected officials.

Prior to the World War II, government operated in more limited and less byzantine socio-economic functional structures (Skelley, 2008). Ever since, public service has undergone profound change as modern government addresses complex social and economic demands, including health care goods and services. Similarly, the role of public administrators in the contemporary era has undergone tremendous change. Public administrators are called upon for counsel in drafting of health policies which they will subsequently implement (Staats, 1976). Hence, as generalists, public administrators must be able to inject invaluable input into any health policy discourse rather than considering such issue outside their professional domain (Staat, 1976).

In a similar vein, efficient and effective delivery of health care services has become one of the leading issues of public policy with major implications for education of public

administrators. The issue of access to medical care, who ought to get what care and who ought to pay for it, has fueled the American public health care discourse over decades. In dealing with this issue, Arnold (1971) argued that the issue of health care decisions and administration should no longer be left primarily in the hands of the medical profession or physician administrators. Public administrators would need to play a leading role in the kind of administrative and policy problems the health care system is recently encountering. In this vein, public administrators must embrace evidenced-based research centered on some of the major public health issues, including health care rising cost, quality of care, access, and utilization. This present study is an affirmative response to this imperative academic and professional requisition.

Furthermore, the past decades have witnessed remarkable transformations in the political economy of the United States; formulating and implementing policy programs to address modern concerns has grown in scope and complexity. Accordingly, the role and size of government in addressing the socio-economic needs of the people has substantially morphed and so are the responsibilities of public administrators (GAO, 1980). Public administration scholars and practitioners have taken cognizant of their imperative roles in drafting and implementing public health policy and programs. By virtue of their invaluable source of knowledge and expertise on the gamut of public policy issues and programs, public administrators are increasingly consulted about virtually all public health policies. In the discharge of this role, public administrators, armed with adequate information about immigrant's health care access and coverage issues, would be able to counsel and inform elected officials about the need to deploy resources to address health care concerns of immigrants and under-served populations. Further, public administrators could deploy their discretionary authority, within the framework of specific public

health statutes, to design and execute health access and coverage programs for the benefit of immigrants, or African-immigrants for that matter (Staat, 1976 and Arnold 1971).

In an era of specialization, the public administrator is a generalist who draws from cross-pollination of academic theories and practical experiences to provide invaluable inputs for shaping important health care policy programs. In its 2012 health expenditure report, the Organization for Economic Co-operation and Development (OECD) illustrated that the United States expended approximately 18 percent of its total expenditure on health care and expends far more per capita on medical goods and services than does any other advanced nation such as Germany and Britain (OECD,2012). Meanwhile, a significant number of Americans, particularly vulnerable groups, have little or no access to this expensive health care system by virtue of being uninsured or having inadequate health insurance coverage (Rivlin, 2012). Public administrators can play crucial roles in reversing this trend. With their versatile academic and professional background, public administrators would be able to submit alternative health policy options and health care financing models to arrest the rising private and public health care costs and spending, improve access, enhance health care quality, and effective outcomes.

Furthermore, improving medical access and quality of medical care while containing cost pose public administrative challenges for public administrators. To address these challenges, public administrators must play a leading role in research on major public health issues under the guidance of social equity concept. Over the past decades, public administrators and practitioners had overlooked the health care access as an essential value in their social equity intellectual and practice toolkit. However, the 1968 Minnowbrook Conference provided fuel for debates, research, and arguments for social equity concept. At this conference, H. George Frederickson first coined the term and thereby helped imprint the concept into intellectual and practice psyche

of public administration (Guy and McCandless, 2012). Like a bush fire in the harmattan, the concept has influenced scholarship, intellectual, and practice pot of public administration (Guy and McCandless, 2012).

Social equity refers to “a calculation of fairness, right, and justice” (Guy and McCandless, 2012). Social equity, a concept originated from distributive justice via the social contract theories, is currently relevant to the appreciation and distribution of public health resources. Social equity concept has four core philosophical underpinnings (Guy and McCandless, 2012):

To begin with, social equity could be traced to American philosopher John Rawls (Guy and McCandless, 2012). Per John Rawls, social equity has two basic principles. Thus, the Rawlsian social equity argues that: (a) each individual human being within a given society should have equal right to certain benefits, including the right to access quality health services, and (b) there should be a plain level field for all people to hold positions and office in the society. The second principle of Rawlsian justice can promote income equality, reduce poverty, and thereby increase an individual’s likelihood to gain access to essential medical care (Burtless, 2010). Rawlsian justice, therefore, provides tacit support to the contemporary arguments that all people have the “right to health as well as other rights that relate to conditions necessary for health” (Whitehead, 1997; WHO, 2013).

Michael Walzer articulated the second source of social equity, Walzerian Justice. In his works, *Spheres of Justice: A Defense of Pluralism and Equality*, Walzer (1984 & 1983) argued that there are several goods common to any human community. Such goods are social goods, which are manufactured and distributed within specific social processes. Living in a political community, people are committed to dividing, exchanging, and sharing social goods, including

health care goods and service. As a result, there should be a just mechanism to distribute social goods, including health care services, to ensure that every member within the political community secures their fair slice of social goods pie. In other words, “ we all compete for goods, the meaning of which is determined by societies, which , in turn, determine distributions, so each goods is accompanied by an autonomous sphere of justice” (Guy and McCandless,2012). This concept centers on distributive justice as an “art of differentiation”. Equity is unattainable in the distributive justice process since there is a “single set of primary goods conceivable across all moral and material worlds” (Guy and McCandless, 2012). This means that each individual member of a community must strive, first, to identify their sphere of what they need, and second, strive to attain them in as a just and a fair fashion as possible. Indicatively, this notion of social equity emphasizes implicitly that if the administrative state was unable to provide free and fair universal health care coverage to all its citizens, then individuals should be permitted access to the health care they need with their own pecuniary means in a just and fairer fashion. Thus, individuals should not be stymied from deploying their personal resources to obtain health care services they need (Guy and McCandless, 2012).

Similarly, Ronald Dworkin articulated the third dimension of social equity, otherwise known as the Dworkinian justice (2002). The Dworkinian justice simply advanced the notion that elected officials as well as public service professionals should engage in certain programmatic policy alternatives, policy options to ensure greater equal rights, fairness, and better outcomes for all (Guy and McCandless, 2012). From this perspective, it could be argued that Dworkin partly argued in favor of the formulation and implementation of programmatic public health policies to ensure not only access to health goods and services for all, but it should also bring about better quality and sustained health outcomes for all, regardless of socio-

economic status. This notion of social equity is imperative judging from the existing degree of health quality and status schism in the United States.

The fourth component of social equity concept could be traced to the work of James Regens and Robert Rycroft equity standards. They identified two standards of equity: procedural and substantive. Procedural equity represents equal access and treatment in all resource allocation processes. Thus, decisions on distributive processes in a given country should be fair to all people (Regens and Rycroft, 1986). Conversely, substantive equity prescribes that the public distributive operations should be made based on its policy effects, taking into accounts the benefits and cost of distribution process (Guy and McCandless, 2012). This notion is equally applicable to resource allocations for the provision of health care services in every health care delivery system.

Indeed, social equity is a public administrative concern. It seeks to answer the normative question of “who ought to get what” in all aspects of public distributive processes. Inherent in the concept of social equity is health equity, the attainment of the highest level of health and positive health outcomes for all people (Bell, 2011). The absence of health equity creates a huge aperture of health care disparity and health disparities within the African-immigrants community, which public administrators, deploying inter-disciplinary expertise and their position as after-the-fact policy shapers, could engineer broader initiatives to address.

Several and complex contemporary public problems benefit from social equity lens such as sexuality (e.g. transgender issues); safe schools; public transportation; human trafficking; intergenerational problems; and environmental threats (Guy and McCandless, 2012). Essentially, the social equity lens in health care issues is sharply polarizing. Pertaining to public health policy discussions and debates, there is “deep disagreement about which citizens merit access to care”

(Guy and McCandless, 2012). While some people argue that health care is a public good, which all people in the society should have equal share and access to, others argue that health care is purely private goods or a for-profit commodity for those who are willing and able to pay for it (Guy and McCandless, 2012). In contrast to the former rationale offered above, Gabrel (2011) took a philosophical perspective arguing that health care is a public good, therefore it should be conceptualized as well as distributed under the banner of social equity, a perdurable concept and one of the canons of public administration theory, research, and practice (Guy and McCandless, 2012).

Even though the foundation of the United States health delivery system is the provision of socially just health care goods and services, recent public health research literature has demonstrated the existence of inequitable access to care, poor quality of care, and adverse health status among vulnerable groups across a number of clinical areas (Gelberg, et al, 1999; Exworthy and Washington, 2006). This is a typical example of the notion of inverse care law, whereby individuals with the greatest need for health care services end up receiving the least amount of health care services (Ward, 2009).

In dealing with these concerns, public administrators, as already noted, must embrace research and data collection on health care issues of vulnerable populations under the guidance of social equity philosophical force inasmuch as the social equity lens allows public administrators to debate and investigate health care issues in terms of how medical care access can be promoted in a fair and just manner (Guy and McCandless, 2012).

Further, the Affordable Care Act (ACA) of 2010, in section 4302, requires public service professionals to help mitigate health and health care disparities. The law requires public administrators to relentlessly collate race and ethnicity health care data on vulnerable population,

and institute health care quality performance measures under the banner of social health equity lens. Undoubtedly, public administrators have major roles to play in this regard (Bell, 2011) and this study is in response to the ACA's call for more investigations into the health care issues of the underserved and vulnerable population in the United States.

Under the banner of social equity principle, public administrators in public health agencies on the local, state, and federal levels can play significant roles in mitigating medical care access plight of African-immigrants through the identification and implementation of concrete actions, preferred policies, and programmatic provisions. Public administrators can perform this via three core functions: assurance, assessment, and health policy developments (Derose, et al., 2011).

(i) **Assurance:** In the role of assurance, public administrators in public health agencies perform a policy delivery role. They serve as conduits through which people are connected to health care services. In addition, they are able to allocate resources for health programs targeting and serving the health care essential needs of the underserved and vulnerable population segments.

(ii) **Assessment:** Public administrators, in their various capacities in the federal, state, and local levels, play leading roles in assessing public health programs. In this regard, public administrators may inform health policy decisions in health care access by evaluating the effectiveness, the degree of vulnerable population accessibility, particularly African-immigrants, and quality of delivered services (Derose, et al., 2011). Public administrators can critically monitor the macro-health care status to ascertain the degree of inter and intra demographic health and health care disparities within the country.

Moreover, deploying their discretionary authority, public administrators in the public health sector domain can institute initiatives to address the identified public health concerns or they can inform lawmakers as well as policy makers about the need for policy interventions to address specific public health issues and concerns (Derose et al., 2011).

(iii) **Policy development:** Policy development is one of the avenues in which public administrators can play leading roles in positively affecting disparity in health care and health (Derose et al. 2011). In executing this role, public administrators in public health departments across the United States can collaborate with health care providers, health research think tanks, and academic researchers to improve health care access and quality for vulnerable populations.

In light of the Affordable Care Act (ACA) of 2010, public administrators in the implementing agency, the U.S Department of Health and Human Services, can draw from studies, including this one, on vulnerable populations particularly African-immigrants, to oversee the planning, development, and implementation of targeted health reforms within the ACA fundamental statutory framework to improve access to and utilization of medical care. Public administrators can also educate immigrants about health issues and empower them to take action to improve their health by accessing and using primary and preventive health care services. Not only could the education of immigrants help improve their access to care but it also could help in bridging the wide health and health care inequity gap among and within all demographic characteristics in the United States (Gabriel, 2011; Beal, 2009; and Derose et al., 2011).

Moreover, low-income people, particularly immigrants, lack access to medical care because of higher health insurance premium and cost-sharing. Public administrators can extensively utilize the power of their administrative agencies to perform a number of programmatic tasks to help low-income people pay for health insurance premiums and cost sharing (e.g. copayments

and co-insurances). For instance, they could develop and administer a regime of subsidies through the tax system to assist the vulnerable population in purchasing affordable health insurance coverage as well as pay for co-payments and co-insurances at the point of health care service access and utilization.

Generally, essential and contemporary functions of public administrators would not be viable and feasible if Public administrators were not adequately informed about the nature of contemporary health and health care inequities and disparities issues of the U.S populace. This sustains the argument of Arnold (1971) that public administrators need to reorient their research microscope on major health care issues and challenges if they are to meet the enormous demand of a rapidly changing social, economic, and health policy milieus (Morgan, 2012).

Definition of Terms

Acculturation: Acculturation refers to “psychological adjustment and adaptation to a new culture by an individual from another culture” (Lum and Vanderaa, 2009). The degree and pace of acculturation is a product of age and education. For instance, immigrants of younger age tend to acculturate more rapidly than those who enter a country at the older ages (Lum and Vanderaa, 2009).

Usual Source of Care (USOC): It is a health care setting where an individual usually goes when they are sick or needed health advice (Gresenz et al., 2009). The USOC can be a specific solo medical professional or a health care facility from which an individual typically goes for health care treatment or solicit health care advice.

Health Care: The definition of health care in this study is wide. Health care includes preventive, acute, chronic services, and any other services provided by a vast array of medical, allied health, and social care professional in the United States health delivery system (Ward, 2009).

Unmet health Care Need: A person is considered to have an unmet health care needs if they perceive they were unable to receive health care services over the previous 12 months (Karaca-Mandic et al., 2014). Unmet health care needs can either be primary, preventive or specialty health care needs.

African-immigrants: The term African-immigrants refers to Black or non-black African who, on their own volition, migrated from various African countries over the past decades to establish a domicile in the United States (Alex-Assensoh, 2009). On the contrary, the African-American refers to the black population segments in the United States, who trace their heritage to African slaves “imported” to America (Alex-Assensoh, 2009).

District of Columbia Metropolitan Area (DCMA): A metro area is “an area containing a large population of nucleus and adjacent communities that has a high integration with that nucleus” (OBM, 2000). A metropolitan area comprises a population of 50,000 or more or urban area with 50,000 or more (OBM, 2000). In this project, the district of Columbia Metro area (DCMA) is described as a metropolitan area located in Washington, DC, the capital of the United State of America. The DCMA includes all the federal districts and some metropolitan parts of the states of Maryland, Virginia, and West Virginia. The DCMA is a level-consolidated metropolitan area with a population of more than 8 million inhabitants (OBM, 2000).

Core: It is a densely populated and geographic area, comprising either an urbanized area (of 50,000 or more population) or an urban cluster (of 10,000 to 49,999 populations) (OBM, 2009).

DCMA is one of the cores of African-immigrants in the United States, and it has an approximately 114,000 African-immigrants.

Compassionate Compatriot: An immigrant who assists fellow citizens to gain a foothold in a foreign country. A compassionate compatriot can help fellow citizens to obtain jobs, secure access to health care services, and navigate their new context in a foreign country.

Foreign-born (immigrants): The term foreign born refers to anyone who is not a U.S. citizen at birth. This includes those who are U.S. Citizens via naturalization, lawful permanent residents, temporary migrants (such as foreign students), humanitarian migrants (such as refugees), and undocumented migrants (ACS, 2003). In this study, the terms foreign-born and immigrant are used interchangeably.

Health Care Disparity: Health care disparity is the differences in access to care and the quality of health care experienced by the social disadvantaged (Bell, 2011). Health care disparity primarily centers on how the social disadvantage access medical and the quality of care they receive. Health care disparity is not the same as health disparity (Miller, et al., 2014).

Health Disparity: Health disparity is often confounded with health care disparity. Health disparity is a difference in health status that results from social disadvantage dynamics (Miller, et al., 2014). Having a social advantage is a function of race or ethnicity and socio-economic status (e.g. income, marital status, occupation etc.).

Public Goods: Public goods are goods that are not diminished when a person enjoys their consumptions; they are also made available to others (Gwartney et.al., 1997). The opposite of public goods is private goods, a product whose consumption by an individual stymies another from consuming it. A private good must be purchased in order to have an exclusive right and privilege over its utility.

Health culture: Health culture is defined as a “set of rules, either implicit or explicit, which determine the behavior of individuals in relations to their personal health care choices and health

care system” (Institute of Medicine (IOM), 1993). Health culture rules may be obligations, interdictions, repulsions, or desires (likes or dislikes). Health culture, like any cultural traits, is not monolithic—it changes in course of events because of endogenous or exogenous factors (IOM, 1993).

Risk cross-subsidy: It is a practice in a health care system whereby people with a greater need for health care (i.e. high-risk individuals) are able to consume much more health services than those who are healthy (i.e. low-risk individuals), irrespective of the contributions made by each income group (WHO,2007).

Immigrant: Per the Immigration Act of 1924, an immigrant is an alien departing from a place outside the United States destined for the United States. There are two categories of immigrants: documented (legal) or undocumented (illegal) immigrant. A documented immigrant is an immigrant domiciled in a given country pursuant to stipulated immigration statutes. Conversely, an undocumented immigrant is an immigrant domiciled in a given country in a manner not conformable with established immigration rules and regulations.

Naturalized Immigrant: It refers to immigrants as well as their families who have been conferred upon U.S. citizenship, having domiciled in the U.S. for a specific period, usually after five years. A naturalized immigrant possesses several rights, privileges, and responsibilities that all U.S citizens ought to exercise and respect (ACS, 2003).

Patient Dumping: Some health care facilities practice of not only refusing to provide medical care to the indigent and uninsured patients but also inappropriately transferring them to other hospitals (GAO, 2001). In other words, patient dumping is the discriminatory practice used by private hospitals to transfer patients who cannot pay for treatment to public hospitals (Price, 2012).

Healthy Immigrant Effect: Otherwise known as immigration paradox, the health immigrant effect refers to a situation whereby immigrants, in the initial years of domicile in a foreign country, exhibit similar or better health outcomes than the native-born population despite their socioeconomic disadvantage and barriers to health care use (Marcelo et. al., n.d.). Nevertheless, this health status advantage erodes over a period.

Health Care System: A health care system is “all the activities whose primary purpose is to promote, restore, or maintain health” (Gilson, et al., 2007). A health care system’s primary goal is to add value to an individuals’ quality of life via the provision of preventive, primary, and specialty care.

Franco and Anglophone African-Immigrants: Franco-phone African immigrants are African-immigrants from African countries, which use French as their official language. Conversely, Anglophone African-immigrants are those from countries using English as their official language.

Native Born: The term native born refers to anyone born in the United States, Puerto Rico, or a U.S. island area, or those born abroad of at least one U.S. citizen parent (ACS, 2003).

Vulnerable Population: Vulnerable population is a group at increased risk for poor physical, psychological, and social health outcomes and inadequate health care (Fernandez, et al, 2014). Vulnerable population includes immigrants, the elderly, the homeless, children, HIV/AIDS patients, and even the veterans of the United States Military force.

Minority: A minority is any group of persons, (i) smaller in number than the rest of the population of a state or of a region of that state;(ii) whose members share common characteristics of an ethnic, cultural, religious or linguistic nature that distinguish them from the

rest of the population; and (iii) manifest, even only implicitly, the desire to be treated as a distinct group (Medda-Windischer, 2011).

Medical Poverty Trap (MPT): MPT is a situation whereby an excessive out-of-pocket personal medical spending pushes more people into poverty. This may be because of medical expenditure consuming a huge proportion of personal or household disposable income.

Moral hazard: It is a situation of people overusing and taking advantage of free benefits (Konczal & Vargas, 2012). Yet, from health care perspective, moral hazard is a hypothesis that people with health insurance are more likely to consume health care goods and services excessively (Geyman, 2007).

Operational Definition: It refers to the “rules of assigning numbers to the values of variables”. It deals with how exactly variables in a concept are measured (O’Sullivan, Rassel, and Berner, 2008).

Operational Validity: It refers to the degree to which instruments correctly measure what they have been designed to measure. Thus, if measures or instruments help us measure what we intend to measure, and then such measures or instruments are said to be operationally valid (O’Sullivan, Rassel, and Berner, 2008).

REVIEW OF THE LITERATURE (SECTION I)

Concepts of Health Care Access

The review of the literature of public health revealed two major perspectives of access to medical goods and services in the United States: the iceberg and health system concepts (Andersen, 1978; Beck 1973). The iceberg concept of access provides important insights into the health care access. Postulated by R.G Beck in 1973, the iceberg concept advances the concept of access by employing a floating “medical iceberg” imagery. The medical iceberg represents a set of medical needs of a person that might be treated by medical care professionals. Like any large floating mass of ice detached from a glacier, some part of it is immersed in water, while other part is above water. The proportion of the iceberg immersed in water represents the lack of access and use of health care services. It represents a medical condition requiring medical attention. The greater the portion of the iceberg immersed in water, the greater the proportion of access to medical attention needed by an individual. The portion of iceberg above water symbolizes “those needs that actually receives the attention of a physician” (Andersen et al., 1975). Therefore, the greater proportion of the iceberg above water is indicative of greater access to health care of population sub-group represented by the medical iceberg. Albeit the medical iceberg concept of access adds to our appreciation of the health care access, it is too simplistic and purely descriptive. Moreover, the iceberg medical access paradigm fails to provide concrete metric for access to health care services.

Building on the iceberg concept, Ronald Andersen (1978) articulated the health system concept, which conceptualized health care access in relation to population related factors (PRFs) and structural-related factors (SRFs). The PRF dimension depicts access from demand and

supply of health care angles. Therefore, health care access is determined with respect to population level factors that facilitate or impede access to and utilization of care or those driving forces that either promote or impede supply of health care goods and services. The population related factors (PRFs) look at the degree to which certain constructs at the population level foster or inhibit the demand for health care services, an individual's ability to timely access and pay for health care services. The PRF characteristic is a product of certain independent variables, including family income, insurance coverage, health belief and culture, and attitudes toward medical care (Andersen, and Aday 1978).

Conversely, the structural related factors (SRF) of access to medical care represents structural elements, which may promote or impede timely access to health care services (Andersen and Aday, 1978). The SRF measures access to care by taking into account the aggregate supply of health care by various providers in a health care system. The structural factors include the supply of health care professionals per population unit, hospital beds per population unit, scheduling, appointment processes, and office waiting times for physician visits.

In sum, the PRF and SRF are explicitly process indicators inasmuch as they are assumed to influence how access to care is gained, and they are employed to determine the extent of consumers' satisfaction with the care obtained (Andersen and Aday 1978). Besides, PFR and SAC evaluate the probability of medical care access, not realized access to health care services.

Another important component of the health system concept of access is the utilization of specific outcome indicators (SOI). The SOI measures the actual use of health care services and the level of satisfaction derived from the consumption of health care services (Andersen and Aday, 1978). Fundamentally, the SOI is an evaluative exercise on the process indicators (PI) to ascertain whether health outcomes intended have actually been achieved. However, the

employment of process indices, outcome indices or both is dependent upon the intentions of public health system administrators and policy makers. If the principal objective is to determine key independent factors of medical care access in order to construct policy program to targets specific explanatory variables of access, then deploying the process indices are apposite evaluative tool.

On the contrary, the assessment of several different levels of health care access among sub-groups in a population requires the employment of outcome measures of access. The major defect of both process and outcome indices is that they do not take into account the issue of equity of access to health care, where all people, regardless of socio-economic status, within a given health care system are able to obtain health care services in a timely fashion (Andersen, 1978; Norris and Aiken, 2006; Fortney et al., 2011).

Defining Access to Health Care

Access to and utilization of health care services are most contested issues in public health policy and health academic discourses in the United States.

It is multifaceted, nebulous and complex concept, whose measurement is conditioned upon the number and characteristics of the people in need of care and health care delivery system (Delamater, et.al, 2012). Public health scholars have presented disparate definitions of access to health care services from disparate perspectives (Norris and Aiken, 2006; Culyer, 2005).

From an etymological perspective, access is derivative of a Latin word “accessus”, which means to approach. In the *Webster New World dictionary of the American Language* (Neufeldt and Guralnik, 1998), access is defined as “the ability, or right to approach, enter, exit or communicate with, or use”. Defining access from the economist perspective, Culyer (2005), in the *Dictionary of Health Economics*, defined access as a “comprehensive term for price” of care.

The comprehensive term for price is, therefore, “any user monetary fee, opportunity cost of time, the cost of transport and any other elements that constitute a facilitator or hindrance to care” (Culyer,2005). Moreover, in dictionary of *Health Insurance and Managed Care*, Marcinko 2006 defined access as “a patient’s ability to obtain medical care”, which is determined by components that include the supply of health care services, location of health care facilities, convenient hours of operations, cost of care, and transportation (Marcinko 2006).

A review of the literature yielded two aspects of access, principally pertaining to the types of health care services utilized by an individual. In his concept analysis of critical health care, McFall (2012) distinguished two ways of viewing health care access: critical and basic access health care. Critical health care access, per McFall, is an individual’s ability and willingness to access needed health care resources for preventive and restorative health. Conversely, basic health care access represents timely access to just primary health care services. Albeit the two aspects of care are often used interchangeably, access in this study represents both critical and basic health care access components.

A panoply of health care literature provide an operational definition of access to care. According to the Institute of Medicine (IOM, 1993), health care access is defined as "the degree to which people are able to obtain appropriate care from the health care system in a timely manner”.

Richardson and Norris (2010) defined access to health care as “the timely use of personal health services to primarily achieve the best health outcomes”. In other words, access to healthcare is the timely use of health services to achieve the best possible health outcomes. The definition posits that access is not an end in and of itself. Rather, access is a timely utilization of health care for desired benefit of positive health outcomes.

Clarke (2004) elaborated the definition of access further in three different dimensions. Firstly, he observed that access is the ability of an individual to schedule an appointment and meet the physician on the same day. Secondly, access is the ability of an individual to consult a physician in whatever time they deem convenient to them. Thirdly, access is a user's ability to search and find a physician who is willing to take new patients and whose office location is within a short distance of patient's place of residence. Clarke's (2004) definition of health care access is more revealing, yet it does not take into account essential elements of access with respect to outcomes of access. Moreover, Clarke (2004) failed to discuss what constitutes an appropriate distance to a health facility.

De Looper and Lafortune (2009) defined access as "people's ability to obtain appropriate health care services in a timely fashion and without obstacle". Based on their definition, De Looper and Lafortune (2009) articulated four important categories of health care access. First, health care consumers must have financial, health insurance, and transportation means to obtain health care services. Second, the caregiver or the health care professional must meet professional standard; thus, the service delivery must produce the desired health outcomes for the user. Third, the care must be timely. Health care service users need not wait too long to see a health care provider. Thus, the user must have the power to see the doctor whenever they feel to do so. Lastly, access to health care must be free from linguistic, physical, physician supply or availability, and distance barriers. As matter of fact, De Looper and Lafortune's definition is concise and cosmic. It conflates the all key elements of health care access and utilization.

In addition, access to and utilization of health care goods and services is a continuum of stages (Yang, 2010), and hence, its definition should incorporate all the gradients of the continuum. In this vein, Yang (2010) identified four disparate series of access to and utilization

of health care: the resources with which to obtain timely and needed care, actual consumption of health services, the quality of care delivered, and equitable distribution of care across all population sub-groups. The virtue of Yang's definition is that it highlights on equity in access to care as one of the chief elements of access continuum. Nevertheless, Yang's definition fails to incorporate health outcomes, an essential component of any health care delivery service, in its gradient of continuum. The main rationale for people accessing and utilizing a particular health care service is obtaining positive health outcomes for ailments or medical care needs. Public health scholars view access to care as ineffective, if it eventually fails to produce positive health outcomes for the consumer (Fortney et al., 2011; Andersen and Aday, 1988; Norris and Aiken, 2006).

Defining Characteristics of Health Care Access

The literature of public health enumerates many characteristics of access. These defining features are: availability (Penchansky & Thomas,1981;), insurability (Norris and Aiken,2006), eligibility (Gordon,1993), amenability (Penchansky & Thomas,1981), compatibility ,and affordability (Kullgren et al.,2012). In his work, *Critical Access Health Care: A concept analysis*, McFall (2012) grouped these defining attributes into two domains. These are domains of availability and demand.

The domains of availability represents spatial and geographic, resource availability, supply of providers, and organization of health system dimensions of health care access (McFall, 2012). The spatial-geographic includes health facility location, entry process, and navigation pathways experienced by consumers in the course of accessing needed health care. Under the domain of availability, health care access can be gauged as a function of supply of health care providers in specific locations. Further, the domain incorporates the degree of organization of the

health system and available physical resources as one of the conduits for fostering effective discharge of health services and interventions (McFall, 2012).

Conversely, the domain of demand characterizes the health care consumer as a rational economic consumer whose demand for any goods and services is a product of specific dynamics. From the domain of demand perspective, a health care consumers' decision to seek care is influenced by qualification, cost of care, and satisfaction. A qualified consumer is the one who meets the compulsory requirements of the health care servicing agency. The cost of service has positive association with access. Higher cost of care negatively affect care utilization rate while lower cost of care stimulate consumers to increase their demand for more health care services, all else being equal. With respect to satisfaction, an expected quality services is likely to drive individuals to seek care. However, consumers' expectation of inferior health care services is likely to propel them to "bypass the facility to obtain services elsewhere" or consumers might opt to stay in suboptimal health status until their problems get to an extreme situation of health (McFall, 2012).

In their seminal paper, Aday and Andersen (1981) present two characteristics of access: potential and realized access. Potential access refers to the probability of individuals obtaining medical care based on observed socio-economic characteristics, including income, educational attainment, gender, age, race and ethnicity. Realized access, however, represents the actual access and utilization of health care goods and services.

Furthermore, Dahlgren and Whitehead (2007) built on Andersen-Aday's access categorization to provide three distinguishing features of access to care: geographic access, economic access, and cultural access. Spatial or geographic access refers to the physical availability of health service, particularly primary and preventive services, in every nook and

cranny of a given country. Delamater et al. (2012) identifies two dimensions of geographic access. These are availability and accessibility dimensions. While availability dimension generally measures the ratio of health care services to the number of potential consumers of services, accessibility dimension measures “the friction of distance” or “the burden of travel” between locations, usually from a patient’s home to a health care delivery point (Delamater et al., 2012).

Likewise, economic access reflects the idea that all health care services should be within the pecuniary reach of all. In another sense, economic access represents the notion that the consumption of care should not push patient into medical poverty-trap, or impoverishment as result of paying for medical care. Moreover, underlying the notion of economic access is the perspective that people in need of effective health care services should not be turned away from a clinic or hospital inasmuch as they cannot afford to pay. In addition, economic access relates to the existence of partial or total exemption of patients from co-payments or co-insurances categories of care.

The cultural dimension of access represents the ease with which patients obtain effective medical goods and services, regardless of linguistic accent and different cultural worldview. Cultural access refers to acceptability and respects. Minority ethnic groups, immigrants, the homeless, and other marginalized groups should be able to obtain effective health care goods and services without fear of being discriminated against (Dahlgren and Whitehead, 2006). Mancoske et al. (2012) also articulated disparate perspective of cultural characteristic of access. They observe that cultural access to measure significant connection between patient’s perception of cultural competency of health providers and outcome of health services.

The ten-year Health People (2020) national objectives for improving the health of Americans enumerated four defining characteristics of access: coverage, services, timeliness, and workforce. Health insurance is “the principal of ensuring access to health care among the general population” (Healthy people, 2020). Health insurance coverage guarantees that a person can access care when they are in need of it. It motivates individuals to seek health care services with the firm belief that they would not be burdened with large medical bills. Another defining characteristic of access is services. Like all economic goods and services, health care consumption depends in part on the availability of adequate supply of health services in terms of health delivery settings, sources of health care services. Per Healthy people 2020, health care access is characterized by timeliness, “the health care system’s ability to provide care quickly after a need is recognized”. Therefore, timeliness measures the time spent in providers’ office as well as time spent “between identifying a need for specific tests and treatments and actually receiving those services” (Healthy people, 2020). The availability of workforce to deliver care is another essential element of access. A rich vein of health care professionals plays an important role in the general access of the communities they serve. An adequate supply of health care providers does not only improve timely access to quality care; it also lowers the cost of health care via constructive competition among health care providers, all else being equal.

Equity in Health Care Access

The underpinning principle of the U.S healthcare system is equity (Ward, 2009). The notion of equity in health care access requires that health care services be provided based on clinical need, regardless of socio-economic status. Equity is “conformity to accepted standards of natural right, law, and justice without prejudice, favoritism, or fraud, or without rigor entailing undue hardship” (McKenzie, 1993). Besides, the International Society for Equity in Health

(ISEQH) defined equity in health care as “the absence of systematic and potentially remediable differences in one or more aspect of health across populations of population subgroups defined socially, economically, demographically, or geographically” (Prinja et. al.,2012).

Moreover, it could therefore be inferred from these two definitions that equity in health care access does not denote lowering the standard of health care delivery to make it accessible and affordable to all. Rather, equity in health care access refers to the provision of an outstanding quality of medical care at an affordable cost for all, regardless of socio-economic status (Ward, 2009). Inherent in this definition is the element of equal access to health care, which is the impartiality in opportunity to seek health care in timely fashion. Also embedded in this definition is the notion of risk-cross and income cross subsidies. The risk cross subsidy regime facilitates the notion that people with greater health needs should have the opportunity to access and consume health care services than those who are healthy. In addition, the health care system should be designed in such way as to make the wealthy contribute adequately toward ensuring public health services delivery for all.

Furthermore, Whitehead (1985) defined equity in health care as “equal access to available care for equal need, equal utilization for equal need, and equal quality of care for all”. This definition takes into account three important dimensions of health care access: accessibility, quality, and acceptability. Examining each component of the definition, Whitehead (1985) elucidated equal access to available health care services as “equal entitlement to the available services for all, and ease of access to care for all, regardless of geographical location”. To Whitehead (1985), accessibility represents the elimination of specific barriers to medical access. In this vein, health care consumers should not be precluded from utilizing health care services by virtue of their socio-economic status (Whitehead, 1985).

Another important aspect of Whitehead's definition of health care equity is "equal utilization for equal need". Thus, individuals should have timely access to health care whenever they need it. However, Whitehead opined that the existence of health care utilization differentials among different socio-economic groups should not be construed as prevalence of inequity in a health care system. Rather, it is, whitehead noted, an evidence for further investigation into the dynamics explicating such care utilization variations among or within specific socio-economic population sub-groups (Whitehead, 1985). For instance, higher hysterectomy or tonsillectomy utilization rates in higher income groups, per se, does not posit that access to such services is skewed to the higher income groups, nonetheless it is a clarion signal for much more study into the observed phenomenon. Yet, Whitehead (1985) argued that health care service is inequitable if the "services were restricted by social or economic disadvantage".

Finally, Whitehead definition's touched on "the concept of equal quality of care", which implies that every individual should have an equal opportunity of being scheduled or selected to consult a medical doctor through a fair procedure based on health care needs rather than on socio-economic status (Whitehead, 1987). This implies that health care providers should demonstrate genuine commitment to service delivery for all. In effect, all individuals should be treated to a standardized, professional care. In addition, the concept of equal quality of care implies that health care resources, such as quality health premises and experienced health professional staffs, should be fairly allocated to all geographical areas in a health care system contingent upon the population in need of services (Whitehead, 1985 & 1987).

Indeed, the review of the literature revealed distributive aspects of health equity where health care services are supplied based on egalitarian equity goals. The egalitarian health care

equity aims to mitigate the profound influence of socioeconomic factors in determining health care access and utilization (Vallejo-Torres, 2011; Whitehead, 1987).

The core dimensions of egalitarian health equity are horizontal and vertical equity of access. While horizontal equity of access emphasizes that patients with the similar level of health needs must receive the same level of health care treatment regimens, vertical equity highlights the need for individuals with different medical care needs to receive different maximum priority for health care services irrespective of their financial status (Bayoumi, 2009; Prinja, et al., 2012; Vallejo-Torres, 2011). Prinja et al. (2012) added redistributive equity of access, to this two-pronged typology, which appraises the process of health care resource and services in a health care system to ascertain who obtains what level of care, who pays for it, and to what extent.

The antonymic component of equity, health care disparity, is worth consideration. The absence of health care equity engenders inequity and disparity in health care access. Inequity in health care access has moral and ethical dimensions. Inequity in health access, though unnecessary and avoidable, is a constitutive feature of every socio-economic and political experiment (Whitehead, 1985). Inequity in health care access transpires when people, irrespective of their socio-economic status and vis-à-vis other individuals, are unable to obtain essential health care goods and services they really need to add value to their duration of life in good health.

The World Health Organization's comprehensive study of equity in health, *The concepts and principles of equity and health* (1985) enumerated seven main determinants of health care differentials: (1) natural, biological variations, (2) socially accepted health-ruining behavior, including certain pastimes and sporting activities (3) transient health advantage situation, (4) restricted health-damaging behavior or lifestyles such as smoking), (5) exposure to harmful,

stressful living and working conditions,(6) lack of access to constitutive health care services, and (7) natural selection or health-related social mobility.

On the contrary, other studies have enumerated some rationales for health care inequity. For instance, Goddard and Smith (2001) observed that variations in access (inequity in health care access) is a product of specific factors, including availability, cost, quality, and information of health care services. Individuals are unable to access care in that certain health care services may not be available to their sub-groups or providers might have disparate propensities to treat patients with the same health care needs from different population groups. In addition, the cost of health care may impose a substantial financial burden on certain population sub-groups and thereby deter them from seeking care. In addition, lack of clear-cut and seamlessly accessed health information at specific geographic locations underlies most health care differentials in the United States. Finally, the equity in access may be caused by health care quality differentials. Thus, the quality of certain medical goods and services provided to identical patients may differ between population groups (Goddard and Smith, 2001).

Similarly, Gilson (2007) identified three forces driving variations in health care access disparity and inequity. These dynamics are commercialism, health policy options, and organizational capacity and culture. Determining who gets what from the health care system are “neo-liberal economic agenda, macro-economic policies, and conscious adoption of particular aspects of health policies” (Gilson, 2007). Commercialism therefore refers to the provision of health care based on the economic means, the ability to pay for care. In another sense, the markets influence health service delivery and financing in commercialism in a given health care system (Spithoven, 2011). Thus, commercialism suggests that the investment in, the production of, and finance of health care services are all executed by the private sector agents. Available

research suggests that health system commercialism is associated with unequal access and adverse health outcomes. Not only has commercialism put affordable and timely health care services far beyond the financial reach of vulnerable populations; but it also has stimulated health care consumers to expend a significant proportion of their disposable incomes on health care services (Gelberg et.al, 2009; Anos, 2008; McFall and Yoder, 2012).

From a different perspective, Gilson (2007) argued that the recent upsurge and widening of health care inequity in the United States could be attributable to certain health policy choices and certain socio-political norms (Gilson, 2007). While public health programs, such as Medicaid and SCHIP, help to provide essential health services to the indigent adult population and children, specific vulnerable populations, including immigrants, are ineligible for Medicaid. The divergence in health care inequity in the United States health care system reflects the existence of inveterate politico-cultural belief in individualism, requiring each member within the political and economic community to pull themselves up by their own bootstraps.

Therefore, the embossment of individualism norm on the America's health policy psyche is such that it has undermined the development of comprehensive and universal health care systems that could help in addressing the socio-economic dynamics of health and health care inequities in the United States (Spithoven, 2011). Despite its robust and highly effective public sector capacity, the United States' health care system is extensively dominated by vested and special interest constituencies, (e.g. private health care practitioners, private insurance companies, and pharmaceutical firms) and veto points (e.g. states and local governments) with enormous capacity not only to forcefully attach specific conditionalities to any health care bill, or present competing health policy ideas; but they also have the capacity to derail the progress of any public health policy that jeopardizes their collective interest (Anos,2008). This perspective is

typical of Harry Truman's health care reform in the late 1940s as well as Clinton's universal health care plan. Overall, health and health care inequity in the United States has been partly massaged by a combination of certain health care policies, huge influence of special interest groups, veto points, and socio-political culture (Spithoven, 2011).

The organizational capacity and culture within the health care system, including the structure and service delivery processes may promote health care inequity (Gilson, 2007). Indeed, health structure fragmentation is one of the constitutive elements of the U.S health system (Cebul, et al., 2008). Health care organizational fragmentation hampers access by limiting doctor-patient relationship, and adding extra –burden to disease management, which can engender adverse health outcomes (Nahon-Serfaty, 2012).

A fragmented health care system might pose access challenges to patients. This is what Cebul et al., (2008) and Howard (2012) maintained. Cebul, et al. (2008) advanced analyses of the U.S health care organizational fragmentation. They observed that the fragmentation does not only engender inadequate access to preventive care for vulnerable populations, especially for those with chronic disease; it also brings about adverse quality of care and significant chasm in care. Further, Howard (2012) presented different downsides of the US fragmented health care system. He maintained that in a fragmented health care delivery system, patients, especially those with diabetes, see a median of ten physicians, which creates treatment coordination challenges and perplexity for patients pertaining to when to seek the next care and from whom (Howard,2012).

Several studies have proposed disparate measures to mitigate the level of health care inequity. For instance, Ward (2009) indicated that increasing vulnerable populations' access to preventive and primary medical care is a sure-fire mechanism to decrease health care inequity

and foster equitable, positive health outcomes. To achieve this, public health planners and public administrators, in conjunction with providers, should invest in primary health care systems and overall population health. Initiatives for this primary health programs should incorporate intersectoral and inter-governmental actions (e.g. federal-state intergovernmental initiatives, state-local intergovernmental initiatives, federal-local governmental initiatives as well as local-local intergovernmental initiatives) to address socio-economic determinants of health care inequity and focus on creating sustained health equity via social equity lens (Ward,2009; Perry and Radin,2012).

Whitehead (1985) provided comprehensive list of initiatives essential for decreasing health care access and utilization disparity in any socio-economic context: initiating health care level-up programs aimed at bringing up the level of health status of people with adverse health status to that of those with better health status; pursuing targeted health care policies; addressing socio-dynamics of health care inequities; effective health financing arrangements to keep people out of medical poverty trap; designing and implementing measures to monitor relative health status of various groups (e.g. the advantaged and the disadvantaged); instituting health system democratic process by giving an equal opportunity to all to participate in decisions affecting their health, prosecuting gender-specific analyses of health disparities; and constructing health systems on robust equity principles, such as pursuing measures to mitigate the negative effects of profit-driven motives in health care delivery services, providing health care service based on the principle of need, ensuring an effective care for all, and instituting clear-cut, achievable, and measurable health care equity goals and objectives.

The Institute of Medicine's (IOM) Committee on Children, Health Insurance, and Access to Care, in its report *America's Children: Health Insurance and Access to Care*(1998), asserted

that there are a whole myriad of policy options for addressing health care inequity, and the surefire way is via economic empowerment of vulnerable populations. The IOM noted that economic empowerment is more likely to bring out increase personal disposable income, improve education, improve nutrition, and safe and affordable housing (IOM, 1998).

Conversely, Devaux and De Looper (2012) contended that “nationalized”, universal health insurance or publicly funded health care system is the “most effective way of addressing inequalities in access to health care services as well as reducing the adverse effects of poor health status on income distribution”. In support of their assertion, the researchers argued that countries with higher degree of private provision of medical goods and services are most likely to exhibit higher level of health care inequity than countries where health care financing and delivery are centrally administered (Devaux and De Looper, 2012).

In summary, health care inequity is a complex public health issue; therefore, to address it requires multi-faceted health policy actions. Public health programs should not only be comprehensive enough to ensure aggregate positive health status for all; it should also be specifically targeted at socio-economic dynamics that discourage as well as impede vulnerable populations from obtaining effective medical goods and services (McInnes al et.2013).

Drivers of Access to Health Care Goods and Services

Access to health care goods and services is largely dependent on specifics explanatory factors. Consequently, recent research has documented influence of such variables on health care access and utilization. For instance, DeLooper and Lafortune (2009) identified that the existence of affordable health insurance policies within a health care system as one of the drivers of access to health care. The authors posited that patients with affordable health insurance coverage, private or public, requiring reasonable out-of pocket payments, are likely to access health

products and service at a given time. Nevertheless, they pointed out that having insurance coverage is not adequate to induce to access health care. Specifically, people with health insurance coverage might not access health care if the out-of-pocket expenditure, in the form of co-payment and co-insurance, would likely consume a significant proportion of their disposable incomes (DeLooper and Lafortune, 2009).

Richardson and Norris (2010) identified certain key drivers of access to and use of health care. They argued that race, ethnicity, income, education and health insurance are one of the key determinants of health care access and use. They, however, put forth other influencers of health access and use. These are consumers' access to health care information, health care promotion information, social capital, physical environment, institutional factors, system factors, patient factors, and provider factors.

Moreover, Hwang et al (2010) explored health care access among homeless persons, and identified specific drivers of access to medical care. They concluded that both financial and nonfinancial barriers hamstringing homeless persons from health care access and utilization. They further noted that competing priorities, such as actively searching for food and shelter, consume the attention of homeless people from their health care needs. Moreover, lack of transportation, long waiting time for care and fear of being stigmatized by health care professionals, they observed, are some of the core determinants barring homeless people from access and using health care. The explanatory variables identified by Hwang et al (2010) may not entirely be applicable to other vulnerable populations, albeit some of the predictor variables may explain their access to and utilization of health care. For instance, long waiting times, pecuniary reasons, and lack of transportation may massage vulnerable groups from not obtaining essential health care services.

Javier, Huffman, Mendoza, and Wise (2010) undertook investigation to determine how immigrant families with special health care needs differ from non-immigrants, and they concluded that limited resource, material or pecuniary, non-English language, parents' education attainment, ethnicity, and lack of health insurance coverage are some of the influencers of health care access and use with respect to immigrant families.

Agabiti et al. (2007) explored the influence of socio-economic status on access to elective total hip replacement and its prognosis. Using a multicity population-based longitudinal study, they discovered that low-income people were “less likely than high-income counterparts to undergo hip replacement”. In explicating their observation, Agabiti et al., (2007) observed that low-income people were “associated with higher risk of acute adverse medical events”.

In December 2006, Durban and Hummer conducted a study to investigate the differences in access to and sources of health care for individual adults among major Hispanic sub-groups. Using dataset from the Sample Adult File Supplement of the National Health interview Survey (NHIS), the researchers discovered “wide differences in access to and sources of care across racial and ethnic groups in the United States” (Durban and Hummer (2006). These differences in access and sources of care, per Durban and Hummer, were a function of nativity, length of stay in the United States, and socio-demographic constructs.

Most research in public health access centers on individual-level variables such as income, age, insurance coverage and employment. As result, community-level factors have received relatively little research attention. However, in a seminal study, Kirby and Kaneda (2006) investigated the role of community-level factors in facilitating or impeding individuals' access to essential medical care. They found that individuals living in higher residential turnover neighborhoods were more likely to have worse health care access compared with residents of

other neighborhoods do. The correlation was more pronounced when variables such as prevalence of poverty, supply of health care, and a variety of individual characteristics were held constant.

Typology of Barriers to Health Care Access

Health care access barrier is the failure to obtain needed care in a timely fashion (Horton and Johnson, 2010). Nationwide, a greater number of people lack access to needed, affordable, and quality health care goods and services at the right time. And greater proportion of such population was within vulnerable population, including Hispanics, immigrants, and African-American sub-population. Research into barrier-centered concept has been seminal from the early 1980s to date with useful approaches for appreciating barriers to health care access and utilization (Derose et al., 2011).

Penchansky and Thomas in their study acknowledged that specific individual-level variables, including income, having health insurance, and having usual source of care, could facilitate or impede access to and use of health care services in all racial sub-population.

Frenk (1992), on the contrary, observed other predictive variables that impede the use of health care services among vulnerable populations. Frenk asserted that organizational, financial, and ecological barriers within health care context hinder individuals' access to and use of needed health care.

Edmunds and Coyle (1998) reviewed the scientific and empirical barriers to access to health care, and they identified two categories of barriers to access to care: financial and non-financial barriers. Financial impediments to health care access are factors that hamstring an individual's willingness, ability to seek, and pay for needed health care goods and services. Such

factors are inadequate personal income, lack of health insurance coverage, the scope of benefits, and proportion of out of pocket expenses. Similarly, Choi (2006) argued that, apart from financial barriers, structural barriers are some of the core barriers against individual's health care access in the United States. Among the structural barriers Choi identified were English language proficiency, lack of cultural competence, and age of eligibility for public health delivery programs, such as Medicare and Medicaid.

Some recent research found that lack of access to health care goods and services is partly a product of specific public health statutes and provisions (Edmunds and Coyle, 1998; Choi, 2011). Over the past decades, some federal, state, and local government health laws have restricted specific individuals from accessing medical care. For instance, the 1996 Personal Responsibility and Work Opportunity Act (PRWORA) debarred non-citizen immigrants from accessing any public financed health and social services. Consequently, non-citizen immigrants were ineligible for SSI and Medicaid benefits until they secure citizenship status having continuously domiciled in the U.S for at least 5 years or fulfilled a stipulated number of residency period (Choi, 2006).

In his review of the literature, *Mental Health-Related Beliefs as a Barrier to Service Use for Military Personnel and Veterans*, Vogt (n.d.) classified barriers to health care into three core domains: background characteristics, institutional factors, and stigma-related beliefs about specific illnesses. Per Vogt (n.d.), these variables can either severally and jointly affect how health care is consumed. For instance, lack of confidence and perception of not being a "fit in" may stymie an individual from seeking health care (Vogt, n.d.).

Furthermore, the cost of medical care has been observed as one of the major factors associated with lack of access to and use of health care (Fitzpatrick et. al 2004; Horton and

Johnson, 2010; Herman et al. 2011; Halpern et al., 2012). For instance, out-of-pocket medical care expenses either stymie individuals from accessing needed and timely health care services or stimulate them to delay care. This is very typical of Medicare beneficiaries for whom out-of-pocket health care expenses poses greatest financial burden. Over the past years, approximately 11% Medicare beneficiaries have consistently reported delaying care because of out-of-pocket cost (Fitzpatrick et. al 2004). Excessive out-of-pocket health expenditures are detrimental to elderly adults and immigrants who are living on fixed or limited income (Horton and Johnson, 2010).

The negative effect of out-of-pocket cost on medical resource utilization is more pronounced on uninsured individuals. Halpern et al., (2011) noted that out-of-pocket expenditure has causal association with medical resource utilization. Having analyzed Medical Expenditure Panel data to assess the influence of out-of-pocket costs on the use of health care of individuals who are uninsured vis-à-vis those who have Medicaid coverage, Halpern and colleagues (2011) found that out-of-pocket costs pose “substantial barriers to receipt of appropriate medical care for uninsured individuals with epilepsy, but not for those with Medicaid coverage”. Furthermore, the cost of medical care is a function of an individual’s health status (Herman et. al., 2011). Poor health can strain financial resources and can influence whether medical care is sought instantly or delayed until the health situation reaches a critical threshold. Health insurance premium and cost sharing had been advanced as one of the ways of promoting appropriate and efficient utilization of health care services; yet they could represent a major barrier to health care services for low-income people, including immigrants (NAPA, 2009).

Similarly, Herman, Rissi, and Walsh (2011) explored the impact of perceived value of health care services on access to care in the United States. Herman and colleagues found that

perceived value of care plays a major role in determining whether an individual will seek or delay seeking medical care. Thus, medical care was less likely to be missed or delayed if the care was more likely to produce positive health outcomes for the individual. Per Herman, Rissi, and Walsh (2011), several factors may influence perceived value of health care services. Age and gender are the major ones. The perceived value of care changes with age, and it has positive correlation with age. The more aged a person, the higher their perceived value of health. Accordingly, an aged health care consumer is more likely to consume much more medical care services compared with the younger consumer. Conversely, the younger an individual, the lower their perceived value of health care services. The perceived value increased with age due to increased responsibilities and deteriorating health conditions encountered by the older adults (Herman et al., 2011). Besides, Herman, Rissi, and Walsh asserted that perceived health care value might also differ based on gender as a result of gender related perceptions of the value of health care services. They maintained that women were more likely than men to have positive perceived value of medical care; and as a result, compared with men, they were more likely to seek care, regardless of the cost, all else being equal.

While some studies have identified lack of specific source of care as a prominent barrier to medical care utilization in the United States (Fitzpatrick et. al 2004), others have documented psychological factors as barriers to care (Ouimette et al., 2010; Turchik et. al., 2010 and Turchik et. al., 2012). Such studies argued that people's perception of the physician's lack of responsiveness to their health needs and questions has disincentive effects on their health care access and utilization behavior in the near future. A qualitative study found that vulnerable populations are more likely to have less positive perceptions of their physicians' care delivery

style (e.g. listening skills, ability to explain) and trust (e.g. putting patient's needs above others, referring the patient if need be) (Davis-Giardina et al.,2014).

Moreover, Turchik et al. (2012) explored military sexual trauma issues and their impact on medical care access in the U.S veteran administration (VA). The authors established that health care access barriers were more likely to exist for men who have experienced sexual traumas. In the same vein, Ouimette et al., (2011) examined institutional and stigma-related health care barriers among a large diverse sample of both Vietnam and Iraq/Afghanistan veterans who had been diagnosed with posttraumatic stress disorders (PTSDs). They showed that PTSD symptoms were positively related with perceived barrier to care. However, they elucidated that different characteristics may influence perceived barriers to care. For instance, most male and older patients of the VA were more likely to seek care for PTSD than women and younger veterans by virtue of the inveterate perception that the VA was originally established to service male veterans.

In addition, Rosenberg (2009) examined barriers and facilitators to accessing and providing health care for individuals with serious mental illness; and they found that, except for provider level barriers, environmental, and individual level barriers, stigma is a pervasive barrier to accessing health care. Negative attitude toward people with certain forms of illness such as HIV/AIDS, physical disabilities, and psychiatric disabilities does not only stimulate delay in medical care use, but it also engenders medical co-morbidities and related mortality in this subgroup (Doerscher et al., 2000).

Horton and Johnson (2010) provided a relatively comprehensive analysis of health care access barriers when they explored the health care barriers encountered by the uninsured elderly population in the United States. Their findings indicated nine barriers to medical care in the

United States among the uninsured elderly. These barriers were lack of transportation, health insurance coverage, family support, complexity of the health care system, poverty, poor-health care provider communication, and race or ethnicity. Per Horton and Johnson (2010), these factors can serve as either direct or indirect impediments to health care access. Direct factors, such as lack of health insurance, impede individuals from seeking care while indirect factors do not in and of itself impede health care access. Specifically, certain health care culture, a learned set health values and belief of a society, does not directly engender lack of health care access and use; nonetheless, it may indirectly affect access to care (Horton and Johnson, 2010). Thus, an individual's traditional health belief system may massage their decision to seek scientific medical treatment or their preference of a particular treatment regimen over others. A person with a strong health belief system may seek alternative or traditional therapies or lay healers in lieu of seeking scientific and modern health care service (Iwelunmor et al., 2014).

Schmalzried and Fallon (2012) explored barriers associated with the delivery of healthcare services to migratory agricultural workers in the United States. They employed focus group sessions to develop a survey questionnaire to assess factors hampering access to medical services of migratory agricultural workers (MAWs) from Central America and Mexico. Three general categories of impediments to health care of MAWs surfaced in the study: (1) work context, (2) personal resources, and (3) health care clinics practices. The work environment factors relate to employers excessive demand for higher productivity owing to crop market demand. Personal resources are barriers for the MAWs in that they have limited income for transportation as well as cost associated with getting health care. The researchers noted specifically that the MAWs reported health care clinic practice, for instance lack of relevant professional interpreter, as a core barrier for them to obtain care.

The Consequences of Lack of Access to Effective Health Care

There are significant public health and health system consequences in the event of vulnerable and marginalized segments of the U.S population lacking timely, adequate access to effective medical goods and services (Solis-Muñoz et al., 2008). The literature on public health is replete with studies about the adverse effects of lack of and inadequate access to effective health care services on the individual as well as on the population as a whole.

In its study, *Improving Access to Oral Health Care for Vulnerable and Underserved Population*, the Institute of Medicine (IOM, 2011) showed that insufficient access to oral health care with a resultant poor health has far-reaching consequences at both population and individual levels. The IOM further articulated that though several different dynamics drive health care access differentials in the U.S health system, lack of health insurance coverage is the major precipitator (IOM, 2011). There are currently about 45.7 million individuals without health insurance and a significant proportion of this number is from vulnerable and underserved populations including undocumented and documented immigrants (Zuckerman et. al, 2011). Without health insurance coverage, these immigrants may delay or forgo clinically effective treatment regimens. This could escalate their risk of unnecessary morbidity and premature death. In addition, lack of access to health care also may result in the exacerbation of health care and health disparity in the United States.

Limited access to medical care adversely impacts individuals and society. Health care and health disparities might not only hamstring individuals from attaining their full human potential; but it also could have disastrous consequences on their quality of life, which in turn could adversely impact the overall productivity of the country in the long-range (IOM, 2011; Zuckerman et al., 2011; Healthy People, 2020).

Furthermore, in its annual communiqué on the health of Americans, the federal government's healthy initiatives enumerated four negative consequences of barriers to accessing needed health care goods and services. The healthy people 2020 noted that limited access to care potentially leads to unmet health needs, delays in obtaining appropriate care, inability to obtain preventive services, and preventable hospitalizations.

Prentice et al., (2011) studied the consequence of longer wait times for access to medical goods and services for patients with glycated hemoglobin (A1C) levels. They concluded that longer wait times for health care services bring about patients' reject or delay in seeking medical care and greater dissatisfaction with care, in the elderly and vulnerable populations. Besides, they argued that patients' rejection of care due to longer wait times does not only increase patient frustration with the health care system; but it also compromises health outcomes due to forgone or delayed service utilization, which in turn defers essential diagnosis and treatment regimens (Prentice et al., 2011). Further, Quinn et al (2011) investigated AIDS patients' access to critical care, and they concluded that individuals with chronic or terminal illness, such as Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) are more likely to be on the receiving end of long waiting times with the probability of exacerbating their health status.

In another study, Solis-Muñoz et al. (2008) observed that lack of access to health care among vulnerable and underserved populations in the United States might undermine public health agencies' efforts to protect the health of citizens against contagious disease outbreaks (Solis-Muñoz, et. al., 2008). Specifically, early detection, response, control, and prevention of certain contagious diseases such as tuberculosis, severe acute respiratory syndrome (SARs), Foot, Hand, and Mouth diseases, Ebola, pandemic influenza, and smallpox, demand timely

access to preventive medical care. Nonetheless, if immigrants and other vulnerable populations, who are at high risk for such diseases, were unable to obtain care then in the event of a contagious disease outbreak, public health agencies' strategy of rapid and forthwith reaction to a contagious disease outbreak to protect the health of Americans could be seriously undermined (Gordis,1999& 2009).

Similarly, maintaining higher immunization rates for the minority and vulnerable segments of the United States population is a high public health priority. Despite existence of innovative and ultra-modern diagnostic technology, vaccines, and pharmaceuticals, toxoid-preventable diseases have not yet been entirely eradicated (Solis-Muñoz, et al. 2008). Adequate access to health care goods and services are imperative to escalate immunization rates of vulnerable children of the foreign born, whose immunization hinges on their parents or custodians. Due to their immigration status, many immigrants are restricted from all public-funded health programs until they have acquired appropriate and legal metic status in a stipulated period, usually for at least five years. Such restrictions, Solis-Muñoz et al. (2008) argued, create not only confusion, but it also leads to fear in the immigrant communities, and accordingly discouraging them from seeking effective care for their children.

Further, lack of or inadequate access to essential medical goods and services for the marginalized and vulnerable populations may impede the effective and economic functioning of the U.S health care system (Solis-Muñoz et. al., 2008; Gordis, 2009). Limited access to needed, timely medical goods and services to all people may, in the long-range, precipitate inappropriate and expensive care. Health care interventions are relatively less costly when the at-risk population are identified and serviced with early preventive interventions: primary, secondary, and tertiary preventive services (Gordis, 2009).

Per Grimm (2011), inequality in health care access, in the long range, could have negative impacts on economic efficiency of the United States. Grimm (2011) investigated the effect of inequality in health on economic growth in low-income and middle-income countries. He established a substantial and relatively robust negative effect of health inequality on income levels and its subsequent negative effect on economic growth of developing economies. Generalizing his findings, Grimm (2011) concluded that lack of access to health care and to essential health information might in the long-range stifle the economic growth of any nation, regardless of their income status and degree of economic advancement.

In sum, lack of access to essential health care for many people in the United States is likely to undermine efforts to stymie the propagation of communicable, contagious and fatal diseases via early preventive interventions. It could hamstring effective and economic functioning of the U.S health care system. Lack of access to care could facilitate higher infant mortality and morbidity rates among minority and vulnerable populations. Lack of access to medical goods and services of vulnerable populations could have some fiscal implications, in the long- run, on public health expenditure, as the cost of handling medical emergency health care services for such populations may be ultimately shifted to local government and not-for-profit entities who in turn can recoup some of the costs from the central government under Section 1011 of the Medicare Prescription Drug Improvement and Modernization Act of 2003 (Solis-Muñoz et al., 2008).

Immigrants' Access to Medical Care in the United States

The influx of immigrants into the United States over the past two decades has stimulated researchers to investigate medical access issues of immigrants (Andersen et al., 1981). The recent research on immigrants' health care access and utilization issues entailed intra-group as well as inter-group comparative analytical perspectives. The literature on intra-group analysis examined physical health and medical care behavior of immigrants of similar country of origin or race (Durben and Hummer, 2006; Burgos et. al., 2005).

Conversely, the inter-group health access perspectives centered on different immigrant sub-groups from disparate racial backgrounds or countries. Such research explorations attempt to unearth explanatory variables accounting for variations in immigrants' physical health and medical care behavior in their novel health care system (Lee and Choi, 2009; Carrasquillo and Shea, 2000; Richardson and Norris, 2010; Choi, 2010).

According to Andersen et al., (1981), recent scholarly investigations into immigrants' access to and utilization of care in the United States emanated from four major assumptions (Andersen et al., 1981): (1) **Immigrants as a vulnerable group:** immigrants, more particularly African-immigrants, exhibit certain characteristics associated with people of minority sub-group status. They have limited economic opportunities as well as comparatively limited political power. A minority group is characterized by collective identity, making them stark different from the dominant culture (Medda-Windischer, 2011). (2) **Distinct source of and use of health care services:** a sub-population is generally associated with different means of accessing medical care in their novel health care domain. Thus, minority groups, more especially immigrants, have limited contact with formal health care delivery system. Accordingly, they resort to other means, legal or illegal, to obtain medical care. (3) **Right to health care services:** social norms in the U.S endorse the notion that health care is not a privilege. Medical care

service, to the majority of Americans, is a right. All people have a right to quality and timely health care services regardless of their ability to pay for it (Andersen et al 1971). Based on this assumption, immigrants have the right to effective, timely and quality health care.

(4) Policy interventions to address immigrants' medical care issues: The existing literature advocated for extensive research to explore health care access issues of vulnerable populations, and a judgment of existence of inappropriate health care access and utilization of vulnerable populations justifies the deployment of economic and public health interventions to address such issues (Andersen et. al, 1981; Carrasquillo and Shea, 2000).

Furthermore, amid public concerns about the rising health care expenditure in the United States and the public perception of immigrants' illegitimate dependence on public funded health programs for their health care needs, Goldman, Smith and Sood (2006) investigated the role of immigrants in shaping the levels and trends of U.S health care expenditure. Using secondary data from the Los Angeles Family and Neighborhood Survey (LAFANS), Goldman and colleagues discovered that immigrants were less likely than the native-born to utilize public funded health care goods and services. Generalizing their findings, Goldman et al. (2006) argued that immigrants were more less likely, compared with the native-born, to utilize public-resourced health services such as Medicaid and Medicare inasmuch as federal, states, and local health laws preclude specific immigrants from gaining access to public-funded health services.

Moreover, Goldman et al., (2006) observed that compared to the native-born, undocumented immigrants were more likely to be reluctant to seek Medicaid and SCHIP coverage for their citizen children for fear of deportation. In sum, the researchers concluded that in relation to the native-born, immigrants (documented or undocumented) utilized

disproportionately too little of public funded health care programs to register a significant impact on the overall U.S public health care expenditure.

Konczal and Varga (2012) found in their study immigrants depended less on the public health programs to finance their health care consumption. Employing the Medical Expenditure Survey ,Konczal and Varga found that immigrants’ total health care expenditure per capita were fifty-five per cent lower than those of the native-born (thus,\$ 1139 versus \$ 2546) (Konczal and Varga,2012). In addition, Chavez, Flores, and Lopez-Garza (1992) established that illegal immigrants in the U.S were less likely to utilize formal health care goods and services with the exception of hospital emergency room.

Moreover, Ye, and colleagues (2012) examined the self-reported health care data provided by 2,500 respondents who identified themselves as Asians in the National Health Interview Survey (NHIS) to ascertain their consumption of medical care resource vis-à-vis the native born. Having controlled for certain confounding variables, they established a negative correlation between country of birth and utilization of health care resources in the United States.

Similarly, immigrants’ access to health care goods and service has loomed large around every health care reform dialectics in the United States. Critics of immigrants’ access to health care pointed out that immigrants have overburdened the U.S health care system, which the American economy and taxpayers simply can no longer afford. Nonetheless, Konczal and Varga (2012), in more than twenty in-depth interviews with health care professionals in Miami-Dade County clinics and hospitals, found that immigrant utilized less significant volume of the United States health services.

The idea of immigrants “moral hazarding” on American health care system is simply inaccurate, Konczal and Varga (2012) argued. Moreover, they noted that immigrants avoid

primary and preventive health care goods and services owing to “bewilderment about bureaucratic requirements, fear of deportation, in dread of huge medical bills, and cultural folkways” (Konczal and Varga, 2012). Generalizing their findings, the authors contended that immigrants do not “over-access” health care goods and services due to entrenched anti-immigrant structural and symbolic violence.

Similarly, Ku (2009) conducted a study deploying the Medical Expenditure Panel Survey to investigate insurance coverage and medical expenses of both immigrants and US-born adults to ascertain the degree of immigrants’ impacts on the US medical expenditure. Ku (2009) discovered that immigrants had much lower medical expenses compared with the insured US born. Immigrants’ medical care expenditure was approximately 14 percent to 20% lower relative to the insured native-born.

Conversely, Vargas and Chen (2012) discovered a positive relationship between access and health care use and the immigrants’ documentation status. The undocumented immigrants were less likely to have potential as well as realized access to care in the United States. Besides, the researchers found that undocumented immigrants were less likely than the documented to have a usual source of care and much less likely to report having visited a physician in the previous year. In the same vein, Choi (2006) analyzed the data of 1,178 newly arrived older immigrants in the 2000 National Health Interview Survey (HHIS), and she discovered no direct effects of immigrant status on health service access and utilization among newly arrived older immigrants.

Nevertheless, variations exist in the health insurance coverage among naturalized and non-naturalized United States immigrants (Carrasquillo et. al, 2000). Carrasquillo and colleagues studied immigrants’ from Guatemala, Mexico, El Salvador, Haiti, Korea and Vietnam. They

found that non-naturalized legal immigrants were much less likely than naturalized immigrants to obtain employer or government sponsored health insurance. In addition, non-naturalized legal immigrants were more likely to have no health insurance coverage. Per Carrasquillo and colleagues (2000), immigrants' low-income, occupation, immigration policies, and public health policies were the driving forces for lack of health insurance coverage among immigrants who were not U.S. citizens. In addition, Durden and Hummer (2006) studied Hispanic immigrants and they discovered naturalization as an important predictor of greater access and high-quality care for Hispanic immigrants. In a related study, Arjumand et al., (2014), employing a cross-sectional comparison instrument to investigate the association between health insurance coverage and immigrants' access to medical goods and services, observed that health insurance coverage is a constant cause of differentials between immigrants and non-immigrants' access to primary health care goods and services.

Further, some recent studies specifically explored immigrants' use of preventive and primary care health care services in the United States. Solis et al. (1990) investigated the preventive health care utilization among Hispanics immigrants. They found that Mexican immigrants as a rule utilize preventive health service less frequently vis-à-vis Puerto Ricans and Cubans. Similarly, BeLue et al., (2012) explored immigrant receipt of preventive health services. They employed extant data from National Survey of Children's Health (2007) to investigate how non-immigrant and immigrant families with children age 0 to 17 receive preventive health service in patient-centered medical home. Ultimately, BeLue et al. (2012) concluded, "immigrant families have decreased odds of receiving preventive health service despite their medical home status".

Some other studies provided useful information on the influence of culture, acculturation, education, and language on health care behavior and utilization patterns of immigrants in the United States.

A more recent study examined the health care experiences of immigrant women from three former Soviet Republics (Belarus, Russia, and Ukraine). Relying on focus groups, Ivanov, and Buck (2002) found that access to and use of medical care in the United States is a function of the level of immigrants' assimilation and acculturation into the American culture. Thus, immigrants with extensive degree of assimilation and acculturation into the U.S culture are much more likely to have the capacity and skills to navigate the American health care system than those who were not well assimilated and have an extremely low level of acculturation. On the contrary, Documè and Sharma (2004) found that linguistic ability and culture of immigrants have no statistically significant influence on access to and utilization of health services when access is measured from quantitative perspective; however, qualitative perspective indicated that language and culture had a significant influence on immigrants' use of health care services.

Similarly, using the theories of human capital and acculturation, Lum and Vanderaa (2009) documented that acculturation has strong associations with immigrants' health insurance coverage and thereby effecting the degree of access and utilization of health care services. Not only does acculturation affect immigrants' access to various health care products and services within the American health care system; but it also influences the type of health care services that health care consumers seek.

Gao and McGrath (2011), after reviewing twenty-seven studies to ascertain the evidence of oral health impact of acculturation, discovered that there was an association between enhanced, better oral care and acculturation. Thus, acculturated immigrants were more likely

than the less acculturated to exhibit better oral health. Nevertheless, they indicated there was no evidence in the literature to support that better oral health of acculturated immigrants is attributable to regular and periodic dental care utilization.

Besides, public health literature has documented that access to and utilization of medical care of immigrants is a function of duration of residence in the United States. LeClere, Jensen, and Biddlecom (1994) employed the 1994 National Health Interview Survey to explore the association of access to and utilization of health care and immigrants' duration of residence. The authors illustrated that recently arrived immigrants were less likely relative to the native born or immigrants with longer duration in the United States to utilize medical care. Besides, Konzal and Varga (2012) noted that recent immigrants have significantly fewer contacts with primary care physicians relative to naturalized immigrants or those who have domiciled in the United States for more than five years. Similarly, employing an across sub-group analysis of Chinese and Taiwanese immigrants, Chien and colleagues (2010) reported that recent immigrants (< 5 years duration) were significantly less likely to report of better health status than those who had been in the United States for greater than 15 years. They concluded that there was an association between the immigrants' length of stay in the U.S. and the use of preventive and primary health care services.

Portes, Fernández-kelly, and Light (2012) elaborated the several reasons behind recent immigrants' lack of access and use of health care services. They found that three factors determined recent immigrants' access to health services. First, recent immigrants lacked health information. Recent immigrants were ignorant about where to go when they needed care or counsel about their health. Second, immigrants faced cultural and linguistic hurdles. The majority of immigrants lack fluency in English. As a result, they were more likely to lack the

cultural and linguistic competency to navigate the complex U.S. health care delivery system compared immigrants with cultural and linguistic skills and ability.

Third, the researchers found that fear was another factor influencing recent immigrants' utilization of health of care services. The fear of detection and deportation, Portes, Fernández-kelly, and Light argued was inhibited recent immigrants from seeking needed medical care. In other words, recent immigrants, particularly the unauthorized recent immigrants, remain aloof from clinics or hospital for fear of being detected and deported. Besides, there is an extreme fear of incurring huge medical invoices and bills. The fear of incurring huge and excruciating medical bills or debts stimulates immigrants to delay seeking health care until their conditions reach an acute stage (Portes et al., 2011).

The literature on immigrants' health care access issues also explored the role of stigma and marginalization in their health care behavior. Specifically, Derose et al., (2007), in their descriptive study, identified stigma and marginalization as some of the factors influencing immigrants' access to and use of health care. They argued that immigrants were reluctant to seek care because of “difference in their appearance (e.g. wearing traditional dress), cultural, religious barriers, language barriers, and even skin tone” (Derose et. al., 2007). Accordingly, they dreaded to seek care because of potential poor treatment from health care professionals. The unsubstantiated public notions that immigrants overburden the U.S safety net programs and they contribute partly to the rising public health expenditure reinforce this problem. Furthermore, the researchers observed that immigrants were more likely than the U.S born to report discrimination in their health care consumption process, which reinforces “feelings of stigmatization, and lead to reduction in the use of health services in the future (Derose et al., 2007).

Furthermore, specific government programs affect immigrant's access to and use of health care (Derose et.al. 2007). Government laws, at both national and local level, influence how immigrant's access and use care in the United States. At the federal level, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) has engendered deep funding cuts in basic programs from which low-income children, families, the elderly, people with disabilities, and immigrants derived needed health care services. This in turn limits their timely access to and use of needed medical care (Derose et al., 2007). Even though most state health care programs have expanded health coverage to immigrants' children under the State Children's Health Insurance Programs (SCHIP), parents of such children, owing to their undocumented immigration status, are denied health coverage (Derose et al., 2007).

Using immigration dyads, Stevens and West-Wright (2010) examined the nuances and trends in health insurance and access to care for immigrant families in California. They created four immigration dyads (citizens, documented, undocumented, and mixed immigration status) based on the immigration status of the child and parents. Accordingly, Stevens and West-Wright found that parents in all non-citizens dyads were less likely than citizens' dyads to have poorer access. Children in all the major dyads were likely to be insured.

Konczal and Varga (2012) found the presence of "compassionate compatriots" as one of health care access and utilization media for specific immigrants in the United States. Thus, immigrants access to and utilization could be illustrated as a function of "compassionate compatriots" as well as cultural competent health care professionals and staff. Konczal and Varga (2012) found that there is a correlation between the existence of compassionate compatriots, cultural competent providers, and medical resource utilization. In the compassionate

compatriots' notion, longer-domiciled immigrants guide newer immigrants through the tapestry of American health care system. Additionally, underlying the compassionate compatriots' notion is the idea that immigrants' health care access and utilization is a product of racial and ethnic sourcing. Thus, immigrants tend to source their health care needs from where their compatriots do. They were more likely to source care from a health facility with whose physicians, nurses, and administrators they shared common national, racial or ethnic backgrounds.

Furthermore, recent empirical evidence posits mixed findings on the nature and direction of correlation between access to immigration status and access to medical goods and services. While some empirical studies found a negative association between immigration status and having a usual source of care, general accepted measures of access (Lee and Choi, 2009); others discerned a positive association between immigration status and health care access and use. For instance, Rodriguez et al.(2009), having employed a cross-sectional data from the 2007 Pew Hispanic Center/Robert Wood Johnson Foundation Hispanic Health Survey, observed that there was health care access variability among immigrants by nativity and immigration status. Thus, undocumented immigrants, Latinos for that matter, were less likely to report receiving preventive health care services, such as receiving periodic blood pressure and cholesterol level checks. Similarly, undocumented immigrants were likely to report having received poor quality of health care due in part to their inability to pay for medical care or their ethnic background.

In terms of health insurance coverage, prior studies have demonstrated that many immigrants remain without health insurance because they are precluded from either public health insurance coverage or employed in small enterprises, which do not provide health insurance coverage for their employees. This situation was more pronounced in undocumented immigrant

cohorts who were less likely to have employer-sponsored health insurance coverage inasmuch as they were not eligible to work in the United States (Lee and Choi, 2009).

Some recent public health studies have assessed the association between a usual source of care (health care access) and health insurance coverage. They, accordingly, established a positive correlation between usual source of care and health insurance status (DeVoe et al., 2003; GAO, 2001; Konzcal and Varga, 2011). In their studies in 2003, DeVoe et al. assessed “separate and combined” impacts of health insurance status and a usual source of care. They found a strong association between usual source of care and health insurance status. Compared with immigrants with health insurance, Immigrants with health insurance were more likely to have a place where they seek care or advice about needed health and medical issues, which in turn could engender greater utilization of health care services (De Voe et.al 2003). Other seminal studies associated immigrants’ health insurance coverage to the degree of acculturation, which incorporate individual’s characteristics such as nativity, general status, and language spoken in the immigrant’s country of domicile. Specifically, Yang (2010) found that inability to communicate in English is positively related with having no health insurance coverage. Further, Choi (2006) reported that lack of health insurance is correlated with lack of a regular source of care among immigrants. Conversely, Ku and Matani (2001) found disparities in health insurance coverage and usual source of care (access). They discovered that immigrants and their children had worse access to care even when they had health insurance coverage.

Further, other existing public health studies have probed the underlying reasons for immigrants lacking health insurance in the United States, and the challenges they undergo to obtain timely and affordable medical attention. In their essay on immigrants’ health care access in South Florida, Konzcal and Varga (2012) established that immigrants’ un-insured status is a

function of public health culture, as most immigrants originate from countries where health insurance coverage is non-existent or if it exists at all, it is not a critical determinant of accessing timely and essential health care services. In her 2001 testimony statement to the U.S Senate Committee on Finance, Kathryn G. Allen, the ci-devant Director of Health Care—Medicaid and Private Health Insurance Issues, outlined three underlying reasons for higher uninsured rate among immigrants. First, Allen (2001) stated that immigrant’s uninsured rate was strongly related to income. Like all lower-income individuals, immigrants were more likely to cite higher cost of health insurance coverage as a major reason for their lack of insurance. Second, she observed that immigrants were as a rule ineligible for public health insurance programs. Third, being under the influence of the notion of healthy immigrants effects, immigrants perceive less value and virtue in having health insurance coverage, even if it is offered gratis or at an economically affordable price (Allen, 2001). Hence, immigrants might forgo essential medical care, which subsequently translate into higher expenditure (Vargas-Bustamante and Chen, 2014).

Access to Health Programs and Services for Immigrants: Past and Present, 1946 to 2010

As already noted elsewhere, the past decades have represented a rapid escalation in the number of foreign-born in the United States. While the United States legally welcomes thousands of immigrants per annum, estimated thousands register their presence through the back door (Hamilton, 2014). Concurrently, a myriad of health care programs and statutes were engineered to promote or preclude immigrants from accessing certain categories of health care services in the United States. The accompanying paragraphs review some of the major pieces of such health care legislations and programs:

Hospital Survey and Construction Act (Hill Burton Program)

In his tour de force article on immigrant access to care, Warner (2012) presented a comprehensive historical and current trajectory of U.S health programs and statutes designed to assist the foreign-born population to gain seamless access to essential health care services. Using 1946 as historical excavating point, Warner (2011) pointed out that programs to grant immigrants access to care commenced with the Hill-Burton program under the Hospital Survey and Construction Act (HSCA) of 1946.

Since its inception, the HSCA injected substantial amount of federal government resources, approximately \$ 5.9 billion, into construction grants, loans, and loan guarantees to all health facilities in America. Nevertheless, the legislation required health care facilities receiving Hill-Burton funds to satisfy two major conditions: (1) provide a reasonable volume of medical services to individuals without the pecuniary means to afford medical care; and (2) provide community service assurance (CSA). That is to say, health facilities must provide medical service to all individuals residing in their context of operations during the life of the health care facility (GAO, 1982).

The impact of the Hill-Burton was a mixed story. Health facilities pursued several legal actions against the Bureau of Health Facilities (BHF) with regard to adverse of impacts of the legislation's uncompensated care obligations. Besides, several complaints were lodged with the HHS Bureau of Health Facilities (BHF) involving health care facilities not adequately informing people of the availability of free medical services or facilities billing patients eligible for free medical care (GAO,1982& 1979). Yet, the Hill-Burton act assisted health care facilities “to furnish free adequate hospital, clinic or similar services to all people”, including immigrants (Apel, 2009).

The Migrant Health Act

Migrant workers provide essential services for the American economy. Despite their enormous contributions to the United States agricultural economy, migrants remained underprivileged group encountering health care access and utilization problems similar to their socio-economic cohorts (GAO, 1982).

Accordingly, through numerous congressional hearings, the health care needs of migrants became one of the greatest needs of any vulnerable group in the United States. In 1962, Congress enacted the Migrant Health Act (MHA) to, among other things, “make health care accessible to migrants” and their families (GAO, 1982; and Warner, 2011). The Federal involvement was as a consequence of the realization that state and local government could not meet migrants’ health care needs alone. In most states, migrant workers had been precluded from health services available to other vulnerable groups, and migrant workers were not qualified as legal residents in their communities (GAO, 1982). State and local authorities convincingly argued that they needed some injection of financial resources into their public health coffers if they would be able to extend health care services to migrants groups, and the federal government reacted with the enactment of MHA 1962.

Evolving as a limited assistance effort aimed at inducing State and local health facilities to provide medical care for migrants and seasonal farm workers, the Migrant Health Program expanded dramatically, since the programs’ inception in 1962 with a \$ 750,000, to commit about \$ 39.7 million appropriations in fiscal year 1982 to cover migrants and seasonal workers health needs (GAO, 1982). The MHA provided “preventive programs such as immunizations, health education, environmental safety program, ambulatory and in-hospital care to migrants and those

who exhibited migrants' health care needs. However, the migrants' access to specialty care was problematic as it is today (Warner, 2012).

Medicare, Medicaid, and CHIP programs

Medicare, Medicaid and SCHIP programs are some of the programs that have affected how immigrants access health care goods and services in the United States. Not only are Medicare and Medicaid most significant in U.S health financial arrangement; they are also federal government programs, which extends health care coverage to swaths of financially disadvantaged people, including immigrants in the United States (Morone and Blumenthal, 2008).

Enacted in 1965, under the Johnson administration as a component of the Great Society programs, the Medicare expressly provides health care coverage for hospital and physician care for the eligible elderly. Medicare, since its inception, has extended coverage to legal immigrants and their spouses who were employed in stipulated employment for at least ten years (Morone and Blumenthal, 2008; Warner, 2012). In its early inception, Medicaid has made health care accessible to poor legal immigrants and their children. A state-federal government sponsored program, Medicaid in some states granted at least partial coverage to many immigrants regardless of immigration status (Park et al., 2000). However, the rising public health expenditure led many states, particularly California, to appeal for public health financial injections from the federal government. In response, the federal government prosecuted a welfare and immigration reform which among other things, "explicitly prohibited the use of federal funds for Medicaid benefits other than emergency care for specific immigrants groups (Park et al.,2000).

Furthermore, the Clinton administration Health Security Act of 1994 led to significant changes in immigrants' medical care access and utilization. Even though the legislation woefully failed in the legislative uterus of the US congress, it subsequently led to the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996.

PWORA adversely impacted immigrants' access to health care in three fronts: (1) it instituted stringent income eligibility requirements for Medicaid; (2) it narrowly defined immigrants' population eligible for federal Medicaid funding; and (3) it made federal benefits unavailable for at least five years to legal immigrants who entered the USA after the enactment of the legislation (Warner, 2011; Park et al., 2000).

Subsequently, in 1997, the Clinton administration passed State Children Health Insurance Program (SCHIP) to address the wide gap in health care access for uninsured children populations. The SCHIP, enacted as Title XXI of the Social Security Act, provided federal matching funds to States to expand Medicaid via separate state programs to cater for the health care needs of the low-income, uninsured children (Quill, 2001). It covered children with family incomes up to 200 per cent of the federal level. This means low-income families are assured of health insurance coverage for their children. Albeit it precluded adult immigrants from coverage, the SCHIP does allow all categories of immigrants, whose children have been born in the US, to obtain "a floor of comprehensive health insurance coverage for their children" (Warner, 2011; Quill, 2001).

Emergency Medical Treatment and Labor Act

In reaction primarily to wide spread hospital “patient dumping” practices across the country, Congress passed the Medical Emergency Treatment and Active Labor Act (EMTALA) of 1986. EMTALA required Medicare participating health care facilities to provide medical care to any person who comes to the emergency department, regardless of the individual’s ability to pay or citizenship status (GAO, 2001; Warner 2011). Thus, if a health facility determined that an individual has an emergency medical needs, it ought to provide appropriate care to “stabilize their condition” or execute appropriate protocol of transferring the patient to another facility. In essence, EMTALA required health care facilities to treat all patients, including undocumented immigrants, in any emergency. The statute has been beneficial to the undocumented and uninsured immigrants in ensuring access to emergency health services and obstetrical care coverage (Warner, 2011; GAO, 2011).

Patient Protection and Affordable Care Act (PPACA)

The Patient Protection and Affordable Care Act (PPACA) of 2010 is a comprehensive health care legislation enacted with the view to ensuring that virtually all Americans as well as those residing in the United States obtain health insurance to enable them gain access to essential health care goods and services (Warner,2011; Zuckerman et al.,2011). Like all prior US health care statutes, the PPACA aims to “reduce or eliminate health care disparities” in the United States (Koeninger, 2013). The statute provides multifaceted packages of health overages, which potentially could affect how immigrants obtain health care in America. While it may address some of the many health care problems of legal residents, the statute does extremely little to

resolve medical care challenges of undocumented immigrants in the United States (Valenzuela, 2012)

Moreover, the Act requires states to establish a health insurance exchange, a marketplace for selling and buying subsidized health insurance policies. Regardless of their length of stay in the United States, immigrants can opt to maintain their employer-sponsored health insurance or they can purchase a health insurance policy via the health insurance exchange. Nonetheless, undocumented immigrants are explicitly precluded from gaining health insurance coverage through the exchanges. Only the U.S born, naturalized citizens, and documented peregrines can purchase subsidized health insurance policies via the exchanges. (Valenzuela 2012; Warner, 2011).

Another important provision in the Affordable Care Act that could potentially affect immigrant's medical resource utilization is the individual mandate. Under the individual mandate of the Act, all U.S citizens and legal residents are required to purchase health coverage or pay penalty. This provision is explicitly applicable to documented immigrants, but undocumented immigrants would not be required to purchase health insurance. In addition, under the Affordable Care Act, specific small firms would be exempted from purchasing health insurance for their employees through the exchanges. Indicatively, such firms can shift the entire burden of purchasing health coverage through the exchanges to employees, to purchase health policies or pay a penalty (Warner, 2011; Zuckerman et.al, 2011.) While documented immigrants would need to comply with the individual mandate, which is more likely to prompt them to consume health care services, the undocumented immigrants would not need to comply, potentially curtailing or precluding their access to care (Stutz and Baig, 2014). Accordingly, the undocumented immigrants, under the Obamacare regime, might still need to rely on free clinics

and health centers for their preventive and primary medical care needs (Liebert and Ameringer, 2013).

Overall, the Patient Protection and Affordable Care Act of 2010 might directly disadvantage undocumented immigrants in accessing and using medical care, relative to other groups in similar socio-economic circumstances (Zuckerman et. al, 2011; Stutz & Baig, 2014; Liebert & Ameringer, 2013; Gonzalez-Block et al., 2014; Vargas-Bustamante and Chen, 2014). Immigrants' access to health care in the U.S will further deteriorate in that private coverage outside the exchanges would be beyond the pecuniary reach of undocumented as well as documented immigrants. Further, the political popularity of as well as funding for current health programs and health facilities providing affordable coverage and health care services to the vulnerable populations will progressively atrophy and cease to exist (National Review, 2010). However, this might present a rare opportunity for safety-net providers to have a novel client base, the undocumented immigrant population. To accomplish this, safety-net providers might need to cross-subsidize care for the undocumented immigrants (Zuckerman et al., 2011).

In sum, the U.S health care and policy context is not inviting for all categories of immigrants (Warner, 2011; Zuckerman et. al, 2011). Even legal immigrants are precluded, one way or the other, from public funded health programs until they have met stipulated residence requirement of at least five years. A comprehensive immigration reform, with certain health care accessibility options, might be the right policy alternative for mitigating the current and future barriers to timely, affordable health care services for all stratum of immigrants (Warner, 2011).

Immigrants Access to Medical Care and the Economic Concept of Demand and Income Elasticity of Demand

More recent studies have probed immigrant access to health care goods and service via the lens of micro and macro-economic concepts of demand and supply (Orrenius and Zavodny, 2009; Getzen, 2010; Korobkin, 2014; Lorenzoni et al., 2014). Some health economists argue that health care is a unique commodity not subject to economic analyses in that the principle of diminishing marginal utility is not applicable to health (Battistella, 2013; Getzen, 2010; Ellwood, 2009; Fuchs, 1996). However, other health economists hold the perspectives that the health care service, like all commodities, could be subjected to economic evaluation. (Orrenius and Zavodny, 2009). That said, to appreciate how and why people consume health care goods and services calls for understanding the nature of health care goods. Health economists view health care goods and services as normal goods for which the quantity consumers demand changes with income and wealth (Battistella, 2013; Getzen, 2010; Furch, 1996; Orrenius and Zavodny, 2009).

At the micro-level, higher income, therefore, is associated with higher volume of health care consumption, while lower income status is associated with lower consumption of health care goods (Getzen, 2010). Because immigrants tend to have less income or have income below the federal poverty level than natives; they are more likely to “purchase” an infinitesimal amount of health care goods and services; thereby reducing their health care utilization (Allen, 2001; Orrenius and Zavodny, 2009). The amount of financial resource individuals expend on health care is aligned very closely to the level of income per person in a given country, which in turn is associated with the wealth of the nation (Getzen, 2010). The individual’s willingness and ability to consume health care goods and services is dependent upon “the average income level of all the people in their family, their community, in their insurance plans, and in the nation as a whole”

(Getzen, 2010). This shared income hypothesis is of relevance to those eligible for public funded health insurance programs or employer-sponsored plans. For immigrants, particularly those who are not legal residents, the consumption of medical care is a function of income elasticity, the percentage change in spending on medical resources relative to each percentage change in income (Getzen, 2010; Stroup, 1997).

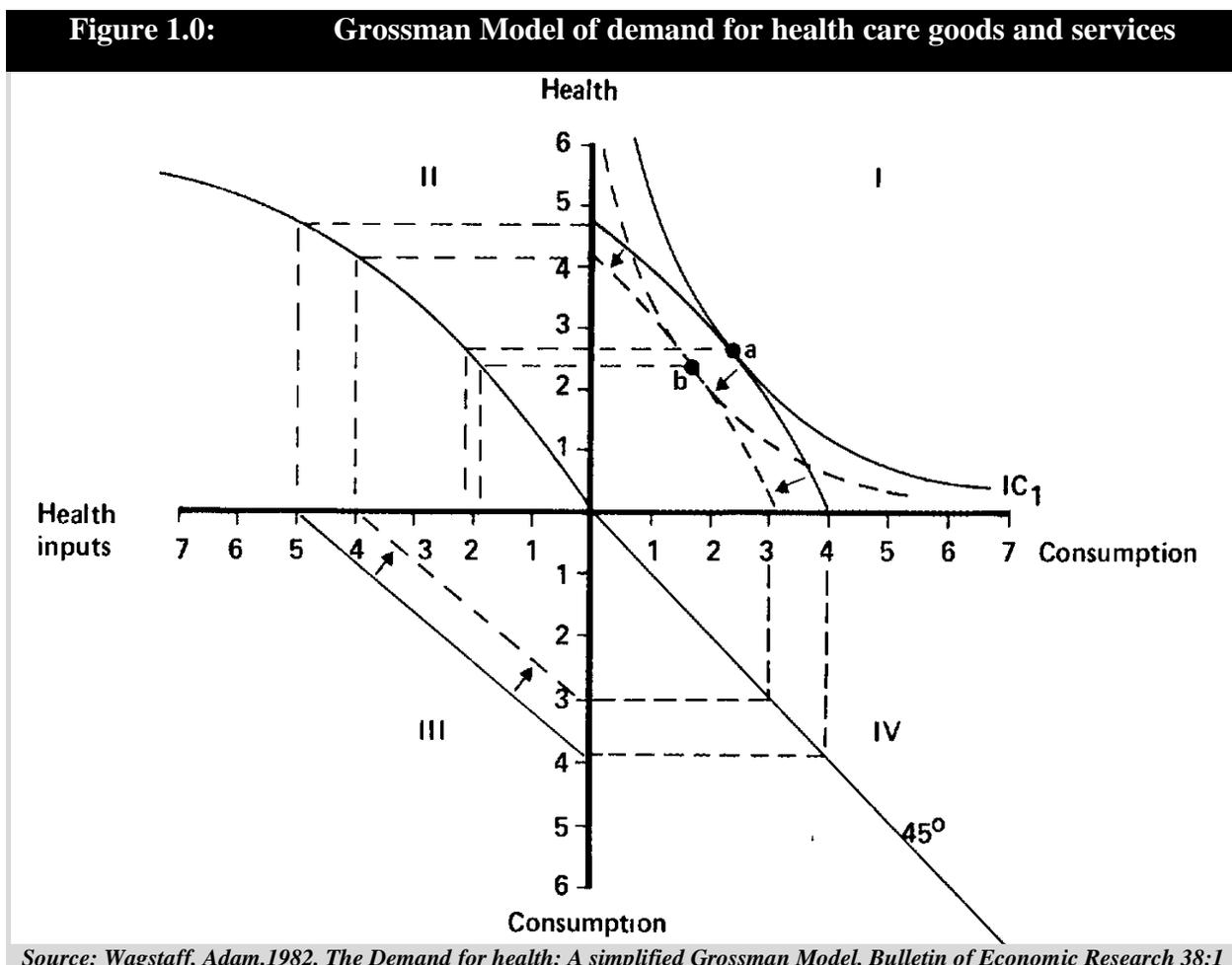
In micro-economic exegesis, the term normal goods refer to “any goods with a positive income elasticity of demand” (Wagstaff, 1986). From public health perspectives, as a consumer income rises, demand for medical goods rises or vice versa. Moreover, this basic health micro-economic precept is applicable to all immigrant sub-groups, who are twice likely to have lower incomes, and thereby consume less of medical goods and services at higher cost-sharing regime. This phenomenon can be conceptualized via the Michael Grossman model of demand for health care goods and services. Four basic premises underpin this concept:

- i. Consumption of health care goods and services is not an essential item on an individual’s scale of preference. Health care is desirable; however, it is not a high-valued thing above all else. Hence, individuals, more particularly immigrants, may opt to expend their resources on other things at the expense of health care goods and service (Wagstaff, 1986).
- ii. Individuals in any health care system face basic economic problems of scarcity and choice, insufficient resources to satisfy competing needs. Individuals have limited resources to meet all their health care and other basic needs of life. Consequently, they must make choices among competing alternatives (Wagstaff, 1986).
- iii. Individuals’ health status, at the margin, is a product of the consumption of health care goods and “other good things in life” (Wagstaff, 1986).

iv. Everything, including health care goods and services, induces a positive cost for the consumer. The consumer may assign a place for each consumption item on their scale of preference based on the value each item could add to their quality of life.

Hence, given a specific amount of income, the individual would likely expend much more on health care if they perceived the consumption of more health care goods and service would assure improved quality of life (Wagstaff, 1986).

Based on the aforementioned assumptions, Michael Grossman conceptualized the effect of income on the demand for health care goods and services in the exhibit below:



The individual's consumption of health care, based on their consumption budget, can be illustrated with the aid of the diagram above.

The diagram has for four quadrants. **Quadrant I** is the contours of a quasi-concave utility function $U(f)$, and the bowed-out curve in **quadrant I** is the utility possibility frontier (UPF), depicting a relationship between two economic variables (health care and consumption). The UPF represents the demand curve for health care goods and services. **Quadrant I** is derivative of all budget constraint alternatives traced around to the Quadrant. **Quadrant II** is the health care production function, **Quadrants III** depicts the budget constraints, and **Quadrant IV** is a 45⁰ line.

To secure an optimal level of health status at point *a* in Quadrant I, the individual need to make tradeoff between health care inputs (H) and income(C).

With a fall in income, health care demands curve (or the UPF) shifts from right to left. As a result, demand for health care goods and services decrease from point *a* to *b* in Quadrant I. This illustrates the effects of fall in income on health care. From health economist perspective, health care is a normal commodity, so the fall in the income of the individual is likely to result in a proportionate reduction in personal income that may be expended on health care goods and services. In particular, immigrants in the United States are more likely to encounter excruciating budget constraints, and as a result, their budget line and UPF in Quadrant I may shift inwards whenever they experience reduction in job earnings over a given period of time, and in turn curtailing their consumption of health care goods and services (Wag staff, 1986). In addition, the chart reflects the underlying reason why nations with higher per capita income, such as the United State, expend more financial resources on health care goods and services.

Likewise, recent empirical studies elsewhere have demonstrated that individual income significantly determine their health care use. Even so, this perspective is relevant to countries with universal health insurance regimes, which covers comprehensive and uniform health care services for all. For instance, Babazono et al. (1991) examined the impact of household income on the use of medical services in Japan, one of the advanced nations in the world with a single-payer health system; and they found a significant influence of low income on patients' utilization of medical care and dental services. Babazono et al. (1991) were able to tease out the impact of lower after-tax salary on the demand for preventive and primary health care vis-à-vis acute health care services. Interestingly, the authors observed that preventive and other less serious inpatient health care needs, with no potential medical cost-sharing responsibility, were not significantly correlated with the income of patients.

Regardless of their level of income, patients were less sensitive to the cost of medical care with regard to serious diseases. However, Babazono et al. (1991), generalizing their findings, concluded that large cost-sharing, especially large co-payments, might inhibit individuals from obtaining timely care, potentially culminating in adverse disease conditions. Alternatively, they might procrastinate procuring an urgent attention for a health condition until it reaches a fatal state (Babazono et al., (1991).

Furthermore, the review of the literature revealed that cost-sharing regimes in the United States were more likely to have a significant impact on the lower income and immigrants' utilization of essential health care services. This was what Newhouse et al. (1981) found in their controlled trial examination of the impact of cost sharing on health care utilization of the lower-income, immigrants, and the homeless in the United States. The authors established that co-payments have greater negative impact on the lower-income in terms of how they timely access

health care services. This was because lower-income people tend to have partial health insurance coverage or no insurance at all, and thus guaranteeing a positive correlation between income and demand for health care goods and services for all vulnerable populations in the United States (Newhouse et al., 1981). Similarly, having conducted a systematic search of post-1996 population based studies on how the cost of care masses immigrants' access to care, Derose et al. (2009) concluded that co-pays and co-insurance stymie immigrants' access to timely and needed care. Besides, Kilner (2004) found that charging immigrants for health care services creates a hostile health delivery system for immigrants, both documented and undocumented immigrants.

A demographic Overview of African-immigrants Population in the United States

Per Immigration Policy Center (2012), immigrants from Africa constitute a highly diverse and rapidly growing population sub-groups in the United States. Since its embryonic stages, the United State of America has attracted African immigrants than any other nation (Amelina & Faist, 2012). The trans-Atlantic slave trade brought in over 10 million African slaves to the New World, despite that the abolition of slave trade engendered the decline of African population in the New World. In the pre- 1965, the U.S immigration restrictions significantly de-escalated Africans emigration to the United States (Amelina & Faist, 2012).

Nevertheless, the early part of the twentieth century witnessed a continuous and persistent growth of African-immigrants in some major states and cities in the U.S, including California (158,953 African-immigrants), New York (158,878 African-immigrants), Texas (136,112 African-immigrants), Maryland (125,470 African-immigrants), and Virginia (89,290 African-immigrants) (IPC, 2012). The increase in migration of Africans to the United States was partially due to the enactment of the 1965 Family Reunification and Refugee Act, which

eliminated the country of origin quota system, an act to limit the migration of each foreign-born groups living in the United States (Amelina & Faist, 2012). Further, the growth of African immigrants reflects the impact of the U.S Diversity Visa (DV) program. The DV program, enacted as part of the 1990 immigration reform, has facilitated the migration of more than 30,000 Africans annually to the United States (Konadu-Agyemang and Takyi, 2006; Thomas, 2011).

In addition, the number of African immigrants in the United States grew from 881,300 in 2000 to 1.6 million, representing about 1 percent of the overall number of immigrants in the United States (IPC, 2012). Approximately, 70 percent of the African-immigrants are from Nigeria and Ethiopia. A significant number of these immigrants, about 573,791, migrated from Sub-Saharan Africa. In the District of Columbia, Ethiopian and Nigerians constituted 5 percent approximately of the overall immigrant population in 2010 (Singer, 2012).

Gender-wise, male dominates the U.S African-immigrants population. This is unsurprisingly true in that migration to foreign lands has historically been a predominantly male preserve (Hatton, 2014). Hence, African-male initially migrates and thereafter legally petition for their spouses to immigrate to the United States. For instance, between 2000 and 2010, the number of male African-immigrants grew from almost half a million (484,790) to nearly a million (845,237), compared to their female counterparts that increased from 396,510 to 761,677 (IPC, 2012).

Naturalization is a process whereby documented immigrants legally become United States citizens. The Immigration Policy Center (IPC, 2012) documented that nearly one-half of African-immigrants in the United States are naturalized citizens. In 2010, the IPC reported that there were about 46 percent African-immigrants naturalized as United States citizens, compared to approximately 44 percent of the entire foreign-born population.

There are substantial variations in educational attainment levels of foreign-born Africans and the U.S population. A significant proportion of African-immigrants in the United States have higher educational attainment level in both bachelor's and beyond bachelor levels than the general United State population. The Immigration Policy Center (IPC) reported that about one-fifth (16.1%) of African-immigrants age 25 and older had educational attainment beyond bachelor's degrees in 2010. Thus, about 16 percent of African-immigrants had graduate degree, which is roughly 6 percentage points higher than the United State population with 10.4 percent native-born aged 25 and older had a graduate degree in 2010.

The IPC also reported that one-quarter, about 24.2 percent, of African-immigrants had a bachelor's degree relative to 18 percent of the general United States population had a bachelor's degree only in 2010. In essence, African-immigrants had about 6 percentage points in bachelor's degree in relation to the entire United States population.

In comparison to the U.S African-Americans, Gabriel (2011) reported that African-immigrants have higher levels of educational attainment. Thus, about 38 percent of African-immigrants have a college degree, compared to 16 percent of African-Americans. However, the higher level of educational attainment among African-immigrants does not translate into higher occupational earnings. For instance, Badeshi and Kposowa (2012) discovered that although educational attainment among the white populations showed White African immigrants with the highest level of educational attainment (12.6%) and black African immigrants had educational attainment (11.60%) that was much higher than native-born whites and foreign-born whites. African-immigrants occupational earnings were much lower in relations to all demographic groups, except native-born blacks and Hispanics.

In addition, there are significant differences in earnings within African-immigrant community (Bideshi and Kposowa, 2012). While the annual median income of African-immigrants blacks is about \$ 28,734, African-born whites had an annual median income of \$ 52,144. Explicating this phenomenon is the human capital theory, which advances that difference in earnings is severally due to a person's investment in their schooling, on-the-job training, and work experience. Nonetheless, disparities in income among Africans are partially, but not fully, related to the human capital theory (American Community Survey (ACS), 2011). Other less significant explanatory variables, such as duration of domicile in the U.S, acculturation, native language proficiency, (for example, English language), and locality pay adjustments account for such variations (Bideshi and Kposowa, 2012).

African-immigrants were likely to be employed in professional jobs in the field of Management, Business, and Science. According to 2011 American Community Survey report, more than one-third of African-immigrants, in 2010, worked in management, business, science, and arts occupations. While one-quarter, approximately 25 percent of African-immigrants, worked in the service sector, one-fifth (20 percent) ply their trades in the sales, and office occupations. Only 3.3 percent of African-immigrants worked in the construction and maintenance sectors of the U.S economy (ACS, 2011).

In sum, the increasing growth in the number of black African immigrants in the U.S. exhibits their contribution to the diversity of the United States. Black African immigrants ply their trade in both formal and informal sectors of the U.S economy (ACS, 2011).

Rationale for Africans' Migration to the United States

African immigrants, like all immigrants, migrate for many reasons, including economic and political reasons. Accordingly, they are exposed to disparate economic, social, and political structures, including different health care culture, access, and utilization conundrum their novel domicile. Several competing perspectives have explained the current influx of Africans into advanced economies, more especially the United States, over the past decades.

First, unlike the African-slaves who were willy-nilly transported to foreign destinations around the globe, modern African immigration is set within the context of neo-classical migration theory, which conceptualized immigration as a function of wage differentials among countries (Amelina and Thomas, 2012). That is to say, people migrate for economic reasons, to earn much more for their skills and labor. Accordingly, the neo-classical migration concept can partly explain why Africans migrate to the United States and advanced economies. For instance, in her 2009 essay on African immigrants' economic and political life in the United States, Alex-Assensoh argued that unlike pre-independence and colonial era African immigrants who voluntarily migrated to the U.S for educational purposes, the post- colonization African-immigrants migrate to the United States in large measure for greener pastures.

Second, another migration concept that provides an explanation for the nature and trend of African immigration to advanced and developed nations is the state control theory of migration. The concept hypothesized immigration as a product of reflective initiatives of the state. Per this concept, states, say the wealthy and advanced nations, consciously implement specific immigration policies and programs to attract specific characteristics of immigrants to their shore (Amelina and Faist, 2012). Such policies may be expressly instituted for two major purposes: one major reason is to attract low-skilled immigrants to absorb jobs that are at the

bottom of the scale of preference of the native-born. The native-born would not take such jobs in that they tend to have comparably high injury levels, fatality levels as well as lower social status and recognition (Okun, 1975). The second major rationale is to enable United States employers to hire temporary, foreign workers to mitigate the dearth of exceptionally skilled labor in specialty occupations in both the public and private sectors of the economy. A typical instance of such policies is the H-1B program enacted by the U.S Congress in 1990 to expressly “target foreign nationals whose skills and expertise are under-supplied in the domestic labor market” (GAO, 2011).

Third, the pattern and nature of immigration could be refined by the world system paradigm. The concept conceptualized immigration as a product of the “penetration of wealthy and advanced countries into the economic system of less developed countries in the world (Amelina and Thomas, 2012). The world system theory hypothesizes that immigration is attributable to inveterate cultural and ideological connections originated by colonialism. Immigrants are more likely to migrate to advanced nations with which they share similar linguistic culture or utilize similar lingua franca. Because the U.S uses English as official language, and given that linguistic proficiency more likely determines the socio-economic success of immigrants in the United States, citizens of African countries colonized by the ex-British empire are motivated to migrate to the United States or to other English speaking countries (Amelina and Thomas, 2012).

In addition, other minor theories provide further explication on the pattern of immigration from the less developed world to the advanced economies. These theories centered on the patterns and duration of immigrant flow. The network’s theoretical perspective is one of them. It conceptualized perpetual immigration process as a function of the strength of migrants’

networks. The networks are “sets of interpersonal connections linking migrants and prospective immigrants in origin and destination areas through kingship and friendships ties (Singer and Massey, 1998; Amelina and Thomas, 2012). For years, the pragmatic evidence of the network perspective has been noted in the African-immigrants flow into some major states and cities in the United States, including Maryland, Virginia, and District of Columbia (Singer and Massey, 1998).

Literature on African Immigrants Access to and Utilization of Medical Care in the United States

There is a paucity of literature on African-immigrants access to and utilization of medical services in the United States inasmuch as most public health studies fail to consider African-immigrants as a significant statistical unit of analysis. Analogous to most immigrants, African-immigrants exhibit the “healthy immigrant effect” (Venters and Gany, 2011). Thus, African-immigrant has similar or better health outcomes than native-born population. Nevertheless, this situation changes overtime, and African-immigrants begin to acquire risk factors for diseases in their novel milieu. This phenomenon occurs inasmuch as individuals who migrate to a foreign country are more likely to be people with excellent health profiles than those who do not migrate (Chou et al. 2010). In other words, the healthy immigrant paradox of African-immigrants may be due in part to selective migration processes—naturally or artificially (Venters and Gany, 2011).

Recently, Venters and Gany (2011) undertook meta-analysis of both qualitative and quantitative studies pertaining to the health behavior, epidemiology, and health status of African-immigrants in the Diaspora—the United States, Europe, and elsewhere. They reported their findings under six major dimensions:

(1) **Mortality:** They indicated that life expectancy of all immigrants was two or more years longer relative to that of the U.S native born. Compared with the life expectancy of African-Americans, foreign-born blacks had seven or longer life expectancy.

(2) **Mental Health:** Venters and Gany (2011) found lower prevalence of mental health issues among African-immigrants. Foreign-born Africans had lower rates of depression, alcohol, and illicit drug use in relations to other immigrants and native-born groups.

(3) **Nutrition:** Nonetheless, African-immigrants were more likely to encounter huge challenges in food nutritional options. They were more likely to face considerable barriers in accessing healthy food, notwithstanding the rich vein of superb nutritional food at affordable prices in the United States. Besides, African-immigrants were unable to maintain their conventional cooking habits severally due to heavy workload and personal schedules. Accordingly, African-immigrants were more likely to be under-nourished and have lower level of micro and macro vitamins and minerals (Venters and Gany, 2011).

(4) **Use of Traditional or Herbal Medicine:** African-immigrants relied on traditional herbal medicines and health care services, which they either purchase from neighborhood African-grocery stores or have them delivered from their country of origin.

(5) **Infectious Disease:** The authors noted a significant prevalence of infectious disease among African immigrants. Tuberculosis (TB) and HIV are the two broader areas of public health scholars foci with respect to African-immigrants health and epidemiological issues. Venters and Gany (2011) established that African-immigrants had higher rates of actual transmission index of TB as well as extra-pulmonary diseases. However, African-immigrants, in comparison to African-Americans, have lower rates of HIV of infection. Conversely, Omollo et

al. (2010) found that there is high prevalence of HIV in African-immigrant population, though exact numbers are not available.

(6) **Obesity:** More than 47.5 percent of the U.S. population is obese. African-immigrants are not, Venters and Gany observed, as compared to the general population.

Venters and Gany (2011) provided fundamentally useful silhouette of African-immigrants' health status. Nonetheless, they explored extremely little with regard to African-immigrants consumption of health care goods and services in their various countries of domicile.

Prior to this review, Siegel, Horam, and Teferra (2001) conducted a study to assess the health status, and use of medical care of East African immigrants in Washington District of Columbia. Having surveyed 525 African-born adults, 67% of whom were Ethiopians, 14 % Somalis, 10% Eritreans, they generalized that African-born metics were more likely to report of having good health. Nonetheless, African immigrants were less likely, vis-a-vis the local metro area population as well as the entire U.S population, to utilize preventive and primary health care services. The main deficiency of this study was its myopic focus on African-immigrants from Ethiopia, Somalia, and Eritrea. The sampled subjects from these countries constituted about 91% of the overall sample, making the sample less representative of the actual population of the study. Overall, the study provided useful insights on health care behavior and activities of some East- African immigrants and by extension, African immigrants.

In 2010, Simbiri, Hausman, Wandenya, and Lidicker investigated how social, cultural, and linguistic competence of African-immigrants from different geo-linguistic segments of the African continent predicted their access to health care and social services. Using a sample of 239 West African immigrants, Simbiri et al. (2010) discovered that Franco-phone African-immigrants exhibited less acculturation, less education attainments, less fluency in English, and

thus were more likely to face health care access challenges. Conversely, Anglophone African-immigrants reported higher level of integration into the mainstream of American culture and they perceived fewer impediments in accessing and utilizing medical care.

Eventually, the researchers argued that African-immigrants poor access to the U.S health care service is attributable to some other predictor variable, including lack of proper and legal documents, inadequate familiarity with the health care system, transportation, and in the case of the HIV infected individuals, stigma and discrimination.

Albeit an important contribution to understanding African immigrants health issues, the study centered only on access impediments and challenges.

The study failed to incorporate African-immigrants from other parts of the continent, including North and South Africa. The study sampled only west African-immigrants.

In a similar comparative investigation, Chaumba (2011) explored the health status, use of health care resource, and medical treatment strategies of Ethiopian and Nigerian immigrants in the United States. Chaumba (2011) found a correlation between the use of health care resources and country of birth, and thus study sample exhibited a low use of health resources, suggesting potential health care issues. Chaumba (2011) concluded that Ethiopians were less likely than Nigerians to utilize health services, indicating a potential health care access and health problems for Ethiopians. What accounted for the variations, Chaumba argued, was the degree of acculturation. Nigerians comparatively have higher English language proficiency inasmuch as English language is a lingua franca in Nigeria. Hence, compared with their Ethiopian counterpart, Nigerians were less likely encounter linguistic barriers in accessing and using medical care services in the United States (Chaumba, 2011).

Moreover, some other studies centered on health care access and utilization of care by African immigrant women in the United States. To appreciate the experiences of Somali immigrant women in Minnesota with the American health care system, Pavlisha, Noorb, and Brandtc (2010) employed a social-ecological perspectives and social action research design. The researchers discovered that Somali immigrant women in Minnesota held a health belief system closely related to situational factors, which was in sharp contrast to the biological model, a key driver of western medicinal practices. In consequence, these discordant health beliefs of the Somali immigrant women have engendered divergent and different health care service expectations and interactions. Ultimately, Pavlisha, Noorb, and Brandtc (2010) concluded that Somali immigrant women experienced unmet health care expectations, and they were likely to report of having a diminished perceived quality of health care compared with other immigrant groups and the general population.

In their qualitative studies, Vesely, Ewaida, and Kearney (2012) examined how micro and macro level issues to explicate how first-generation low-income immigrant women experience prenatal care services in two disparate health policy contexts in the Washington DC metropolitan area. Having conducted 40 in-depth interviews with immigrant women in the District of Columbia and Virginia, Vesely et al., (2012) concluded that, regardless of health insurance coverage differentials, all first generation immigrant mothers in Northern Virginia and DC had access to free prenatal and post-natal health care services. Based on their findings, the authors emphasized on the need for public family health insurance and culturally competent health care delivery providers to cater for low-income immigrants' health care needs.

Wadenya, Lopez, and Berthold (2010) employed focus study of fifty African-immigrants in West Philadelphia to evaluate their oral and dental health behavior .They reported that

African- immigrants, more particularly recent immigrants with five or less years length of stay in the United States, still perceived chewing stick as the most effective tooth cleaning device. However, Wadenya et al. (2010) indicated that African immigrants utilized chewing sticks to complement the use of the toothpaste and toothbrush. Though provided useful and revealing insights into oral health care behavior of African-immigrants, the study's sample size was extremely small to represent the general African-born population segment in the United States. Further, the authors relied on a less robust research methodology; they deployed a focus group with a sample size larger than the conventionally accepted focus group members of four (4) to fifteen (15) (O'sullivan, Russell, and Berner 2008).

Moreover, some literature on African-immigrant health care services consumption discussed on their use and receipt of preventive health care services. For instance, Morrison et al., (2012) studied the use and receipt of preventive health services among Somali patients in an academic primary care practice in Rochester, Minnesota. The researchers established significant discrepancies in the provision of preventive health to Somali patients in relation to that of non-Somali patients. In addition, they found a positive association between the use of medical interpreter and primary care services.

In sum, the literature on African-immigrants health care access, though extremely and relatively scanty, provides some fundamental and significant insights into immigrants' health care access, utilization, and sources of health care. However, they exhibit some major deficiencies. First, most of the literature centered on specific cases. They failed to explore African-immigrant health care consumption patterns in light of broader access to and utilization of health care goods and services in the United States.

REVIEW OF THE LITERATURE (II)--CONCEPTUAL FRAMEWORK

Andersen's Healthcare Access Behavioral Model

Ronald M. Andersen's health care access behavioral model (HBM) was the core and primary conceptual framework for the study. Nonetheless, four other conceptual frameworks namely barrier-centered, institute of medicine, Derose-Gresenz-Ringel, and electronic access conceptual models are reviewed and deployed to make up for the notable limitations of the Andersen's behavioral access model.

In his tour de force health care access behavioral model, Andersen defined medical access as "actual use of personal health services systems and everything that facilitates or impedes their uses" (Andersen et al., 2001). Andersen's definition, though very concise, provides comprehensive elements for understanding the fundamental and multiple theoretical aspects of access to medical care. Based on this definition, Andersen conceptualized health care access as a function of contextual and individual characteristics. The contextual and individual characteristics are composite variables composed of predisposing, enabling, and need health care access determinants (Andersen et al., 2001; Aday et al., 1978; Aday et al., 1981; Andersen et al., 1998).

Contextual Characteristics of Health Care Access

The contextual characteristics of medical care access refers to the "circumstances and environment" of health care access. It deals with the degree of health care organization and provider related variables. Contextual factors measure health care access at the aggregate level, taking into account the overall access of all societal units, " from units as small as the family to

those as large as a national health care system” (Andersen et al., 2001). The major components of the contextual factors are predisposing, need and enabling factors.

Contextual Predisposing Characteristics (CPC)

The *contextual predisposing characteristics* (CPCs) refer to certain situations and conditions within the health care system propel aggregate demand for health care goods and services. The CPC is subdivided into demographic, social, and health beliefs factors. The demographic factors refer to age, gender, income, education, and marital status composition of a given country. The term social predisposing factors refer to the existence or lack of supportive mechanism that foster or impede access to medical care. The contextual belief factors are the prevailing socio-economic values, mores, political values, and cultural norms driving the organization and distributions of health care goods and service (Andersen et al., 2001).

The second component of contextual characteristics is the *contextual enabling factors* (CEFs). The CEFs represent existing health policies and programs in a given society. The CEFs are statutory rules and regulations issued by public or private organizations to regulate health care production decisions and cost-sharing regime in a particular health care system. Per Andersen et al. (2001), there are three categories of CEFs: health policies, health care financing arrangements, and organization. Health care policies refer to all authoritative health care provisions and decisions made by lawmakers, the executive, and the courts or even by influential executives of public-recognized organizations, such as the Joint Commission on Accreditation of health Care organization (JCAHO). The financial arrangements refer to how healthcare goods and services are sold and paid for in a health care system. Financial arrangements are regulatory mechanisms to ensure reasonable level of contribution rates, premium, and cost sharing regimes

across health care providers (Paris, 2010). The organizational aspects of CEF represent the production or supply aspect of health care. In short, CEFs look at the supply side of health care delivery, the distribution of caregivers, both formal and informal, the number of health care facilities, and the structural arrangements of the delivery system (Andersen et al., 2001; Diamant et al., 2001).

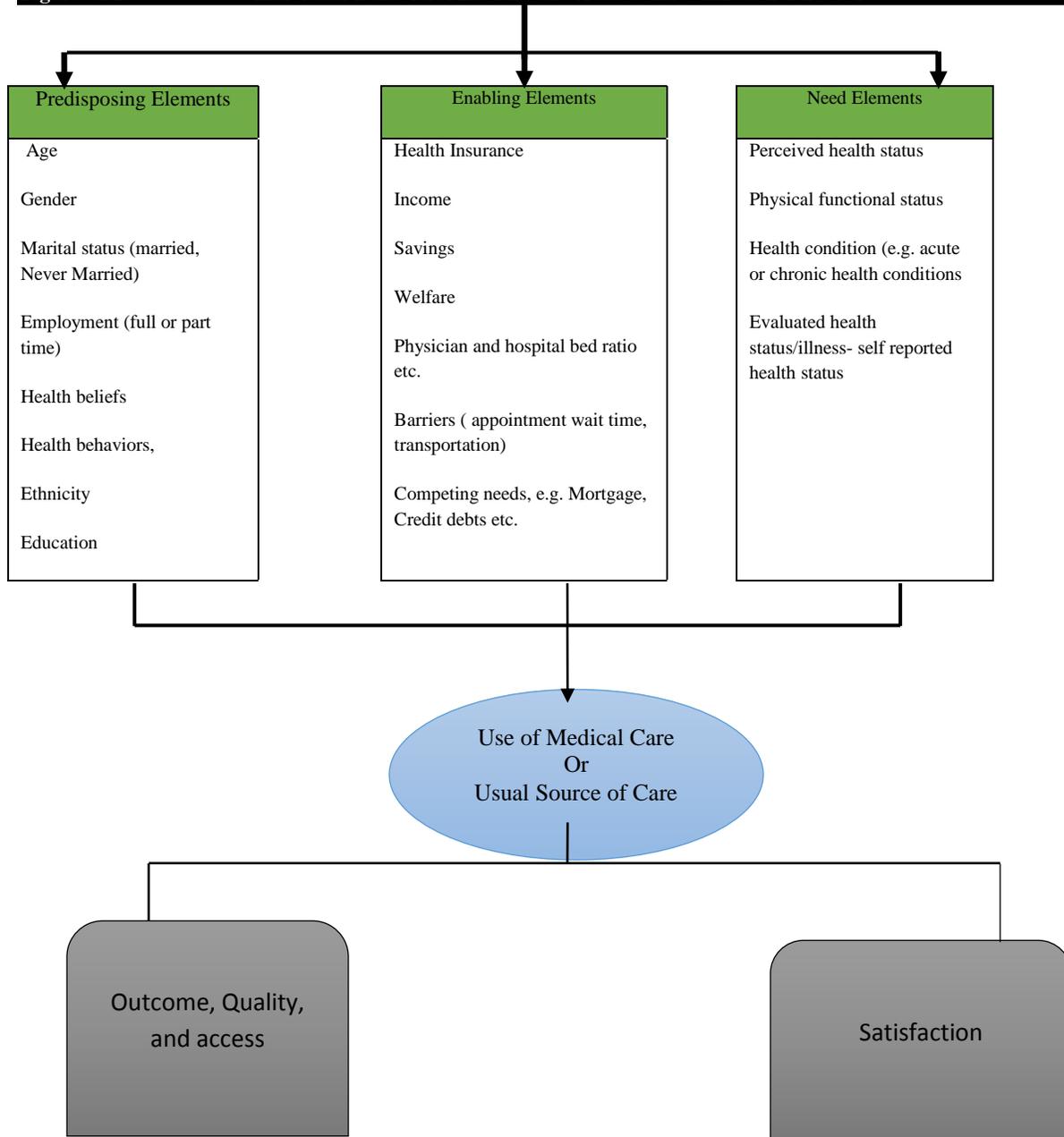
The third component is the *contextual need factors* (CNFs), which measures the effects of physical environment on a society's demand for health care goods and services. The environmental factors include population, housing, air, and water that conform to national ambient quality standards in a particular year (Andersen et al., 2001; Gelberg et. al., 2009). The physical environment may change the health status of the whole population, which in turn could bring about change in their demand for health care goods and services.

In sum, Andersen et al. (2001) indicated that an individual's medical care access is a microcosm of the aggregate health care system. Therefore, they are directly affected by all the contextual factors within the healthcare ecosystem. Simply put, access to health care is a product of all the factors operating within the larger health care and health policy environment. Andersen and colleagues (1987) noted that to appreciate fully the dynamics of the individual's access to care in a specific health care system, one need to, first, excavate the health care system at the macro-level to know virtually all the dynamics influencing healthcare access at the micro-level.

Individual Medical Care Access Characteristics

Ronald Andersen's behavioral health framework hypothesized the individual's demand and use of health care goods and service as a function of three core predictor variables: predisposing, enabling and need variables.

Figure 1.2: Individual Behavioral Health Care Access and Utilization Model



SOURCE: Gelberg, Andersen, and Leake.2000. The Behavioral Model for Vulnerable Populations: Application to Medical Care Use and Outcomes for Homeless People. Health Services Research 32:6

In Andersen’s model, healthcare access represents an individual’s “predisposition to utilize medical care, ability to obtain timely medical care, and the urgent need for the medical care” (Choi, 2006). The model was illustrated in the accompanying exhibit:

Individual Predisposing Medical Care access Variables

In figure 1.2, the predisposing variables measure specific socio-economic characteristics that stimulate or stymie an individual's propensity to seek medical care (Gelberg et al., 2000).

There are three types of predisposing variables: demographic, social and health care beliefs.

Demographic variables refer to an individual's age and gender; social factors are both ascribed and achieved status of an individual in a society, such as education, social capital, occupation, and race or ethnicity (Crespo et al., 2001). Health beliefs are "attitude, values, and knowledge people have about health and health care services that can influence their subsequent perception of need and use of health services" (Crespo et al., 2001). Health beliefs are one of the essential indicators of individual elements. Health beliefs may affect individual's decision to seek health services and willingness to pay for certain procedures (Zhang et al., 2008 and Zheng, 2008).

Individual Enabling Medical Care Access Variables

Moreover, the enabling predictor variables represent factors that propel or impede willingness and ability to seek health care goods and services at given price over a set period.

The enabling variables are categorized into two types: Financial and organizational factors.

Financial variables measures how income and wealth determine individuals' access to and use of medical care. While the availability of adequate income and wealth may facilitate a person's willingness, ability to seek, and pay for needed care, lack of income and wealth is more likely to impede a person from timely accessing the health care they need. Conversely, organizational factors measures factors that determine the supply of health care services, including location, appointment, and scheduling protocols, and hassle-free transportation to a regular source of health care (Andersen et al., 2001; Gelberg et al., 2000).

Individual Need Medical Care Access Variables

In figure 1.2, the need elements represent subjective and objective drivers of health care access. The need constructs are the most direct and essential predictor variables of health service access and utilization (Andersen, 1995). The need explanatory variable could be a self – evaluated (perceived/subjective) and professionally evaluated (objective) individual’s health status or illness.

The literature spanning philosophy, economic, psychology, sociology, and public health is replete with theses on basic human needs, which throws further lights on health care needs. For instance, in his conceptualization of health care need, Ward (2009) provided taxonomy of human health care needs: normative, felt, expressed, and comparative needs.

(i) *Normative Health Care Need (NHN)*: It is a health care need evaluated and determined by a health care professional or an expert in the health care field. It is an objective assessment and determination of a person’s need for health care. Thus, the normative health care need provides risk factors of diseases based on which health care treatment regimen is required. A normative health care need is akin to Andersen’s evaluated health care status, where health care experts assess a patient and determine whether they require medical attention (Ward, 2009).

(ii) *Felt-Health Care Need*: The second domain is felt-need, akin to Andersen’s perceived need. The felt-health care need represents health care services people feel they need to obtain, *ceteris paribus*. Felt-health care need is a subjective assessment of health care needs. It is based on the individual’s perception. The felt-health care need dimension presupposes that people are health literate enough to utilize health information to determine the type of medical goods and services they need. Felt- health care need is ultimately translated into “expressed need”, another dimension of health care needs.

(iii) *Expressed Health Care Need*: It represents the translation of health care need into actual utilization of health care goods and services. Expressed health care need may be conceptualized as the real use of health care services. Expressed need may be identified and measured by excavating both private and public health care utilization data. The health care system does not provide equitable health care utilization platform. In all probability, some health care consumers may experience unmet health care need.

(iv) *Comparative Health Care Need* is akin to horizontal health care equity. Horizontal equity, as already noted elsewhere, is where people in equal medical need are offered equal, appropriate diagnoses and treatments, irrespective of socio-economic status (Devaux and De Looper, 2012). In determining comparative health care need, public health scholars examine the health care utilization differentials of differing population sub-groups.

In the sum, the individual need variable of access can be measured from two perspectives. While the subjective measurement can be employed to ascertain an individual's propensity to access and utilized health care goods and services within a specific period, the objective assessment is expert and authoritative judgment of a health care professional on the health status of a person, which can lead to an immediate or a prospective medical treatment. An objective health care assessment involves the actual consumption of health services, while a subjective assessment is probabilistic.

Outcome Measures of Health Care Access

In figure 1.2, Andersen's health behavioral model conceptualized the positive impacts of health care access in terms of the outcomes of health care services delivered. Outcome indicators of health are individuals' perception about the health care goods and services they had consumed (Andersen et al., 2001; Gelberg et al., 2000).

Outcome measures of medical access include the actual use of personal health care services, patients' evaluation of waiting time, travel time, patient-provider communication, and technical health care received (Lebrun and Dubay 2010; Andersen et al., 2001; Davidson 2001; Kullgren *et al.* 2011; Derose et al. 2011, DeVoe et al. 2007 and Lee and Choi 2009).

Potential and Realized Access under the BHM

Based on the accompanying model, two forms of medical care access could be identified: prospective and realized health care access. Prospective (potential) access measures the probability of an individual utilizing or not utilizing health care services grounded on specific predictor variables, including income level, age, gender, education and health insurance coverage (Gelberg et al., 2000). Prospective access is directly influenced by both contextual and individual level variables (Andersen et al., 2001). Realized health care access indicators evaluate and measure the actual use of health care goods and services.

In addition, the indicators of realized access include the actual use of physician, hospital, and other health services and products. The degree of actual access is a function of both perceived and evaluated health status of an individual. The poorer the health status of an individual, the more likely they are to actually utilize health care goods and services, *ceteris*

paribus. On the other hand, an excellent health status of an individual is more likely to decrease their use of health care service and products, all else being equal (Andersen and Davison, 2001).

The Rationale for the Utilization of Andersen Model

In public health research realm, several different conceptual frameworks exist for investigating health care access issues (Thomas and PENCHANSKY 1981; Frenk 1992; IOM 1993; GRESENZ et al 1983); nevertheless, Andersen's access schema is most popular with public health researchers.

The original Andersen framework has been modified and predominantly utilized to explore access to and utilization of health care among vulnerable populations and other minority populations, including foreign-born groups (Lee and Choi, 2009; Burnette and Mui 1995; Choi 2006; Vera et al., 1998; Kuo and Torres-Gil 2001; Dubay and Lebrun 2012; Zhang et al., 2008; Durden and Hummer 2006). Specifically, Andersen's framework has been employed to investigate specific vulnerable population, such as immigrants (Durden and Hummer 2006; Lee and Choi 2009; Dubay and Lebrun 2010); homeless women (Swanson et al 2003 and Teruya et al., 2010); the homeless, African-American woman, Hispanics (Ginsberg, 1991), and the elderly (Fitzpatrick et al., 2004). Andersen's conceptual framework is an apposite research tool when the essay of a research is to (1) explore the idiosyncratic health care issues of specific populations; and (2) generalize findings to heterogeneous, marginalized, and vulnerable populations (Andersen et al., 1998).

On many grounds, the Andersen's model has been criticized. Some critics asserted that the model fails to provide adequate specifics about association between constructs (Choi, 2009). Other critics argued that the model does not take into account the role of communication and

information technology in shaping patient's access to care. Besides, critics have labeled the Andersen's model as "enablers" centered conceptual model (Derose et al., 2011). That is to say, the model over-emphasizes on access facilitating variables; thereby relegating access-inhibiting factors to the background.

In his commentary on the behavioral Model of physician utilization, Rundall (1981) directed some criticisms against Andreessen's behavioral model contending that: (i) the model accounts for lower predictive power in most empirical tests.

This deficiency, Rundall (1981) argued, is not attributable to the model but to researchers' inappropriate translations from the verbal theory. (ii) The model explanatory power relies on unilateral effects of the needed dimensions. Indicatively, the measures of predisposing as well as the enabling dimensions have consistently failed to produce statistically significant predictive statistics in most empirical public health research (Rundall, 1981).

Notwithstanding, Andersen's model is the most appropriate conceptual tool for the exploration of medical care access and utilization issues specific to immigrants and any vulnerable populations by virtue of its operational definition and validity (Lee and Choi 2006) .

RESEARCH METHODS

Research Questions and Hypotheses

As aforesaid, the literature on immigrants in the United States is hugely skewed toward the investigations into health care needs, access, and utilization of Mexicans, Koreans, and Chinese immigrants. Under the assumption of a homogenous Black race, numerous research in the realm of public health have conflated African immigrants' health care behavior, needs, access, and utilization with that of their African-Americans cousins. Very little, as a result, is known about health care access and utilization of African-immigrants. This research provides a missing piece in the literature of public health on African-immigrants. In view of this, the study addresses the following research questions and hypotheses:

Research Questions

African immigrants, a rapidly expanding group of immigrants in the Metropolitan Washington (Singer, 2012), health care needs and practices is poorly appreciated in the US public health discourse context. This study explored the access and utilization of medical care of first-generation African immigrants residing in the District of Columbia Metro area of the United States. In this view of this, the present study examined three central questions:

- i.** What is the nature of African-immigrants access to and utilization of health care services in the District of Columbia Metro area? What factors are associated with health care access and utilization among African-immigrants in the District of Columbia Metro area?

- ii. How do African-immigrants fare in terms of access and utilization of health care services versus other population sub-groups (Caucasians, Black-Americans, Hispanics) in the DCMA? What are the explanations for such differentials, if any?
- iii. Does having a usual source of care (USOC) impact on African-immigrants' receipt and utilization of health care services? What are the drivers of such impacts, negative or positive?

Research Hypotheses

Hypothesis (A):

The objective of the study under hypothesis (A) was to determine African-immigrants' health care behavior within the U.S health care culture and belief. African-immigrants are more likely to exhibit different health care culture and belief within the United States health care milieu. In the context of the United States health care system, the following hypotheses were tested:

H₁: African-immigrants will utilize herbal medicine from Africa to satisfy their health care need.

H₂: African-immigrants will not get flu shot for the flu season.

H₃: African-immigrants will access and use preventive health care services.

H₄: African-immigrants will utilize information and communication technology to access health care services.

Hypothesis (B):

Under Hypothesis (B), the study essayed to determine how immigration- status actuates health status, perceived health care quality, and satisfaction among first-generation African-immigrants in the District of Columbia Metro Area of the United States of America. In the context of the U.S health care system:

H₁: African-immigrants will report of poor satisfaction with given health care services received.

H₂: African-immigrants will report of having worse perceived health care quality.

H₃: African-immigrants will report of having an excellent health status.

Hypothesis (C):

There is insufficient empirical evidence establishing an association between acculturation and health care access and utilization (Fassaert et al., 2009). Employing three variables of acculturation, the following hypotheses sought to establish this evidence within the first-generation African-immigrants in the District of Columbia Metro Area of the United States of America. In the context of the U.S health care system:

H₁: African-immigrants with positive cultural orientation towards American public domain will access and use health care services.

H₂: African-immigrants with positive social interactions with native-born Americans (Whites, Black-Americans, and Hispanics etc.) will have access to and use health care services.

H₃: African-immigrants with longer duration of residence in the United States will have access to and use health care services.

Hypothesis (D): Comparative Hypotheses

Compared with US born citizens (White, Black-Americans, and Hispanics), African-immigrants confront an amalgam of challenges that are more likely to affect their access to and utilization of health care services. The following hypotheses were submitted to determine whether there exist any significant health care access and utilization differentials between African-immigrants and other population sub-groups in the United States of America.

Accordingly, it was hypothesized, in the context of the U.S health care system, that:

H₁: African-immigrants are more likely to have usual source of care than other population sub-groups (White, African-American and Hispanics or Latinos).

H₂: African-immigrants are more likely to report of having excellent health status than other population sub-groups (Whites, African-Americans, and Hispanics or Latinos).

H₃: African-immigrants are more likely to utilize health care services than other population sub-groups (Whites, African-American, and Hispanics or Latinos).

Hypothesis -Question Matrix (HQM)

Table 1.0: Hypothesis-Question Matrix

Hypotheses	Questions
<u>Hypothesis (A)</u>	
H₁	S-Question (7)
H₂	S-Question (5)
H₃	S-Question (4)
H₄	S-Question (15)
<u>Hypothesis (B)</u>	
H₁	S-Question (14)
H₂	S-Question (13)
H₃	S-Question (16)
<u>Hypothesis (C)</u>	
H₁	S-Question (11)
H₂	S-Question (10)
H₃	S-Question (19)
<u>Hypothesis (D)</u>	
H₁	S-Question (1)
H₂	S-Question (16)
H₃	S-Question (12)

Quantitative and Qualitative Data Sources

Data Setting

There were two types of data collection setting for this study: physical and virtual setting. The physical setting involved the collection of data from physical locations of participants, their abode or regular place of visits such as grocery-shops, beauty salons, barbering shops, social events, community meetings, and local service agencies. Moreover, the virtual data collection setting occurred on internet where participants, particularly internet and computer savvy respondents, were recruited to respond to the questionnaire via survey monkey.

Both primary and secondary data sources were employed in the study. Primary data, collected via both internet and in-person survey interviews, was the study's main raw data collected from participants in order to gain insight into their health care access and utilization activities in the past 12 months. The secondary data served as a baseline data. The baseline data, sourced from the 2013 National Health Interview Survey (NHIS) data, served as a comparative data to the primary data.

The study utilized two inquiries methods: quantitative and qualitative. An integration of both quantitative and qualitative research and methods were employed with the prime objective of enhancing our appreciation of medical care access and utilization of African immigrants in the DCMA of the United States. The mixed method was also deployed to strengthen the overall research design of this study. The two methods were used concurrently within the study.

Moreover, two databases were embedded in the study; however, quantitative information was given greater emphasis in the investigations. The quantitative database served as a primary

database, while the qualitative database played a supporting role in the study (Creswell, 2014). In other words, the primary aim of using the mixed-method approach was to collect quantitative data and have the qualitative data furnish supportive information.

Quantitative Primary Data Collection Techniques

The study combined two data collection methods: face-to-face or in-person interview and internet survey. The face-to-face or in-person interview as well as internet survey (e-mail survey) were deployed, where appropriate, efficient, and effective, to collect the primary data for the study. Interviews, in-person or via emails, are structured. All participants were asked similar questions in similar order. While both methods furnished sufficient data quality and appropriate responses from participants, each has its own advantage. A survey via the email contacts was relatively faster and less expensive than other forms of surveys, telephone or mail surveys (O'Sullivan et al., 2008). In-person interviewing enabled the researcher to contact difficult-to-reach sub-population, such as African-immigrants, perform in-depth probing or sensitive questions survey, and enhance the response rate (O'Sullivan et al., 2008; Mertler and Charles, 2002; Czaja and Blair, 1996; McTavish and Loether, 1988).

Furthermore, the study relied preponderantly on face-to face interviews in that immigrant were more likely to decline or be skeptical to complete a questionnaire that emerges in the mail (Sallant and Dillman, 1994). The main limitation of face-to-face interview is inter-personal dynamics, which may affect response rate, reliability and operational validity (O'sullivan et al., 2008; Czaja and Blair, 1996). Lack of inter-personal contact makes it extremely impossible for respondents to clarify a question. Email survey can be time-consuming for the respondents. To minimize these limitations, the researcher designed and prosecuted clear, concise, and easy-to-

answer questions. The questions was subjected to a pre-testing regime to ensure they conform to established survey criteria.

Qualitative Primary Data Collection Techniques

The quantitative inquiry method of the study had 26 questions while the qualitative aspect had only one survey question at the tail end of the questionnaire. Inductive thematic analysis (ITA) approach, an inquiry procedure of generating themes and subject matters from a given database, was employed in this study (Creswell, 2014). The ITA in this study involved four stepwise processes: first, the textual data was thoroughly read; second, common themes within the data were identified; third, the common themes were coded and categorized; finally, the structure and content of the common themes were interpreted (Creswell, 2014).

In fact, the use of the mixed method provided two essential benefits to the study. First, it provided more comprehensive and convincing evidence to the study's findings. Accordingly, it provided further insight to findings from the quantitative approach. Second, it enabled us to cross-mitigate and offset the downsides of the other method (Creswell, 2014).

Study Sample Derivation

Target Population

The theoretical population for the study was all first-generation African-immigrants aged 18 and older residing in the District of Columbia metro area. Implicitly, African-immigrants who reside outside the DC metro area were excluded from the study owing to limited resources—time and money. In addition, second generation African-immigrants (Children of African immigrants) were excluded from the participants of the study owing to their unique assimilation

and socialization experiences in the US mainstream culture (Bersani, 2014). The study's parameter regarding this population was to investigate their access to and use of health care services (O'Sullivan et al 2008). Sample frame, the available list of all respondents in the population from which a sample could be drawn, was the population of African-immigrants in the DCMA. There were approximately 125,209 African immigrant immigrants in the District of Columbia metro area in 2010 (Singer, 2012 and Price et al. n.d.). The selection and inclusion criteria for this study were:(1) being a first-generation documented or undocumented African-immigrant, (2) being 18 years and older, (b) living in the District of Columbia Metro area.

Sampling Design and Determining the Sample size

A non-probability convenience sampling design was deployed in the study. Using the conventional calculation of sample size based on the population of the participants, the sample size requirement for the study was 399 African-immigrants (Czaja and Blair, 1992; Israel, 1992 & 2013). Three other criteria for determining sample size, precision level, probability level, and degree of variability statistically factored into the calculation of the sample size.

Hence, given the population of 125,209 in the DCMA in 2010 (Singer, 2012 & 2013), precision level (confidence interval) of ± 5 percent, risk level (confidence level) of 95%, and the degree of variability (DOV) of 50% (.50/.50). The African-immigrant population in the DCMA is more heterogeneous, therefore the DOV criterion of 50% is statistically appropriate and acceptable (Israel, 1992, Salant & Dillman, 1994; Czaja and Blair, 1996).

Israel's (1992) formula for calculation sample size was employed to obtain the sample size for the study. The sample size calculation was performed as illustrated below:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = the sample size, N = the size of the African-immigrant population in the DCMA, the population size was from the summation of data furnished by Audrey Singer (2012) in her article "Metropolitan Washington: A New Immigrant Gateway" and e = the level of precision (sampling error). A 95% confidence level was used. Thus, the alpha value (α) was 0.05.

The sample size requirement for the study was calculated as:

$$n = \frac{125209}{1+125209(.05)^2} = 398.7262 \approx 399$$

The sample size (n) was about 400 African immigrants. Accordingly, the study was conducted for all the target sample of 400 African-immigrants residing in the District of Columbia Metro Area. Of 400 African-immigrants respondents who were recruited and invited to participated in the study, 281 participants completed the survey.

Besides, ninety (90) out of 281 participants came from direct internet survey, while the face-to-face survey administration yielded 191 subjects who fully completed and returned their survey instruments. A total number of 142 electronic mail survey (EMS) invitations were sent out to prospective participants. Out of the 142 EMS, 90 responded, 1 opted out, and 8 bounced, the electronic mail invitations of the survey were returned to the researcher because either the

address was invalid or the participants' mail server did not recognize the invitation((Leonard, 2013).

Furthermore, the face-to-face survey administration recorded 191 completed surveys out of 400 survey recruitment attempts. In aggregate, the response rate for the mixed-mode survey strategy, for this study, was approximately 70 %. Accordingly, the non-response bias rate was approximately 30%. The response rate for this study is preponderantly appropriate and acceptable based on meta-analyzes of thirty-nine study results published within last decade that directly compared Web and mail survey modes (Medway and Fulton,212; Anseel et al.,2010;Tse-Hua & Xitao, 2007).

Survey Implementation Plan

Questionnaire Design

The questionnaire for this study was designed within the context of existing health care access questionnaires. The study co-opted relevant health care access survey questions from the questionnaires of the National Health Interview Survey (NHIS), a sub-agency of the US Center for Disease Control and Prevention (CDC). Since 1956, the NHIS has utilized the questionnaires on several annual occasions to collect data on multiparous health issues of national importance, including data on micro-level health status, health care access, health care behavior, and medical resource utilization from the civilian non-institutionalized population of the United States. Taking into perspective the target population of this study, some specific questions pertaining to access to and utilization of care in the US National Health Survey (NHS) questionnaires was excerpted, simplified, and modified to satisfy the purpose of this study. The use of NHIS questionnaires provided the virtue of reliability. It helped produce consistent, dependable data for

the final analyses of the data (Czaja and Blair, 1996). A large proportion of the NHIS questionnaire is closed-ended with more than five response list provided for each question. This fosters reliability and operational validity (O'Sullivan et al., 2008).

Questionnaire Structure and composition

The questionnaire for the study was mostly close-ended with a fixed list of alternative responses. There was one open-ended questions requiring participant to document their subjective experiences with the United States health care delivery system in the past 12 months. Participants were requested to respond to questions that best pertain to their health care access and utilization in the past 12 months.

The survey instrument comprised of **27** questions co-opted from the U.S National Health Survey of 2013. Twenty-six (26) of the survey questions are closed-ended, providing respondents with a list of specified answer categories. One open-ended survey question, viz. question 27, was incorporated in the questionnaire to obtain participants' verbal as well as detailed evaluation of their experiences (access and utilization) with the US health care system.

The closed-ended questionnaire has some virtues. While closed-ended questions may not capture the participant actual responses and gloss over specific concerns of respondents, it may foster easier questionnaire comprehension and answering process (Czaja and Blair, 1996; O'Sullivan et al., 2008). Besides, closed-ended questions foster reliability and operational validity, which is likely to assure robust, significant extrapolation and findings of the study (Czaja and Blair, 1996).

Furthermore, with specific categories already provided, respondents could finish all questions apace (Czaja and Blair, 1996). On the contrary, closed-ended questionnaire has two

major drawbacks: first, it might result in bias research findings as questionnaire specified answer categories might not capture the actual responses of the study's subjects, and second, it might discount some important concerns of participants.

In addressing these issues, the present study relied on standardized, empirically tested, and relevant questionnaire, with respect to access to and utilization of health care, co-opted from the National Health Survey of 2013.

Pilot Testing the Questionnaire

To ascertain how the questionnaire would operate in the intended manner, producing valid, and reliable measures of the subjects' health care access and utilization, a pilot test was conducted with a small group of subjects who represented common variations in the target population in May 2013. Accordingly, thirty-five (35) African-immigrants, residing in the DCMA, were surveyed. The data for the pilot study was excluded from the final study.

At the baseline, the pilot test provided three important merits: (1) it tested the adequacy of the proposed data-collection strategy (O'Sullivan, 2008); (2) helped in establishing the viability, feasibility, and potential degree of resource consumption of the research plan; and (3) helped in detecting flaws in the questionnaire. Prior to the actual survey administration, the flaws were corrected. In addition, some survey questions were either entirely modified or tweaked to foster reliability as well as mitigate measurement errors.

Survey Administration Plan and Participants Recruitment

The survey administration arrangements for this study involved elaborate and straightforward steps dealing with the two data gathering processes for the project. For the face-to-face survey administration, the interviewing set of materials, detailing general information on interviewing techniques, and specifics about how the survey would be completed served as a guidepost for the research during the interviewing process or survey instruments distribution activities.

Participants were located and recruited at designated places in the DCMA including African immigrants' shops, Churches, Mosques, social clubs and social events. In the targeted locations, the participants were approached and requested to participate in the survey exercise, having been identified as a first-generation African immigrant aged 18 and over. Participants, who agreed to fill out the survey, were given a hard copy of the survey instrument to complete. Thereafter, they were requested to provide information about locations of other African-immigrants, who might not be unwilling to participate in the survey, could be recruited. Using a custom URL for the survey, the completed hard-copy surveys were manually inputted into the Survey Monkey collector to facilitate ultimate export of the overall data to the SPSS.

Furthermore, two data collection methods were employed: web link (custom URL) and electronic mails (address book). First, in the electronic component of the survey, the online survey tool, Survey Monkey, was utilized to send both anonymous and secured web link to participants, who had already consented to participate in the study. Furthermore, participants were requested to forward the survey instrument with their own messages to other African immigrants, who might be willing to participate in the study. Second, email distribution lists of two African immigrant associations in Maryland and Virginia was used to send survey email

invitations (SEI) via the Survey Monkey to participate in the survey exercise. The SEI contained short email with a secure, customized, and anonymous web link to the survey instruments. Respondents were unable to send the survey link to others. Besides, the link expired once participants' had completed and submitted the survey. Hence, subjects were denied re-entry into the survey, and thus, multi-responses from the same respondents were absolutely eliminated.

Data Exportation, Entry, Coding, and Screening Procedures

Data collected from the face-to-face interview survey was manually entered into the data file, employing a customized uniform resource locator of the survey instrument, while data collected from electronic mail responses were directly captured into computer data file on the Survey Monkey. Using Survey Monkey's SPSS integrated capability, the aggregate data was exported to the SPSS. The nature of the questionnaire made the SPSS the ideal statistical tool. The SPSS facilitated for a fast-track production of relevant statistical and analytical outputs. Nevertheless, comment-field responses were not exported in that the Survey Monkey data integration tool did not have the capacity to integrate such data into the SPSS. Nevertheless, it furnished descriptive data and information about the qualitative question. Accordingly, some data responses for the country-of-origin question had to be manually inputted into the SPSS.

Furthermore, exported data was screened for inconsistent responses and missing data. Individual responses with either inconsistent responses or missing data were identified and remedied or removed prior to statistical analyses. The Survey Monkey SPSS integrative tool labels responses as q0001, q0002, q0003 and so on, which made variable identification extremely difficult. The variable labels were re-labelled to facilitate easy identification. For instance, Q0001 for question 1 was re-labelled as Usoc to represent "usual source of care".

In addition, numeric values were assigned to each response category to exclude subjects who responded, “Don’t know” or “refused” to some questions. Thus, the discrete missing values were set as 0 and 99. To facilitate reliable and effective data analyses, some data were re-coded. Specifically, the response categories on educational attainment of participants were recoded as just elementary, High school graduate, and college graduate.

Extra efforts were undertaken to clean the final data set by employing the possible-code cleaning process (Babbie, 2001). Possible-code cleaning (PCC), the process of ensuring only assigned codes to particular variable categories appear in data file, is one of the robust data file error detection and corrective measures. To ensure that the data as well as the variable numerical codes are properly inputted, the final data file was extensively investigated item-by-item and line-by-line for errors, and corrective action undertaken.

Study Variables

Outcome Variables

All variables for this project were self-reported and categorical in nature. Hence, the main dependent variables of interest incorporated generally used measures of access to and utilization of health care services. In measuring African-immigrants’ access to and utilization of health care, the study took into account: (1) potential access indicators, (2) realized access indicators, and (3) patient perceptions of health care, overall satisfaction with care, and quality of care during the past 12 months (Dubay, 2010; Heider et al. 2014).

Health care delivery system messages how people access health care (Andersen, 1995; Dubay, 2010; Hammond et al., 2011). Thus, usual source of care (USOC) was designated as a

measure of potential access to and use of care. A usual source of care, a place where people usually go to seek and obtain health care service (USHHS, 2011), is a dependent variable for measuring potential access in the study. Data for the USOC variable was collected by asking participants about whether or not they have a particular medical location where they usually go to when they were sick, in need of health care services or advice about their health care (Lee and Choi, 2009).

Measuring access to health care via usual source of care was most appropriate in that recent empirical research suggested that people with usual source of care (USC) had better access to essential health care goods and services than those who did not (DeVoe et al,2011). As Viera (2006) noted, having a usual source is essential for an individual's access to and use of health care (Viera, 2006). Further, having a usual source of care (USOC) had extensively been employed by public health and demographic researchers as “a proxy for access” due to its positive correlation with the utilization of all categories of health care services, such as regular check-ups, routine screenings, dental care, preventive, primary, as well as specialty health care needs (Lee and Choi 2009;Chunyu et al. 2011; Blewett et al.2008; Birken and Mayer 2009; Choi 2011; DeVoe et al., 2009;Viera et al 2006;Minden et al., 2007;Rodriguez et al. 2009; Javier et al 2010;Xu 2002; Durden 2006; Kullgren 2011;Phillips et al., 2009).

Besides, other recent empirical research has strongly established the existence of positive correlation between having a usual source of care and health care access. To illustrate, Ettner (2003) acknowledged that patients' satisfaction with quality of care is positive if they had a usual source of care. Thus, individuals with usual health care sites, such as primary doctor's office, mobile clinics, outreach clinics, and shelter Clinics, are more likely to report greater quality care satisfaction (Lee & Choi 2009). Further, Phillips et al. (2009) found that having a usual source of

care messages people's choice of physician as well as behavior of physicians in the health care market. Additionally, people with excellent health status as well as people with no health insurance coverage were less likely to have a usual source of care.

An estimated 52 million Americans are without a usual source of care due to either higher cost of care or health care access impediments (Viera et al. 2006). Such people are unable to obtain needed preventive care, more likely to suffer from poor health outcomes, suffer from either acute or chronic illness, and wind up in the emergency room or in the hospital (USHHS, 2011). Of essential note is that having a regular medical doctor or a usual source of care is a representative or proxy indicator; it measures the probability of a patient accessing and using health care service. Thus, having a usual source of care does not only enhance the individual's actual utilization of medical care; but it also increases the individual's potential access to effective health care services (Dubay, 2010; Lee & Choi, 2009).

Furthermore, patients' perceptions of care received were measured in two variable categories: (1) overall satisfaction with care, and (2) perceived quality of care (Dubay, 2010; Lee and Choi, 2009). Participants were asked to rate their perceived satisfaction and quality level of care received in the past 12 months. The responses were dichotomized into two categories: very/somewhat satisfied with care. Similarly, perceived quality of care was dichotomized into excellent/ good quality care (Lee and Choi, 2009; Dubay 2010).

Finally, patients' health care utilization (realized access) was measured in a single variable imperative. Thus, the use of routine and regular preventive care services was deployed as a proxy for realized access to health care. The realized access construct was dichotomized as (Yes/No). The use of such binary indicators (Yes/No) for the variable was appropriate inasmuch as it has been extensively employed by public health researchers and investigators to measure

realized access to health care services (Singh-Setia et al.,2011; Dubay,2010;Lee and Choi,2009;Hammond et al.,2011;Fitzpatrick et al. 2004;Kirby and Kaneda,2006).

Independent Variables

The main explanatory variables of interest represented various constructs identified in the literature review. Predictor variables were drawn from Andersen's Behavioral model of health care access for underserved and vulnerable population sub-groups, and other major existing health care access schematic models in the literature. The Andersen's Health Behavioral Model takes into account certain factors (need, enabling, and predisposing) that facilitate or impede underserved and vulnerable population's access to and utilization of health care services (Solorio et al., 2006). Hence, the model conceptualized access to health care as a consequence of predisposing, enabling, and need (health status) variables.

Predisposing Independent Variables

Predisposing outcome variables, represents individuals' propensity to seek and utilize health care services, include socio-demographic elements such as nativity status, educational attainment, marital status, gender, age, health behavior, and acculturation variables (Andersen, 1995; Andersen et al.,2001. Rundall, 1981; Aday et al., 1981).

Furthermore, included in the predisposing elements were socio-demographic measures of age (18 years and older), marital status (married, divorced, separated, widowed, and never married), educational attainment (Less than high school, high school graduate, general equivalency diploma, some college, and college graduate or more), gender (female or male), and nativity status (country of origin).

Acculturation: Predisposing Independent variable

Another central variable in this study was acculturation. It was measured by three acculturation domains. The length of stay in the United States was utilized as one of the measures of acculturation. Accordingly, participants were requested to select from multiple response choices pertaining to their period of domicile in the United States. Other measures of acculturation in this study were social interaction and cultural orientation domains (Fassaert et al., 2009). The social interaction measured asked subjects if they hang out or socialize with the native born population sub-groups including Caucasians, African-Americans, and Hispanics. These social interaction activities included taking part in social activities such as visiting, attending clubs and meetings, going to parties, making, and maintaining relationships with the US born citizens. The cultural orientation domain of acculturation measured the attitude of African-immigrants toward the public domain. This variable was measured by responses to the question, “How often do you watch American movies, and television (TV) shows or programs in English?”

Need Independent Variables

The need for health care represents the perceived health status of the individual. Public health scholars consider the need for medical care as a major determinant of health care goods and services utilization (Andersen et al., 20001; Rundall, 1981). Thus, individuals with health care needs were more likely to use medical care services to satisfy their health care needs compared with those who did not have any medical care needs (Folland et al., 2004). In order for health service consumption to occur, health care consumers would need to perceive illness or the

probability of its occurrence (Rundall, 1981). Therefore, to measure the probability of an individual seeking health care, the general subjective health status of the individual must accurately be determined and measured. Accordingly, this section of the project was based on respondents' perceived health status, which asked respondents to evaluate their general health status as excellent, very good, good, fair or poor in the past 12 months. To facilitate logistic regression analyses, the responses were dichotomized into good (excellent/very good/good) versus not well (fair/poor).

Per Andersen and Newman (1973), the enabling explanatory variables of health care access determine “the availability of health services to individuals” as well as their comparative ability to pay for health care services. Enabling variables included personal or household income, employment status, and insurance status. Hence, household income was classified into six (6) imperatives based on income.

Moreover, immigration –related explanatory variable was incorporated to assess the effects of length of residency on health care access and utilization (Singh-Setia *et al.*, 2010). Accordingly, the length of stay in the United States was incorporated into the investigation. The length of stay was classified into four core categories: (i) less than 5 years, (ii) 6 to 10 years, (iii) 11 to 20 years, and (iv) 21 years and more (Lee and Choi, 2009). Income, as a need explanatory variable, was defined as total household income during the past month preceding the interview.

Furthermore, enabling outcome measures incorporate the measure of employment status. The sample subjects were asked to indicate their employment status as either currently working full time, currently part time, currently not working, and retired, . The employment status variable was coded into currently working and not currently working to foster statistical analyses.

Ethical Issues

The data for the study was collected from May 28, 2014 to July 5, 2014. Thus, the entire data was collected in thirty-nine days. The Institutional Review Board (IRB) at the University of Baltimore granted the human subjects' approval for the study. Extensive efforts were undertaken to reasonably obtain informed consent from all participants, protect their anonymity, and confidentiality of their identities and responses. In addition, participants were neither badgered nor intimidated into participating or responding to particular questions. Prior to the survey, questions about the study, including its major purpose, the amount of efforts, response time, participation risks, benefits, the data access, and utilization procedures were extensively explained to all participants (Czaja and Blair, 1996).

Statistical Analyses

This section of the study summarized data and statistical analyses of the primary data collected. Moreover, all data analyses were performed utilizing IBM SPSS 22, a statistical tool appropriate for the collected data. Descriptive statistics as well as binomial logistic regression were used to gain insight about the data. The descriptive statistics were used for two reasons: (1) to ascertain missing score values, and extreme scores in order to remedy them; (2) to analyze and provide statistical decisions on the hypotheses under investigation in this study.

The binomial logistic regression analyses provided information about the goodness of fit, sensitivity, specificity, R-squares values, and exponential (B) or odds ratio of selected indicators. It also furnished essential information on correlation coefficients and coefficient of determinations for specific variables of interest. Essentially, binomial logistic regression (BLR)

was employed to assess the relative contribution of selected health care access and utilization indicators in explaining the variance in the outcome variables of interest. The statistical output of the binomial logistic regression was used for the logit model of the study.

RESULTS

Descriptive and Bivariate Results

This section of the study summarized data from the study with respect to the characteristics of respondents (African-immigrants) residing in the Washington Metro area. Hence, various statistically appropriate figures and tables were generated for relevant data of interest. The results indicated that African-immigrants tend to be young, married, highly educated, earned low income in contrast to their higher educational attainment, documented, and in excellent or very good health. They had higher odds of having usual sources of health care services, had higher odds of carrying employer-sponsored health insurance coverage, had lower odds of utilizing preventive medical care services, and had lower odds of utilizing African traditional medicine.

Moreover, of the targeted 400-sample size, 281 (70 percent) respondents appropriately completed and returned the survey questionnaire. The majority of the respondents were from Ghana, Ethiopia, Nigeria, Cameroon, Sierra Leone, and Liberia. The highest proportion of the immigrants was in the 30-39 age group. More than half (59 percent) of the respondents identified themselves as males. Seven of every ten (70 percent) of the African immigrant had bachelors or graduate degree, a result consistent with several data sources in the United States private and public domain. In contrast, African immigrants living in the District of Columbia metropolitan areas were characterized by lower annual household income, notwithstanding their higher educational attainments. For example, nearly seven in ten (72 percent) reported earning between \$0 and \$50,000 in family income yearly in 2013. In terms of employment, 65 percent of African immigrants were currently working full time while 26 percent reported that they were currently working part-time.

In aggregate, approximately nine of every ten (91 percent) African immigrants were employed. African-immigrants were more likely to have health insurance coverage, as 70 percent reported that they had health insurance coverage. Of those with health insurance coverage, nearly seven out of ten (73 percent) said they had employer-sponsored group insurance compared with just one out of ten (10 percent) depending on public health insurance programs, Medicaid or Medicare to meet all or part of their health care expenses. A little more than half (54 percent) of African-immigrants living in the Washington Metropolitan areas claimed that they were married compared with a little over one-fifth (23 percent) who were either single or never married. African immigrants either were documented or naturalized citizens of the United States of America. Specifically, 55 percent claimed they were documented while 45 percent said they were naturalized United States citizens.

African immigrants had lower odds of influenza vaccination rate. Half (53 percent) of the immigrants said they had not obtained influenza vaccination in 2013. Women (55 percent) were more likely than men (51 percent) not to have utilized influenza vaccination in 2013; nonetheless, the non-utilization differentials of influenza vaccination rate were not radically distinct compared with the US general population. The uninsured immigrants (72 percent) were more likely to report of not having used influenza vaccination compared with those who had health insurance coverage (43 percent). Age was a predictor of influenza vaccination utilization among African immigrants living in the District of Columbia metro areas. Hence, older adult aged 60 and over (64 percent) were more likely to obtain flu shot compared to the other age groups.

Of those who did not obtain the influenza vaccination in 2013, four out of five (84 percent) said they did not feel the need for it at all. In the study, African immigrants were asked

whether they utilized traditional herbal medicine in the United States. Sixty-three (63) percent said they did not, compared with thirty-seven (37) percent who said they did. Women (39 percent) were more likely than men (35 percent) to use traditional herbal medicine.

In the study, both potential and realized accesses to health care services were measured. Potential access represents the odds of an individual having health care access owing to specific socio-economic and contextual characteristics. The descriptive results suggested that African immigrants in the DCMA had potential access to care. Eighty-five (85) percent of African immigrant reported that they had a usual source of care (potential access) in 2013, compared with 15 percent who said they did not. Men were more likely than women to have usual source of medical care. Of those with a usual source of medical care, 44 percent of them considered a doctor's office to be their usual source of care, and women were more likely than men to consider a doctor's office or health maintenance organization (HMO) to be their usual source of care. Conversely, of those who lacked a usual source of care, 32 percent said they did not have any adverse health condition compared with 32 percent who cited lack of health insurance coverage.

Moreover, the result of the study suggested that 68 percent of the African immigrants had made an office visit to a doctor's or other health care professional in the past 12 months. Of those who visited a doctor's office or other health care professional in the past 12 months, 65 percent had made only one visit. Younger African immigrants were less likely than older ones to make more visits to a doctor's office or other health care professional in the past 12 months.

African immigrants in the DCMA reported higher proportion of satisfaction with health care services received in the past 12 months. Specifically, 90 percent of the participants said they

were very satisfied with the health care services they received in their most recent office visits to a doctor's or other health care professionals

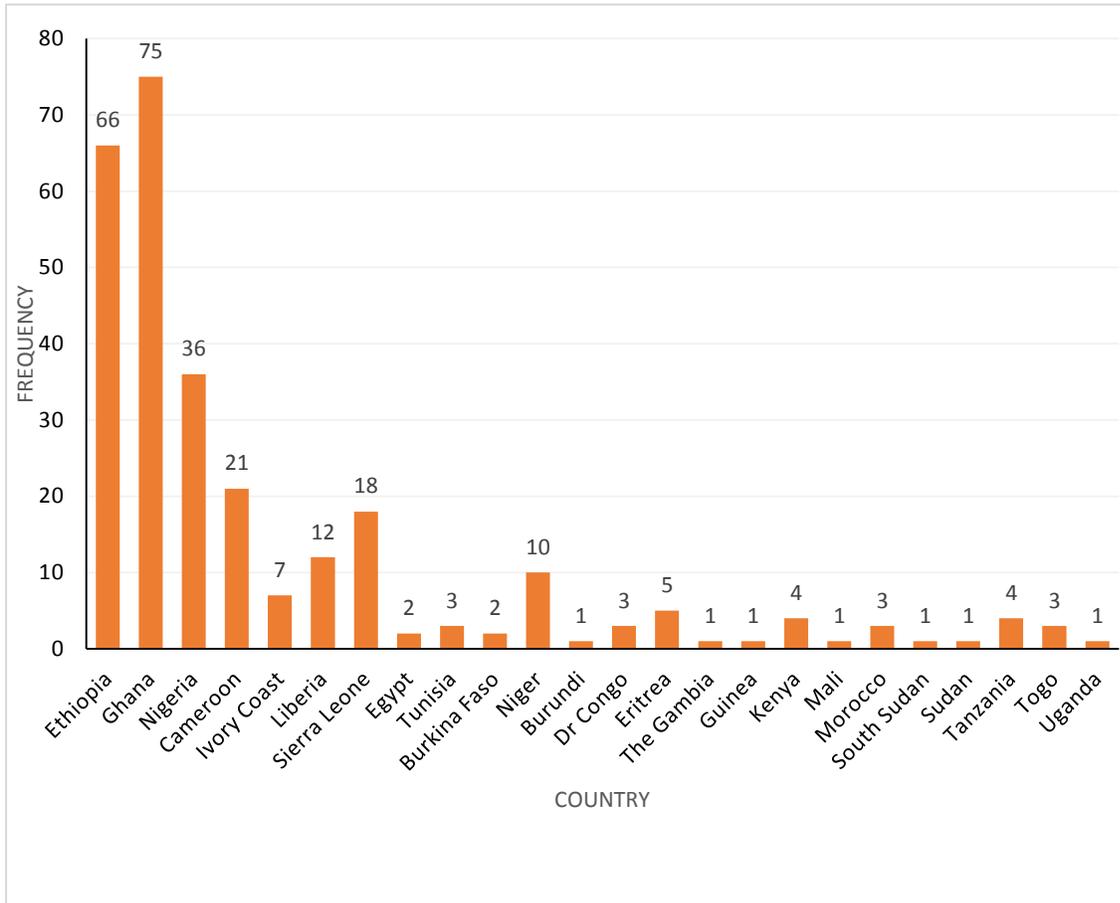
With respect to perceived quality of care, six in every ten (63%) of African immigrants had excellent or very good perception of the quality of health care service received in the past 12 months. Men (64 percent) were more likely than women (62 percent) to have received excellent or very good quality of care in the past 12 months. Those with excellent or very good health status were about three times as likely as African immigrants with poor health status to report the receipt of excellent or very good quality of care.

Demographic and Health Care Characteristics Analysis

Respondents' Country of Origin

In question 18 of the survey instrument, participants were asked about their countries of origin. Out of the 281 participants, 75 (27%) originated from Ghana, 66 (24%) from Ethiopia, 36(13%) from Nigeria, 21 (8%) from Cameroon, 18 (6%) from Sierra Leone, 12 (4%) from Liberia, and the rest were from several other African countries including the Gambia, Tanzania, South Sudan, Sudan, Niger, and Uganda . The figure 1.3 provided numerical highlights.

Figure 1.3: A Bar chart of Participants Countries of Origin



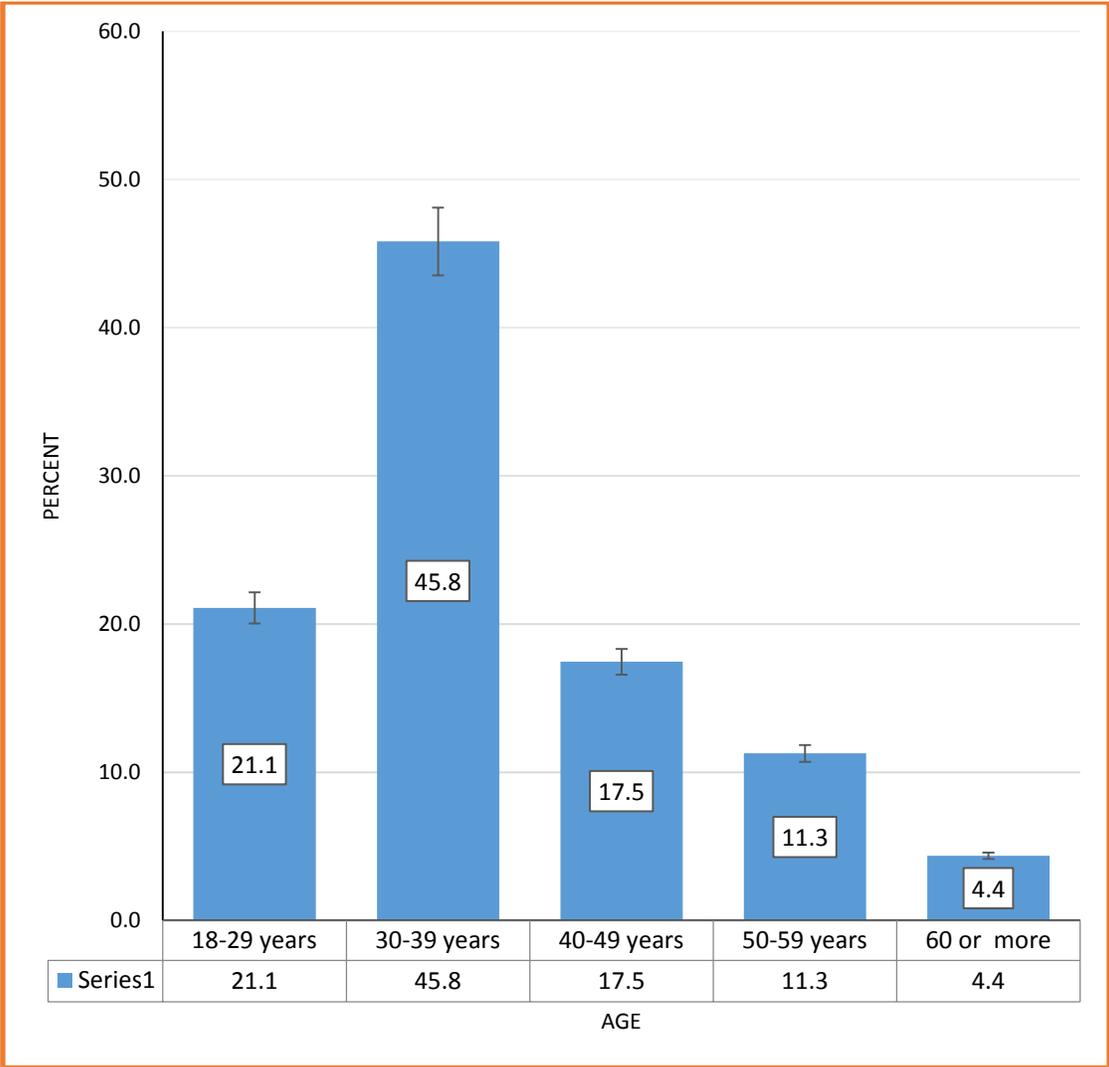
The participants' composition and representation in this study was virtually analogous to the findings of Singer's studies ((2012 & 2013). Singer (2012) observed that 125,209 of the Washington Metro Area immigrants' population of 1,223,159 million originated from the African continent. This population included about 37,074 (3 percent) from Ethiopia, 19,872 (1.6 percent) from Nigeria, 17,459 (1.4 percent) from Ghana, 16,524 (1.4 percent) from Cameroon, 10302 (0.8 percent) from Sierra Leone, 12,069(1.0) from other Western Africa, and 11,909 (1.0) from other Eastern African countries. Hence, by calculation African immigrant constituted about 10 percent of the proportion of all immigrants in the Washington Metro (Singer, 2012 & 2013).

Based on the overall population of African immigrants (125,209) in the DCMA, Ethiopians constituted the largest proportion of the overall proportion (Singer, 2012 & 2013). Ethiopians constituted about 30 percent of the overall African immigrants' population relative to about 16 percent from Nigeria, 14 percent from Ghana, 13 percent from Cameroon, 8 percent from Sierra Leone, 10 percent from other Western Africa, and 9 percent from Eastern African countries (Singer, 2012 & 2013).

Respondents' Age and Gender

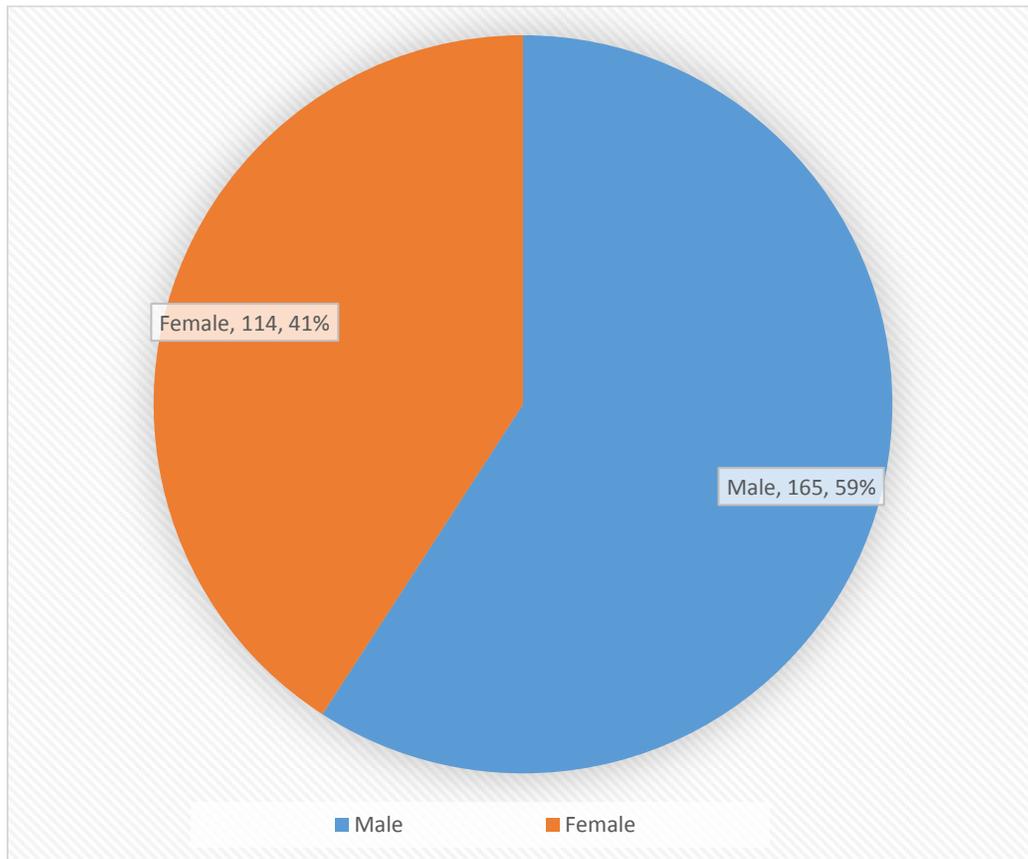
The proportion of African immigrants aged between 30 and 39 was highest among the age groups. Overall, 46 percent of the African-immigrants surveyed were aged between the ages of 30—39, while 21 percent reported their ages between 18—29 years. A small proportion of the respondents (4 percent) were 60 years and over. Eleven (11) percent of the respondents were aged between 50 to 59 years, while 18 percent were between the ages of 40 and 49 years as indicated in figure 1.4 below.

Figure 1.4: Percent Distribution Respondents' Age in 2014



Moreover, when the data was considered by gender, more than half (59 percent) of the respondents identified themselves as males, while two-fifth (41 percent) are females as shown as in figure 1.5 below:

Figure 1.5: A Pie Chart of African Immigrants' Gender Composition

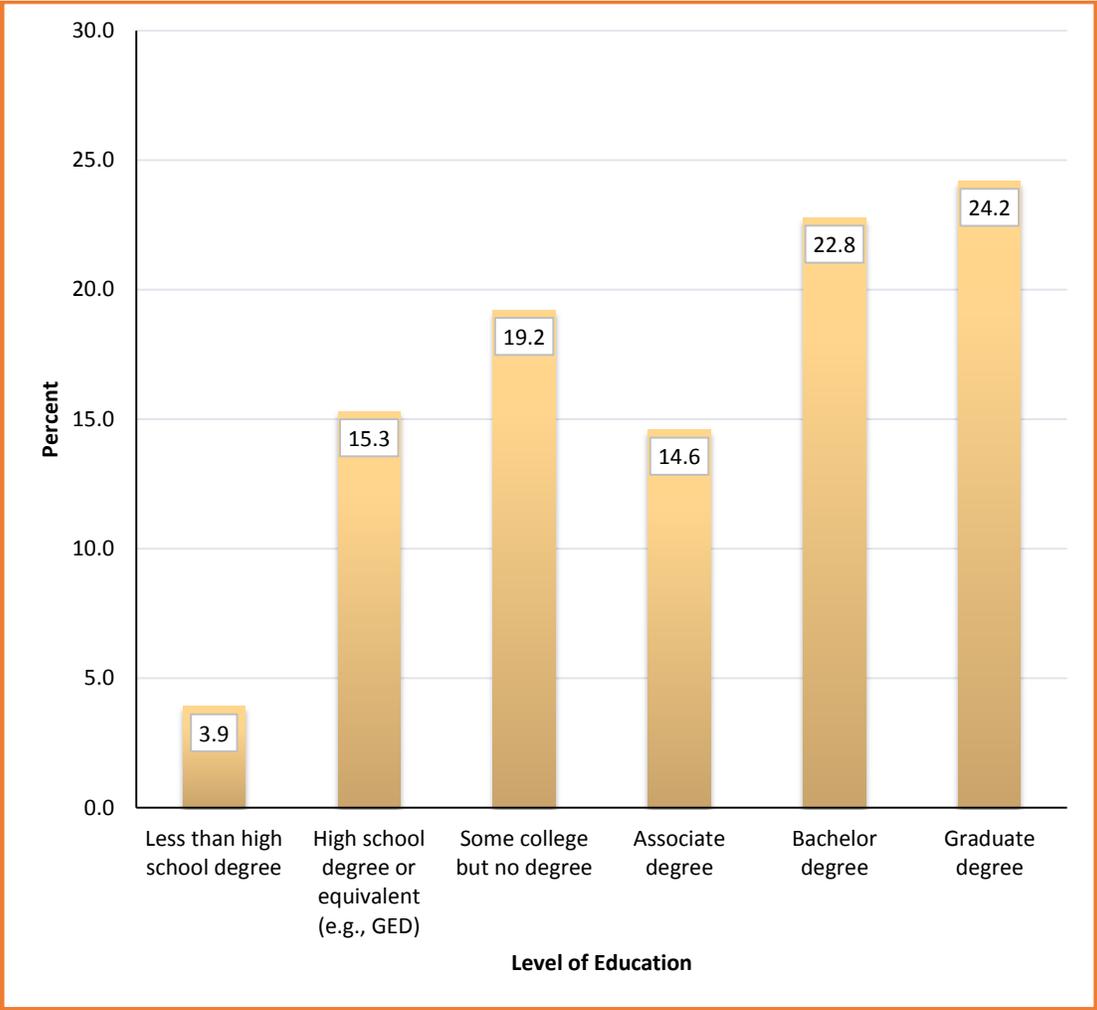


Respondents' Education and Income

African-immigrants residing in the District of Columbia Metro area had higher education level as illustrated in figure 1.6. In the study, respondents were asked about the highest level of school they have attained or the highest formal degree they have received. One out of four (24 percent) of the respondents said they have graduate degree, while a little close to a quarter (23 percent) reported of having bachelor's degree.

Approximately 4 percent of the respondents have less than a high school degree, and about 15 percent said they have attained a high school degree or equivalent. Whereas just under one-fifth (19 percent) of the respondents reported having attained some college education but no degrees, 15 percent said they have attained associate degrees.

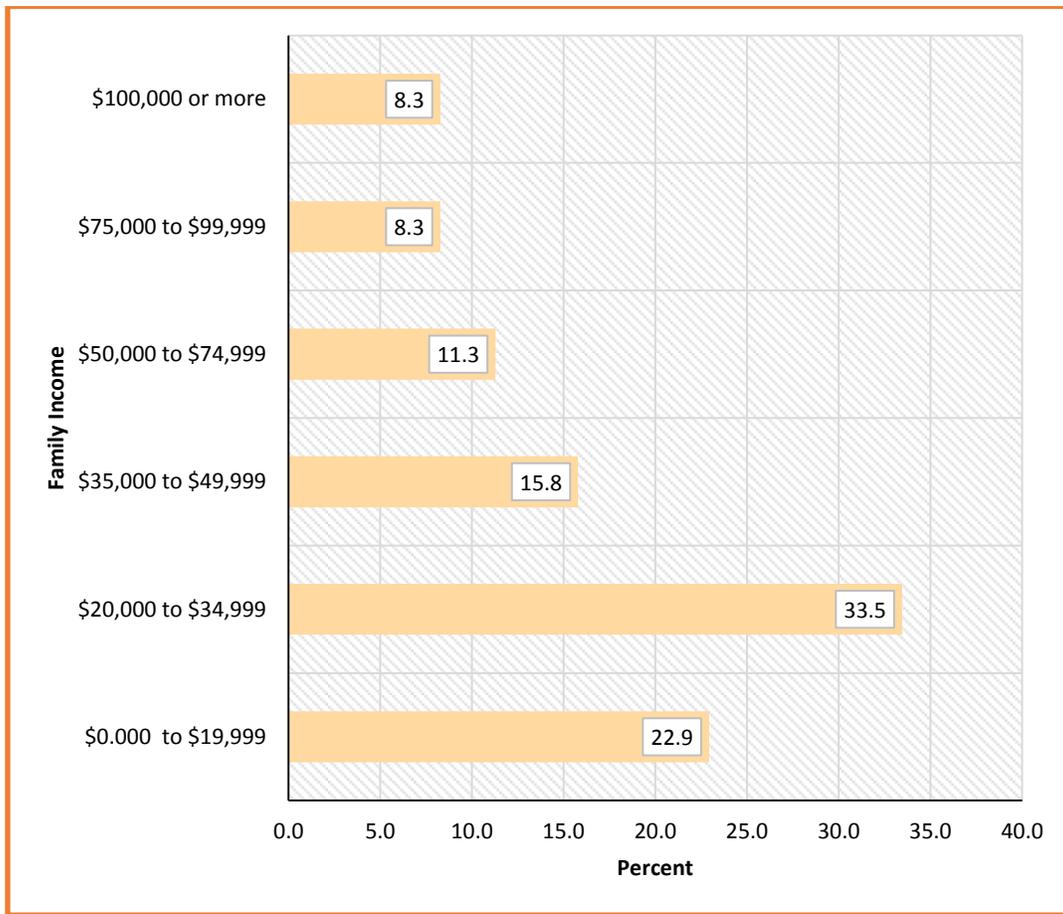
Figure 1.6: Percent Distribution of African immigrants’ Level of Education



This result was consistent with the 2010 American Community Survey (ACS). Per the American Community Survey (ACS) 2010 foreign-born population report, two in five (40 percent) of African-immigrants in the United States have completed bachelor's degree or higher education.. As exhibited in figure 1.6, just under half (47 percent) of African-immigrants survey have completed bachelor's degree or higher.

Furthermore, when the results were considered by income, as shown in figure 1.7, African-immigrants reported a mix structure of household incomes in 2013. A little over a third (34 percent) said they earned a household income between \$20,000 to 34,999 in 2013. Another 23 percent indicated that they earned less than \$ 19,000 in household income in 2013. Sixteen percent were among \$35,000 to \$49,999 in household income group in the previous year, and approximately one in ten (11 percent) of the respondents were between the income range of \$50,000 to \$74,999 in the past 12 months. An equal proportion of the respondents in the study (8 percent) were between the household income range of \$75,000 to \$99,999 and \$ 100,000 or more in 2013.

Figure 1.7: Percent Distribution of Household Income in the Past 12 Months in 2013 (Inflation-unadjusted Dollars)

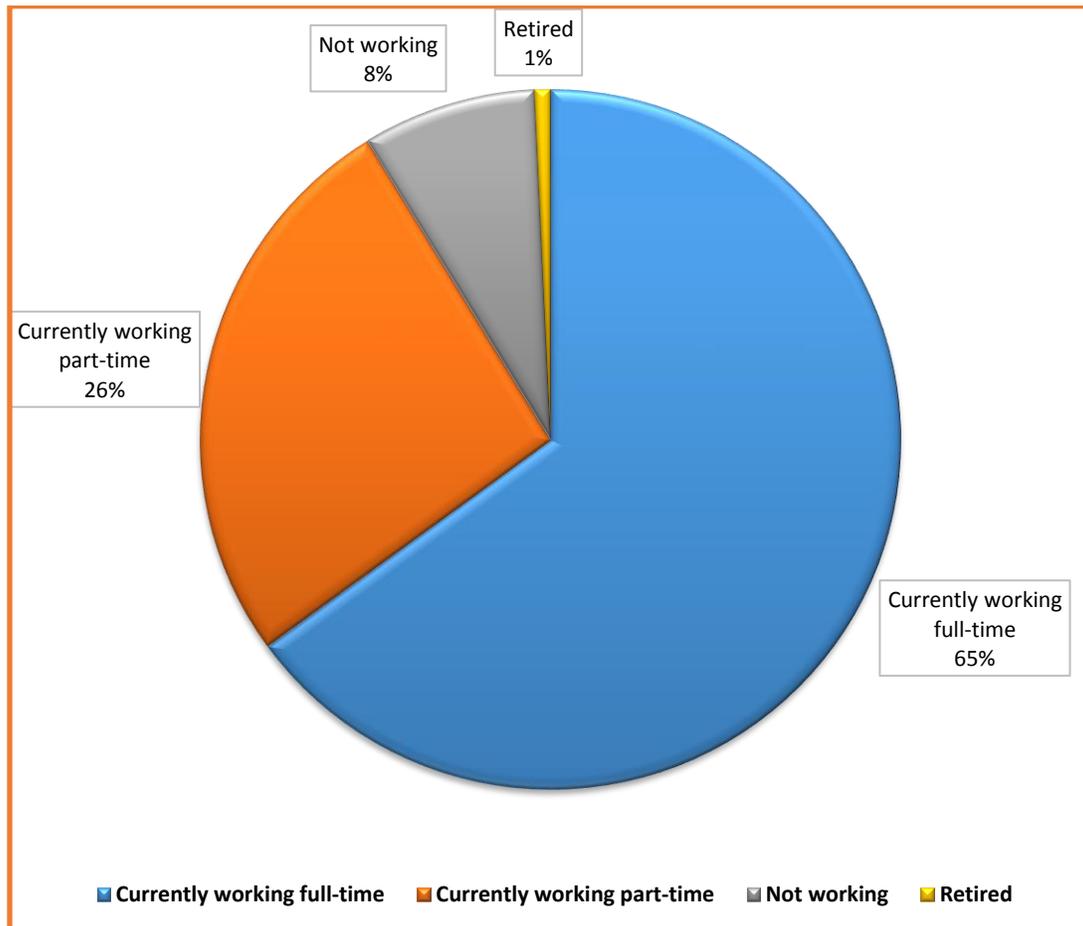


Employment and Health Insurance Coverage

About (65 percent) of the respondents in the study reported that they were currently working full-time, while a little over a quarter (26 percent) said they are currently working part-time.

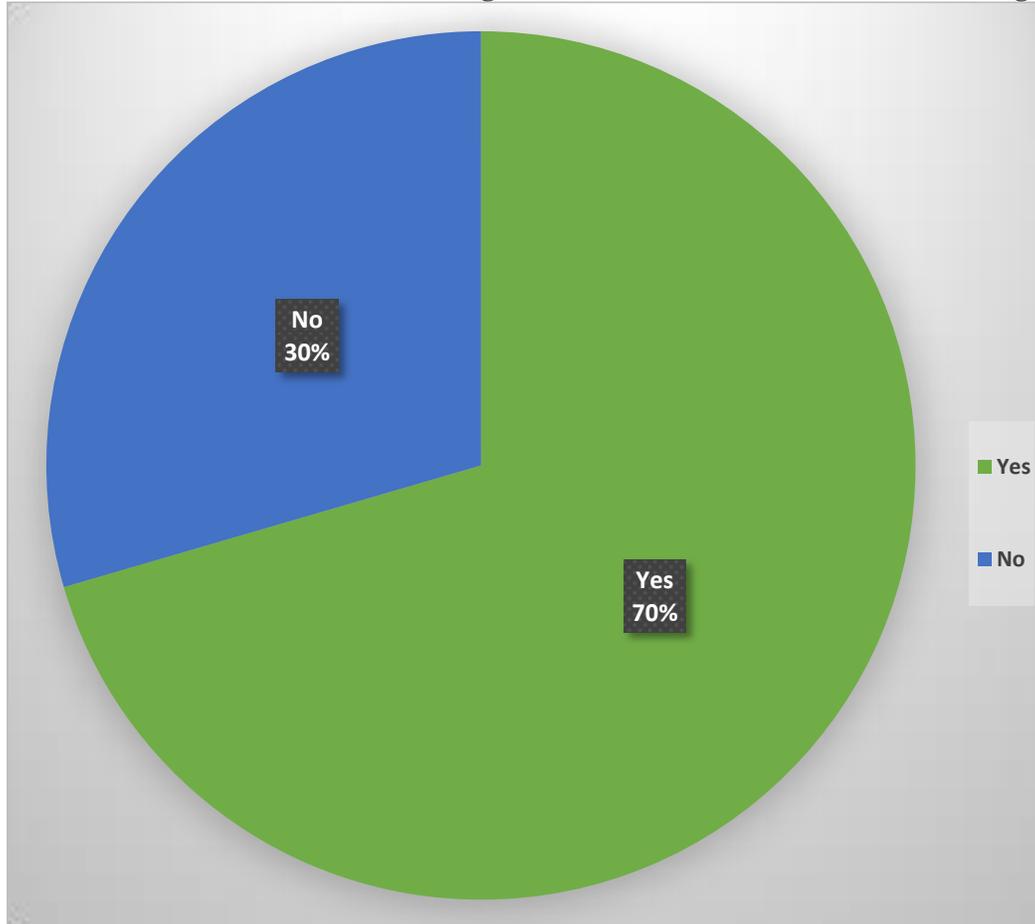
In aggregate, an overwhelming majority (91 percent) of African-immigrants were currently employed. The unemployed constituted only 8 percent of the sample subjects. An infinitesimal proportion (1 percent) of the respondents was retired as shown in figure 1.8.

Figure 1.8: Employment Status of African immigrants in 2014



African immigrants' health insurance status was measured as dichotomous construct. The sample subjects in the study were asked if they had health insurance coverage that pays for all or part of their health care costs (co-pays & co-insurances). As clearly illustrated in figure 1.9, about seventy (70) percent said they had health care insurance, while a third (30 percent) indicated that they lacked health insurance coverage in 2014.

Figure 1.9: Health Insurance Status 2014
(Yes= have health insurance coverage. No= lack of health insurance coverage)



Furthermore, among those who had health insurance coverage in 2014, about three-quarter (74 percent) said they had employer-sponsored group health insurance coverage compared with about 13 percent who indicated that they had their own private or individual health insurance coverage in the past 12 months. Approximately 8 percent had Medicaid, while only 2 percent of the sample subjects had Medicare as illustrated in figure 2.0. Finally, four (4) percent of the African-immigrants surveyed were uninsured in 2014.

Figure 2.0: Sources of Health Insurance Coverage of African Immigrants in 2014

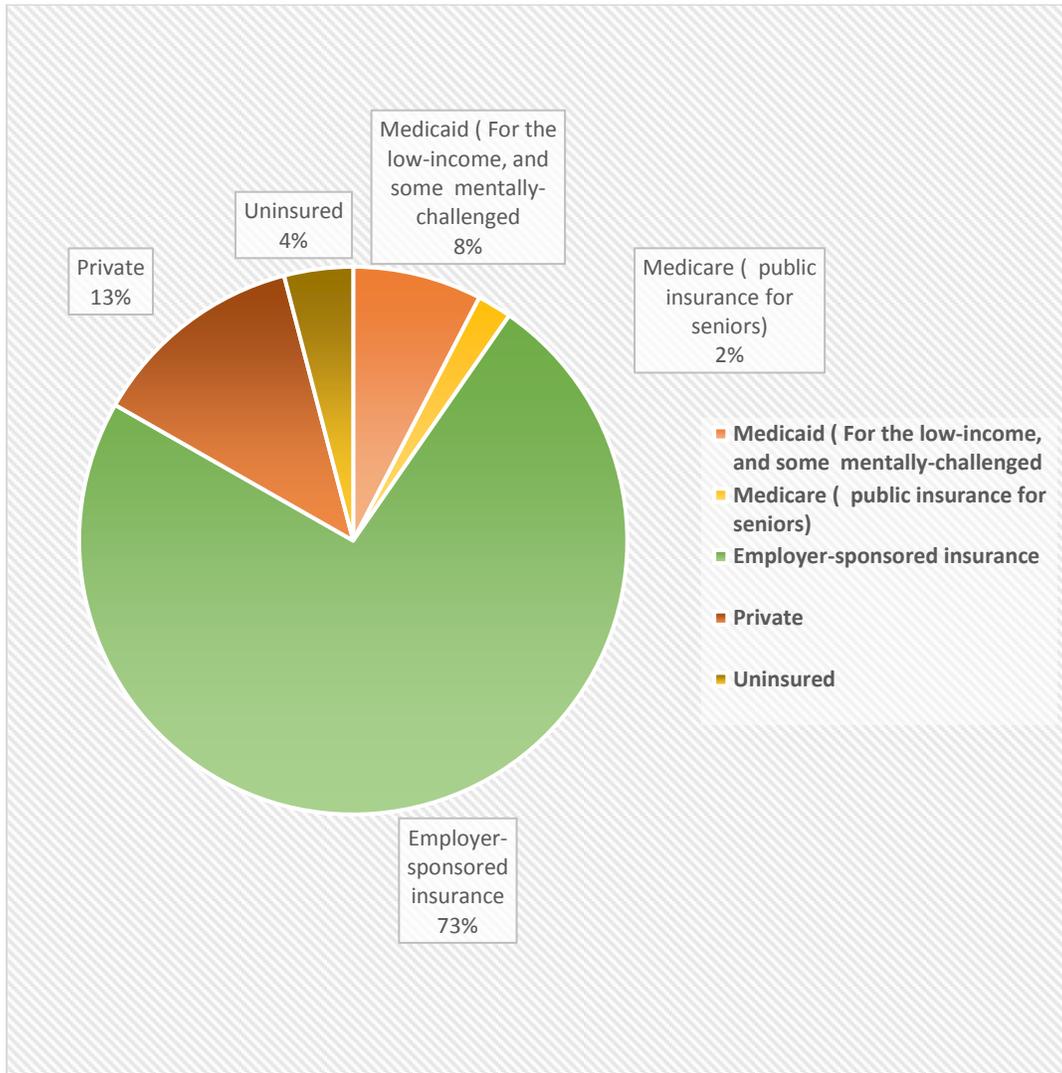


Figure 2.0 revealed that, compared with the US non-elderly population (19-64 years), African immigrants in the DMCA reported lower uninsured rate. Per the Henry J. Kaiser Family Foundation report (2013), more than 47 million (17.7%) non-elderly Americans were uninsured in 2012, a slight fell from 49 million (17.9%) in 2011. Hence, African immigrants had lower uninsured rate (4%) in 2014 compared with the non-elderly US population (17.7%) in 2012.

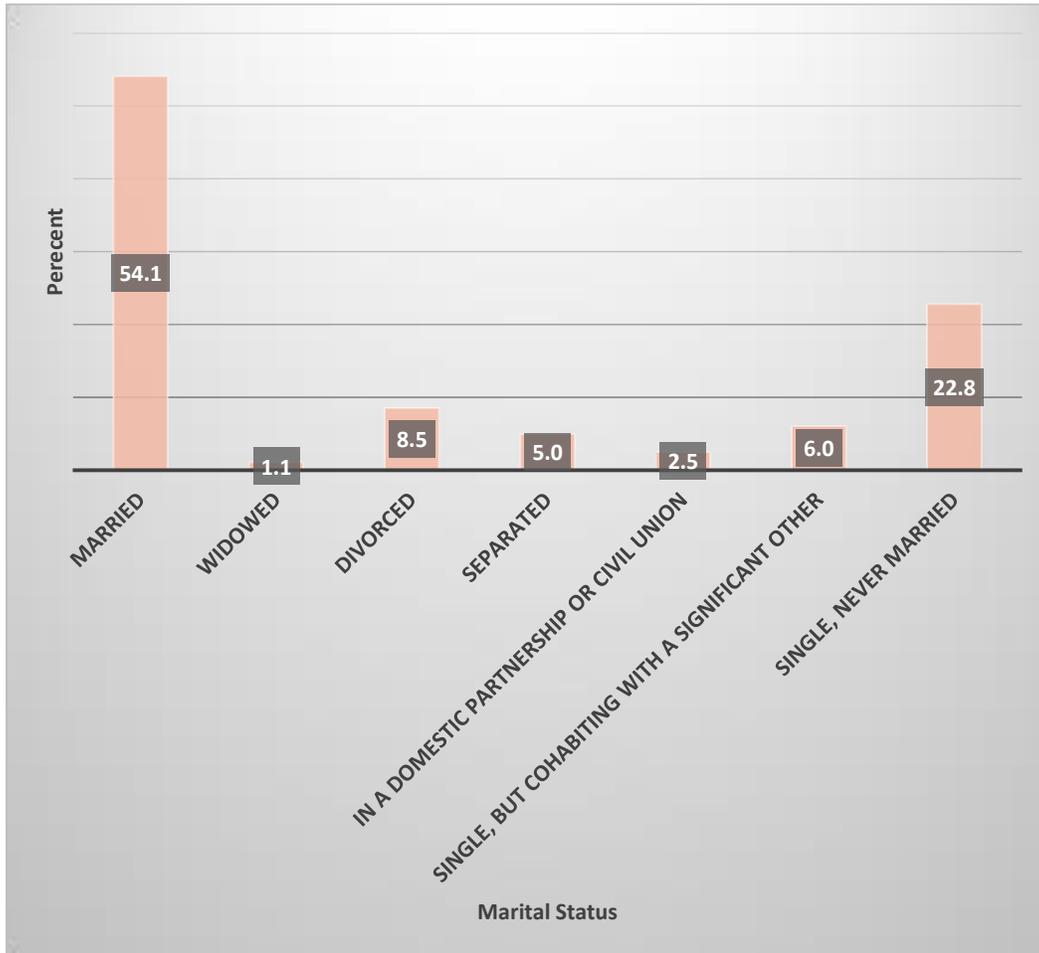
This significant finding might be attributable to the higher employment rate among African

immigrants in the DCMA which in turn enabled them to obtain employer-sponsored group insurance.

Marital and Immigration Status

Marital status of respondents in the study was measured in seven response categories. The respondents were asked to indicate whether they are married, widowed, divorced, separated, in a domestic partnership or civil union, single but cohabiting with a significant other, single, or never married. The vast majority of African-immigrants surveyed in this study were married. More than half (54 percent) of the respondents were married in 2014. A little over a quarter (23 percent) of African immigrants were single, who had never married, while 9 percent were divorced in 2014 as shown in figure 2.1. Six percent said they were single but cohabiting with a significant other. Whereas One in twenty (5%) reported that they were separated, about 3 percent said they were in a domestic partnership or civil union. A tiny proportion (1 percent) said they were divorced in 2014.

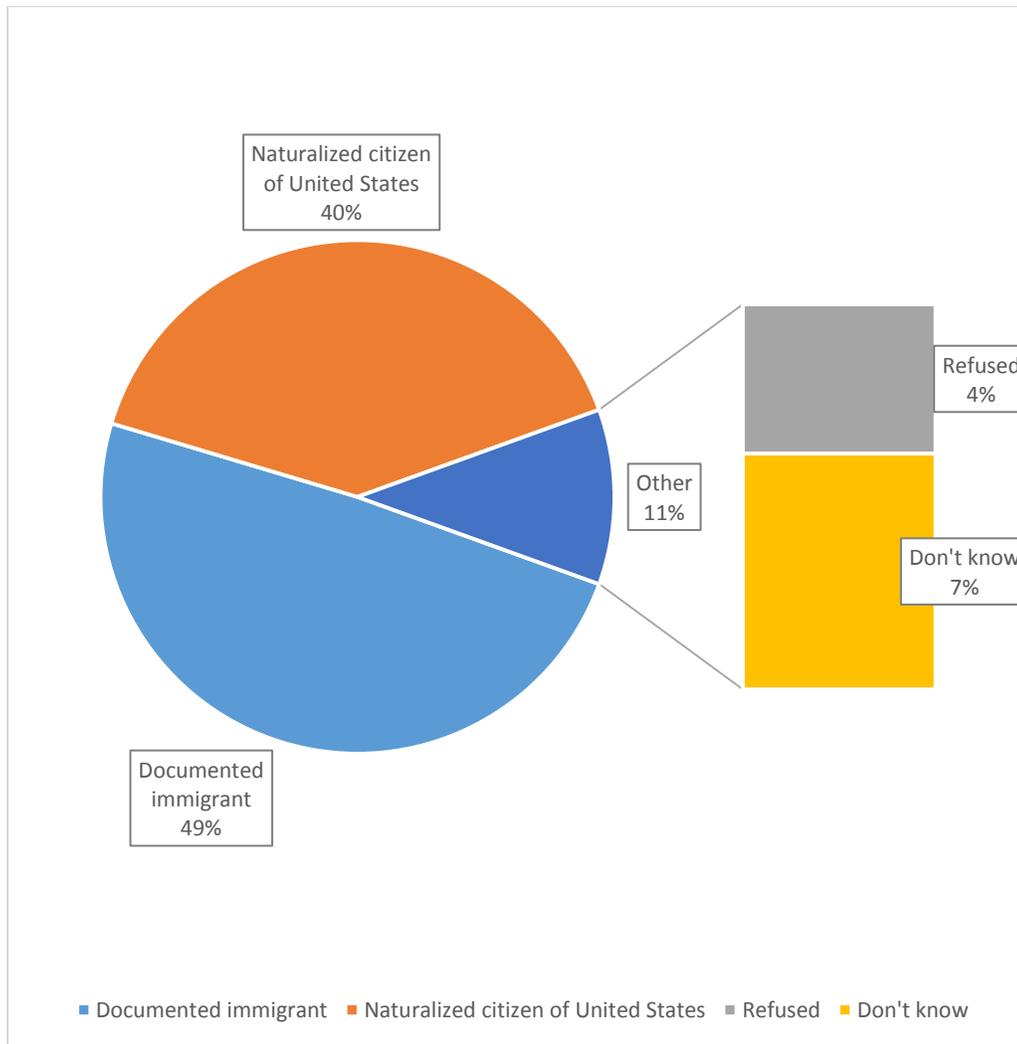
Figure 2.1: Percent Distribution of Marital Status of African immigrants 2014



In addition, African immigrants were asked with respect to their immigration status in the United States. Two hundred and fifty (250) out of 281 respondents responded to the question. Of those who provided information about their immigration status, 138 (55 percent) were permanent residents (documented immigrants), while 112 (45 percent) were naturalized citizens of the United States of America.

Further, among those who failed or refused to answer the survey question on immigration status, 12 respondents (about 4 percent) refused to provide information about their immigration status, while 19 (about 7 percent) reported “Don’t Know” as illustrated in figure 2.2 below:

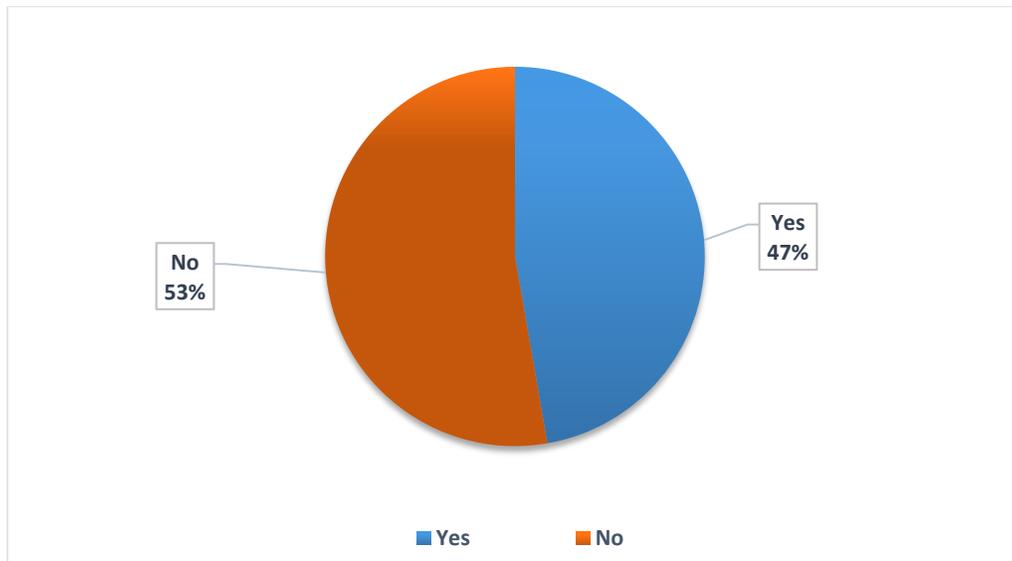
Figure 2.2: Immigration Status of African immigrants in 2014



Influenza Vaccination Utilization in the Past 12 Months (2013)

A ‘flu shot’ or influenza vaccination is an annual vaccination given in the fall season in the United States. It protects against Influenza (flu), a contagious respiratory illness caused by influenza viruses (Lochner & Wynne, 2013). The contraction of the flu viruses could result in hospitalization or even death. Influenza kills approximately 360,000 every year in the United States and hospitalizes more than 200, 0000. The seasonal influenza consumes more than \$10 billion in medical cost and in loss of productivity (Harvard Medical School,2009) Hence, to measure and assess African-immigrants use of flu shot to protect themselves against the flu viruses, they were asked whether they had a flu shot during the past year. The figure 2.3 provided the information on African immigrants’ influenza vaccination rates.

Figure 2.3: Influenza Vaccination (Flu Shot) Utilization during the Past Months (2013) (Yes= those who said they had the flu shot. No= those who were unable to obtain the flu shot)



Whereas a little over half of the respondents (53 percent) reported that they did not obtain influenza vaccination in 2013, 47 percent said they did. In other words, one of every five African-immigrants (47 percent) had the flu shot in 2013, while 53 percent had not.

Table 1.3 : Cross Tabulation of Respondents' Influenza Vaccination by Gender

			Gender		
			Male	Female	Total
Influenza Vaccination	Yes	Count	79	50	129
		n%	48.8%	45.5%	47.4%
	No	Count	83	60	143
		n%	51.2%	54.5%	52.6%
Total	Count		162	110	272
	N%		100.0%	100.0%	100.0%

When the influenza vaccination results were considered gender (as shown table 1.3), it was found that African immigrant men were slightly more likely to obtain influenza vaccination than women were. For instance, about 49 percent of immigrant men indicated they had influenza vaccination in 2013 compared with 46 percent of women. A slightly higher proportion of women (55 percent) were likely to report that they did not obtain influenza shot in 2013 than men (51 percent).

Furthermore, when the result was considered by influenza vaccination and health insurance status, African-immigrants who have health insurance were more likely to obtain influenza vaccine than the uninsured. Specifically, 57 percent of the insured African immigrants did obtain influenza vaccination in 2013 compared to 28 percent of the uninsured, who did not obtain the influenza vaccination in 2013.

Table 1.5: Cross Tabulation of Respondents Influenza Vaccination by Health Insurance Status 2013

		Health Insurance Status			
		Yes	No	Total	
Influenza Vaccination	Yes	Count	106	23	129
		n%	57.0%	27.7%	48.0%
	No	Count	80	60	140
		n%	43.0%	72.3%	52.0%
Total		Count	186	83	269
		n%	100.0%	100.0%	100.0%

On the other hand, uninsured African-immigrants were three times as less likely as the insured to report of obtaining the influenza vaccination (flu shot) in 2013 than the insured. Specifically, seven out of every ten (72 percent) of the uninsured respondents were more likely to report that they did not obtain influenza vaccination in 2013 compared with 43 percent of the insured. In addition, the relationship between influenza vaccination and health insurance status was statistically significant, $R(1) = 19.70$, $P < .05$ (two-tailed) as indicated in table 1.6 below:

Table 1.6: Chi-Square Tests of Influenza Vaccination versus Health Insurance Status

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	19.712 ^a	1	.000		
Continuity Correction ^b	18.556	1	.000		
Likelihood Ratio	20.285	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	19.638	1	.000		
N of Valid Cases	269				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 39.80. b. Computed only for a 2x2 table

Moreover, the test was also statistically significant by the conservative Fisher exact test with a probability value of .000 as illustrated in table 1.6.

Considering the results by age, older adults aged 65 and over, were more likely to obtain influenza vaccination compared to other age groups as shown in table 1.7.

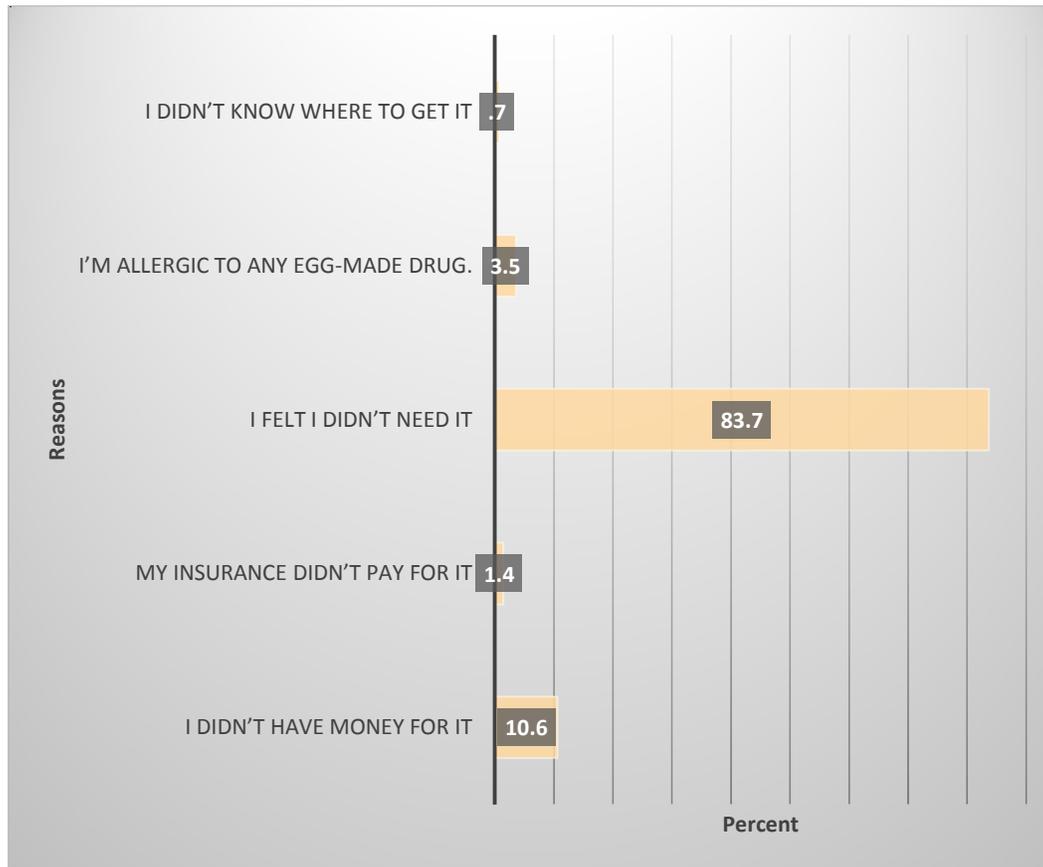
Table 1.7: Cross Tabulation of Influenza Vaccination by Age of African immigrants 2013

		Age				
		M1 (18-29 years)	M2 (30-39 years)	M3 (40 or over)	Total	
Influenza Shot	Yes	Count	25	60	44	129
		% within Influenza Shot	19.4%	46.5%	34.1%	100.0%
	No	Count	31	65	45	141
		% within Influenza Shot	22.0%	46.1%	31.9%	100.0%
Total		Count	56	125	89	270
		% within Influenza Shot	20.7%	46.3%	33.0%	100.0%

Age seemed to play some role in determining influenza vaccination rate among African immigrants in the DCMA as illustrated in table 1.7. Specifically, about 47 percent of African immigrants aged M2 (30-39) were more likely to obtain influenza vaccination in 2013 compared with 19 percent of those aged M1 (18-29). Even though the percentage decreased to 34 for the older African immigrants aged 40 or more, those aged 40 or more were more likely to obtain influenza vaccination in 2013 compared with the younger African immigrants in M1 (18-29 years). On the contrary, older African immigrants were less likely to obtain influenza vaccination compared with the younger ones. For instance, while about 46 percent and 32 percent of African immigrants aged 30-39 and 40 or more respectively claimed they did not obtain influenza vaccination in 2013, approximately 22 percent of those aged 18-29 reported that they did not.

Moreover, African immigrants who did not obtain influenza vaccination cited some reasons why they failed or refused to do so in 2013. These rationales were presented in table 2.3 below:

Figure 2.3: Percent Distribution of Reasons for Not Obtaining Influenza Vaccination in 2013



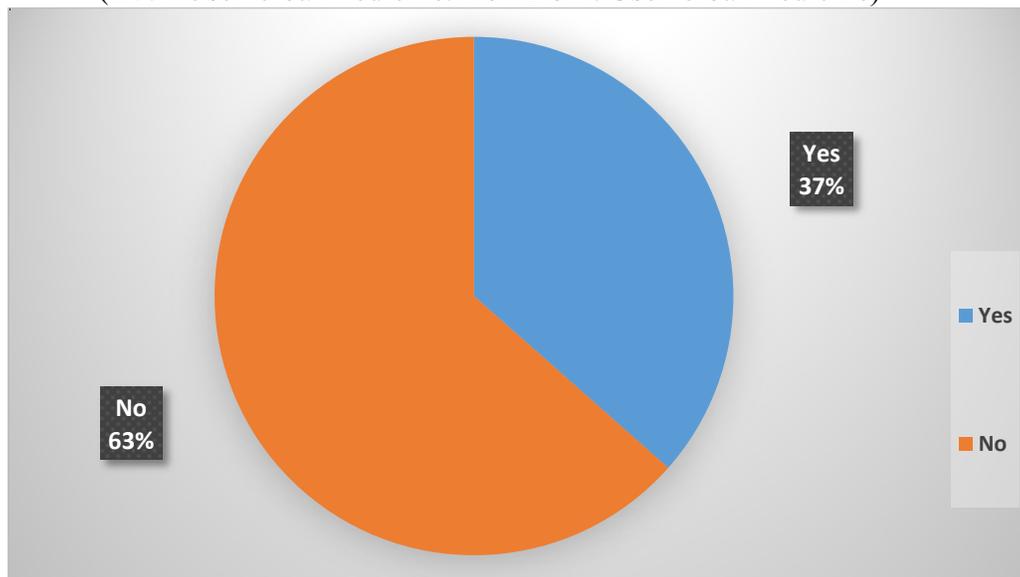
When respondents were asked why they did not obtain the influenza vaccine in 2013, the vast majority—eight in ten (84 percent)—claimed that they did not need it. About 11 percent said they did not obtain it for pecuniary reasons. Thus, they lacked the wherewithal to pay for it. Some respondents did not obtain the influenza vaccination for health or food allergy reasons. Specifically, about 4 percent of respondents in the study said they did not obtain the shot in that they have allergic reactions to one of the residual cell culture materials (i.e. egg protein) used to grow the virus. Whereas 1 percent claimed they were unable to obtain the vaccination in that, it was not covered by their health insurance policy, an equal proportion (1 percent) provided lacked

of knowledge of the vaccination locations as some of the reasons for their inability to obtain influenza vaccination in 2013.

Alternative Medicine (Herbal) Utilization

This section of the study assessed the utilization of folk or traditional remedies imported from the African continent by African immigrants residing in the Washington Metro area. Hence, respondents were asked to indicate whether they utilize herbal or traditional medicine to meet their health care needs in the United States. The response categories were dichotomous (Yes=1 and No=0). African immigrants in the DCMA were less likely to utilize African-made alternative medicine to meet part or all of their health care needs.

Figure 2.4: Traditional (Herbal) Medicine Utilization of African immigrant
(Yes= Use herbal medicine. No= Don't Use herbal medicine)



As indicated in figure 2.4, thirty-seventy (37) percent of African-immigrants surveyed reported that they usually use home, traditional or folk remedies from African to meet their health care needs. On the other hand, a little over three-fifth (63 percent) of the respondents

claimed they did not use any traditional herbal or folk medicine in 2013 to meet their health care needs.

When the results were analyzed by gender of the respondents, it was found that gender could explain an African immigrants' utilization of African-made alternative or herbal medicine as illustrated in table 2.0

Table 2.0: Cross Tabulation of Traditional Medicine Use versus Gender

		Gender			
		Male	Female	Total	
Traditional Medicine Use	Yes	Count	57	42	99
		Gender (n %)	35.4%	39.3%	36.9%
	No	Count	104	65	169
		Gender (n %)	64.6%	60.7%	63.1%
Total		Count	161	107	268
		Gender (N %)	100.0%	100.0%	100.0%

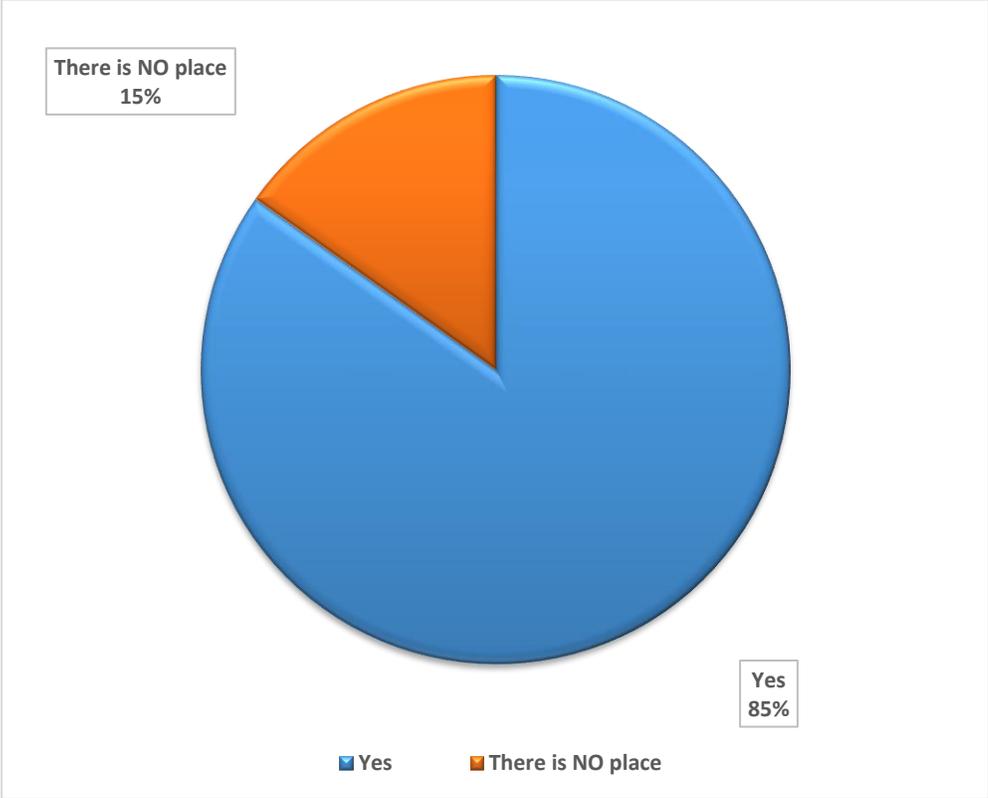
Moreover, women were slightly likely to use African manufactured traditional medicine compared with men. For example in table 2.0, women (39 percent) are slightly more likely to utilize traditional medicine from African compared with men (34 percent). Women (61 percent) were also less likely than men (65 percent) to utilize imported Africa traditional or herbal medicine.

Potential Access to Health Care Services (Usual Source of Care)

In this study, access to health care services was measured by potential and realized dimensions. The potential access to care assessed the probability of African-immigrants obtaining essential health care services based on established and certain SES characteristics. Hence, a usual source of care was deployed as a proxy to measure potential access to health care services. Usual source of care (USOC) was one of the dependent variables of the study. The measure of USOC was deployed as a dichotomous index (Yes= for having a usual source of care; No= for lacking a usual source of care). As illustrated in figure 2.5, the highest proportion of

African immigrants had a usual place where they seek essential health care services or seek counsel about their own health.

Figure 2.5: Usual Source of Health Care of African immigrants in 2014



Specifically, approximately 85 percent of respondents reported having a usual source of care. On the other hand, 15 percent of the respondents reported that they did not have a place to go when they needed health care services or advice about their own health issue.

Table 2.2: Cross Tabulation of Usual source of Care by Gender 2014

Usual Source of Care			Gender		Total
			Male	Female	
Usual Source of Care	There is No place	Count	22	20	42
		Gender (n%)	13.4%	18.0%	15.3%
	Yes	Count	142	91	233
		Gender (n%)	86.6%	82.0%	84.7%
Total	Count	164	111	275	
	Gender (N%)	100.0%	100.0%	100.0%	

Women were more likely than men to report of not having a usual place of care. Eighteen (18) percent of women were without a usual source of care compared with 13 percent men. African immigrants' men (85 percent) were slightly more likely to have a usual source of care than women (82 percent) were. However, this proportion differential was not significant based on the 10-point proportion point rule of thumb (Babbie et al., 2007).

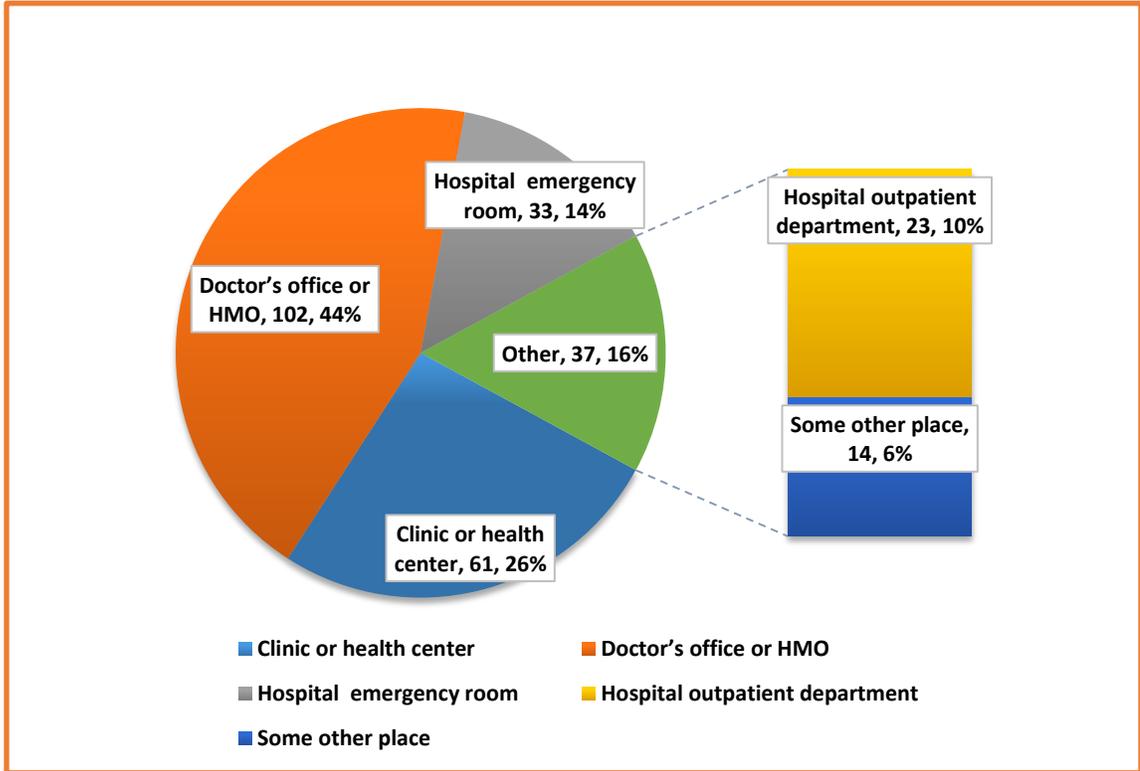
Similarly, when the results were considered by country origin, Nigeriens (40 percent) were less likely to have a usual source of health care services compared with 18 percent of Ethiopians, 10 percent of Ghanaians, 18 percent of Nigerians, 19 percent of Cameroon, 17 percent of Liberians, 22 percent of Sierra Leoneans, and 10 percent of other African immigrants as illustrated in table 2.4.

Table 2.4 : Cross Tabulation of Usual Source of Care by Country of Origin 2014

		Country								Total
		Ethiopia	Ghana	Nigeria	Cameroon	Liberia	Sierra Leone	Niger	Others	Total
USOC No	Count	11	7	6	4	2	4	4	4	42
	% Country	16.7%	9.7%	16.7%	19.0%	16.7%	22.2%	40.0%	9.5%	15.2%
Yes	Count	55	65	30	17	10	14	6	38	235
	% Country	83.3%	90.3%	83.3%	81.0%	83.3%	77.8%	60.0%	90.5%	84.8%
Total	Count	66	72	36	21	12	18	10	42	277
	% Country	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Furthermore, when the results were considered by classification of places of care, respondents indicated different of places of medical care. Doctor’s office or HMO constituted a major source of care for African-immigrants residing in the DC metro areas in the United States. Specifically, when respondent were asked about the kind of place they usually obtain health care services or counselling about their health, about 26 percent said they visited clinic or health center, compared with roughly 36 percent who identified the Doctor’s office or HMO as their usual place of care or health care advice. Almost 14 percent reported utilizing hospital emergency room while nearly 10 percent of the respondents identified hospital outpatient units as their usual source of care or health care advice. Only 6 percent of the respondents reported that they used some other places for essential health care services or advice about their own health as illustrated in the pie chart (Figure 2.6) below:

Figure 2.6: Sources of Health Care Services or Health Care Advice



Of those with a usual source of health care services, women (45 percent) were somewhat likely than men (42 percent) to consider a doctor's office or health maintenance organization (HMO) as their usual source of health care services.

However, men (27 percent) were more likely to consider a clinic or health center as their source of care compared with women (25 percent) as presented in table 2.5.

Table 2.5: Cross Tabulation of Categories of Usual Sources of Care Versus Gender 2013

		Gender			
		Male	Female	Total	
Usual Sources of Care	Clinic or health center	Count	38	23	61
		Gender (n %)	27.3%	25.3%	26.5%
	Doctor's office or HMO	Count	59	41	100
		Gender (n %)	42.4%	45.1%	43.5%
	Hospital emergency room	Count	19	14	33
		Gender (n %)	13.7%	15.4%	14.3%
	Hospital outpatient department	Count	14	9	23
		Gender (n %)	10.1%	9.9%	10.0%
	Some other place	Count	9	4	13
		Gender (n %)	6.5%	4.4%	5.7%
Total	Count	139	91	230	
		100.0%	100.0%	100.0%	

Moreover, African immigrants with higher educational attainment were more likely to have a usual source of health services than those with lower level of education.

Table 2.6: Cross tabulation of Usual Source of Care by Educational Attainment

		Education				Total
		Less than high school	High graduate or equivalency	Some College or associate's degree	Bachelor's degree or higher	
Usual Place of Care	Yes	Count	7	31	80	117
		% Education	63.6%	73.8%	86.0%	89.3%
	There is NO place	Count	4	11	13	14
		% Education	36.4%	26.2%	14.0%	10.7%
Total	Count	11	42	93	131	
	% Education	100.0%	100.0%	100.0%	100.0%	

To illustrate, 89 percent of African immigrants with bachelor's degree or higher had usual source of health care services compared with 64 percent of those with less than high school diploma, 74 percent of those with high school diploma, and 86 percent of those with some college or associate degree as illustrated in table 2.6 . African immigrants with higher educational attainment were less likely to be without a usual place of health care. Per information in table 2.6, Eleven (11) percent of African-immigrants with bachelor's degree or higher were without a usual source of health care compared with 14 percent of those with some

college or associate degree, a little over a quarter (26 percent) of those with high school diploma or equivalency, and only a little over a third (36 percent) of those with less than high school diploma.

Table 2.7: Cross Tabulation Of Usual Source Of Care Versus Age

		Age						
		18-29 years	30-39 years	40-49 years	50-59 years	60 or more	Total	
Usual Place of Care	Yes	Count	43	103	46	28	12	232
		% Age	75.4%	82.4%	95.8%	90.3%	100.0%	85.0%
Usual Place of Care	There is NO place	Count	14	22	2	3	0	41
		% Age	24.6%	17.6%	4.2%	9.7%	0.0%	15.0%
Total		Count	57	125	48	31	12	273
		% Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Also, respondents among the 18—29 age group (25 percent) were less likely to have a usual source for health care services or a place for health care counsel about their own health compared with 18 percent among the 30—39 age group, 4 percent among the 40 — 49 age group and 10 percent among the 50-69 age group as exhibited in table 2.7.

Summary of Descriptive Characteristics of African Immigrants in the DCMA

Table 2.7a: Demographic and Health Care Access Characteristics of African Immigrants, aged between 18 and over, in the DCMA, 2014.

Characteristic	N (Unweighted %)
Country	
Ethiopia	66(23.5)
Ghana	(75)26.7
Nigeria	(36)12.8
Cameroon	(21)7.5
Liberia	(12)4.3
Sierra Leone	(18)6.4
Nigeria	(10)3.6
Others	(43)15.3
Age (years)	
18-29	58 (20.6)
30-39	126 (44.8)
40-49	48(17.1)
50-59	31(11)
≥60	12(4.3)
Perceived Physical Health status	
Excellent	64(23.3)
Very good	122(44.4)
Good	72(26.2)
Fair	15(5.5)
Poor	2(0.7)
Influenza Vaccination	
Yes	130(47.3)
No	145(52.7)
Employment	
Currently working FT	178(65)

Currently working PT	72(26.3)
Not Working	22(8)
Retired	2(0.70)
Marital status	
Married	152(54.7)
Widowed	2(0.7)
Divorced	24(8.6)
Separated	14(5)
In a domestic partnership or civil union	7(2.5)
Single, but cohabiting with a significant other	16(5.8)
Single, never married	63(22.7)
Education	
Less than a High school degree	11(3.9)
High School degree or equivalent	43(15.3)
Some college, but no degree	54(19.2)
Associate degree	41(14.6)
Bachelor's degree	64(22.8)
Graduate degree	68(24.2)
Gender	
Male	165(59.4)
Female	113(40.6)
Insurance status	
Yes	191(69.7)
No	30.3
Immigration status	
Permanent resident	138(55.2)
US citizens (naturalized)	112(44.8)
Usual source of care	
Yes	235(84.8)
No	42(15.2)

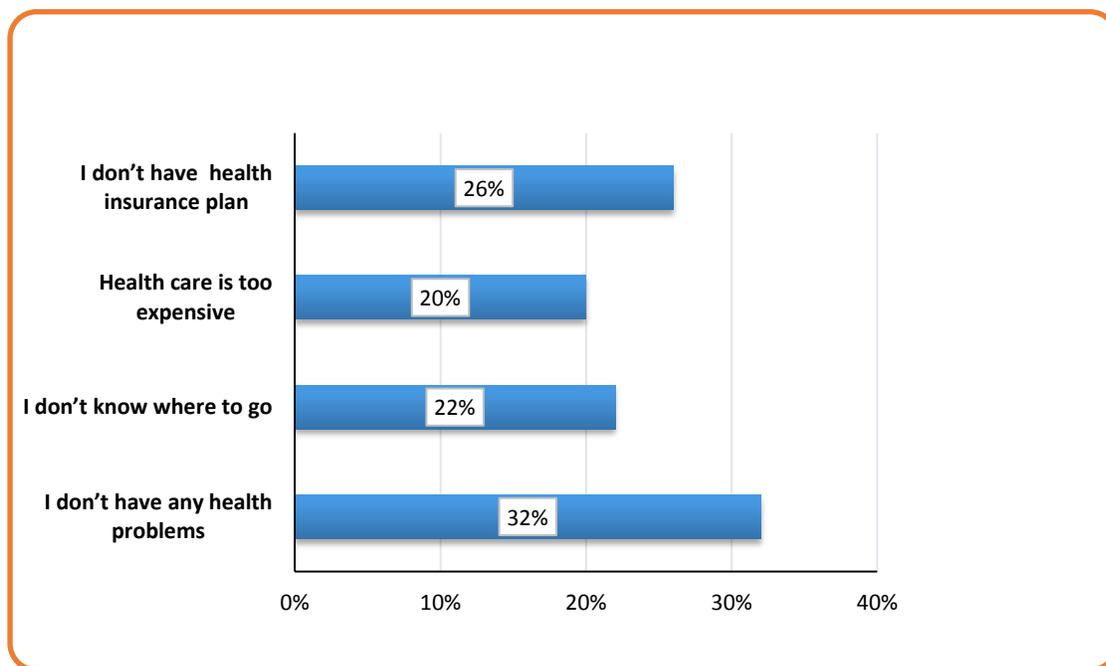
Use of preventive Health Care Services	
Yes	188(67.6)
No	90(32.4)
Perceived Quality of care	
Excellent	57(22)
very good	107(41.3)
Good	74(28.6)
Fair	18(6.9)
Poor	3(1.2)
Length of stay (Years)	
Less than 5 years	59(21.4)
6 to 10 years	75(27.2)
11 to 20 years	97(35.1)
20 years and over	45(16.3)
Income (Household)	
0.000 -19,999	61(22.9)
20,000 -34,999	89(33.5)
35,000 -49,999	42(15.8)
50,000-74,999	30(11.3)
75,000 -99,999	22(8.3)
100,000 or more	22(8.3)

Table 2.7a provided facts that described the demographics, usual source of care, and real health care utilization of African immigrants in the DCMA. The majority of African immigrants in the study had usual source of care, however this potential access did not translate into actual utilization of health care services. For instance, while approximately 85 percent claimed they had usual source of care, only about 68 percent reported that they had actually used health care services in 2013. There could be two hypotheses for this phenomenon: (1) African immigrants in the DCMA, owing to the healthy immigrants' effects, were in perfect physical health status; and

(2) African immigrant health beliefs and culture would not propel them to visit a physician or other health care professional except for in an adverse health condition. African immigrants in the DCMA are highly educated; thus, about 62 percent of said they have associate degree or more. However, this does not reflect in their income earning status in that approximately 57 percent of them earned less than \$ 35,000 per annum in 2013. More than half (55 percent) of African immigrants in the DCMA metro area were resident aliens while about 45 percent were naturalized United States citizens. In term of physical health status, about 68 percent said they were either excellent or very good health status compared to about 26 percent, about 6 percent, and 0.7 percent who said they were in good, fair, or poor state of physical health respectively.

Moreover, this paragraph discussed rationale for want of a source of medical care. Respondents provided various reasons for lacked of usual source of medical care. Nearly three of every 10 African immigrants indicated that they did not have a usual source of medical care because they did not any health problems.

Figure 2.7: Percent Distribution of Reason for lack of a Usual Source of Care



Moreover, a little over a quarter (26 percent) cited lacked of health insurance coverage as the rationale for want of a usual source for medical care services. Besides, twenty-two percent of the respondents said that they lacked a usual source of care or a place to seek useful health care counsel in that they did not know where to obtain needed health care services. For some respondents health care services are too expensive, and they constituted about 20 percent of the respondents.

Health Care Utilization (Realized Access to Health Care Services)

Realized access is the actual use of health care goods and services (Andersen, 1995). It suggests that the use of health care service is a product of need, predisposing, and enabling variables. This section of the monograph examined the actual utilization of health care services by African immigrants in the DCMA surveyed in the study. The actual utilization of health care services was measured by the use of routine or preventive health care services. The utilization of preventive care was deployed as a proxy measure of African immigrants' realized access to health care services. Accordingly, health care utilization was measured by asking participants whether they have had any consultation with a doctor or other health care professional in the past 12 months. The health care utilization variable was dichotomized into two dimensions: Yes, having seen a health care professional versus no, not seeing a doctor or other health care professional. The results were assessed in this section of the monograph by various socio-economic demographics of the respondents.

Table 2.9: Percent Distribution of Health Utilization of Care (Realized Access), 2013,

		Frequency	Percent	Valid	
				Percent	Cumulative Percent
Valid	Yes	188	66.9	67.6	67.6
	No	90	32.0	32.4	100.0
	Total	278	98.9	100.0	
Missing	Don't know	2	.7		
	Refused	1	.4		
	Total	3	1.1		
Total		281	100.0		

Overall, two-thirds (68 percent) of the respondents had visited a doctor’s office or other health care professionals or compared to a little over a third (32 percent) who had not made an office visit to a doctor or other health professional in the past 12 months for their routine or preventive care needs.

In addition, women were more likely to utilize health care services in the past 12 month than men were when the results were considered by gender. Specifically, women (71 percent) were more likely than men (66 percent) to utilize health care services in the past 12 months as illustrated in table 3.0.

Table 3.0 : Cross Tabulation of Health Care Utilization by Gender in the Past 12 months

		Gender			
			Male	Female	Total
Health Care Utilization	Yes	Count	108	78	186
		% Gender.	65.5%	70.9%	67.6%
	No	Count	57	32	89
		% Gender	34.5%	29.1%	32.4%
Total	Count	165	110	275	
	% Gender	100.0%	100.0%	100.0%	

In addition, while 35 percent of African immigrant men in the DCMA did not use health care services in the past 12 months, about 29 percent of African immigrant women did not.

Table 3.1 illustrated the cross tabulation of health care utilization in relation to age. Overall, 33 percent of adults aged 18 and more did not utilize health care services compared with 67 percent who utilize health care services in the past 12 months. Besides, about 92 percent of older adults aged 60 and over were more likely to use health care services than 73 percent among the 40-49 age group, 71 percent among the 50-59 aged group, and 64 percent among the 30-39 age group and 61 among the 18-29 age group.

Table 3.1: Cross Tabulation of Health Care Utilization Versus Age in the past 12 Months (2013)

		Age					Total	
		18-29 years	30-39 years	40-49 years	50-59 years	60 or more		
Health Care Utilization	Yes	Count	35	80	35	22	11	183
		% Age	61.4%	64.0%	72.9%	71.0%	91.7%	67.0%
	No	Count	22	45	13	9	1	90
		% Age	38.6%	36.0%	27.1%	29.0%	8.3%	33.0%
Total	Count	57	125	48	31	12	273	
	% Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

However, younger adults (18-29 years) were less likely to make an office visit to a doctor or other health care professionals compared with 8 percent of the oldest adults (60 or more), 27 percent among the 40-49 aged group, 29 percent among the 50-59 age group, and 36 percent among the 30-36 age group.

Furthermore, health care utilization in the past 12 months was assessed relative to health insurance status of Africa immigrants in the DCMA and this was illustrated in table 3.2.

Table 3.2: Cross Tabulation of Health Care Utilization by Health Insurance Status in the past 12 months.

		Health Insurance		Total	
		Yes	No		
Health Care Utilization	Yes	Count	141	43	184
		% Health Insurance	73.8%	53.1%	67.6%
	No	Count	50	38	88
		% Health Insurance	26.2%	46.9%	32.4%
Total	Count	191	81	272	
	% Health Insurance	100.0%	100.0%	100.0%	

When the results of health care utilization were assessed by health insurance, 74 percent of those who had health insurance utilized health care services compared with 53 percent claimed they did not utilize health care services in the past 12 months. Of the uninsured respondents, 47 percent claimed they did not receive health care services in the past 12 months, while a little over a quarter (26 percent) of the insured indicated they did not utilize health care services in the past 12 months, as illustrated in table 3.2.

Furthermore, African immigrants with higher education were considerably more likely to utilize health care services in the last 12 months, while those with less than high school education were less likely to utilize health care services in 2013. For example, in table 3.3, about 73 percent of African immigrants with some college or associate degree as well as those with bachelor’s degree or higher (71percent) had utilized health care services in the past 12 months compared with about 46 percent of those with less than high school education and 52 percent of those with high school diploma or equivalency.

Table 3.3: Cross Tabulation of Health Care Utilization and Education level in Past 12 Months

		Education					
		Less than high school	High School graduate or equivalency	Some College/ associate's degree	Bachelor's degree/ higher	Total	
Health Insurance	Yes	Count	5	22	68	93	188
		% within Educ	45.5%	52.4%	73.1%	70.5%	67.6%
	No	Count	6	20	25	39	90
		% within Educ	54.5%	47.6%	26.9%	29.5%	32.4%
Total		Count	11	42	93	132	278
		% within Educ	100.0%	100.0%	100.0%	100.0%	100.0%

However, of those who did not utilize health care services within the last 12 months, 55 percent were likely to be African-immigrants with less than high school education compared with about a third (30 percent) of those with bachelor’s degree or higher, a little over a quarter

(27 percent) among those with some college or associate’s degree, and 48 percent of those with high school diploma or equivalency.

Number of Office Visits to a Doctor or Other Health Professional in Past 12 Months

This section of the monograph discusses the self-reported number of visits of African immigrants in the DCMA to a doctor or other health care professional in 2013. This was assessed in term of age, health insurance status, and gender of African immigrants.

The survey question, “At any during the past 12 months, how many times have you seen a doctor or other health care professional about your own health?” was used to measure the outcome variable. The results were presented in the following paragraphs:

Table 3.5: Cross-tabulation for Number of Office Visits to a Doctor or Other Health Professional in the past 12 months Versus Age

		Age					Total	
		18-29 yrs.	30-39 yrs.	40-49 yrs.	50-59 yrs.	60/more		
Number of MD Office Visits or Other Health Professional	1 -3 times	Count	38	87	31	16	5	177
		% within Age	67.9%	69.0%	64.6%	53.3%	41.7%	65.1%
	4-7 times	Count	7	20	15	7	4	53
		% within Age	12.5%	15.9%	31.3%	23.3%	33.3%	19.5%
	8-12 times	Count	4	3	1	2	1	11
		% within Age	7.1%	2.4%	2.1%	6.7%	8.3%	4.0%
	13-16 times	Count	0	0	0	2	0	2
		% within Age	0.0%	0.0%	0.0%	6.7%	0.0%	0.7%
	17 or more	Count	1	2	0	1	1	5
		% within Age	1.8%	1.6%	0.0%	3.3%	8.3%	1.8%
	Never	Count	6	14	1	2	1	24
		% within Age	10.7%	11.1%	2.1%	6.7%	8.3%	8.8%
	Total	Count	56	126	48	30	12	272
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Overall, approximately 9 percent of African immigrant adults aged 18 and over had not made an office visit to a doctor or other health professional in the past 12 months, 65 percent had 1-3 office visits, about 20 percent had 4-7 office visits, 4 percent made 8-12 office visits, 0.7 percent

had 13-16 office visits, and about 2 percent had 17 or more office visits. Among those who made no office visits, African immigrants aged 18- 39 were less likely to make an office to a doctor or other health care professional relative to those aged 40 and over. Specifically, about 22 percent of African immigrants aged 18-39 had doctor’s office visits compared with 17 percent of those aged 40 and more.

When the results were considered by gender of African immigrants in the DCMA, about 7 percent of women and 10 percent of men had no office visits to a doctor or other health care professional in the past 12 months; thus men were slightly less likely than women to make an doctor’s office or other health care professional visits for health care services in the past 12 months as illustrated in table 3.6 below:

Table 3.6: Cross-tabulation for Number of MD Office Visits to Doctor or Other Health Professional in the past 12 months Versus Gender

		Gender			
		Male	Female	Total	
Number of MD Office Visits or Other Health Professional	1 -3 times	Count	109	68	177
		% within Gender	66.9%	61.3%	64.6%
	4-7 times	Count	28	27	55
		% within Gender	17.2%	24.3%	20.1%
	8-12 times	Count	7	4	11
		% within Gender	4.3%	3.6%	4.0%
	13-16 times	Count	2	0	2
		% within Gender	1.2%	0.0%	0.7%
	17 or more times	Count	1	4	5
		% within Gender	0.6%	3.6%	1.8%
	Never	Count	16	8	24
		% within Gender	9.8%	7.2%	8.8%
	Total	Count	163	111	274
		% within Gender	100.0%	100.0%	100.0%

Furthermore, of those who did not make any office visits to a doctor or other health care professional in the past 12 months, African immigrants with high school diploma (12 percent) were slightly more likely to make no office visits than those with less relative to those with high

school diplomas (10 percent), some college or associate degrees (10 percent), and bachelor's or higher (8 percent) as shown in table 3.7.

Table 3.7: Cross-tabulation for Number of Office Visits to a Doctor or Other Health Professional in the past 12 months Versus Education

		Education					Total
		Less than high school	High graduate or equivalency	Some College or associate's degree	Bachelor's degree or higher		
Number of MD Office Visits or Other Health Professional	1 -3 times	Count	8	21	60	89	178
		% within Educ	80.0%	51.2%	64.5%	67.4%	64.5%
	4-7 times	Count	1	12	15	27	55
		% within Educ	10.0%	29.3%	16.1%	20.5%	19.9%
	8-12 times	Count	0	3	5	3	11
		% within Educ	0.0%	7.3%	5.4%	2.3%	4.0%
	13-16 times	Count	0	0	1	1	2
		% within Educ	0.0%	0.0%	1.1%	0.8%	0.7%
	17 or more times	Count	0	0	3	2	5
		% within Educ	0.0%	0.0%	3.2%	1.5%	1.8%
	Never	Count	1	5	9	10	25
		% within Educ	10.0%	12.2%	9.7%	7.6%	9.1%
	Total	Count	10	41	93	132	276
		% within Educ	100.0%	100.0%	100.0%	100.0%	100.0%

In addition, table 3.8 suggested that African immigrants in the DCMA who were uninsured were less likely to make an office visit to a doctor or other health care professional in the past 12 months compared with those who were insured. Specifically, approximately 20 percent of African immigrants who were uninsured had no visits to a doctor or other health care professional in the past months compared with 5 percent of those who had health insurance coverage.

Table 3.8: Cross Tabulation for Number of MD Office Visits to Doctor or Other Health Professional in the past 12 months Versus Gender

		Health Insurance Status			
		Yes	No	Total	
Number of MD Office Visits or Other Health Professional	1 -3 times a year	Count	125	50	175
		% within Health Insurance	65.4%	61.7%	64.3%
	4-7 times a year	Count	41	13	54
		% within Health Insurance	21.5%	16.0%	19.9%
	8-12 times a year	Count	9	2	11
		% within Health Insurance	4.7%	2.5%	4.0%
	13-16 times a year	Count	2	0	2
		% within Health Insurance	1.0%	0.0%	0.7%
	17 or more times a year	Count	5	0	5
		% within Health Insurance	2.6%	0.0%	1.8%
	Never	Count	9	16	25
		% within Health Insurance	4.7%	19.8%	9.2%
Total	Count	191	81	272	
	% within Health Insurance	100.0%	100.0%	100.0%	

Satisfaction Indicator of Health Care Access

A reliable measure of access to and utilization of health care services is how well satisfied the population is with the consumption of health services (Anderson et al., 1981). Expression of satisfaction could be derived from individuals’ experiences with health care delivery system, including the nature of patient- health professional interactions, cost of care, process of appointment, as well as the volume of care (Anderson et al., 1981).

This section of the monograph addressed African-immigrants’ satisfaction with consumption of various aspects of health care services in the past 12 months. Even more, the data on satisfaction was recoded into disparate variables to foster robust and reliable statistical analyses. Specifically, “very satisfied” and “Somewhat satisfied” response categories were recoded into “satisfied” category, while “Neither Satisfied nor Dissatisfied, Somewhat dissatisfied, and very dissatisfied” response categories were recoded into “dissatisfied” response categories deploying the SPSS data transform apparatus (DTA).

Accordingly, the following figures highlights African immigrants self-reported and self-perceived satisfaction of the most recent visit to a doctor’s office or other health care professional. The assessment was performed under satisfaction versus, level of education, marital status, and gender variable categories.

Table 4.0: Cross-tabulation of Satisfaction with Health Care versus Age in Past 12 Months

			Age					
			18-29 years	30-39 years	40-49 years	50-59 years	60 or more	Total
Satisfaction	Satisfied	Count	46	103	43	26	10	228
		% Age	90.2%	88.8%	93.5%	86.7%	90.9%	89.8%
	Dissatisfied	Count	5	13	3	4	1	26
		% Age	9.8%	11.2%	6.5%	13.3%	9.1%	10.2%
Total	Count	51	116	46	30	11	254	
	% Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Overall, nine of every ten (about 90 percent) African-immigrants were satisfied with the health care service utilized in the past 12 months, while approximately 10 percent were dissatisfied. African-immigrants in the 50—59 age group were more inclined to be dissatisfied with care received in within the past 12 months compared with 11 percent of immigrants aged 30—39, 10 percent of immigrants aged 18—29 years, and 9 percent of those aged 60 and over as exhibited in table 4.0.

Table 4.1: Cross-tabulation of Satisfaction with Health Care Services and Education in Past 12 Months

			Education				
			Less than high school	High graduate /equivalency	Some College /associate's degree	Bachelor's degree / higher	Total
Satisfaction	Satisfied	Count	7	30	78	116	231
		% Educ	87.5%	81.1%	90.7%	90.6%	89.2%
	Dissatisfied	Count	1	7	8	12	28
		% Educ	12.5%	18.9%	9.3%	9.4%	10.8%
Total	Count	8	37	86	128	259	
	% Educ	100.0%	100.0%	100.0%	100.0%	100.0%	

Furthermore, table 4.1 addressed African immigrants’ satisfaction with various aspects of health care services obtained during their most recent visits to a doctor’s office or other health care professional relative to their level of education. In aggregate, African immigrants with lower levels of education (less than a high school diploma & high school graduates) were more inclined to be dissatisfied with health care services in the past 12 months. To illustrate, just over a third (31 percent) of African immigrant with or without a high school diploma were dissatisfied with health care service received in the past 12 months compared with 18 percent of African immigrants with associate degrees or those with Bachelor’s degree or higher.

Table 4.2: Cross Tabulation of Satisfaction with Health Care Services and Health Insurance Status in Past 12 Months

			Insurance		
			Yes	No	Total
Satisfaction with Care	Satisfied	Count	168	58	226
		% Insurance	90.8%	85.3%	89.3%
	Dissatisfied	Count	17	10	27
		% Insurance	9.2%	14.7%	10.7%
Total	Count	185	68	253	
	% Insurance	100.0%	100.0%	100.0%	

Similarly, table 4.2 clearly illustrated that the uninsured (15 percent) among the African immigrants were more likely to report of being dissatisfied with the health care services than the insured (9 percent). In contrast, a slightly higher percentage of the insured (91 percent) were likely to report that they were satisfied with health care services in the past 12 months relative to the uninsured (85 percent); and thus, knowing respondents’ health insurance status provided very little information in the prediction of African immigrants’ satisfaction or dissatisfaction with most recent consumption of health care goods and services.

Table 4.3 : Cross Tabulation for Satisfaction with Health Care Services by Marital in the Past 12 Months (2013)

		Marital Status						
		Married	Widowed	Divorced or separated	Living with a partner	Never married	Total	
Satisfaction	Satisfied	Count	125	1	34	16	52	228
		% Marital status	87.4%	50.0%	91.9%	88.9%	92.9%	89.1%
	Dissatisfied	Count	18	1	3	2	4	28
		% Marital Status	12.6%	50.0%	8.1%	11.1%	7.1%	10.9%
Total		Count	143	2	37	18	56	256
		% Marital Status	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4.3 addressed African immigrants’ satisfaction with care in relation to their marital status. The table suggested that never married immigrants (93 percent) were just a little more likely to be very satisfied with their most recent health care services compared with 92 percent of those who were divorced or separated, 87 percent of the married, 89 percent of those living with a partner, and 50 percent of those who were widowed. Besides, of those who were dissatisfied with their most recent health care services received, the never married (7 percent) were slightly less likely to be dissatisfied compared with 8 percent of the divorced or separated, 11 percent of the living with a partner, about 13 percent of the married, and half (50 percent) of the widowed.

Self-Assessed Health Status Indicator of Access

This section of the monograph examined respondents’ perceptions of their own health status via bivariate analyses. Accordingly, table 4.5 addressed the respondents’ self-reported perceptions of health status in the past 12 months with respect to level of education.

Overall, about 67 percent of African immigrants were in excellent or very good health, while a little over a quarter (26 percent) were in good health. About 6 percent claimed that they were in fair or poor health status.

Table 4.5: Cross Tabulation of Perceived Health Status versus Level of Education

		Education					Total
		Less than high school	High graduate or equivalency	Some College or associate's degree	Bachelor's degree or higher		
Self-reported health status	Excellent/Very Good	Count	5	27	60	94	186
		% Educ	55.6%	64.3%	64.5%	71.8%	67.6%
	Good	Count	4	11	26	31	72
		% Educ	44.4%	26.2%	28.0%	23.7%	26.2%
	Fair/ Poor	Count	0	4	7	6	17
		% Educ	0.0%	9.5%	7.5%	4.6%	6.2%
Total	Count	9	42	93	131	275	
	% Educ	100.0%	100.0%	100.0%	100.0%	100.0%	

Furthermore, when the results were considered by the level of education, 72 percent of African immigrants with bachelor's degree or higher were likely to be in excellent or very good health status compared with 56 percent of those with less than a high school diploma, 64 percent high school graduate, and 65 percent of those with some college or associate degrees. Similarly, of those who were in poor health, immigrants with bachelor's degree or higher were less likely to be in poor health compared with 8 percent of those with some college or associate's degree, and 10 percent of those who had high school diploma.

When the results were analyzed by gender of the respondents in table 4.6, it was found that women were more likely than men be in excellent or very good health condition. Men were more likely than women to be in good health, while women were more likely to be in fair or poor health status than men were.

Table 4.6: Cross Tabulation of Health status versus Gender

		Gender			
		Male	Female	Total	
Self-reported health status	Excellent/Very Good	Count	106	79	185
		% gender	65.4%	71.2%	67.8%
	Good	Count	49	23	72
		% gender	30.2%	20.7%	26.4%
	Fair/Poor	Count	7	9	16
		% gender	10.4%	11.1%	10.8%

	% gender	4.3%	8.1%	5.9%
Total	Count	162	111	273
	% gender	100.0%	100.0%	100.0%

Specifically, 71 percent of women were in excellent or very good health compared with 65 percent of men. Twenty-one (21%) percent of women were in good health compared with 30 percent of men who said they were in good health. Of those who said they were in fair or poor health status, approximately 8 percent were women while 4 percent were men as illustrated in table 4.6

Table 4.7 assessed the perceived health care status in terms of country of origin. This variable was recoded into a different variable category to foster reliable and robust statistical analyses. Countries with less than 10 counts in the frequency distribution were aggregated into “others”, while those with more than 10 or more counts were retained. Overall, about seven of every ten (68 percent) African immigrants were in excellent health, a little over a quarter (26 percent) were in good health, and just 6 percent were in poor health situation

Table 4.7: Cross-tabulation of Self-reported Status versus Country

		Country									
			Ethiopia	Ghana	Nigeria	Cameroon	Liberia	Sierra Leone	Niger	Others	Total
Self-reported health status	Excellent/Very Good	Count	46	55	19	10	10	11	8	27	186
		% Country	73.0%	74.3%	52.8%	47.6%	83.3%	61.1%	80.0%	65.9%	67.6%
	Good	Count	13	17	16	9	2	6	1	8	72
		% Country	20.6%	23.0%	44.4%	42.9%	16.7%	33.3%	10.0%	19.5%	26.2%
	Fair/Poor	Count	4	2	1	2	0	1	1	6	17
		% Country	6.3%	2.7%	2.8%	9.5%	0.0%	5.6%	10.0%	14.6%	6.2%
Total	Count	63	74	36	21	12	18	10	41	275	
	% Country	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

As indicated in table 4.7, Liberians (83 percent) were slightly more likely to be in excellent or very good health compared with 80 percent of Nigeriens. Moreover, Liberians (83 percent) were more likely to be in excellent or very good compared with 74 percent of Ghanaians, 73 percent of Ethiopians, 65 percent of the others from various African countries, 61 percent of sierra Leoneans, 48 percent of Cameroonians, and 53 percent of Nigerians. Overall, about 6 percent of African immigrants in the DCMA reported fair or poor health status. Immigrants from Ghana as well as Nigeria (3 percent apiece) were less likely to be in poor health. Ten percent of Nigeriens and Cameroonian reported poor health status compared with about 6 percent of Ethiopians and Sierra Leoneans. Only Liberians reported no fair or poor health status.

Further, when the results were assessed by health insurance status, it was found that health insurance coverage seemed to be a determiner of health status among African immigrants living in the District of Columbia Metropolitan area. African immigrants with health insurance coverage were more likely to have excellent or very good health status compared with the uninsured immigrants. For instance, about 71 percent of the insured African immigrants had excellent or very good health status compared with about 62 percent of the uninsured African immigrants as illustrated in table 4.8.

Table 4.8: Cross-tabulation of Health Status versus Health Insurance coverage

		Health Insurance			
		Yes	No	Total	
Self-reported health status	Excellent/Very Good	Count	132	51	183
		% Health Insurance	70.6%	62.2%	68.0%
	Good	Count	44	25	69
		% Health Insurance	23.5%	30.5%	25.7%
	Fair/Poor	Count	11	6	17
		% Health Insurance	5.9%	7.3%	6.3%
Total	Count	187	82	269	
	% Health Insurance	100.0%	100.0%	100.0%	

Besides, the uninsured African immigrants in the DCMA were slightly more likely to have fair or poor health status compared with the insured. For instance, about 7 percent of the uninsured had fair or poor health status relative to about 6 percent of the insured African immigrants. The uninsured were likely to have good health compared with of those who have health insurance coverage; thus, approximately 31 percent of the uninsured African immigrants reported that they had good health status compared with about 24 percent of the insured.

When the results were considered by age of African immigrants, age seemed to have predictive power on health status of African immigrants living in the DCMA. In other words, age seemed to play a critical role in determining the self-reported health status among African immigrants. Accordingly, table 4.9 assessed the connection between health status and age of African immigrants in the DCMA.

Table 4.9: Cross-tabulation of Self-reported Health status by Age in the past 12 months

		Age					Total	
		18-29 years	30-39 years	40-49 years	50-59 years	60 or more		
Self-reported health status	Excellent/Very Good	Count	41	85	32	20	4	182
		% Age	71.9%	68.5%	68.1%	66.7%	33.3%	67.4%
	Good	Count	14	32	12	7	7	72
		% Age	24.6%	25.8%	25.5%	23.3%	58.3%	26.7%
	Fair/Poor	Count	2	7	3	3	1	16
		% Age	3.5%	5.6%	6.4%	10.0%	8.3%	5.9%
	Total	Count	57	124	47	30	12	270
		% Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Overall, 72 percent of African-immigrants in the 18 -29 age group were a little more likely to have excellent or very good health status compared with 69 percent among the 30-39 age group,

68 percent among the 40-49 age group, 67 percent among the 50-59 age group, and 33 percent among the 60 and over age group. African-immigrants aged 60 and over (8 percent) as well as those among the 50-59 age group (10 percent) were likely to have fair or poor health status compared with 4 percent among the 18-29 age group, 6 percent among the 30-39 age group, and 6 percent among those in the 40-49 age group. Interestingly, African-immigrants aged 60 and over (58 percent) were more likely to report good health compared with a quarter (25 percent) among the 18-29-age group.

Perceived Quality of Care (PQC) Indicators of Access to Health Care Services

Perceived quality of care is one of the outcome measures of health care access. It serves as a proxy measure of outcome evaluation of health care services used within a specific time context (Anderson, 1995). Perceived quality of care is a function of need, predisposing, and enabling variables of health care access. Hence, in this section, perceived quality of care were assessed based on need (general health status), predisposing (age, gender, level of education) and enabling (income).

Table 5.1 addressed cross tabulation analyses of perceived quality of care and age.

Overall, nearly 63 percent of African-immigrant reported that they received excellent or very good quality of care in the last 12 months, nearly three of every ten (29 percent) had good quality of health care, and 8 percent had fair or poor quality of care in their most recent visits to doctor’s office or other health care professional in the last 12 months.

Table 5.1 : Cross-tabulation of Self-reported Quality of Care Versus Age in the past 12 months

		Age					
		18-29 yrs.	30-39 yrs.	40-49 yrs.	50-59 yrs.	60 or more	Total
Excellent/Very Good	Count	27	78	34	15	7	161
	% Age	54.0%	66.7%	73.9%	50.0%	63.6%	63.4%

Perceived Quality of Care	Good	Count	18	31	9	12	3	73
		% Age	36.0%	26.5%	19.6%	40.0%	27.3%	28.7%
Fair/ Poor		Count	5	8	3	3	1	20
		% Age	10.0%	6.8%	6.5%	10.0%	9.1%	7.9%
Total		Count	50	117	46	30	11	254
		% Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Approximately 74 percent of African immigrants aged 40-49 years reported excellent or very good quality of care compared with 67 percent among the 30-39 age group, 64 percent among the 60 or more age group, and 54 percent among the 18-29 age group. Forty percent (40%) among the 50-59 age group were more likely to report good quality care compared with a little over a third (36 percent) among the 18-29 age group, and nearly a fifth (20 percent) among the 40-49 age group. Further, of those who reported fair or poor quality of care, immigrants aged 18-29 (10 percent) and 50-59 (10 percent) were less likely to report fair or poor quality of health care compared with, 7 percent among the 30-39 and 40-49 age groups as well as only 9 percent among the 60 and over age group.

Besides, table 5.2 addressed cross-tabulation analyses of perceived quality of care and gender of respondents in the study. The table 5.2 suggested that men were slightly likely than women to report very good or excellent quality of health care received within the last 12 months in the United States. For instance, a little over three-fifth (64 percent) of men reported excellent or very good quality care compared with 62 percent of women.

Table 5.2 : Cross-tabulation of Self-reported Quality Care versus gender in the past 12 months

		Gender			
		Male	Female	Total	
Perceived Quality of Care	Excellent/ Very Good	Count	98	65	163
		% gender	64.1%	61.9%	63.2%
	Good	Count	42	32	74
		% gender	27.5%	30.5%	28.7%
	Fair/ Poor	Count	13	8	21
		% gender	8.5%	7.6%	8.1%
Total	Count	153	105	258	

Compared with more than one-quarter (28 percent) of men, nearly three of every ten women (31 percent) were slightly more likely to adjudge health care services they received in the past 12 months as good in quality. About 9 percent of African immigrant men were slightly more likely to report fair or poor quality of care relation to 8 percent of their female counterpart.

Health Status versus Perceived Quality of Health Care Services

African immigrants in good or excellent health status were about three times as likely as immigrants with fair or poor health status to report excellent quality of care. Specifically, about 73 percent of respondents who were in excellent or very health status reported of excellent or very good quality health care services in the past 12 months compared with about 38 percent of who reported of fair or poor health status. Even more, African immigrants in excellent health status (5 percent) were less likely to report poor quality of care compared with 10 percent of those with good health status and 25 percent of those with fair or poor health status as exhibited in table 5.3.

Table 5.3: Cross Tabulation of Self-reported Quality of Care vs. Health Status in the past 12 Months

		Health Status				
		Excellent/ Very Good	Good	Fair/ Poor	Total	
Perceived Quality of Care	Excellent/Very Good	Count	123	32	6	161
		% Health Status	72.8%	45.7%	37.5%	63.1%
	Good	Count	37	31	6	74
		% Health status	21.9%	44.3%	37.5%	29.0%
	Fair/Poor	Count	9	7	4	20
		% Health Status	5.3%	10.0%	25.0%	7.8%
	Total	Count	169	70	16	255
		% Health status	100.0%	100.0%	100.0%	100.0%

Table 5.4 suggested that the relationship between self-reported quality of care and level of education was relatively complex. It appeared level of education had very little impact on self-reported quality of care received in the past 12 month. About 56 percent of African immigrants with less than high school diploma said that they had excellent or very good quality of care in the past 12 months. This decreased slightly to about 49 percent among African immigrants with high school diploma, increased to 68 percent among those with some college or associate degrees, and then decreased slightly to 65 percent among those with bachelor’s degree or higher . A similar pattern was observed in the “Good” response category. About 33 percent of African immigrants with less than high school diploma reported that they had good quality health care services in the past 12 months. Once again, it rose to 43 percent among those with high school diploma, decreased to about 25 percent among those with some college or associate degree, and increased slightly to 26 percent among those with bachelor’s degree or higher.

Table 5.4 : Cross Tabulations Of Self-Reported Quality Of Care versus Level of Education in the Past 12 Months

		Education				Total	
		Less than high school	High graduate/ equivalency	Some College/ associate's degree	Bachelor's degree or higher		
Perceived Quality of Care	Excellent/Very Good	Count	5	18	59	82	164
		%Education	55.6%	48.6%	67.8%	65.1%	63.3%
	Good	Count	3	16	22	33	74
		%Education	33.3%	43.2%	25.3%	26.2%	28.6%
	Fair/Poor	Count	1	3	6	11	21
		% Education	11.1%	8.1%	6.9%	8.7%	8.1%
		Count	9	37	87	126	259
	Total	% Education	100.0%	100.0%	100.0%	100.0%	100.0%

African immigrants with high school diploma or lower were slightly likely to report of receiving fair or poor quality of care in the past 12 months compared with those with some college degrees or more. For instance, about 19 percent of African immigrants with high school diploma or lower said they had fair or poor quality care in the past 12 months relative to about 17 percent of those with some college degree or higher.

Usual Source of Care by Perceived Health Status by Sources of Care

Table 5.5(i) examined the usual source of care (USOC) vis-à-vis perceived health status by sources of care among African immigrants in the DCMA in 2013. African immigrants with very good physical health status in 2013 were more likely to consider all sources of care except some -other- place as their usual sources of care vis-à-vis those with excellent and fair physical health status.

Table 5.5(i) Cross tabulation: Usual Source of Care by Perceived Health Status by Sources of Care of African immigrants in the DCMA, 2013.

Sources of Care	Usual Source of Care	Perceived Physical Health Status (PPHS)			
		Excellent	Very good	Good	Fair
		n (%)			
Clinic or health center	Yes	16 (26.70)	30(50.00)	13 (21.70)	1 (1.70)
Doctor’s office or HMO	Yes	26(27.40)	39(40.10)	25(26.30)	5(5.30)
Hospital emergency room	Yes	6(18.20)	14(42.40)	12(36.40)	1(3.00)
Hospital outpatient department	Yes	3(13.00)	12(52.20)	5(21.70)	3(13.00)
Some other place	Yes	3(23.10)	4(30.80)	4(30.80)	2(15.40)

Therefore, about 52 percent of African immigrants who were in very good physical health status (PHS) considered a hospital's outpatient department as their usual source of care relative to about 22 percent and 13 percent apiece for those who were in good, excellent, and fair physical health status respectively in 2013.

Besides, among those who considered a clinic or health center as their usual source of care in 2013, 50 percent of them were African immigrants who had very good physical health status compared with about 27 percent of those who had excellent physical health status, 22 percent of those who had good physical health status, and only about 2 percent who said they had fair physical health status.

Further, a hospital's emergency room was a usual source of care for African immigrants in the DCMA who were in very good physical health status (PHS). In this case, about 42 percent of African immigrants with very good PHS considered the hospital's emergency room as their usual source of care compared with about 36 percent of those with good PHS, about 18 percent with those excellent PHS, and about 3 percent with those who reported that they experienced fair PHS in 2013.

In addition, African immigrants with very good PHS (40 percent) were more likely to consider doctor's office or health care management organization (HMO) as their usual source of care compared with about 27 percent of those in excellent PHS, 26 percent of those in good PHS, and only about 5 percent of those in fair PHS.

When the results were analyzed in terms of usual source of care versus perceived quality care by source of care, African immigrants in the DCMA with very good perceived quality of care (PQC) were more likely than those with excellent, fair, and poor perceived quality care to consider all the sources of care as their usual source of care in 2013.

Of those with a usual source of care in 2013, African immigrants with very good PQC (43 percent) were more likely than about 35 percent, 21 percent, and only about 2 percent of those with good, excellent and fair PQC respectively to consider a clinic or health center as their usual source of care.

Usual Source of Care by Perceived Quality of Care by Source of Care

Moreover, compared with those with other PQC categories, African immigrants with very good PQC in 2013 were more likely to consider a doctor’s office or HMO as their usual source of care. For instance, about 38 percent of African immigrants with very good PQC said they used doctor’s office or HMO as their usual source of care compared with about 28 percent of those with good PQC, 26 percent of those with excellent PQC, and only about 7 percent of those with fair PQC in 2013.

Table 5.5(ii): Cross tabulation: Usual Source of Care by Perceived Quality of Care by Source of Care of African immigrants in the DCMA, 2013.

Sources of Care	Usual Source of Care	Perceived Quality of Care (PQC)				
		Excellent	Very good	Good	Fair	Poor
		n (%)				
Clinic or health center	Yes	12(20.70)	25(43.10)	20(34.50)	1(1.70)	**
Doctor’s office or HMO	Yes	26(26.30)	38(38.40)	28(28.30)	7(7.10)	**
Hospital emergency room	Yes	5(15.20)	16(48.50)	7(21.20)	4(12.10)	1(3.00)
Hospital outpatient department	Yes	4(18.20)	8(36.40)	7(31.80)	2(9.10)	1(4.50)
Some other place	Yes	3(27.30)	3(27.30)	4(36.40)	1(9.10)	**

** Data not shown did not have any count for sources of care. SPSS was unable to furnish any output.

Furthermore, a hospital’s emergency room was relatively likely to be a usual source of care for African immigrants with very good perceived health status. Of those with a usual source of care, about 49 percent of African immigrants with very good PQC considered a hospital’s

emergency room, while approximately 21 percent, 15 percent, and 3 percent of those with good, excellent, fair, and poor PQC respectively did.

African immigrants with very good PQC were more likely to consider a hospital's outpatient department as their usual source of care in 2013. Specifically, of those with a usual source care, African immigrants with very good PQC (36 percent) were more likely to consider a hospital's outpatient department compared with those with excellent (18 percent), good (32 percent), fair (9 percent), and poor (5 percent) PQC.

Of those with a usual source of care, African immigrants with good PQC (36 percent) were more likely than those with excellent (27 percent), very good (27 percent), and fair (9 percent) perceived quality of health care to consider some other place in 2013.

Among those who perceived excellent quality of health care services, about 27 percent considered some-other-place as their usual source of care, while 26 percent considered it to be a doctor's office or HMO, 21 percent considered it to be a clinic or health center, 18 percent considered it to be a hospital's outpatient department, and 15 percent considered it to be a hospital's emergency room.

Binomial Logistic Regression Results

A binomial logistic regression analysis was conducted to assess African-immigrants' access to and utilization of health care goods and services in the District of Columbia Area of the United States of America. The outcome variable, a usual source of care, was binarized; it was coded (1) for having usual place of care and zero (0) for *not* having a usual source of care. Overall, thirteen (13) independent variables were employed to examine potential access to health care services among African immigrants in the DCMA. The independent variables for the logistic model were age, gender, education, acculturation (social interaction, cultural orientation,

& length of stay in the U.S), health insurance coverage, family income, use of communication and information technology for health care purposes, employment, and satisfaction with care received, and self-reported health status. These variables were a mixture of dichotomous and polytomous variables. The binary logistic regression procedure in IBM SPSS was utilized to conduct the analysis. Data from 281 cases from a mix-mode survey of African-immigrants living in the DCMA was used in the analyses.

Moreover, a test of the full model against an intercept-only model was statistically significant, suggesting that the explanatory variables correctly predicts African-immigrants who were with and without a usual source of care ($\chi^2 = 47.81, p < .05, p = 0.001$). The strength of association between the logit (potential access) and the independent variables of interest was moderately strong with Cox and Snell R^2 of 0.190 and Nagelkerke R^2 of 0.361. In other words, nearly between 19 to 36 percent of the variations in the outcome variable (usual source of care) was correctly explained by the independent variables of interest. Overall, the logistic regression model correctly classified 89.4 percent of all cases. Thus, 89 % for African immigrants indicated they had a usual place where they seek health care services or advice about their own health relative to only 11 percent of African immigrants who had no usual source of care. The -2-log likelihood ratio (LL) value of 121.78 also suggested a well- fitting logistic regression model.

Specific Effects of Acculturation (Social interaction, Cultural Orientation, and Length of Stay) on Access to and Utilization of Health Care Services

The principal objective of this section was two-pronged to: investigate the connection between the odds of having a usual source of care and specific acculturation independent variables, viz. length of stay, social interaction, and cultural orientation; (2) investigate the

connection between the odds of having realized access to health care and acculturation variables. In addition, relevant section of the logistic regression outputs were examined to gain insight into the nature of the co-efficient (B), statistical significance, and the log-odds ratios of the independent variables relative to the dependent variables (Usual source of Care (USOC) and Realized access to health care (RAC)).

Table 5.6 summarized the raw values of binary logistic regression coefficients, Wald statistics, and the predictive log-odds of usual source of care along with 95% confidence intervals. Overall, only positive social interaction variable, versus negative social interaction variables, was statistically significant in predicting the log odds of having a usual source of care as illustrated in the sig column of table 5.6. Thus, $\chi^2 (df=1) =9.53, p<0.05, p=0.00$.

Table 5.6: Variables in the Equation(Usual Source of Care versus Acculturation Variables: (Length of Stay, Social Interaction,& Cultural Orientation)

Acculturation Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for Exp(B)	
							Lower	Upper
Length of Stay			1.469	3	.689			
Less than 5 years (Reference)								
6 to 10 years stay	-.229	.497	.212	1	.645	.796	.300	2.107
11 to 20 years stay	.155	.483	.103	1	.749	1.167	.453	3.011
21 years and Over	.456	.621	.538	1	.463	1.577	.467	5.329
Social Interaction								
Neg. Social Interaction (Ref)								
Positive Social Interaction	1.223	.396	9.532	1	.002	3.396	1.563	7.380
Cultural Orientation			4.084	3	.252			
Never (Reference)								
Always	1.387	.694	3.994	1	.046	4.001	1.027	15.586
About half of the time	1.022	.707	2.089	1	.148	2.780	.695	11.121
Once a while	.875	.657	1.774	1	.183	2.398	.662	8.689
Constant	.070	.707	.010	1	.921	1.073		

Critical alpha value: $\alpha=0.05$. Less than 5 years, Negative social interaction, and Never were reference categories for length of stay, social interaction, and cultural orientation respectively.

Column Exp (B) in table 5.6 illustrated the exponentiated B values of the independent variables. Of all the independent variables, always-positive cultural orientation, relative to those with negative cultural orientation, recorded the largest Exp (B) value of 4.001; indicating that a one-unit increase in the always-cultural orientation posture versus never-cultural orientation posture would increase the log-odds of having a usual source of care by 4 times, if the effects of the other independent variables were held constant. Thus, African immigrants with the always-cultural orientation posture were 4 more times likely to belong to those who had a usual source of care in 2014, all else being equal. Interpreting this from effect size perspective, always-cultural orientation was 4 times as important as the other independent variables in accounting for the variations in the log-odds of having a usual source of care of African immigrants living in the DCMA. Relative to less than 5 years length of stay, 6 to 10 years length of stay variable had the smallest exponentiated B value (0.796) and by extension, had the smallest effect size of all the disaggregated independent variables. Thus, for every one increase in the 6 to 10 years length of stay of African immigrants in the DCMA, their likelihood of having a usual source of care decreased by about 0.80, all things being equal. In other words, African immigrants with 6 to 10 years length of stay in United States, compared to those less than 5 years, were only about 0.80 more times likely to belong to those who said they had a USOC in 2014.

Positive social interaction, relative to negative social interaction, was significantly associated with having a usual source of care, (OR=3.40, $p<0.05$, $p=0.002$). African immigrants with positive social interaction versus those with negative social interaction were about 3 more times likely to have a USOC.

In table 5.7, the relationship between realized access to health care services and disaggregated acculturation variables was explored. Only two of the isolated variables were

statistically significant; thus, the association between RAC vis-à-vis always-cultural orientation posture and more than 21 years length of stay in the US proved statistically significant; with the *p*-values of each isolated variables being less than the alpha value. The Wald statistic for always-cultural orientation was statistically significant $\beta=1.367$, $\chi^2 (df=1) =5.10$, $p<\alpha=0.05<0.02$, and so was 20 years or more length of stay isolated variable was; $\beta=0.951$, $\chi^2 (df=1) =4.35$, $p>\alpha=0.05>0.04$.

Table 5.7: Variables in the Equation: Realized Access to Care versus Acculturation Variables (Length of Stay, Social interaction, and Cultural Orientation)

Acculturation Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I.for EXP(B)	
							Lower	Upper
Length of Stay			4.960	3	.175			
Less than 5 years (Reference)								
6 to 10 years stay	.469	.377	1.547	1	.214	1.598	.763	3.345
11 to 20 years stay	.604	.360	2.811	1	.094	1.829	.903	3.703
21 years or More	.951	.456	4.350	1	.037	2.589	1.059	6.332
Social Interaction								
Neg. Social Interaction (Ref)								
Positive Social Interaction	.414	.289	2.047	1	.152	1.513	.858	2.667
Cultural Orientation			5.529	3	.137			
Never (Reference)								
Always	1.367	.606	5.096	1	.024	3.924	1.197	12.860
About half of the time	1.128	.627	3.239	1	.072	3.091	.904	10.561
Once a While	.924	.599	2.383	1	.123	2.520	.779	8.151
Constant	-1.071	.626	2.932	1	.087	.343		

In the USOC model (table 5.8), some key differences were observed in the odds of having a USOC and RAC vis-a-vis the isolated variables of cultural orientations. Compared with those with about-half-of-the time and once-a-while cultural orientation posture, African immigrants with always- cultural orientation posture were more likely to have higher odds of having a usual source of care and realized access to health services. To illustrate, African immigrants with always- cultural orientation posture were 4 more times likely to belong to those who said they had a USOC and RAC in 2014 compared with about 3.09 versus 2.78 for those the about-half-of- the-time and 2.52 versus 2.40 about once-a-while cultural orientation posture.

Furthermore, all the isolated variables of cultural orientation relative to never-cultural orientation posture had greater effects on the odds of having both USOC and RAC. Relative to the reference group, an African immigrant with any of the isolated cultural orientation posture was about between 2 and 4 more times and about between 3 and 4 more times likely to belong to those with a USOC and RAC respectively.

Table 5.8: Comparative Characteristics of USOC and RAC versus Acculturation Variables

Variables	Realized Access to care		Usual Source of Care(Potential Access)	
	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>
Results				
Length of Stay				
Less than 5 years (Reference)				
6 to 10 years stay	1.60	(0.76, 3.35)	0.80	(0.30, 2.11)
11 to 20 years stay	1.83	(0.90, 3.70)	1.17	(0.45 ,3.01)
21 years and Over	2.59	(1.06, 6.33)	1.58	(0.47 ,5.33)
Social Interaction				
Neg. Social Interaction (Ref)				
Positive Social Interaction	1.51	(0.86,2.67)	3.40	(1.56 ,7.38)

Cultural Orientation				
Never (Reference)				
Always	3.92	(1.20, 12.86)	4.00	(1.03, 15.59)
About half of the time	3.09	(0.90, 10.56)	2.78	(0.70, 11.12)
Once a while	2.52	(0.78, 8.15)	2.40	(0.66, 8.69)

Furthermore, there were some notable differences among the categories of time residence in the United States in relation to USOC and RAC as illustrated in table 5.8. African immigrants who have domiciled in the United States for more than 21 years versus those with shorter time (<5 years) were more likely not only to have higher odds of having a USOC; but also they were more likely to have higher of having RAC (USOC OR=1.58 Versus RAC OR=2.59). For instance, African immigrants with more than 21 years length of stay in the US were about 2 more times likely to have a USOC and about 3 more times likely, than those with between 11 to 20 years and 6 to 10 years, to have a USOC and a RAC respectively. Residing in the United States for a long period can enhance the likelihood of having realized access to health care services, all things being equal.

The acculturation isolated variables seemed to have strong predictive influence on the log-odds of having a USOC and RAC. Table 5.8 highlighted some differences in the effect-size of the isolated acculturation variables in the predictive log-odds of each dependent variable. Overall, the effect-size was strong, ranging from roughly 1 to 4 effect-sizes; thus, indicating that the log-odds of the dependent variables was more likely to increase if any isolated predictor was raised by a one unit.

Interpretation of Binomial Logistic Regression Outputs

Potential Access to Health Care Services

Binomial logistic regression analysis was performed with the view to predicting the odds of access to care (USOC) from need, enabling, and predisposing independent variables.

Specifically, USOC, usual source of care, was a dichotomous proxy measure for prospective access to health care. The predisposing domain was composed of age, gender, marital status, education, and acculturation. Acculturation was measured using three response categories or scales; these were African immigrants’ social interaction, cultural orientation, and length of stay in the United States. The enabling variable comprised of health insurance, income, use of information sources, and employment. Only one variable was used to measure the need domain: self-evaluated health status, a proxy of existence or non-existence of health problem, which determined utilization of health care services.

A binomial logistic regression was performed and the results were analyzed in the following paragraphs. Only relevant logistic regression outputs were presented in this section. The Omnibus Tests of Model Coefficients, as shown in table 5.8 below, provided an overall indication of the model’s predictive power and effectiveness.

Table 5.8: Omnibus Test of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	47.806	22	.001
	Block	47.806	22	.001
	Model	47.806	22	.001

As indicated in table 5.8, the chi-square value was 47.806 with 22 degrees of freedom. Hence, the goodness-of-fit test was highly significant with a probability value ($p=.001$) less than the critical alpha level ($\alpha=.05$). That is to say, the model provided perfect prediction for the odds of

usual source of care among African immigrants living in the District of Columbia Metro area of the United States.

Table 5.9: Variables in the Equation for Potential Access for Health Care Services

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	1.961	.202	94.403	1	.000	7.107

The variables in the equation table (table 5.9) provided information about the predicted odds or odds ratio [Exp (B) =7.296], intercept-only (B=1.961), Wald statist (94.4031), standard error (SE= .202), and statistical significance of the model. The Exp (B) =7.29 indicates the real predicted odds of the model. Overall, the predicated odds of having a usual source of care among African immigrants in the DCMA was at 7.3 exponential beta value; thus, African immigrants in the DC were 7 more times likely to have a usual source of care. The Exp (B) or the odds of African immigrants having usual source of care (USUC) converted into probability value was 0.88, [$\frac{Exp(B)}{1+Exp(B)} = \frac{7.107}{1+7.107} = 0.88$]. This suggested that the model predicted approximately 88 percent of the odds of African immigrants in the DCMA having a usual source of health care. The odds of African immigrants in the DCMA having a usual source of health care was about 88 percent, all else being equal. On the other side, the standard error value of 0.205 indicated that the logit model was representative of the data. The test of the full model versus the model with intercept only was statistically significant, $\chi^2 (1, N=280) = 94.403, p < 0.05$.

Moreover, table 6.0 provided the model summary of all predictor variables of interest. It furnished the overall summary statistics for the model at “step 1”. The -2 Log Likelihood statistics measured how poorly the model predicts the odds of having a usual source of health care services. Statistically, the smaller the -2Log probability value, the better the predictive power of the model. The log-likelihood value was 129.485, indicating a good fitting model; thus,

the model accurately predicted the odds of having a usual source of care among African immigrants residing in the DCMA of the United States.

Table 6.0: Logistic Regression Model Summary (Goodness-of-Fit Measures)

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	121.783 ^a	.190	.361

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

The Cox & Snell R square provided information about the effect-size. It provided an overall predictive power of the model. The Cox & Snell value was 0.190. This indicated that the model accounted for nearly 19 percent of the variation in the outcome variable (usual source of care) could be predicted from the variables of interest. Further, Nagelkerke R-square statistic, a more reliable statistical gauge, provided a better approximation of the model’s predictive power. The Nagelkerke R-square was 0.36, indicating a moderately strong relationship of 36 percent between usual source of care and the independent variables of interest. In other words, 36 percent of the variance in usual source of care could be predicted from all the independent variables of interest. In aggregate, the predictor variables explained between 19 to 36 percent of the variance in the odds of African immigrants having usual source of medical care (potential access to health care services).

The Hosmer and Lemeshow Test also provided essential goodness-of-fit information pertaining to the model’s predictive power as exhibited in table 6.1.

Table 6.1: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.339	8	.825

The Hosmer and Lemeshow (H-L) test assessed the statistical significance of the model. The chi-square value was anticipated to be low and non-statistically significant. The chi-square

($\chi^2=4.339$) is comparatively small and the Hosmer & Lemeshow statistic had a significance of 0.825 at $p>0.05$, which suggested that the model was not statistically significant. For this reason, it could be concluded that the binomial logistic model for USOC was a well-fitting model. Furthermore, analyzing the classification table provided additional information on the goodness-of-fit nature of the model.

Table 6.2: Classification table for potential access to health care services

Step 1	Observed		Predicted		Percentage Correct
			USOC		
			No	Yes	
	USOC	No	7	21	25.0
		Yes	3	196	98.5
	Overall Percentage				89.4

a. The cut value is .500

The classification table provided a lot of important information about the binomial logistic regression results. Hence, it provided sensitivity, specificity, false positive predictive value, and false negative predictive values. Table 6.2 provided information about the percentage of potential access to care which was correctly predicted (Sensitivity). Thus, for African-immigrants who indicated they had a usual source of care, the model correctly predicted 196 out of 198 cases. Thus about 99 percent of the cases of having a USOC were correctly predicted. Specificity provided information about African-immigrant with no usual source of medical that was correctly predicted. For those who said they did not have a usual source of care, the model predicted 7 out of 28 cases. Overall, the binomial logistic model with 13 variables correctly classified 89 percent of all cases of interest.

Realized Access to Health Care Services

Furthermore, another logistic regression was performed to evaluate actual health care utilization (realized access) of African immigrants in terms of selected predisposing, enabling, and need variables. Relevant outputs from the SPSS binomial regression were discussed below:

Table 6.3: Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Constant	.957	.148	41.662	1	.000	2.603

Table 6.3 summarized the Wald(X^2) test used to determine the statistical significance of the explanatory variables. It was found that all the predictor variables were statistically significant [$X^2(1) = 41.662, P < .05$], pertaining to health care utilization among African immigrants in the DCMA. Similarly, the chi-square analysis suggested that the model was statistically significant, $X^2(23) = , p < .005, p = 0.000$ as illustrated in table 7.8 below:

Table 6.4: Logistic Regression Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	54.908	23	.000
	Block	54.908	23	.000
	Model	54.908	23	.000

Table 7.9 suggested that the model was able to explain about 31 % (Nagelkerke R square = .310) of the variance in African immigrants' realized access to health care services. Conversely, the Cox & Snell R^2 demonstrated that the model explained approximately 23 % of the variance in health care utilization rate of African immigrants living in the Washington Metro areas as illustrated in table 6. Overall, the model explained between 23% (Cox & Snell R-square) and

31% (Nagelkerke R-square R) of the variance in health care utilization (realized access) among African immigrants in the DCMA of the United States.

Table 6.5: Logistic Regression Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	213.228 ^a	.215	.310

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Logistic Regression Analyses for USOC and RAC

In table 6.4, the associations between the variables and isolated variables vis-à-vis usual source of care (USOC) and realized access to care (RAC) from the complete logistic regression models revealed varied significant effects and statistical significance. The association between having a USOC and high school diploma and equivalent was statistically significant, ($p < \alpha = 0.08 < 0.05$). The magnitude of the significant effect for high school or equivalent isolated predictor on USOC was extremely large (OR=10.02); thus, African immigrants with high school diploma or equivalent versus those with less than high school diploma were roughly 10 more times likely to belong to have a USOC. However, they were about 2.33 more times likely to belong to those who said they had realized access to health care as illustrated in the RAC model.

Table 6.6: Usual Source of Care and Realized Access to Care Versus Enabling, Predisposing, Need, And Acculturation Factors Of African Immigrants In The DCMA 2013.

Variables	Usual Source of care (USOC)			Realized Access to Care (RAC)				
	OR	95.0% C.I.for Exp(B)		P**	OR	95.0% C.I.for Exp(B)		P**
<u>Need Factor</u>								
Health Status								
Fair/Poor (Reference)								
Good	1.82	(0.33	10.16)	0.50	0.40	(0.07	2.31)	0.31
Excellent/Very good	2.49	(0.49	12.60)	0.27	0.56	(0.10	3.03)	0.50
<u>Enabling Factors</u>								
Health Insurance								

No health insurance (Reference)								
Yes, health insurance	0.25	(0.08	0.83)	0.02	0.46	(0.19	1.11)	0.08
Use of Comm/Info. Technology								
ICT Use								
No ICT Use (Reference)								
ICT Use(1)	4.57	(1.42	14.67)	0.01	1.52	0.67	3.43	0.32
Household Income								
Less than \$35,000 (Reference)								
\$35,000-\$49,000	2.60	(0.45	15.22)	0.29	0.57	(0.20	1.58)	0.28
\$50,000-\$,74999	1.37	(0.21	8.98)	0.74	0.28	(0.09	0.90)	0.03
\$75,000 or More	1.15	(0.19	7.14)	0.88	1.28	(0.35	4.66)	0.70
Satisfaction With Care								
Dissatisfaction with Care (Ref)								
Satisfaction with Care	1.06	(0.23	4.89)	0.95	1.81	(0.59	5.59)	0.30
Usual Source of Care (USOC)*								
No USOC (Reference)								
Have a USOC					8.02	(2.74	23.49)	0.00
Employment Status								
Currently not working (Ref)								
Currently Working	0.27	(0.04	1.84)	0.18	1.77	(0.52	6.09)	0.36
<u>Predisposing Factors</u>								
Age								
M1(18-29yrs) Reference								
M2 (30-39 yrs.)	0.05	(0.01	0.34)	0.00	0.83	(0.26	2.61)	0.75
M3 (40 and Over)	0.10	(0.02	0.49)	0.00	0.79	0.32	1.97	0.62
Education								
Less than High School (Ref)								
High School Diploma or Equiv.	10.02	(0.77	131.26)	0.08	2.33	(0.34	16.05)	0.39
Some College or Associate deg.	4.69	(0.42	52.93)	0.21	5.91	(0.89	39.23)	0.07
Bachelor's or higher degree	3.62	(0.31	42.48)	0.31	3.30	(0.50	21.78)	0.22
Gender								
Female (Reference)								
Male	0.66	(0.22	1.97)	0.46	0.74	(0.33	1.67)	0.47
<u>Acculturation Factors</u>								
Length of Stay								
Less than 5 years(Reference)								
6 to 10 years	0.37	(0.08	1.67)	0.20	1.54	(0.54	4.36)	0.42
11 to 20 years	0.30	(0.07	1.35)	0.12	1.45	(0.52	4.05)	0.48
21 years and over	0.57	(0.09	3.63)	0.55	2.11	(0.57	7.79)	0.26
Social Interaction								
Neg. Social Interaction (Ref)								
Positive Social Interaction	3.98	(1.27	12.46)	0.02	1.04	(0.47	2.30)	0.93

Cultural Orientation

Never (Reference)

Once a while	1.05	(0.14	7.88)	0.96	2.12	(0.39	11.41)	0.38
About Half of the time	2.04	(0.23	17.83)	0.52	2.76	(0.49	15.57)	0.25
Always	2.14	(0.27	17.32)	0.48	3.68	(0.66	20.65)	0.14

* Usual source of care was employed as a predictor in health care utilization or realized access model.

** Critical alpha level: $\alpha=0.05$.

African immigrants with usual source of care were more likely than the reference group to report of having realized access to health care services. Specifically, African immigrants with a USOC, compared with those without a USOC, were about 8 more times likely to have realized access to health care services in the past 12 months. In particular, of all the variables in RAC model, having a USOC exhibited the largest effect-size; thus, having a USOC was 8 more times as crucial as the other variables in accounting for the variations in the predictive log-odds of having RAC.

Compared with those with negative social interaction, African immigrants with positive social interaction were about 4 more times likely to have a usual source of care. In other words, exhibiting positive social interaction versus negative social interaction was about 4 times as important as the other variables in predicting the odds of having a USOC, and this relationship was statistically significant, $p < \alpha: 0.02 < 0.05$.

Age was statistically significant ($p=0.01 < 0.05$) in the USOC model. Similarly, the isolated variables for age were statistically significant in the USOC model (M2 & M3: $p=0.00$). Age was more likely to predict the odds of having RAC than having a USOC. Both M2 and M3 versus M1 had comparatively higher odds of RAC in the RAC model (0.83 and 0.79 in the RAC model versus 0.05 and 0.10 respectively in USOC model).

Associations without Acculturation Factors (AWAF)

This section of the monograph examined the association between USOC and RAC in relation to selected enabling, predisposing, and need variables without acculturation factors. The adjustment for acculturation factors exposed similarities and differences in the associations without acculturation factors (AWAF) model as illustrated in the following paragraphs. The table 6.5 provided statistics about usual source of care (USOC) and realized access to care (RAC) with respect to selected variables excluding acculturation factors.

Table 6.7: Usual Source of Care and Realized Access to Health Care versus Need, Predisposing, and Enabling Variables of African Immigrants in the DCMA, 2013.

Variables	Usual Source of care(USOC)			Realized Access to Care (RAC)				
	OR	95.0% C.I.for Exp(B)	P*	OR	95.0% C.I.for Exp(B)	P*		
<u>Need Factor</u>								
Health status								
Health Status								
Fair/Poor(Reference)								
Excellent/very good	3.072	(0.68 13.88)	0.15	0.49	(0.09 2.60)	0.40		
Good	2.583	(0.52 12.73)	0.24	0.40	(0.07 2.24)	0.29		
<u>Enabling Factors</u>								
Health Insurance								
No Health insurance (Ref)								
Yes have Insurance	2.585	(0.97 6.901)	0.058	1.98	(0.86 4.57)	0.11		
Employment Status								
Currently not working (Ref)								
Currently Working	0.336	(0.06 1.89)	0.22	1.87	(0.58 5.99)	0.29		
Use of Comm & Info Tech.								
No ICT use (reference)								
ICT Use	4.142	(1.54 11.13)	0.01	1.88	(0.88 3.99)	0.10		
Household Income(Yr.)								
Household income								
<\$35,000 Reference								
\$35,000 to \$50,000	1.904	(0.39 9.36)	0.43	0.39	(0.24 1.65)	0.35		
\$50,000 to \$74,999	1.738	(0.32 9.45)	0.52	1.68	(0.13 1.15)	0.87		
\$75,000 or More	1.348	(0.28 6.59)	0.71	1.67	(0.50 5.60)	0.40		
Satisfaction W/ Care								
Dissatisfied (Reference)								

Satisfied	1.578	(0.43	5.79)	0.49	1.73	(0.59	5.12)	0.32	*Critical alpha value: $\alpha=0.05$. **USOC was incorporated in the RAC model as dependent variable to determine its predictive odds on RAC.
Usual source of Care (USOC)**									
No USOC (Reference)									
Have a USOC					9.228	(3.35	25.43)	0.00	
Predisposing Factors									
Age (yrs.)									
Age									
M1 (18-29yrs) Reference									
M2 (30-39yrs)	1.816	(0.65	5.05)	0.25	0.99	(0.40	2.51)	0.99	
M3(40 Or More)	12.02	(2.33	61.89)	0.00	1.29	(0.45	3.75)	0.64	
Education									
Education									
< High School (Reference)									
High School diploma or equiv	11.41	(1.22	106.90)	0.03	2.44	(0.36	16.49)	0.36	
Some College or Associate	7.431	(0.93	59.20)	0.05	6.26	(1.01	39.11)	0.05	
Bachelor's degree or More	5.554	(0.72	43.12)	0.10	3.40	(0.55	20.91)	0.19	
Gender									
Female (Reference)									
Male	1.112	(0.44	2.85)	0.82	1.139	(0.53	2.43)	0.74	

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ing for acculturation factors, African immigrants with USOC relative to those without USOC were approximately 9 more times likely to have realized access to health care, and this association was statistically significant, OR=9.23 versus OR 8.02; $p<0.05$, $p=0.00$.; thus, having a USOC was about 9 times as crucial as the other variables in determining the odds of having RAC.

The association between the odds ratio of USOC and high school diploma was statistically significant (OR=11.41; $p<.05$, $p=0.03$). Some college or associate degree isolated factor also improved in statistical significance; however, the p -value was mathematically equal to the critical alpha value of the study.

The predictive log-odds of USOC and RAC in relations to having health insurance tremendously improved in the AWAFF model. There was small but notable changes in statistical significance. Hence, African immigrants with health insurance coverage, in relation to the

reference group, were about 3 times more likely to have a USOC, after adjusting for acculturation factors, compared with only about 0.25 odds ratio in table 6.6. Nevertheless, the availability of health insurance coverage was no more significantly associated with the log-odds of having a USOC ($p>0.05$; $p=0.06$ versus $p<0.05$; $p=0.02$ in table 6.6). In terms of log-odds of RAC, there was also an increase from 0.46 times to about 2 times in the magnitude of the significant effects of African immigrants who had health insurance coverage versus those who did not.

Further, after adjusting for acculturation factors, only the association between USOC and M3 (40 or More) was statistically significant, $p<0.05$; $p=0.00$ in the RAC section of the AWAFF model.

In sum, the adjustment for acculturation factors did help account for small but significant differences in having a usual source of care and realized access to health services among African immigrants in the DCMA. For instance, the adjustment for acculturation factors did enhance the predictive power of a usual source of care in determining the odds of having realized to health care services by about 1 odds ratio unit, and the statistical significant remained the same before and after adjusting for acculturation factors (OR=9.23; $p<0.05$, $p=0.00$ versus OR=8.02; $p<0.05$, $p=0.00$).

Hypotheses Testing and Analysis

The study tested thirteen (13) hypotheses pertaining to African immigrants' access to and utilization of care in the United States of America. In the context of the United States health system, the following combo-hypotheses (A), (B), (C), and (D) were tested and discussed:

Hypothesis (A):

H₁: African-immigrant will utilize herbal medicine from Africa to satisfy their health care need.

Traditional herbal medicine are utilized in Africa either as primary, complementary, or supplementary treatment for a broad range of diseases and illness, regardless of a paucity of scientific evidence on their effectiveness. For instance, traditional herbal medicines are utilized in some African countries as a primary treatment for HIV/AIDS and for HIV-related problems including dermatological disorders, nausea, depression, insomnia, and weakness (Mills et al., 2005). Hence, hypothetical statement was set up in the study to assess the use of traditional herbal medicine among African immigrants living in the District of Columbia Metropolitan area of the United States.

The hypothesis was not significantly supported. Of 281 African immigrants who participated in the research project, 172(61 percent) said that they do not utilize folk, herbal or traditional medicine from Africa. Only 99 respondents (35%) reported usually utilizing traditional or herbal remedies from Africa to meet their health care needs while domiciling in the United States. Thus, six of every ten African immigrants surveyed indicated that they did not utilize traditional African herbal medicine compared with nearly four out of ten who did use traditional African herbal medicine in the past 12 months. In this regard, the hypothesis, African immigrant would use traditional African herbal medicine, was not rejected. There was inadequate statistical information to uphold the hypothesis (H₁) that African immigrants in the DCMA would utilize traditional medicine imported from Africa to satisfy all or part of their health care needs.

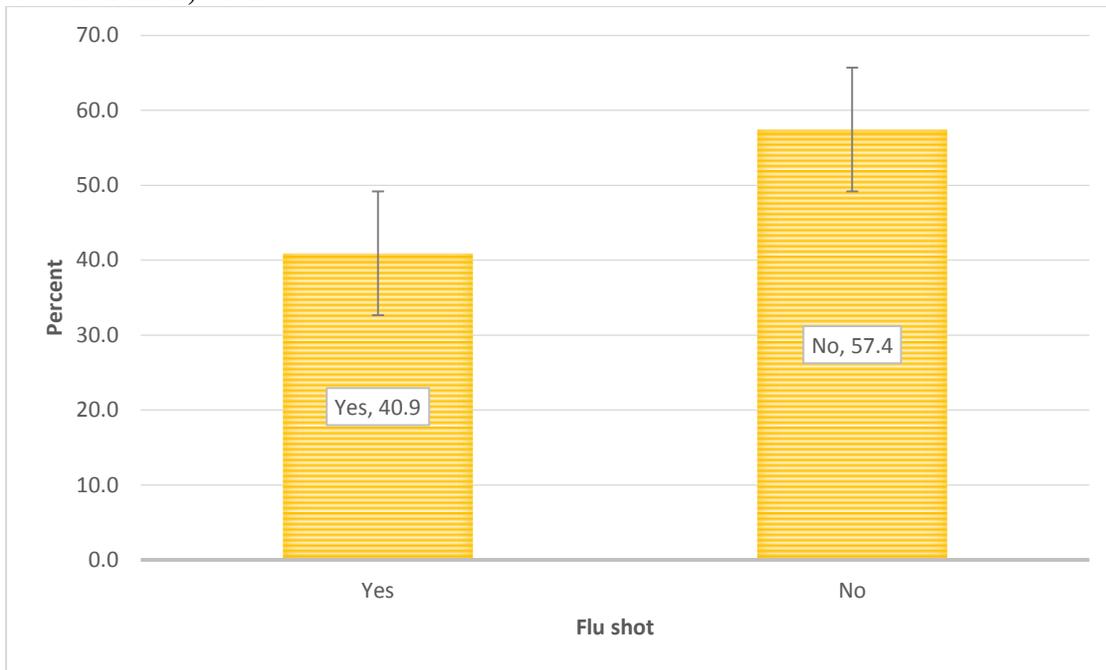
H₂: African-immigrants will not get influenza vaccination in the flu season.

The second hypothesis under hypothesis (A) was designed purposely to assess the health care belief and culture of African immigrants as they interact with US health care culture. Per Anderson (1995), health beliefs are attitude, values, and knowledge that people have about health and health services. The health belief might influence subsequent perception of need and utilization of health care services in a given sub-population or the general population (Andersen, 1995). Explicitly, obtaining influenza vaccination in the flu season is one of the health care beliefs of the United States health system. However, this is not the same for virtually all African nations and their citizens. To assess their adherence to this health belief system, African immigrants in the DCMA were presented with a dichotomous survey question to indicate whether they had influenza vaccination in the past 12 months.

This hypothesis was not substantiated. Overall, 145 (53%) of 275 African immigrants surveyed reported that they did not obtain influenza vaccination during the past 12 months compared with 130 (46%) who indicated they did. The influenza vaccination rate among African immigrants was virtually similar by the 10-percentage point rule of thumb (Babbie et al., 2007). Using this result as a proxy measure for health care culture and belief assimilation, it suggested slow integration of African immigrants in the DCMA into the health care beliefs of United States (Anderson, 1995). There was partial support for this hypothesis. The information was not adequate for positive decision on the hypothesis (H₂). We failed to reject the hypothesis. Moreover, influenza vaccination rate of African immigrants paralleled that of the US general population. As noted earlier in this study, a little over half (53 percent) of African immigrants in the DCMA reported that they did not obtain influenza vaccination in 2013. This was virtually similar to proportion of the U.S adults (57%) population who did not obtain influenza vaccination, per the National Health Interview Survey, in 2013 influenza season as illustrated in

figure 2.8. Thus, the percentage point difference was marginal (53 percent versus 57 percent) between the U.S adult population and African immigrants who did not obtain the influenza vaccination in 2013 influenza season.

Figure 2.8: Percent distribution of Flu shot of all U.S adults of all ages (18 and over): United States, 2013



DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2013, Adult Core Component.

In figure 2.8, a little close to six (6) of every ten (10) of all US adults of all ages (18 and over) did not obtain influenza vaccination in 2013 compared with two-fifth (41 percent) who did obtain the flu shot in 2013 influenza season.

The hypothesis was not rejected, as there was no much difference in the influenza vaccination access between African immigrants in the DCMA compared with all U.S adults of ages (18 and over). Besides, the self-reported influenza vaccination rate of African immigrants in

the DCMA was not adequate and compelling to necessitate the rejection of the hypothesis (H₂) that African-immigrants would not obtain influenza vaccination in the flu season.

H3: African-immigrants will have access to use preventive care services

The hypothesis (H₃) was not firmly supported. Overall, 68 percent of African immigrant had made an office visit to a doctor or other health care professional in the past 12 months for their routine, preventive health care needs compared with only 34 percent who did not. About 34 percent of African immigrants in the DCMA not making an office to a doctor or other health care professional for their routine preventive health care services was high and not compelling empirical evidence for the acceptance of the research hypothesis (H₃).

H4: African-immigrants will utilize information and communication technology to real access health care services

The hypothesis four of hypothesis (A) was firmly supported. African immigrants who used information and communication technology were likely to have access (realized) to health care services (OR=0.47). Besides, the connection between realized access to care and the use of information and communication technology was statistically significant, $\chi^2 (df=1) = 4.280$, $p=0.039$, two-tailed. Thus, the p -value (0.039) was smaller than the significance level (0.05). Accordingly, the research hypothesis (H₄) was firmly supported.

Hypothesis (B):

H1: African-immigrants will report of poor satisfaction with given health care services received.

This hypothesis was not supported in that African immigrants in the DCMA were very satisfied or satisfied with health care services they obtained in the past 12 months. Satisfaction

with care is efficient and effective access to health (Anderson, 1995). Effective access to care measures the extent to which health care access and utilization improve health status, consumer satisfaction, and quality of life (Anderson, 1995). Effective access to care measures satisfaction of health consumer relative to the amount of health services utilized Accordingly, African-immigrants who participated in the study were asked to indicate their level of satisfaction with health care services they obtained in the past 12 months to test the hypothesis one of Hypothesis (B). Of those who utilized health care in the past 12 months, an overwhelming majority had satisfaction with the care. Specifically, nearly nine of every ten (90 percent) African immigrants in the DCMA claimed they were satisfied with the health care goods and services received in the past 12 months compared with one out of ten (10 percent) who said were dissatisfied with the care (see table 4.0). Hence, the hypothesis was not firmly supported in that African immigrant in the DCMA were likely to report of high satisfaction with health care services obtained in the past 12 months.

H2: African-immigrants will report of having worse perceived health care quality.

The second hypothesis under hypothesis (B) was firmly rejected. African immigrants were likely to report of having received quality health care services in their most recent visits to a doctor or other health care professional in the past 12 month. In particular, it was discovered that the overwhelming majority (92 %) of African immigrant surveyed said they had either excellent or good quality health care services when they last visited a doctor office or other health care professional, while 8 % claimed they had fair or poor quality of health care services. This was not a surprising result; most Africa immigrants would likely to place the United States health

care delivery system on the highest quality pedestal relative to prior their experience of abysmal health care delivery systems in their countries of origin.

H3: African-immigrants will report of having an excellent or very good health status.

The third hypothesis of Hypothesis (b) was firmly supported. A highest proportion (68%) of African immigrants had excellent or very good health status relative to 6 percent who had fair or poor health status. This outcome might be due to healthy immigrant effect or effective access to health care services in the United States. African immigrants in the DCMA were relatively younger so much, so that healthy immigrants’ syndrome is still playing a key role in their health status in the United States.

Hypothesis (C):

H₁: African-immigrants with positive cultural orientation towards American public domain will real access to health care services.

Hypothesis of Hypothesis (C) was strongly supported. African immigrants with positive cultural orientation (72 %) were more likely to gain real access to health care services relative to those who were not (59%) as exhibited in table 6.8 below.

Table 6.8: Real Access to Care by cultural orientation

			Cultural Orientation		
			Never	Yes	Total
Health care Utilization	No	Count	39	50	89
		% Cultural orientation	40.6%	27.8%	32.2%
	Yes	Count	57	130	187
		% Cultural orientation	59.4%	72.2%	67.8%
Total	Count	96	180	276	
	% Cultural orientation	100.0%	100.0%	100.0%	

Thus, there was a positive relation between health care utilization and positive cultural orientation among African immigrants. This association was further substantiated from the chi-square test of significance in table 6.9.

Table 6.9: Chi-Square Tests (Real Access to Care by Cultural Orientation)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.730 ^a	1	.030		
Continuity Correction ^b	4.160	1	.041		
Likelihood Ratio	4.657	1	.031		
Fisher's Exact Test				.032	.021
Linear-by-Linear Association	4.713	1	.030		
N of Valid Cases	276				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 30.96. b. Computed only for a 2x2 table

Cultural orientation was moderately strong predictor of real access to health care services among African immigrants in the DCMA. Thus, the predictor was statistically significant, $X^2(1) = 4.730$, $P < .05$; thus the p -value (0.030) under the Pearson chi-square was smaller the set critical alpha level (0.05), 2-tailed. Accordingly, the hypothesis was firmly supported.

H₂: African-immigrants with positive social interactions with native-born Americans will have real access to health Care services.

The second hypothesis of hypothesis (C) was substantiated. Social interaction did account for the variance in health care utilization among African immigrants as indicated in table 7.0 below:

Table 7.0: Cross tabulation Real Access to Health Care versus Social Interaction

			Social Interaction		
			No	Yes	Total
Real Access to Health Care	No	Count	44	45	89
		% Social Interaction	41.1%	26.8%	32.4%
	Yes	Count	63	123	186
		% Social Interaction	58.9%	73.2%	67.6%
Total	Count		107	168	275
	% Social Interaction		100.0%	100.0%	100.0%

African immigrants who had positive social interaction with native-born Americans were two times as likely as those who had not to utilize health care goods and services. Per table 7.0, about

73 percent of African immigrants who had positive social interactions with native-born Americans said they had real access to health care services compared with 27 percent who said they had no social interaction with native-born Americans.

Table 7.1: Chi-Square Tests (Health Care Utilization and Social Interaction)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.137 ^a	1	.013		
Continuity Correction ^b	5.500	1	.019		
Likelihood Ratio	6.072	1	.014		
Fisher's Exact Test				.017	.010
Linear-by-Linear Association	6.115	1	.013		
N of Valid Cases	275				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 34.63. b. Computed only for a 2x2 table

In addition, table 7.1 suggested that the correlation between health care utilization between social interactions was statistically significant. Thus, $\chi^2(1) = 6.137$ with probability value ($p = .013$) less than .05 critical alpha value. Besides, the correlation was significantly substantive as positive social interaction was positively related to utilization of health care services. Further, the conservative Fisher's exact test substantiated the statistical significance of the correlation between real access and positive social interaction, $p = 0.017$, two-tailed, and accordingly, the research hypothesis was firmly supported.

H₃: African-immigrants with longer duration of residence in the United States will have realized access to health care services.

Table 7.2: Cross tabulation Health Care Utilization versus Length of Stay in the US

	Years-Since-Immigration		Total
	≤ 5 years in the US	≥ 6 years in the US	

Health care Utilization	No	Count	26	63	89
		% Length of Stay	44.8%	29.0%	32.4%
	Yes	Count	32	154	186
		% Length of Stay	55.2%	71.0%	67.6%
Total		Count	58	217	275
		% Length of Stay	100.0%	100.0%	100.0%

There was strong support for the third hypothesis of hypothesis (C). As anticipated, longer duration of residence in the United States influenced health care utilization. Specifically, seven of every ten (71 percent) of African immigrants who had domiciled in the United States for more than six years utilized health care services in 2013 compared with about little over half (55 percent) of those who had domiciled in the United States for at most five years.

In other words, the nature of relationship was that African-immigrants who had stayed at least 6 years in the United States had a significantly higher proportion of health care utilization (71%) than those who had domiciled for at most 5years in the U.S. Besides, the examination of table 7.3 below indicated a statistically significant relation between health care utilization and longer duration of residence in the United States, $X^2(1)=5.216, P<.05$. Thus, $p<\alpha=0.022<0.05$.

Table 7.3: Chi-square Test Health Care Utilization versus Length of Stay in the US

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.216 ^a	1	.022		
Continuity Correction ^b	4.520	1	.034		
Likelihood Ratio	5.027	1	.025		
Fisher's Exact Test				.027	.018
Linear-by-Linear Association	5.197	1	.023		
N of Valid Cases	275				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 18.77.

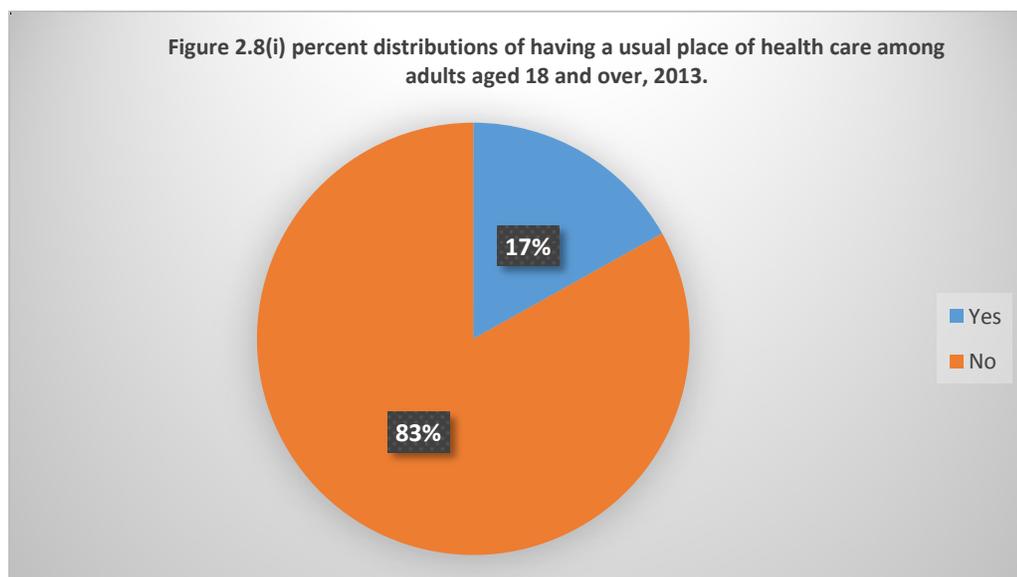
b. Computed only for a 2x2 table

Further, the conservative Fisher's Exact test [Exact Sig. (2-sided)] suggested a statistically significant, $p=0.027$, correlation between health care utilization and length of stay of African immigrants in the DCMA. In sum, the research hypothesis was firmly supported. The longer the

residency period of African immigrants, the more likely they were to gain real access to health care services.

Hypothesis (D): Comparative Hypotheses

The first hypothesis (H1) under hypothesis (D) was that African-immigrants were less likely to have usual source of care as compared to other population sub-groups (White, African-American and Hispanics or Latinos). The hypothesis was not firmly supported. African immigrants had a proportion of usual source of care analogous to the United States general population. Specifically, the primary data of this study revealed that 85 percent of African immigrants residing in the DCMA were slightly more likely to have usual source of medical care compared proportion (83 percent) of US general population with usual source of care as illustrated in figure 2.5 versus figure 2.8(i) below:



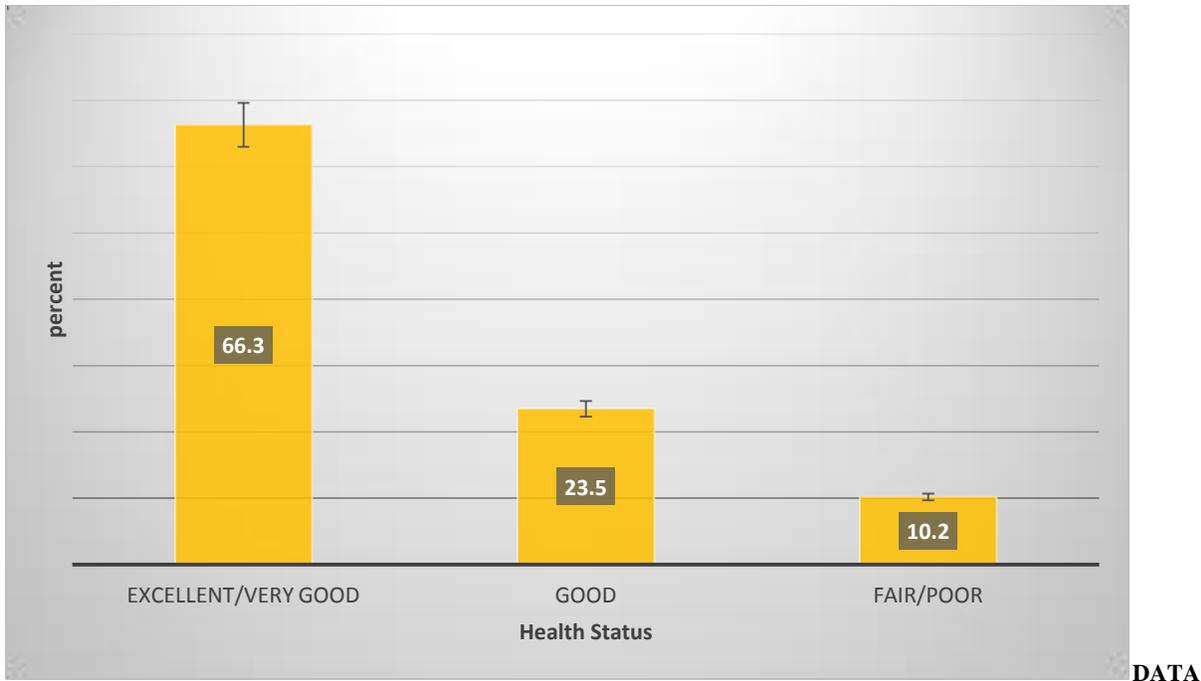
Data Source: CDC/NCHS, National Health Interview Survey, 2013, Adult Core

Moreover, when the results were considered by region whilst controlling for race, the US White adult population in the Northeast was slightly more likely (91 percent) to have usual source of care compared with 85 percent of African-immigrant population in the District of Columbia Metro Area (DCMA). African-Americans in the Northeast were more likely to have a usual source of care than African-immigrants. For instance, 91 percent of African-Americans in the 2013 NHIS report claimed they had usual source of care compared 85percent of African-immigrants in the DCMA. African immigrants (85 percent) in the DCMA were more likely than Hispanic/Latino/Spanish (76 percent) in the Northeast to have a usual source of care.

The second hypothesis of hypothesis (D) was that African-immigrants are less likely to report of having excellent health status than other population sub-groups (White, African-American, and Hispanics or Latinos). Overall, 66.3% of all persons in the United States reported they had excellent or very good health, while 10.2 percent among the US general population of all ages had fair or poor per the 2013 National Health Interview Survey (NHIS) as illustrated in figure 2.9.

Relative to the United States general population, African-immigrants were more inclined to have excellent or very good health status in 2013. Hence, 68 percent of African immigrants had excellent or very good health compared with approximately 66 percent of the US general population of all ages in 2013.

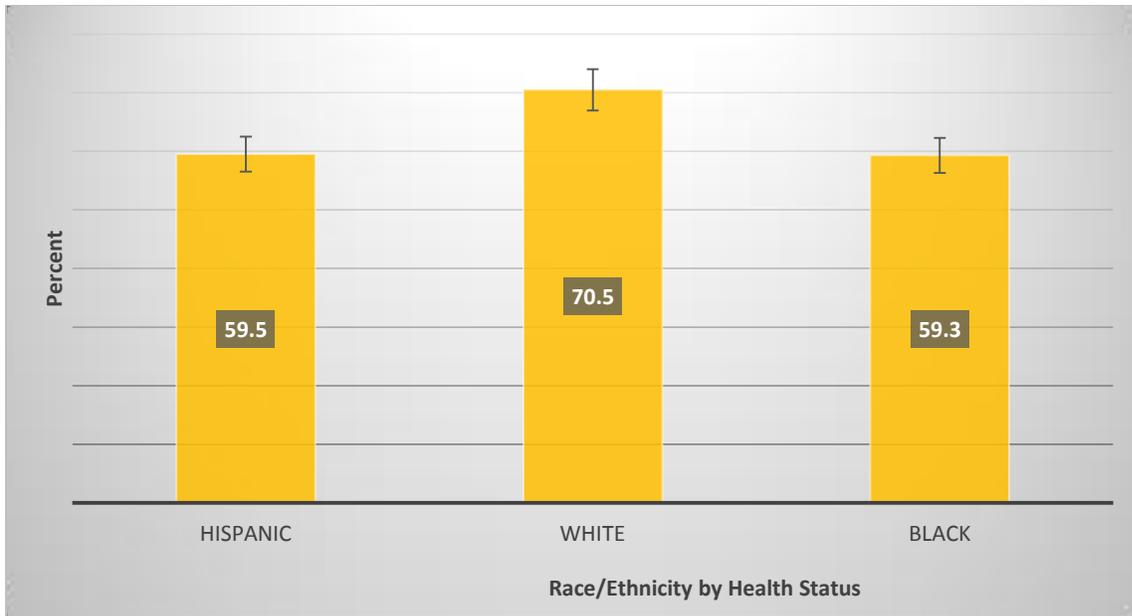
Figure 2.9: Percent distribution of respondent-assessed health status for all ages: United States, 2013



SOURCE: CDC/NCHS, National Health Interview Survey, 2013, Family Core Component.

Furthermore, when the results were considered by race, white (70.5 percent) were more likely than both Black (59.5 percent) and Hispanics (59.3 percent) to have excellent or very good health in the 2013 NHIS as in figure 3.0. There was no significant differential in the excellent or very good health status of Black and Hispanic. Thus, the two races/ethnic groups shared similar rate of excellent or very good health condition (59.5 percent for Hispanic versus 59.3 percent for Blacks). African-immigrants (26 percent) had good health status compared with 24 percent for all U.S adult aged 18 and over in 2013. Besides, U.S adult aged 18 and over were more likely to have fair or poor than African immigrants were. To illustrate, whereas 10 percent of all persons in the United States, aged 18 and over, reported they had fair or poor health, 6 percent of the African-immigrant community in the Washington metro had fair or poor health status in 2013.

Figure 3.0: Percentage of persons who had excellent or very good health by race/ethnicity: United States, 2013



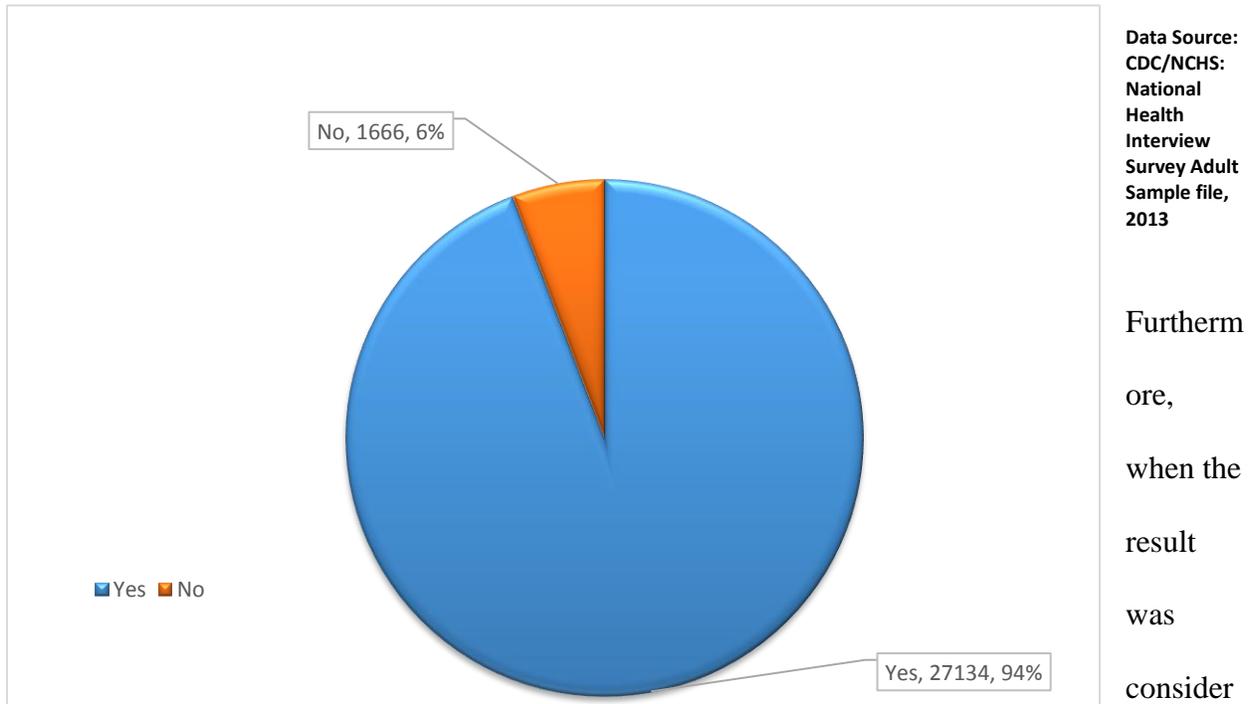
DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2013, Family Core Component

Conversely, White (71 percent) were more likely than African-immigrants (68 percent) to have excellent or very good health status. African-immigrants were more likely than Black or Hispanics to have excellent or very good health status. For 2013, 68 percent of African immigrants had excellent or very good relative to nearly 60 percent of Hispanic and 59 percent of the African-American sub-population.

The final hypothesis (H3) of hypothesis (D) was that African-immigrants were less likely to utilize health care services as compared to other population sub-groups (White, African-American, and Hispanics). Overall, approximately nine of every ten persons (94%) in the United States in 2013 had routine or preventive health care service, a proxy of health care utilization or realized access to care (figure3.1). Comparatively, about 67 % of African-immigrants in the DCMA African immigrants had utilized health care services in 2013 (Table 2.9).

In conclusion, the hypothesis (2) of hypothesis (D) was not substantiated. There were mixed-outcomes from the hypothesis testing (71 % of White versus 67% of African-immigrants; 67% African-immigrants versus 60% of Hispanics and 59% of Blacks).

Figure 3.1. Percentage of persons of all ages who usually go for routine or preventive care: United States, 2013.



ed by race, all the major races were more likely to utilize health care services than African immigrants were. As shown in table 7.5, both adults White and African-Americans had similar rate of 94 percent of those who reported they had routine or preventive health services in 2013. Nine of every ten Hispanics reported they had preventive or routine care in the last 12 months.

Table 7.5: Cross tabulation of Health Care Utilization (Realized access) of US adults aged 18 and over versus race/ethnicity

		Race						Total	
		White Only	African/Black Only	Hispanic/Latino/Spanish only	Asian only	Race group not releasable	Multiple race		
Health utilization	Yes	Count	20382	4294	269	1621	69	499	27134
		% Race	94.1%	94.3%	92.8%	95.5%	98.6%	93.4%	94.2%
	No	Count	1274	259	21	76	1	35	1666
		% Race	5.9%	5.7%	7.2%	4.5%	1.4%	6.6%	5.8%
Total	Count	21656	4553	290	1697	70	534	28800	

Data Source: CDC/NCHS, National Health Interview Survey Adult Sample file, 2013

The contingency table result of Utilization and Region, controlling for Race revealed that all the major race groups (Whites, African-American, Hispanics) were more inclined to utilize preventive or routine health care goods and services as shown in table 8.8. Thus, about 97 percent of adult African American, 96 percent of adult Whites and 91 percent of Hispanics had utilized health care services in the last 12 months compared with approximately 68 percent of African immigrants living in the District of Columbia Metro Areas of the United States of America.

Table 7.6: Cross tabulation of Health care Utilization for all ages by Region and Race: United States, 2013

RACE	H/C Utilization			Region				Total
				Northeast	Midwest	South	West	
White Only	H/C Utilization	Yes	Count	3796	4654	6769	5163	20382
			% Region	95.9%	94.5%	93.3%	93.5%	94.1%
	No	Count	162	269	486	357	1274	
		% Region	4.1%	5.5%	6.7%	6.5%	5.9%	
	Total	Count	3958	4923	7255	5520	21656	
		% Region	100.0%	100.0%	100.0%	100.0%	100.0%	
African/Black Only	H/C Utilization	Yes	Count	651	698	2550	395	4294
			% Region	96.6%	94.2%	93.8%	94.0%	94.3%
	No	Count	23	43	168	25	259	
		% Region	3.4%	5.8%	6.2%	6.0%	5.7%	
	Total	Count	674	741	2718	420	4553	
		% Region	100.0%	100.0%	100.0%	100.0%	100.0%	
Hispanic/Latino/Spanish only	H/C Utilization	Yes	Count	20	40	51	158	269
			% Region	90.9%	88.9%	94.4%	93.5%	92.8%
	No	Count	2	5	3	11	21	
		% Region	9.1%	11.1%	5.6%	6.5%	7.2%	
	Total	Count	22	45	54	169	290	
		% Region	100.0%	100.0%	100.0%	100.0%	100.0%	
Asian Only	H/C Utilization	Yes	Count	272	169	341	839	1621
			% Region	96.5%	93.9%	94.5%	96.0%	95.5%
	No	Count	10	11	20	35	76	
		% Region	3.5%	6.1%	5.5%	4.0%	4.5%	
	Total	Count	282	180	361	874	1697	
		% Region	100.0%	100.0%	100.0%	100.0%	100.0%	
Race group not releasable	H/C Utilization	Yes	Count	4	2	7	56	69
			% Region	100.0%	66.7%	100.0%	100.0%	98.6%
	No	Count	0	1	0	0	1	
		% Region	0.0%	33.3%	0.0%	0.0%	1.4%	
	Total	Count	4	3	7	56	70	
		% Region	100.0%	100.0%	100.0%	100.0%	100.0%	
Multiple race	H/C Utilization	Yes	Count	78	85	141	195	499
			% Region	92.9%	94.4%	92.8%	93.8%	93.4%
	No	Count	6	5	11	13	35	
		% Region	7.1%	5.6%	7.2%	6.3%	6.6%	

	Total		Count	84	90	152	208	534
			% Region	100.0%	100.0%	100.0%	100.0%	100.0%
Total	Health Care Utilization	Yes	Count	4821	5648	9859	6806	27134
			% Region	96.0%	94.4%	93.5%	93.9%	94.2%
	No	Count	203	334	688	441	1666	
		% Region	4.0%	5.6%	6.5%	6.1%	5.8%	
	Total	Count	5024	5982	10547	7247	28800	
		% Region	100.0%	100.0%	100.0%	100.0%	100.0%	

DATA SOURCE: CDC/NCHS, National Health Interview Survey Adult Sample Component, 2013

In conclusion, all the major race groups (Whites, African-American & Hispanics) in the Northeast were likely to report that they utilized health services in the past 12 months compared with African-immigrants. Accordingly, the third hypothesis of hypothesis (D) was not substantiated. African-immigrants were less likely to use health care services compared with all the major three races in the United States.

Qualitative Data Analysis: African immigrants' Experiences and Perspectives on Access and Use of Care in the US Health Care Delivery System

This section of the monograph examined qualitative aspect of the study. A single open-ended question was utilized at the end of the twenty-eight question instrument to ascertain the subjective perspectives of African immigrants in the DCMA on their medical care access and utilization experiences in the United States. The open-ended question was: "Is there anything else you would like to tell us about your access and use of health care services in the United States?"

A qualitative inductive content assessment as well as thematic analysis design was employed to examine all the responses. A constant comparison procedure was used as well. All data relevant to each category were identified and examined with each item being compared with the rest of the data to find out analytical categories (Pope et al., 200; Creswell, 2014). Each

response was read and assessed several times to make sense of respondents’ perspectives. All responses were coded and respondents’ perspectives were noted.

Moreover, the study recorded real participant number of 281 out of 400 sample size. Of the 281 real participants, only 58 did respond to the open-ended, qualitative question, representing nearly one-fifth (21 percent) of total real respondents. Having performed inductive content and thematic analysis of the responses, the data was categorized into six categories: affordability, health insurance, information technology, health system navigation, nothing-to-say, and perceived health care quality and efficiency. Table 7.7 below illustrated both numerical and percentage distribution of categorized perceptions of respondents:

Table 7.7: Frequency and Percentage Distribution of African immigrants in the DCMA Categorized Views on Access to and Utilization of medical care services in the United States

Categories	Frequency (n)	Percentage (n %)
Affordability	13	22
Health Insurance	4	7
Information Technology	1	2
Health system Navigation	3	5
Nothing –to- Say	30	52
Perceived Quality & Efficiency	7	12
Total	58	100

According to table 7.7, a little over half (52 percent) of those who responded to the qualitative question did not share their experiences with or perception on the United States health care delivery system. They either wrote “No” or “No Comment” in the comment box. However, those who did share their perspectives centered on various thematic aspects of US health care

system. A little close to a quarter (22 percent) expressed their perception on the cost of care (affordability) in the United States. African immigrants in the DCMA had unfavorable view of the United States health care cost. In terms of out-of-pocket expenses, they believe that it is comparatively expensive to access and utilize medical care in the United States. One respondent wrote, “health care sucks. It should be affordable”. Another noted, “It’s damn expensive”.

Moreover, some had unfavorable view about the US health care insurance typology. Seven (7) percent of those who responded to the qualitative question felt the health care financing system is inefficient and ineffective. In view of this, some proposed national health insurance over-haul to resolve the high cost of care in the United States. A respondent wrote, “They need to do better with health insurance for a first world country”, and another proposed, “There should be universal health care for everyone”. In particular, they called for a social health insurance regime in the United States to reduce adverse financial risk associated with acute or chronic sickness, foster access to essential medical care services for all residence in the United States regardless of immigration status, and to bridge the gap in health and health care inequity in the United States.

Conversely, about 12 percent of the 58 who responded to the question had favorable view of the US health care system with respect to quality of care and efficiency. In relation to this, one participant stated that, “overall health care in the United States is very excellent”. Besides, two (2) percent of the respondents expressed their views on the use of information technology in the health care arena. They proposed interoperable medical record system, where not only providers could seamlessly access the electronic medical information of new patients from a different health care institutions or physicians; but also patients could seamlessly and electronically access their own health records anytime and anywhere for timely health care services encounter.

Five (5) percent of the respondents' perspectives centered on the navigability of the US health system. In particular, they perceived the US health system as byzantine and extremely hard to navigate, particularly for African immigrants. A participant wrote, "My observation is that health care access is very hard for immigrants who are less educated and information as to how to navigate the system is sometimes not available to them".

Despite its parallelism to the populace and health policy experts' perspectives on the US health care system, the information from the perspectives of the 58 African immigrants who answered the qualitative question should be interpreted and utilized with extreme caution. It might not be representative of the perceptions of all African immigrants living in the DCMA on the United States health care delivery system.

In sum, African immigrants in the DCMA perceived out-of-pocket health care expenditures in the US to be relatively the most expensive and unaffordable in the world, despite many policy reforms to moderate the rate of increase in health care cost. African-immigrants surveyed in the DCMA proposed that the US needs a novel health financing mechanism in the form of social health insurance financed via general taxation, local government taxes, and earmarked taxation. The US must find means to provide comprehensive, publicly funded health services to all peregrines and citizens, African immigrants in the DCMA proposed.

DISCUSSION

Significant Findings

This section of the monograph discussed the significant findings of the study. The results of the binomial logistic regression demonstrated that both enabling and predisposing variables had significant contributions to health care access of African immigrants in the DCMA. Specifically, positive social interaction, age (M3), and use of ICT emerged as key constructs for explaining potential health access to health care services. In the realized health care access model, having a usual source of care demonstrated statistical significant contribution. The predictor, usual source of care, was statistical significant in the RAC model ($p=0.00$). This result is consistent with Steven et al. (2008) who discovered that immigrant with a regular doctor or place of usual medical care were more likely to experience real access to health care services.

Further, the study suggested that African immigrants experience a similar level of potential access to health service relative to the United State general population. Nonetheless, African immigrants experienced lower utilization of health care compared with US born citizens. That is to say, African immigrant experienced higher potential access compared with Hispanic persons. However, they had similar level of potential access to care relative to non-Hispanics black persons. Only non-Hispanic White individuals had higher potential access than African immigrants' residing in the DCMA.

Relative to the three major race groups (non-Hispanic white, non-Hispanic black, and Hispanic), African immigrants living in the DCMA were less likely to utilize health care services. This result was consistent with previous research findings that foreign-born population were more inclined to have worse realized access to health care services in the United States of America (Lebrun & Dubay,2010; Stevens and West-Wright,2008; Derose et al.,2007; Prus,Tfaily and Lin,2010).

The study suggested that African immigrants in the DCMA were less likely to utilize traditional African herbal medicine, a finding not anticipated based on the preponderant utilization of traditional herbal medicine in most African countries either as primary treatment for basic health care needs or supplementary medicine for prescribed medications. This result might be attributable to two outcome variables. First, African-immigrants did not need traditional herbal medicine owing to their excellent or very good health status as found in this study as well as in several other population and public health surveys (Ogbuanu et al., 2012; Gee et al., 2004, and Kennedy et al., 2005). Second, African immigrants' integration into the health care beliefs and culture of the United States could be another rationale. It was observed in this study that the proportion of U.S natives who did not utilize herbal medicine in 2013 was virtually analogous to the proportion of African immigrants, living the District of Columbia Metropolitan area, who did not utilize herbal medicine.

African immigrants' influenza vaccination pattern simulated or resembled closely that of the US general population. Specifically, African immigrants were less likely to obtain influenza vaccination in the flu season. Several rationales were provided for this situation with the vast majority of participants indicating that they did not need the vaccination. This could be explained by two factors. First, there were lower risk perceptions among African immigrants concerning influenza. Second, there could be unique cultural or behavioral barriers to influenza vaccination among African immigrants living in the DCMA. As found in this study, the vast majority of African immigrants who did not obtain influenza vaccination in 2013 indicated they did not perceive the need for it. Second, since more than half of the U.S adult population did not obtain influenza vaccination in 2013, then by extension the influenza vaccination rate among African

immigrants could be a product of the dominant health care behavior of the United States' general population toward flu shots.

Moreover, the study suggested that there was greater odds of African-immigrants, who utilized information and communication technology, to have both potential and real access to health care services, *ceteris paribus*. Specifically, the use of ICT significantly predicted the odds of gaining realized and potential access to health care services compared with the other predictor variables in both potential and realized access to health care models employed in this study.

With regard to outcome measures of access to and utilization of health care services, African immigrants experienced higher proportion of health care quality delivery and satisfaction. Thus, the study demonstrated that African immigrants living in the DCMA had excellent or very good quality of health care services, in that the vast majority was very satisfied with health care services obtained in their most recent visits to a doctor's office or other health care professionals.

In addition to highlighting the health care demographic characteristics that distinguished African immigrants in the DCMA from the US-born, this study demonstrated that African immigrants living in the DCMA had slightly excellent or very good health status compared with the general United State population (68% African immigrants versus 66 % US adult population). The finding was consistent with the healthy immigrant effects found in most immigrant-centered public health studies (Corlin et al., 2014; Wang & Hu, n.d.; Yeo & Johnson, 2013; Moullan & Jusot, 2014; O'Connor et al., 2014; Nolan, 2012; Younsook & Johnson, 2013; Blair & Schneeberg 2014). It was found, notwithstanding the effects of healthy immigrants' syndrome, that the non-Hispanic white were more likely than African immigrants in the DCMA to have excellent or very good health (71% for non-Hispanic white individuals versus 68% for African immigrants).

The reason behind this finding is nebulous. Future research is warranted in this regard. Besides, it was discovered that African immigrants were more likely to have excellent or very good health status compared with all U.S adults aged 18 and over residing in the Northeast region of the United States.

As one of the unique contributions of this study, we found that level of acculturation constructs somewhat played mixed-roles in predicting the odds of access to and utilization of health access of African immigrants in the DCMA. Notably, when the three acculturation variables (social interaction, cultural orientation and length of stay, a proxy measure) were separately deployed to predict the odds of African immigrants in the DCMA utilizing health care services, only cultural orientation and length of stay were statistically significant. Nevertheless, after controlling for other variables in both realized and potential access models, the predictive power of the acculturation variables either completely vanished or decreased in statistical significance.

In fact, the study explicitly demonstrated that usual source of medical care was strongly correlated with health care utilization. African-immigrants in the DCMA with a usual source of medical care were more likely to utilize health care services in the United States than those without a usual source of medical care. This finding was consistent with other studies, which found that having a routine source for medical care and utilization of health care services were strongly related (Alizadeh-Khoei et al., 2011; Shi et al., 2013; Hammond et al., 2011; Andersen et al., 1981; Pylypchuk et al., 2013; Percheski & Bzoskey, 2013; Durden, 2007; Smith & Bartell, 2004; Raphael et al., 2013; Hoilette et al., 2013).

Limitations of the Study

Some limitations of this study should be well noted. Hence, the study results should be interpreted and utilized with some extra degree of caution. In addition, it should be noted that not every variable of interest were utilized in the study. Incorporation of some other outcome variables might have enhanced or diminished the predictive power of both potential and realized access logistic regression models.

Furthermore, the deployment of convenience sampling process was likely to inject selection bias into the study and thereby adversely affecting external validity of the findings (Mertler & Charles, 2002). The sample size was drawn from a heterogeneous group of African immigrants. All participants for the study were recruited in the District of Columbia Metro area. In addition, some African immigrants were under-represented as the survey administration efforts were unable to locate and recruit some African immigrants including South Africans, Algerians, Tunisians, Libyans, and Somalis to participate. This was due to time and resource constraints. However, two hundred eighty one African immigrants from 24 disparate countries in Africa were recruited and participated in the study. Only 281 of 400 projected participants could be reached, which is likely to introduce bias into our analyses and make the final findings less representative of the general population of African immigrants in the DCMA. In other words, the sample may not represent African immigrant population in the DCMA. Moreover, generalizing the findings to either African-immigrants population in the DCMA or United States nationwide must be conducted with great caution (Miller *et al.*, 2010; Brush and Gruijter, 2003; Schreuder and Gregory, 2001). Overall, the findings may not represent medical care access and utilization pattern of all African immigrants in the DCMA and United States.

Undoubtedly, there were some undocumented African immigrants among the subjects. Despite the assurance of confidentiality and anonymity of the survey protocol, the undocumented

immigrants refused to indicate their correct immigration status for fear of their status being exposed. Under the cloak of social desirability, these immigrants might have indicated their immigration status either as naturalized citizens or as documented immigrants. This form of bias is more likely to inject bias into our analyses and findings.

Furthermore, there surely were some methodological issue in the collection of self-reported data in this study. The use of self-reported, cross-sectional data may introduce three drawbacks into the investigation. First, the use of self-reported data is more inclined to introduce respondents' as well as social desirability biases into the findings (Warner, 2013). Specifically, some participants may distort answers; make at-hazard responses without reading the questions; and may not remember the events they were reporting about. Second, it may minimize the study's capacity to make causal inferences. Third, it may inhibit the study's capacity to generalize findings to the larger African-immigrant community in the United States of American (Hammond *et al.* 2011). This is because the target population for the study may not be representative of universal population of African-immigrants in the United States. African-immigrants in the Unites State are composed of assemblage of races and ethnic sub-groups from the continent of Africa. The aggregation of such heterogeneous group is more inclined to make the appreciation of health care access and utilization differentials within the sub-groups extremely challenging and complex (Singh-Setia *et al.* 2010). Besides, some sub-group might be under-represented in the sample, and thereby biasing the final analysis and findings of the study (Hammond *et al.*, 2011).

In addition, the data came mainly from respondents identified in various targeted locations in the DCMA who were more than willing to participate in the study. Respondents self-reported their health care access and utilization activities in the past year, whose authenticity and

accuracy could not be independently and objectively verified by the researcher. Hence, the analyses and findings in this study were subject to the shortfalls of self-reported quantitative and qualitative data.

Anderson's behavioral model provided the foundation for this project. However, this model lacked acculturation constructs. The study incorporated three acculturation measures (social interaction, cultural orientation, and length of stay in the US) into the model to foster the assessment of immigrants-specific variables vis-à-vis access to and utilization of health care services. Only three acculturation constructs were used in this study, and thereby limiting our capacity to effectively determine the significant impact of other acculturation variables, including stress, isolation, and resources deprivations, on access to and utilization of health care.

Similarly, the use of a usual source of care (USOC) as a measure of potential access is one of the methodological drawbacks of the study. The USOC outcome variable limits the study's capacity to disaggregate the influence of other variables associated with having a regular doctor or provider for care. Teasing out the effect differentials is significant in that other studies have documented that having a regular doctor is more directly associated with the utilization of preventive health care service, one of the key indicators of health care access, than having a regular site of care (*Choi, 2010*). Additionally, data for certain constructs were incomplete as participants were provided the option to "Refused" or to claim "don't know" for such variables. This may have artificially deflated the number of responses with certain variables in relation to others, and may have also introduced some bias into our findings. As noted earlier, extreme caution is warranted in the spin of the study's results and findings.

Despite these limitations, the models were able to account for 21% to 29% of the variance in actual use of health care services (realized access) as well as 15% to 28% of the

variance in the odds of usual source of care of African immigrants residing in the District of Columbia Metropolitan area.

Policy Implications

The present results supported several ideas discovered in the literature regarding immigrants' health, health care access, and utilization of medical care in the United States. Because the data demonstrated that African immigrants, like the U.S born, were less likely to obtain influenza vaccination; and less likely to utilize health care services despite their insurance status, the following public health policy recommendations are especially relevant to them:

1. First, efforts to educate immigrants about specific, essential health care culture and behavior are warranted. Besides, influenza vaccination education should be enhanced in and around African-immigrants enclaves to furnish them with comprehensive insights on salutary health impacts of obtaining influenza vaccination.
2. Second, health education and health promotion programs should target African-immigrants to educate them about the prospective benefits of utilizing routine, preventive health care services.
3. Third, employing the ecological public health strategies, interventions, and programs, public health educators should provide continuous and comprehensive information on the need for regular routine health care screenings and preventive services (McKenzie et al., 2009) to African immigrants.

The findings offered important insights, albeit exploratory, into the underlying mechanism of potential and realized health care access among African immigrants living in the Washington Metro areas. Besides, the findings of the study contribute to the enrichment of multi-cultural public health policy in the United States of America. By extension, the findings could help

provide equitable and effective access to and utilization of health care services to all vulnerable population in the United States.

Recommendations for Future Research

Like all studies, this study was unable to explore every aspect of the issues pertaining to African immigrants' access to and utilization of health care services. Future research has essential roles in this regard. Future research should incorporate variables such as level of accessibility and availability of health care providers of similar cultural and linguistic backgrounds into the models to provide a more comprehensive analysis of African immigrants' access and use of health care services in the DCMA.

In addition, future research might attempt to replicate this study via nation-wide investigation and assessment. Future research could employ national secondary data source to facilitate near-accurate comparative assessment, in that comparing two wealth of information from disparate datasets (Primary versus Secondary) is Kafkaesque and a possible recipe for misrepresenting information and research findings.

Future research should consider the message of acculturation variables on African immigrants' access to and utilization of care in the DCMA or nationwide. It should incorporate all prospective acculturation variables, including stress, isolation, resource deprivation, social interaction, cultural orientation, length of stay, to name but a few, to gain much more insights into the correlation between medical care access (potential & realized) and acculturation.

Moreover, a comprehensive research on race and health care access and utilization is warranted in the future to better appreciate the constructs underlying the health care access and utilization differentials, particularly with respect to why non-Hispanics white were more likely to

have excellent or very good health compared with African-immigrants; yet African-immigrants had excellent or very good health relative to both non-Hispanic Black and Hispanic.

In addition, future research must attempt to explore the rationale underlying the abysmal health care utilization rate among African-immigrants living in the Washington Metro areas, notwithstanding the existence enabling factors (income, health insurance, & higher education) among them, which several public health studies have demonstrated contribute to higher consumption of health care goods and services.

Finally, the almost analogous influenza vaccination rate between African immigrants in the DCMA and the US-born warrant future research. Future research projects should not only attempt to ascertain the rationale for this phenomenon; but such projects should also assess the African immigrants' rationale for not obtaining influenza vaccination. Such data and information will be critical to designing and implementing targeted influenza vaccination programs to promote the timely and efficient utilization of flu shots among African immigrants and other vulnerable populations, who are more likely to exhibit lower utilization of influenza vaccination in the flu season.

Conclusions

African immigrants' population is one of the growing segments of unique vulnerable populations in the District of Columbia Metro area. African immigrants living the metro area

had usual source for health care services in 2013; however they experienced decreased utilization of health services compared to their non-immigrant counterpart (Hispanic, non-Hispanic White, and non-Hispanic Black). Thus, they had greater odds of reporting fewer visits to the doctor office or other health professionals in the past 12 months. African-immigrants in the DCMA under-utilized preventive health care services in the past 12 months. Besides, they had excellent or very good health status relative to their non-Hispanic Black and Hispanic; however, non-Hispanic white were more likely to have excellent or very good health status than African immigrants. Analogous to more than half of the United States general population, African-immigrants were less likely to obtain influenza vaccination and less likely to utilize herbal medicine for basic health care needs.

In fact, these findings have public policy implications in that effective health education and promotion programs are warranted to ensure that African immigrants have effective health care utilization. Further, the recognition of correlation between acculturation and health care utilization should inform the design and execution of effective health intervention programs to address the issue of reduced influenza vaccination rate among African immigrants in the District of Columbia Metro area of the United States of America.

The study brings to light lower utilization of health care services and influenza vaccination among African immigrants in the DCMA. Therefore, health care promotion programs are needed to educate these immigrants, and this will be critical to improving health care utilization and minimizing flu related acute health conditions.

In sum, the findings provide critical public health policy information to policy makers at all tiers of US administrative-state structure to help them make progress toward designing and prosecuting a system of medical care services for African immigrant communities in the DCMA.

By extension, the findings should inform public health discourse and health reform programs with a greater emphasis on designing specific health policies to improve vulnerable populations' access to and utilization of medical care services in the United States.

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APPENDIX I

Survey Instrument Questionnaire

Health Care Access and Utilization among African-Immigrants in the District of Columbia Metro Area in the United States: A Comparative Analysis

This is an academic survey of African-immigrants (age 18 and older) to get more insights into their access to and utilization of health care services in the DC Metro area in the United States of America. Please take about 5 to 10 minutes to complete the following. It is made up of **27** questions. There are no rights or wrong answers. Please answer each question as you can. Please circle the answers you think best reflect your opinion.

YOUR RESPONSES ARE ANONYMOUS AND CONFIDENTIAL. PLEASE, DO NOT WRITE YOUR NAME OR ANY OTHER VITAL INFORMATION ON THE QUESTIONNAIRE.

Thank you in advance for taking part in this survey.

1. Is there a place that you **USUALLY** go to when you are sick or need advice about your health? *(This includes visiting a clinic inside a pharmacy for any health care services, but it does not include asking for advice from the pharmacist about Over-the-counter (OTC) or prescription drugs)*
 - Yes
 - There is No place
 - Refused
 - Don't Know

2. If yes, what kind of place is it?
 - Clinic or health center
 - Doctor's office
 - Hospital emergency room
 - Some other place
 - Refused
 - Don't know

3. If no, why don't you have a usual source of medical care?
 - I don't have any health problems
 - I don't know where to go
 - Health care is too expensive
 - I don't have health insurance plan
 - I speak different language
 - Refused
 - Don't know

4. **DURING THE PAST 12 MONTHS**, have you seen a health care provider for your own routine or preventive care (physical exams or check-ups) at a doctor's office, a clinic, or some other place? Do not include times you were hospitalized overnight, visits to hospital emergency rooms, or telephone calls.

- Yes
- No
- Refused
- Don't know

5. DURING THE **PAST 12 MONTHS**, have you had a flu shot? *A flu shot is usually given in the fall season and it protects against influenza for the flu season*

- Yes
- No
- Don't know
- Refused

6. **If no**, why didn't you get a flu shot?

- I didn't have money for it.
- My insurance didn't pay for it.
- I felt I didn't need it.
- I'm allergic to any egg-made drug.
- I didn't know where to get it.

7. Do you usually use home remedies (herbal medicine from Africa) to cure or meet your health care need?

- Yes
- No
- Don't know
- Refused

8. **If yes**, did you use herbal medicine from Africa for the following reasons?

- I wanted to save money
- I didn't have health insurance plan
- I couldn't pay for a prescription drug
- It helps me.
- Don't know
- Refused

9. About how long have you lived in the United States?

- Less than 5 years
- 6 to 10 years
- 11 to 20 years

- 21 years and over
- Don't know
- Refused

10. Do you hang out or get together (socialize) with U.S. born citizens, such as Whites, Blacks-Americans, and Hispanics? *This includes taking part in social activities such as visiting, attending clubs and meetings, going to parties, making and maintaining relationships with U.S born citizens etc.*

- Yes
- No
- Don't know
- Refused

11. How often do you watch American movies, television (TV), video programs in English?

- Always
- About half of the time
- Once a while
- Never
- Refused
- Don't know

12. At any time during the past **12** months, **HOW MANY TIMES** have you seen a doctor or other health care professional about your own health at a **DOCTOR'S OFFICE, A CLINIC, OR SOME OTHER PLACE?** You must include times you were hospitalized overnight, visits to hospital emergency rooms, home visits, dental visits, eye doctor visits, or telephone calls.

- 1 -3 times in a year
- 4-7 times in a year
- 8-12 times in a year
- 13-16 times a year
- 17 or more times in year
- Never
- Refused
- Don't know

13. If yes, how would you rate the quality health care that you received?

- Excellent
- Very good
- Good
- Fair
- Poor

- Don't Know
- Refused

14. In general, how satisfied are you with the health care you received in the past 12 months?

- Somewhat satisfied
- Neither satisfied or dissatisfied
- Somewhat dissatisfied
- Very dissatisfied
- Don't know
- Refused

15. During the past 12 months, have you ever used a computer, or smart-phone to look up health information, fill a prescriptions, schedule an appointment with a health care provider, chat with a health provider by emails, or chat online with chat groups to learn about health topics?

- Yes
- No
- Don't Know
- Refused

16. In general, what would you say your health status is? Would you say it is

- Excellent
- Very good
- Good
- Fair
- Poor
- Don't know
- Refused

17. In what African country are you from?

- Ethiopia
- Ghana
- Nigeria
- Cameroon
- Ivory Coast
- Liberia
- Sierra Leone
- Egypt
- Tunisia
- Other (please specify).....

18. Before taxes and other deductions, in the past 12 months, what was your total household or individual income from all sources?

- \$0.000 —\$19,999
- \$20,000 —34,999
- \$35,000 —\$49,999

- \$50,000 —\$74,999
- \$75,000 —\$99,999
- \$100,000 or more

19. What is your age?

- 18-29 years
- 30-39 years
- 40-49 years
- 50-59 years
- 60 or more
- Don't know
- Refused

20. What is your current working status? Would you say you're:

- Currently working full-time
- Currently working part-time
- Not working
- Retired
- Don know
- Refused

21. What is the HIGHEST level of school that you have completed or the highest degree that you have received?

- Less than a high school diploma
- High school diploma or GED
- Some college degree
- Bachelor's degree or higher
- Don't Know
- Refused

22. What is your marital status?

- Married
- Widowed
- Divorced or separated
- Never married
- Living with a partner
- Don't Know
- Refused

23. Please tell me about your gender. Are you Male or Female?

- Male
- Female
- Don't know
- Refused

24. Do you currently have health insurance that pays for all or part of your health care cost?

- Yes
- No
- Don't

- know
- Refused

25. What kind of health insurance do you have?

- Medicaid (For the low-income, and some mentally-challenged & physically challenged people)
- Medicare (public insurance for seniors)
- Employer-sponsored insurance
- Private
- Uninsured
- Don't know
- Refused

26. What is your immigration status?

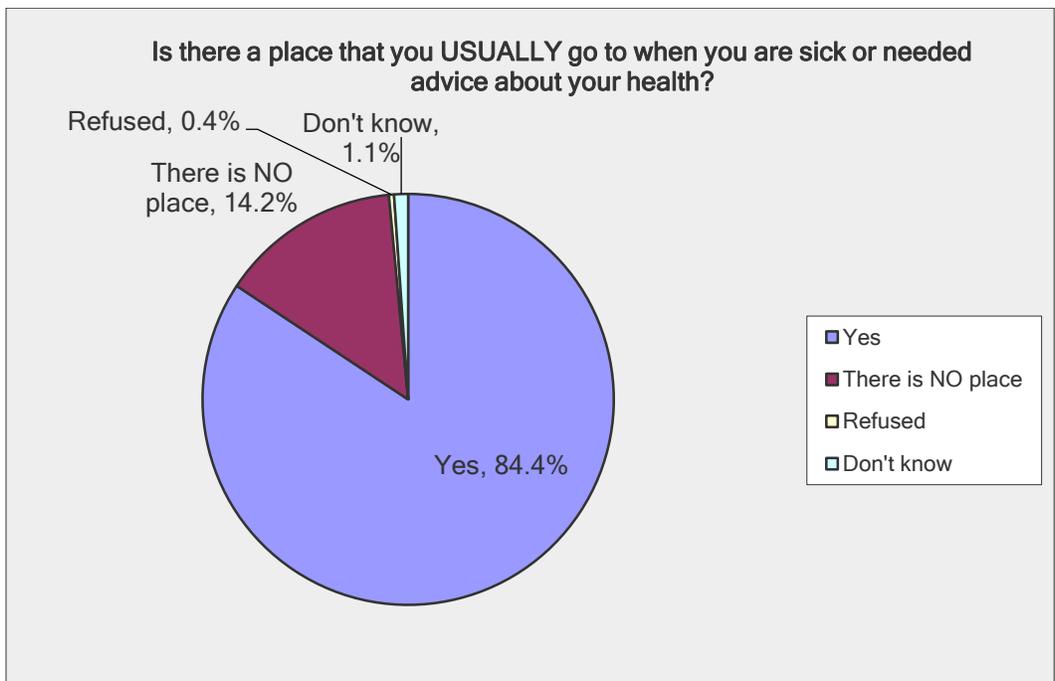
- Documented immigrant
- Naturalized citizen of United States
- Other
- Don't Know
- Refused

27. Is there anything else you would like to tell us about your access and use of health care services in the United States? Please write in the space below:

APPENDIX II

Summary of All Responses: Imported From Survey Monkey Raw Data

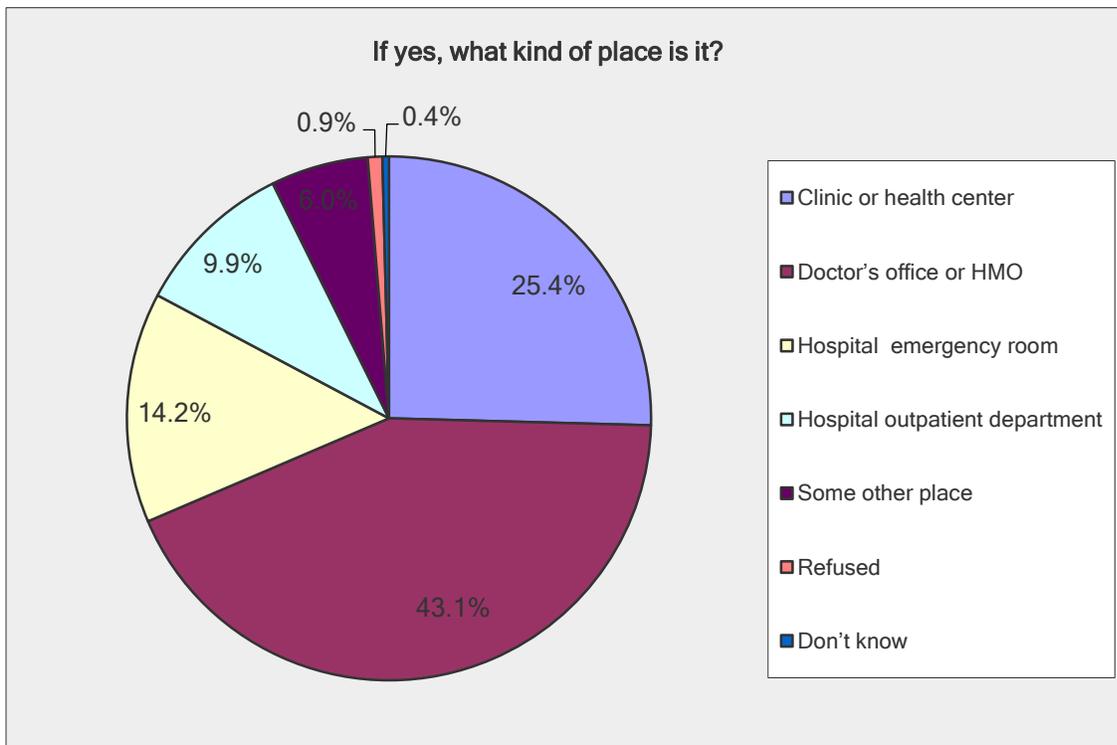
Question: Is there a place that you USUALLY go to when you are sick or needed advice about your health?		
Answer Options	Response Percent	Response Count
Yes	84.4%	232
There is NO place	14.2%	39
Refused	0.4%	1
Don't know	1.1%	3
<i>answered question</i>		275



Q2

Question: If yes, what kind of place is it?

Answer Options	Response Percent	Response Count
Clinic or health center	25.4%	59
Doctor's office or HMO	43.1%	100
Hospital emergency room	14.2%	33
Hospital outpatient department	9.9%	23
Some other place	6.0%	14
Refused	0.9%	2
Don't know	0.4%	1
Other (please specify)		4
<i>answered question</i>		232
<i>skipped question</i>		49

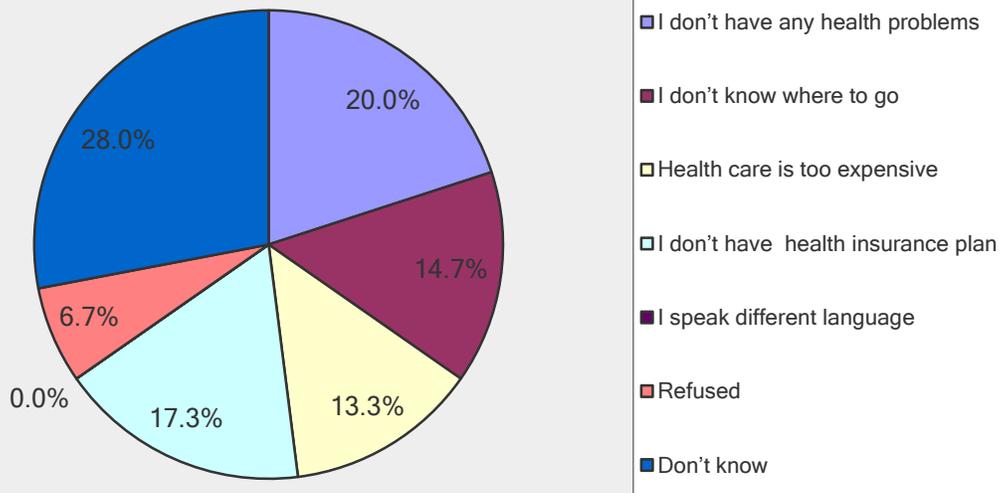


Q3

If no, why don't you have a usual source of medical care?

Answer Options	Response Percent	Response Count
I don't have any health problems	20.0%	15
I don't know where to go	14.7%	11
Health care is too expensive	13.3%	10
I don't have health insurance plan	17.3%	13
I speak different language	0.0%	0
Refused	6.7%	5
Don't know	28.0%	21
<i>answered question</i>		75
<i>skipped question</i>		206

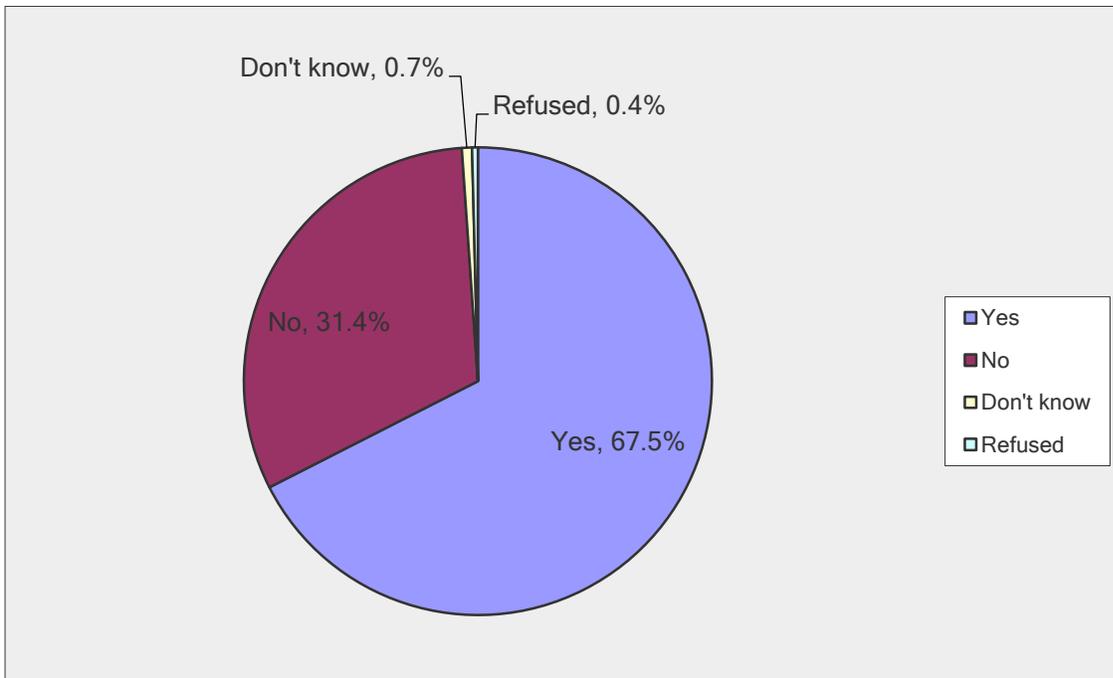
If no, why don't you have a usual source of medical care?



Q4

DURING THE PAST 12 MONTHS, have you seen a health care provider for your own routine or preventive care (physical exams or check-ups) at a doctor's office, a clinic, or some other place? Do not include times you were hospitalized overnight, visits to hospital emergency rooms, or telephone calls.

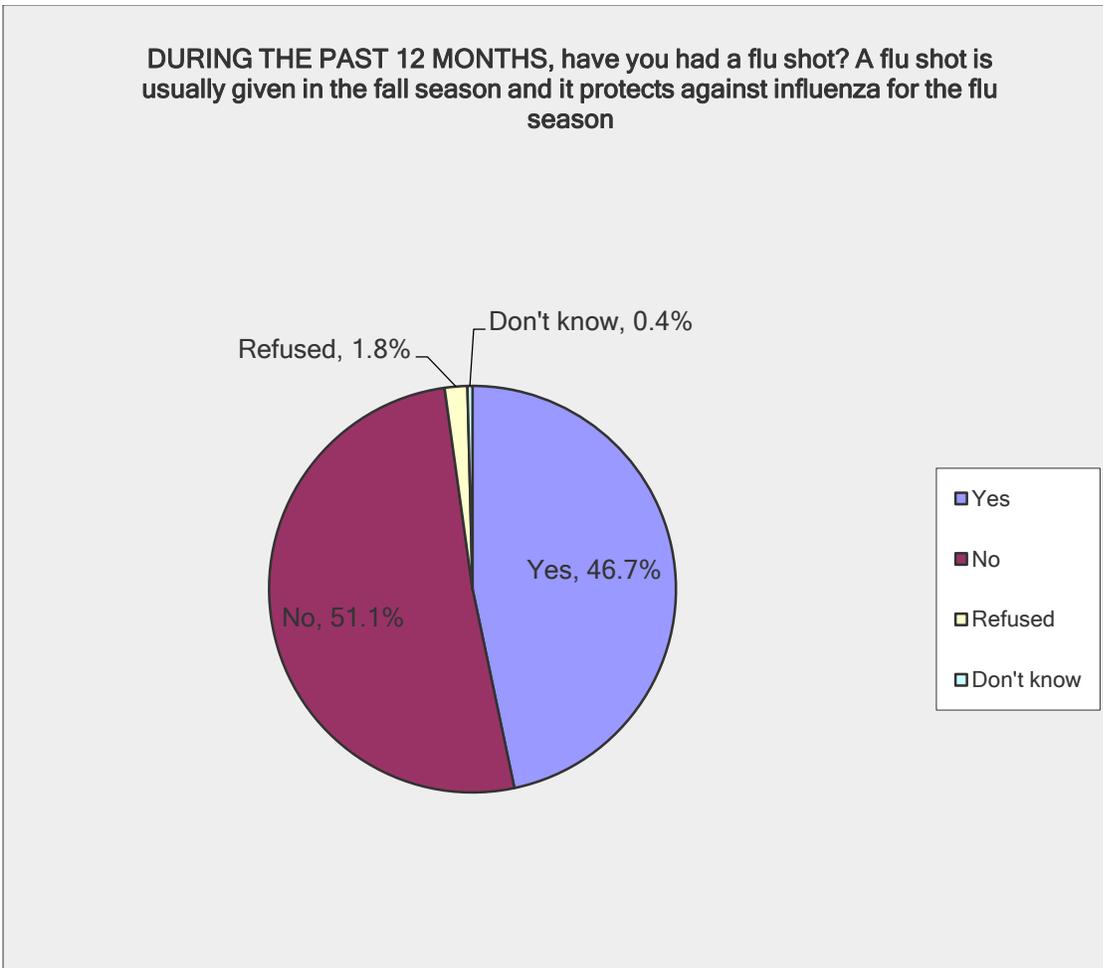
Answer Options	Response Percent	Response Count
Yes	67.5%	185
No	31.4%	86
Don't know	0.7%	2
Refused	0.4%	1
<i>answered question</i>		274
<i>skipped question</i>		7



Q5

DURING THE PAST 12 MONTHS, have you had a flu shot? A flu shot is usually given in the fall season and it protects against influenza for the flu season

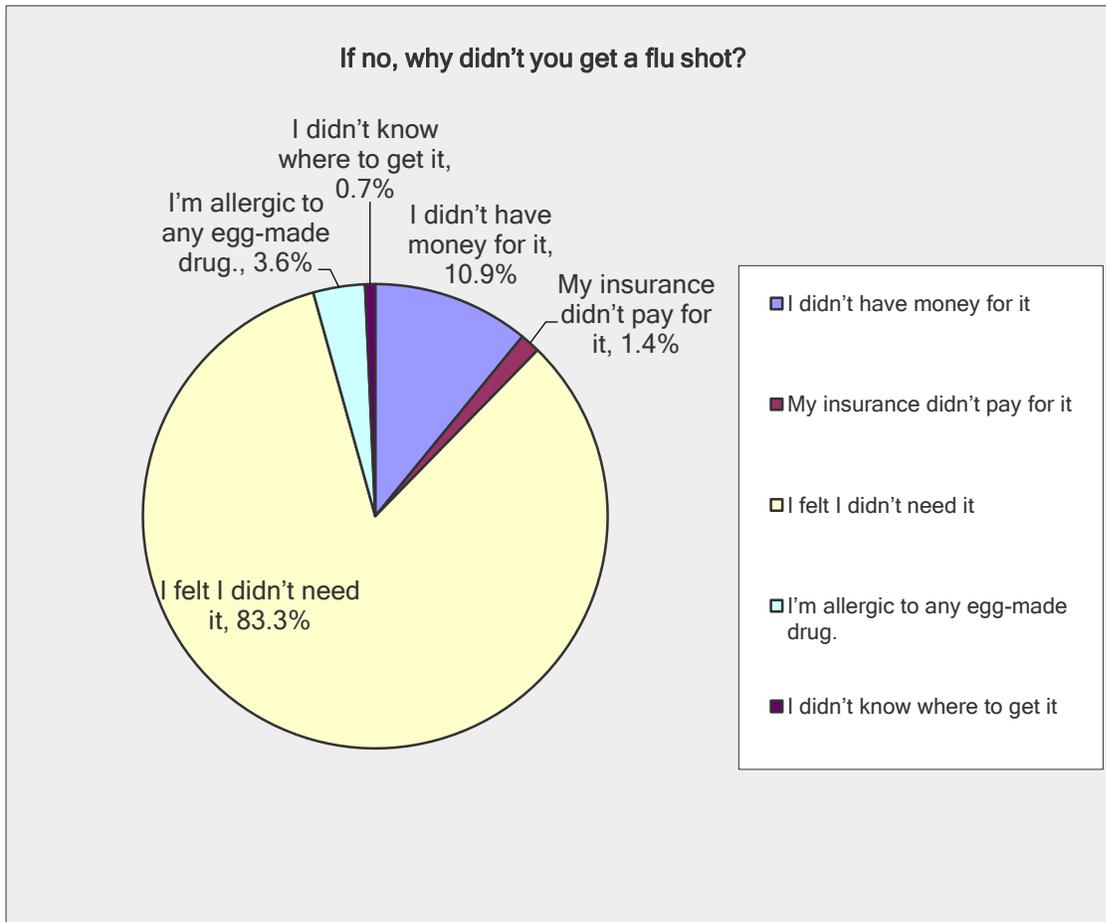
Answer Options	Response Percent	Response Count
Yes	46.7%	128
No	51.1%	140
Refused	1.8%	5
Don't know	0.4%	1
<i>answered question</i>		274
<i>skipped question</i>		7



Q6

If no, why didn't you get a flu shot?

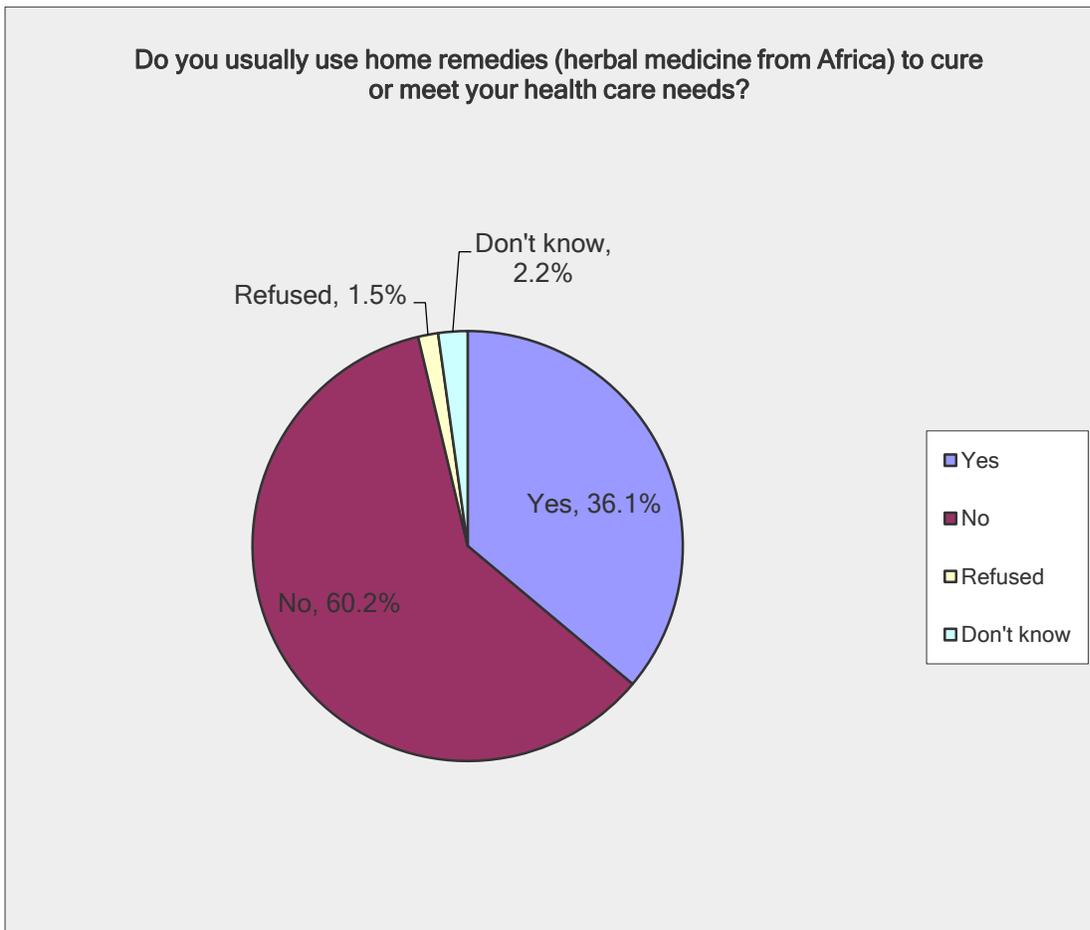
Answer Options	Response Percent	Response Count
I didn't have money for it	10.9%	15
My insurance didn't pay for it	1.4%	2
I felt I didn't need it	83.3%	115
I'm allergic to any egg-made drug.	3.6%	5
I didn't know where to get it	0.7%	1
<i>answered question</i>		138
<i>skipped question</i>		143



Q7

Do you usually use home remedies (herbal medicine from Africa) to cure or meet your health care needs?

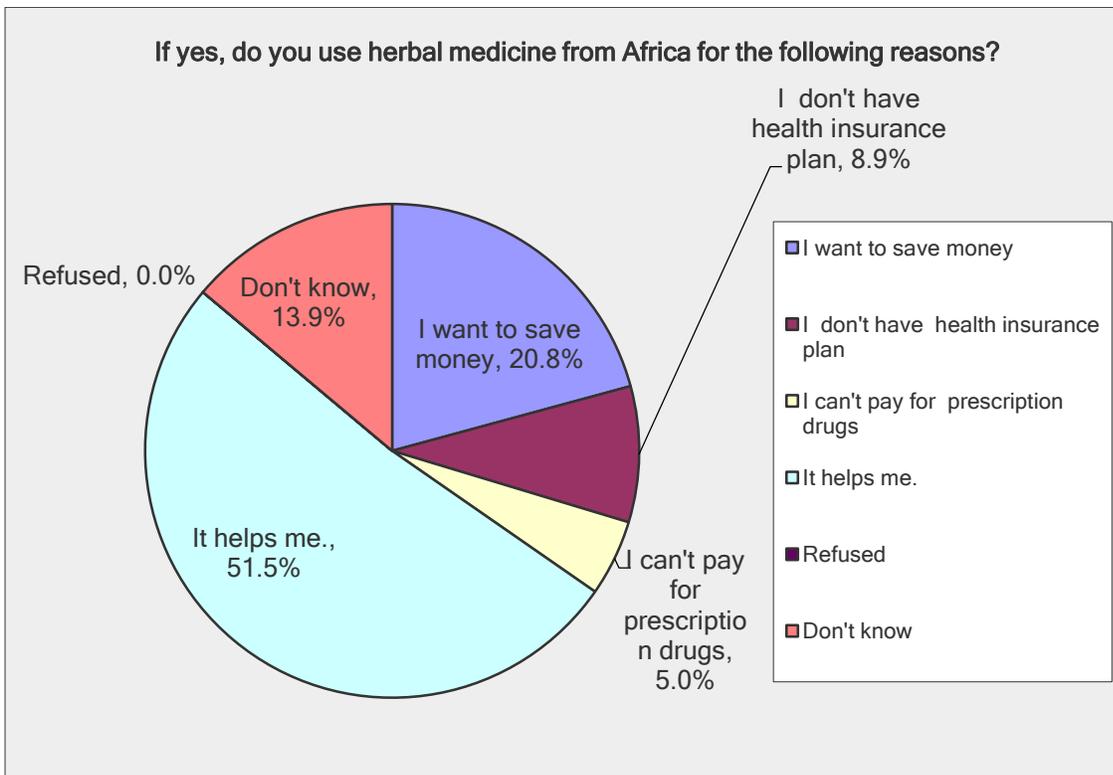
Answer Options	Response Percent	Response Count
Yes	36.1%	99
No	60.2%	165
Refused	1.5%	4
Don't know	2.2%	6
<i>answered question</i>		274
<i>skipped question</i>		7



Q8

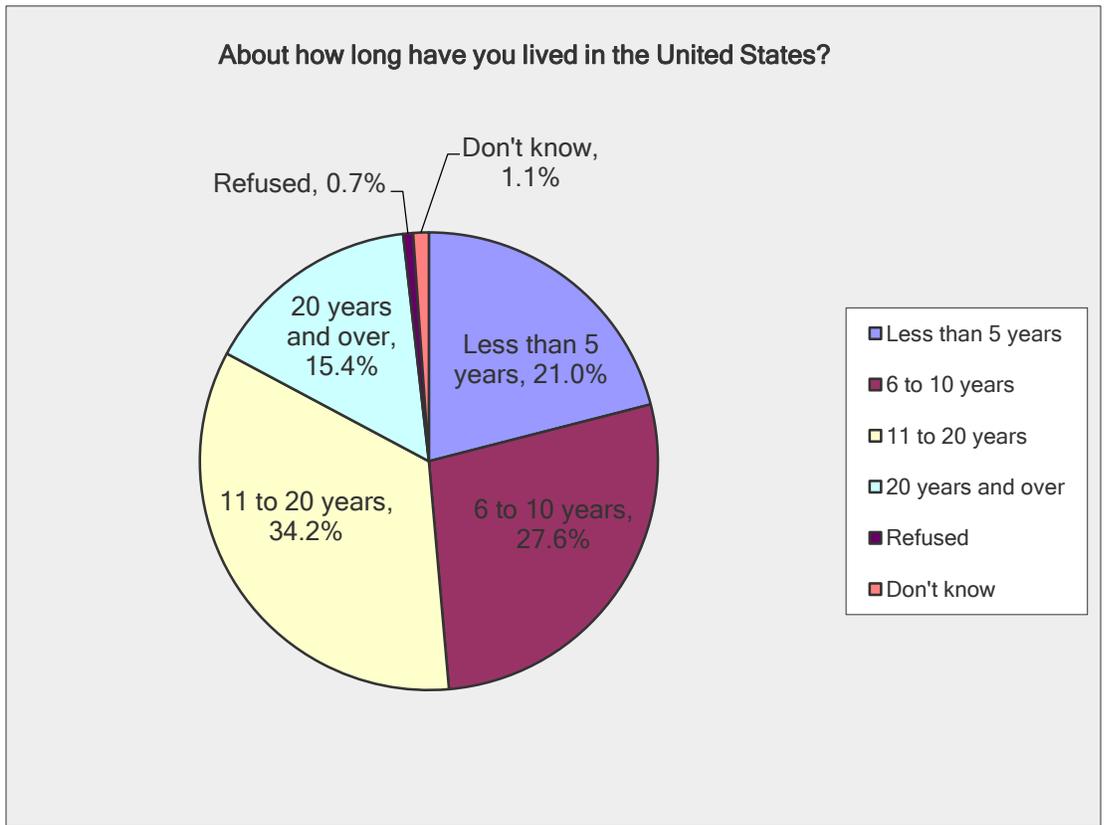
If yes, do you use herbal medicine from Africa for the following reasons?

Answer Options	Response Percent	Response Count
I want to save money	20.8%	21
I don't have health insurance plan	8.9%	9
I can't pay for prescription drugs	5.0%	5
It helps me.	51.5%	52
Refused	0.0%	0
Don't know	13.9%	14
Other (please specify)		3
answered question		101
skipped question		180



Q9

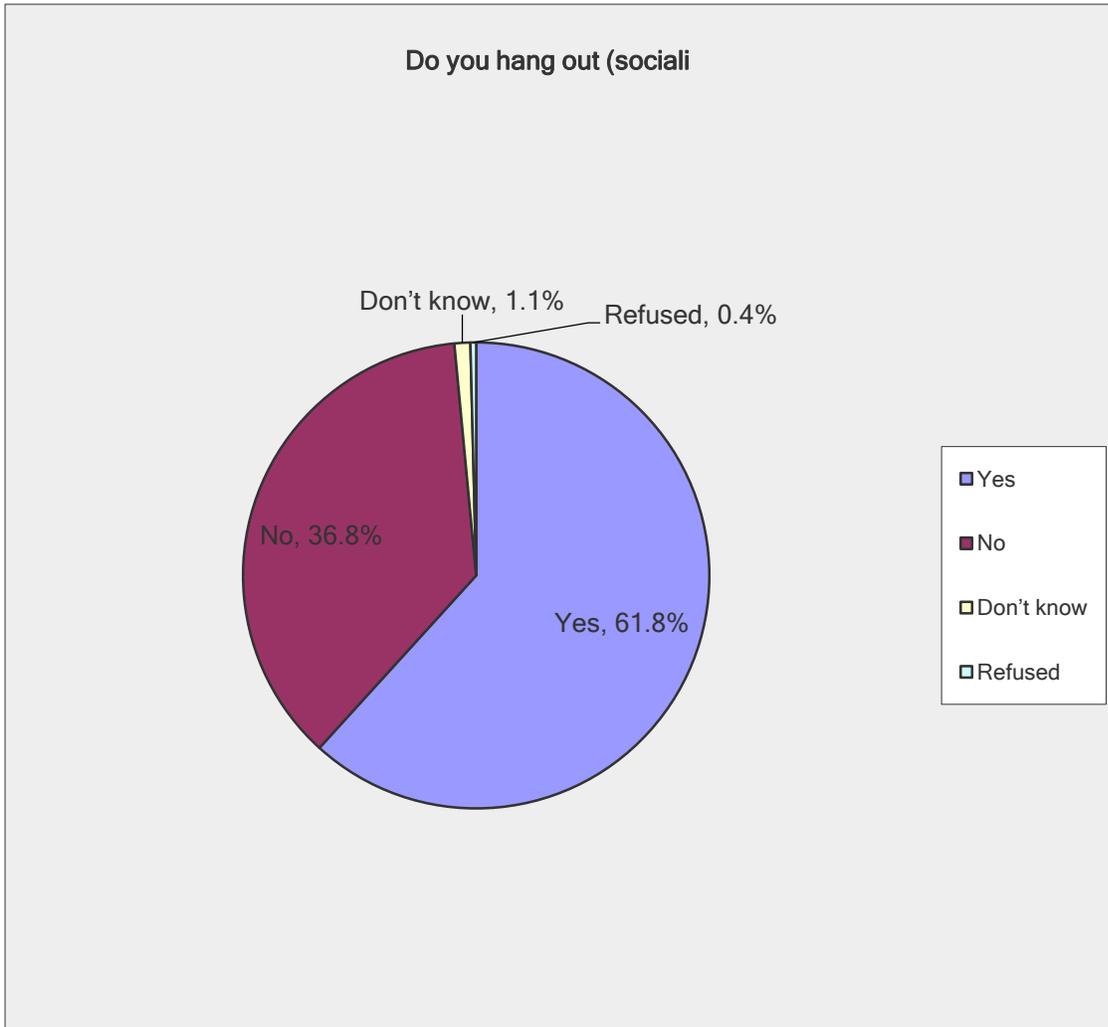
About how long have you lived in the United States?		
Answer Options	Response Percent	Response Count
Less than 5 years	21.0%	57
6 to 10 years	27.6%	75
11 to 20 years	34.2%	93
20 years and over	15.4%	42
Refused	0.7%	2
Don't know	1.1%	3
<i>answered question</i>		272
<i>skipped question</i>		9



Q10

Do you hang out (socialize) with U.S. born citizens, such as Whites, Blacks-Americans, and Hispanics? This includes taking part in social activities such as visiting, attending clubs and meetings, going to parties, making and maintaining relationships with U.S born citizens etc.

Answer Options	Response Percent	Response Count
Yes	61.8%	168
No	36.8%	100
Don't know	1.1%	3
Refused	0.4%	1
<i>answered question</i>		272
<i>skipped question</i>		9

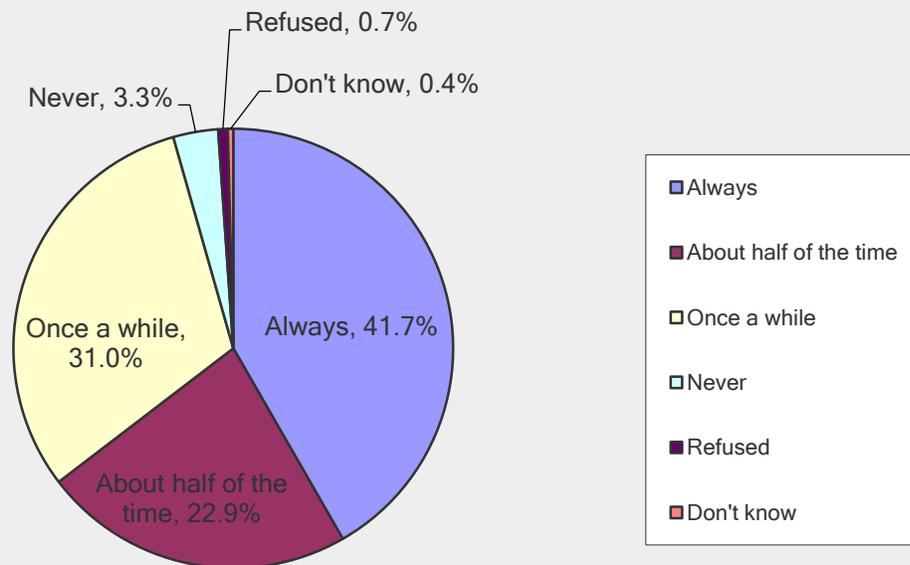


Q11

How often do you watch American movies, and television (TV) shows in English?

Answer Options	Response Percent	Response Count
Always	41.7%	113
About half of the time	22.9%	62
Once a while	31.0%	84
Never	3.3%	9
Refused	0.7%	2
Don't know	0.4%	1
<i>answered question</i>		271
<i>skipped question</i>		10

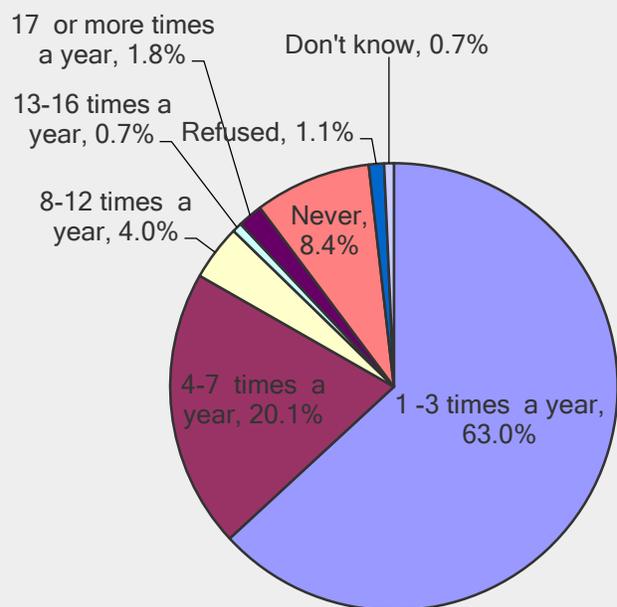
How often do you watch American movies, and television (TV) shows in English?



Q12

At any time during the past 12 months, HOW MANY TIMES have you seen a doctor or other health care professional about your own health at a DOCTOR'S OFFICE, A CLINIC, OR SOME OTHER PLACE? You must include times you were hospitalized overnight, visits to hospital emergency rooms, home visits, dental visits, eye doctor visits, or telephone calls.

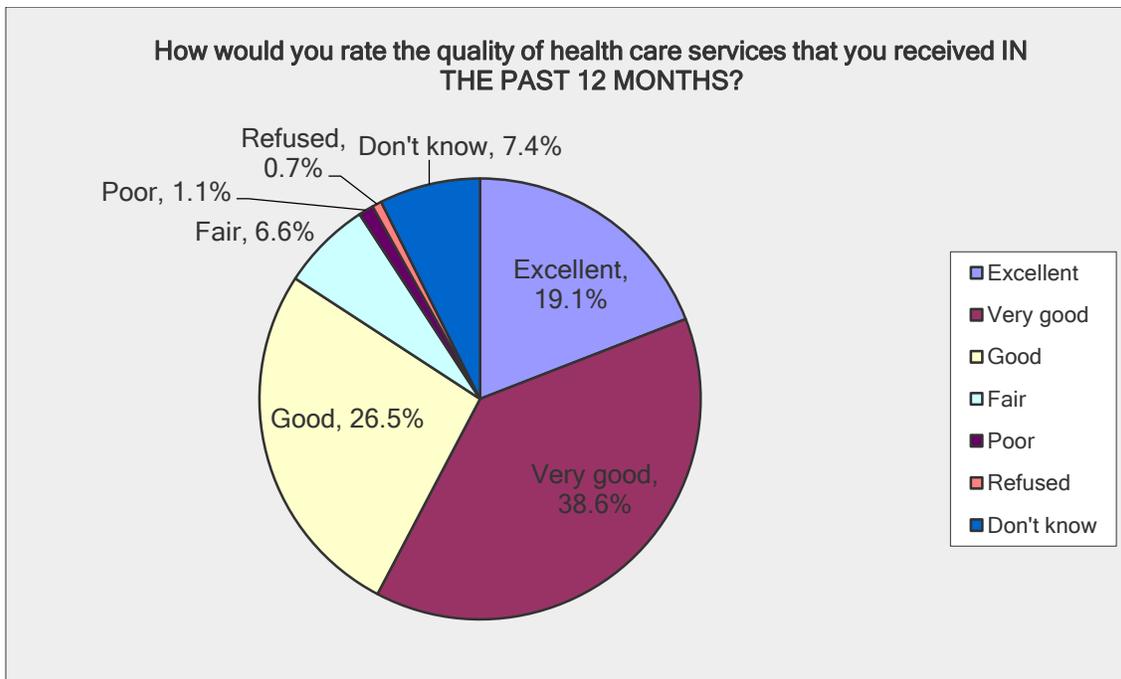
Answer Options	Response Percent	Response Count
1 -3 times a year	63.0%	172
4-7 times a year	20.1%	55
8-12 times a year	4.0%	11
13-16 times a year	0.7%	2
17 or more times a year	1.8%	5
Never	8.4%	23
Refused	1.1%	3
Don't know	0.7%	2
<i>answered question</i>		273
<i>skipped question</i>		8



Q13

How would you rate the quality of health care services that you received IN THE PAST 12 MONTHS?

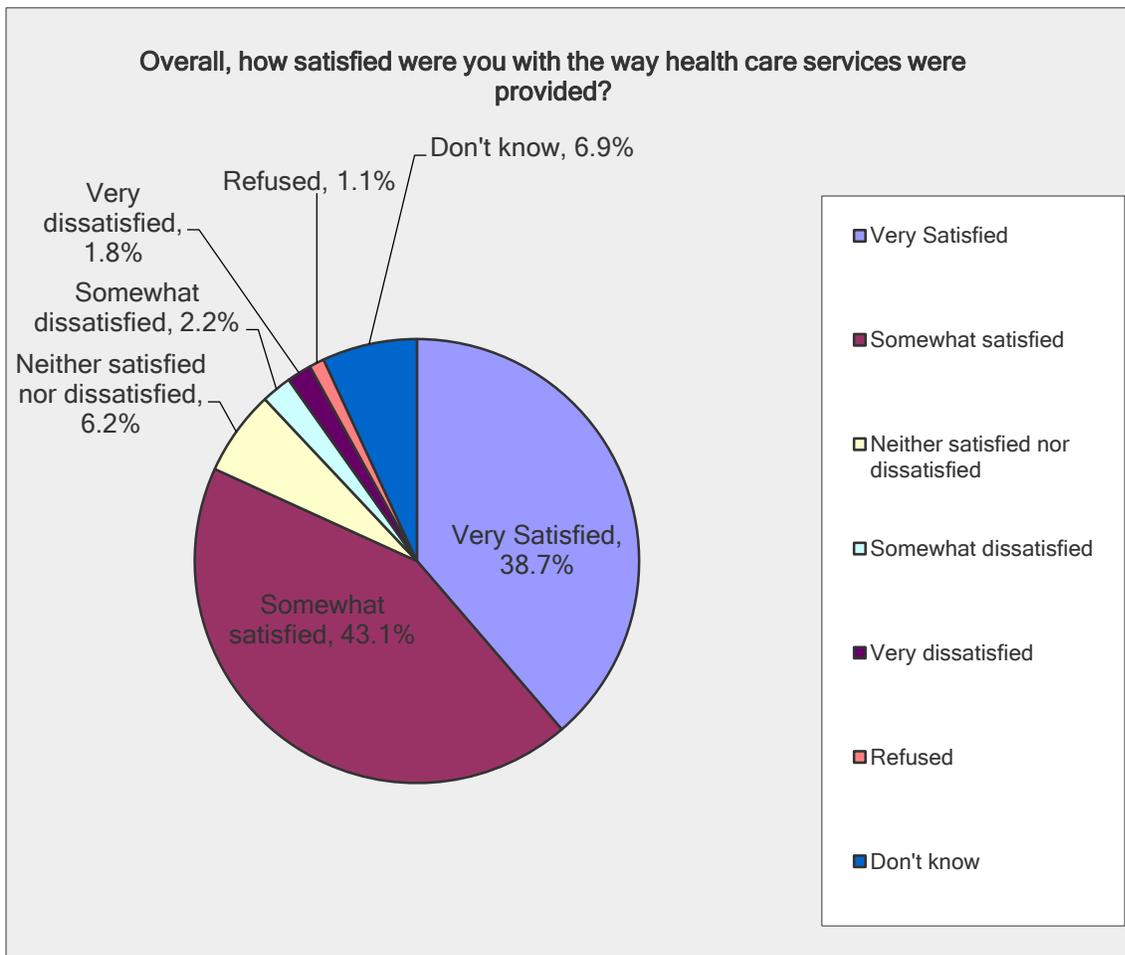
Answer Options	Response Percent	Response Count
Excellent	19.1%	52
Very good	38.6%	105
Good	26.5%	72
Fair	6.6%	18
Poor	1.1%	3
Refused	0.7%	2
Don't know	7.4%	20
<i>answered question</i>		272
<i>skipped question</i>		9



Q14

Overall, how satisfied were you with the way health care services were provided?

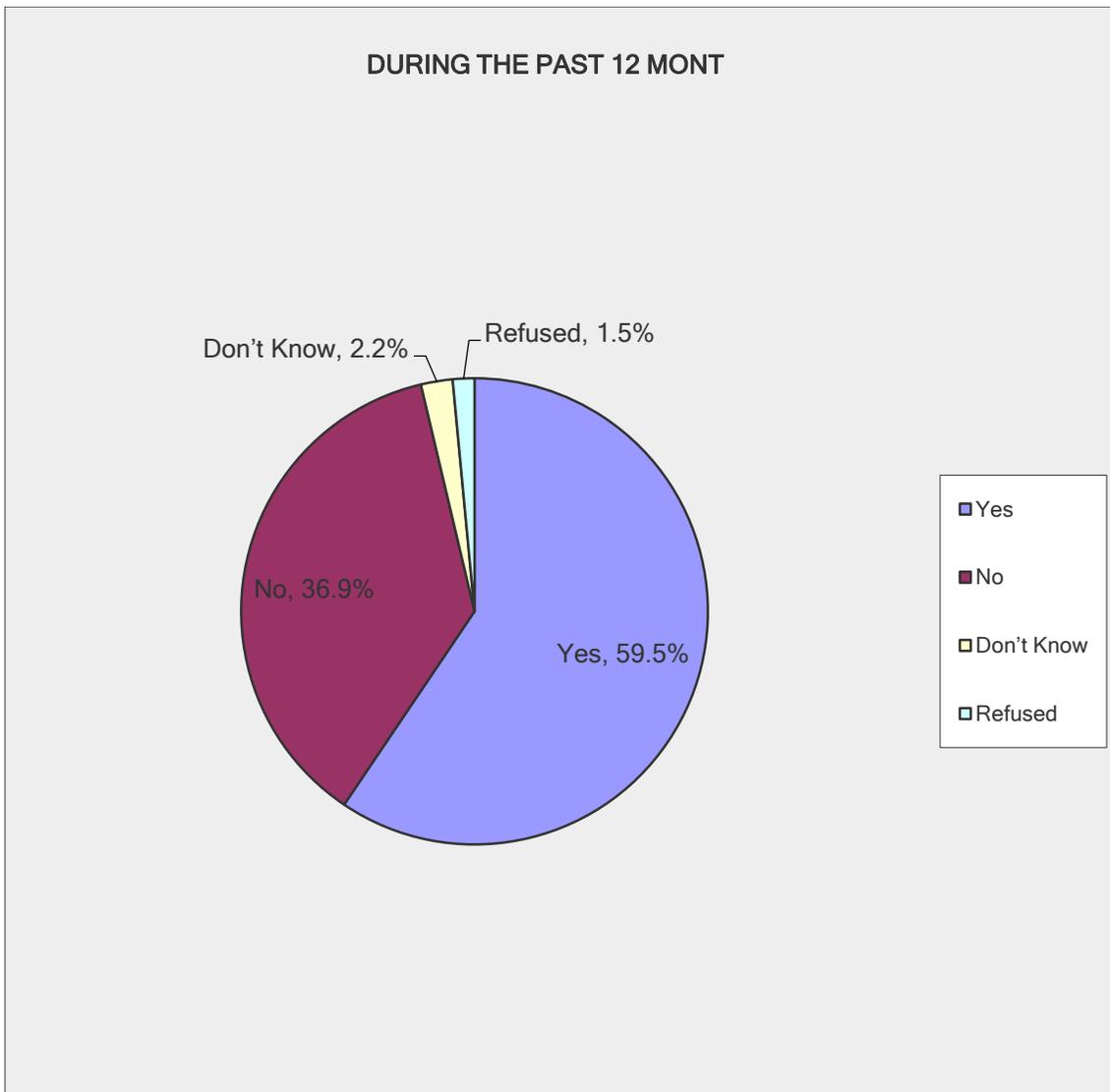
Answer Options	Response Percent	Response Count
Very Satisfied	38.7%	106
Somewhat satisfied	43.1%	118
Neither satisfied nor dissatisfied	6.2%	17
Somewhat dissatisfied	2.2%	6
Very dissatisfied	1.8%	5
Refused	1.1%	3
Don't know	6.9%	19
<i>answered question</i>		274
<i>skipped question</i>		7



Q15

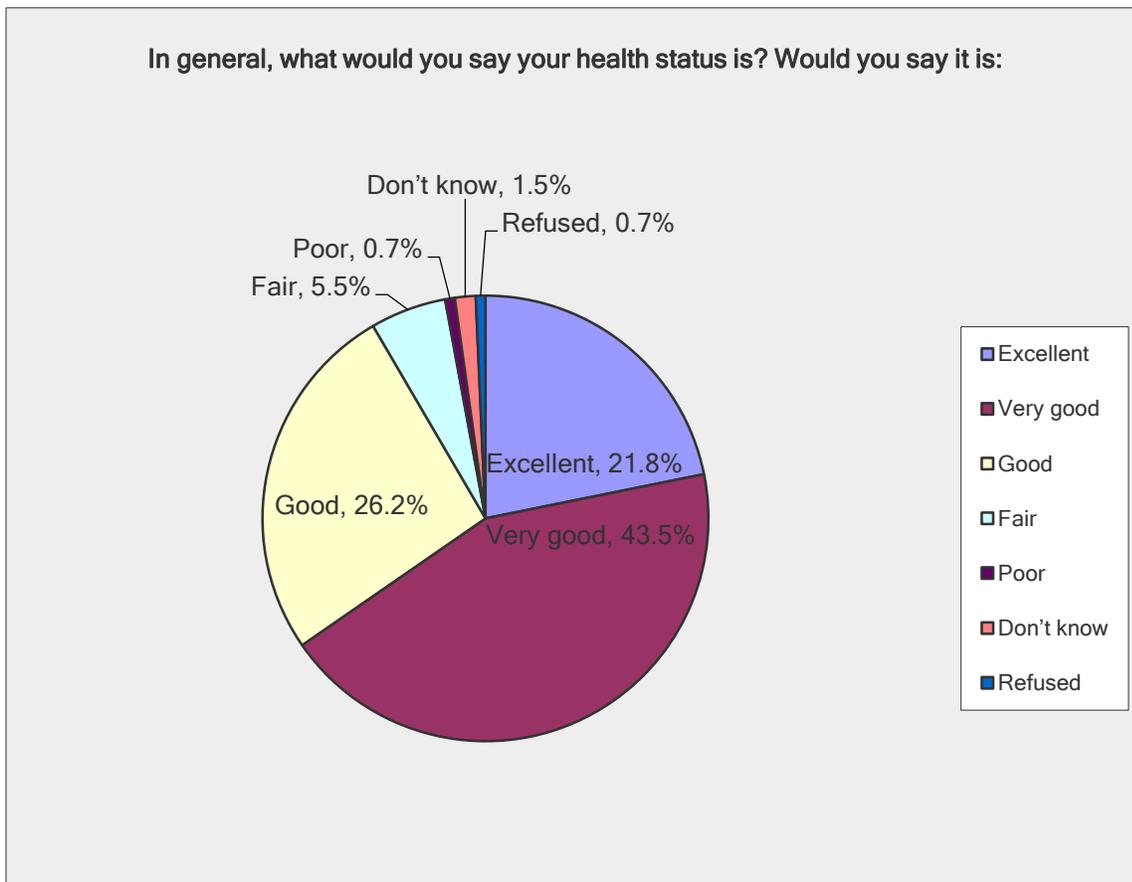
DURING THE PAST 12 MONTHS, have you ever used a computer, or smart-phone to look up health information, fill prescriptions, schedule an appointment with a health care provider, chat with a health provider by emails, or chat online with chat groups to learn about health topics?

Answer Options	Response Percent	Response Count
Yes	59.5%	163
No	36.9%	101
Don't Know	2.2%	6
Refused	1.5%	4
<i>answered question</i>		274
<i>skipped question</i>		7



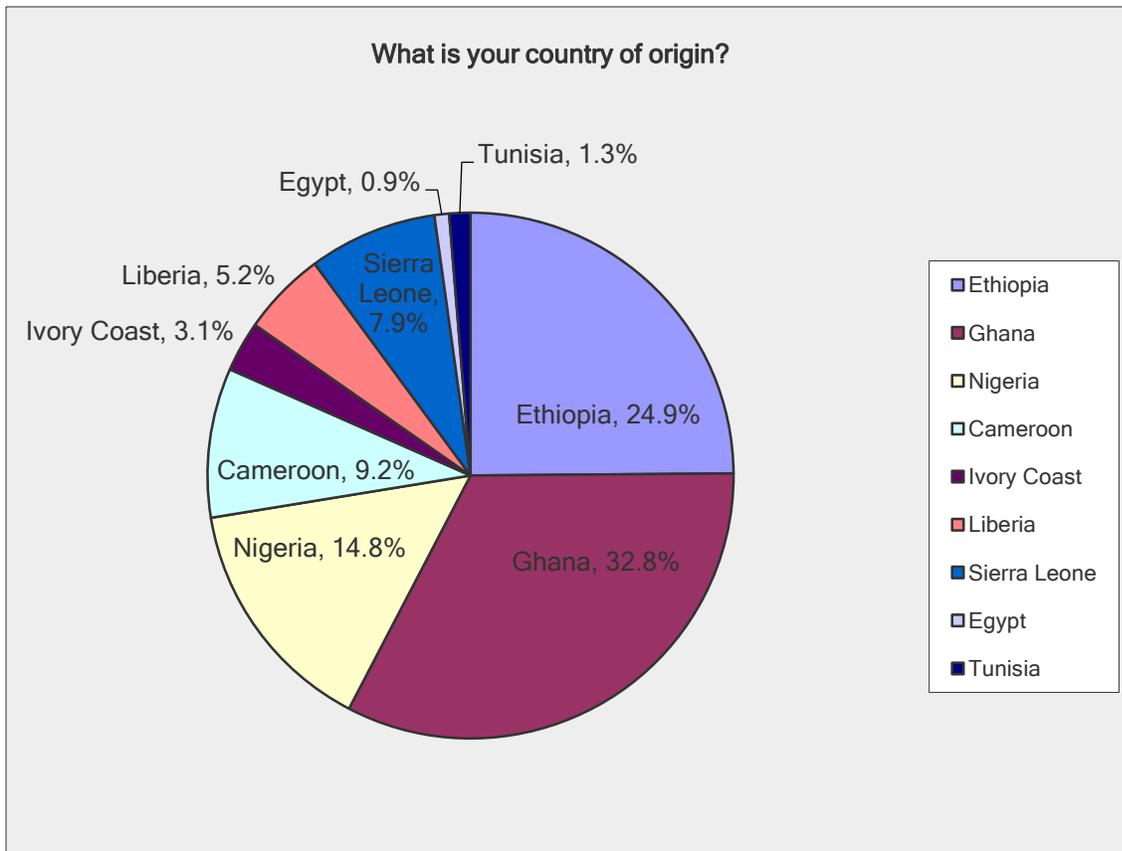
Q16

In general, what would you say your health status is? Would you say it is:		
Answer Options	Response Percent	Response Count
Excellent	21.8%	59
Very good	43.5%	118
Good	26.2%	71
Fair	5.5%	15
Poor	0.7%	2
Don't know	1.5%	4
Refused	0.7%	2
<i>answered question</i>		271
<i>skipped question</i>		10



Q17¹

What is your country of origin?		
Answer Options	Response Percent	Response Count
Ethiopia	24.9%	57
Ghana	32.8%	75
Nigeria	14.8%	34
Cameroon	9.2%	21
Ivory Coast	3.1%	7
Liberia	5.2%	12
Sierra Leone	7.9%	18
Egypt	0.9%	2
Tunisia	1.3%	3
Other		43
<i>answered question</i>		229
<i>skipped question</i>		52

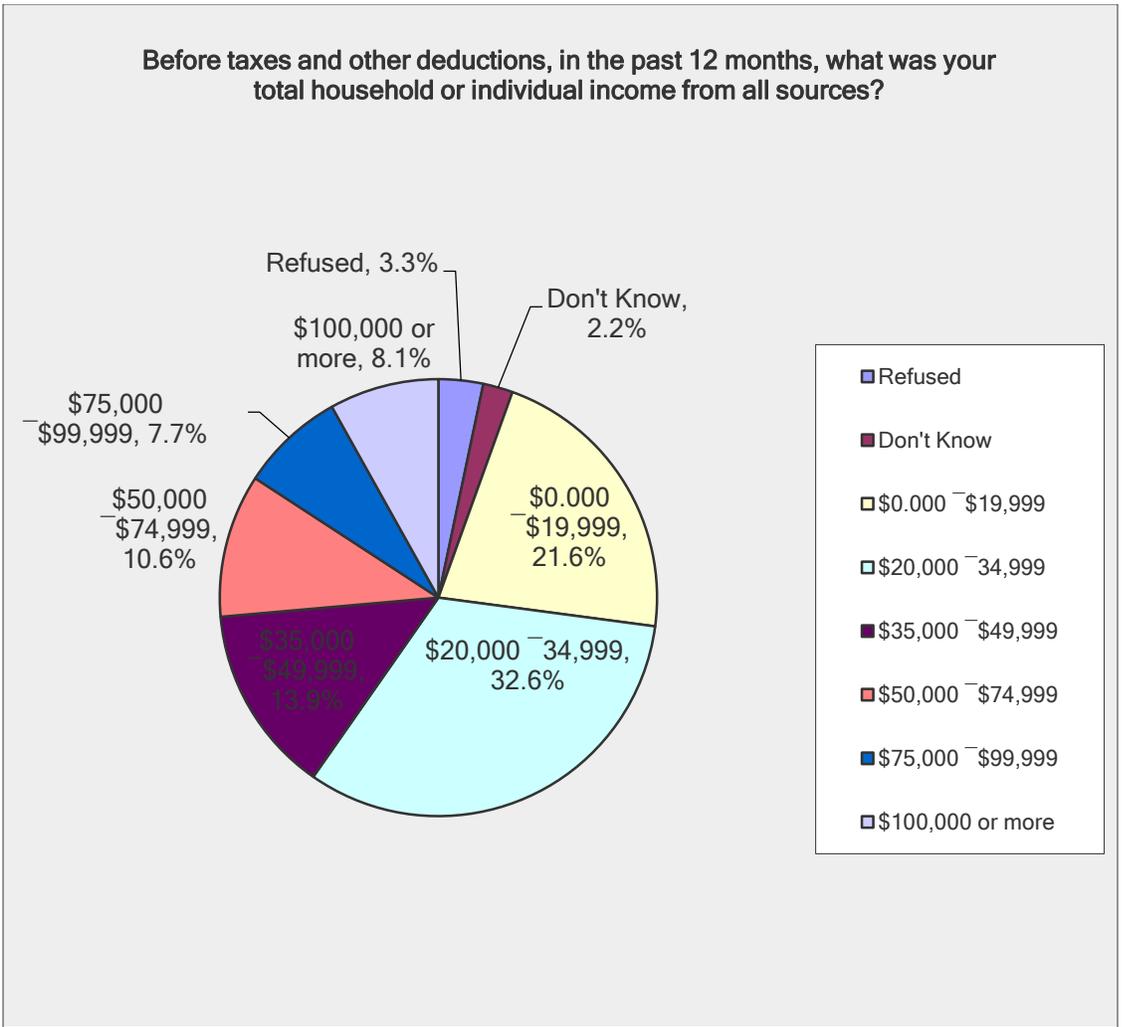


¹ This information does not include the data for "the other" countries.

Q18

Before taxes and other deductions, in the past 12 months, what was your total household or individual income from all sources?

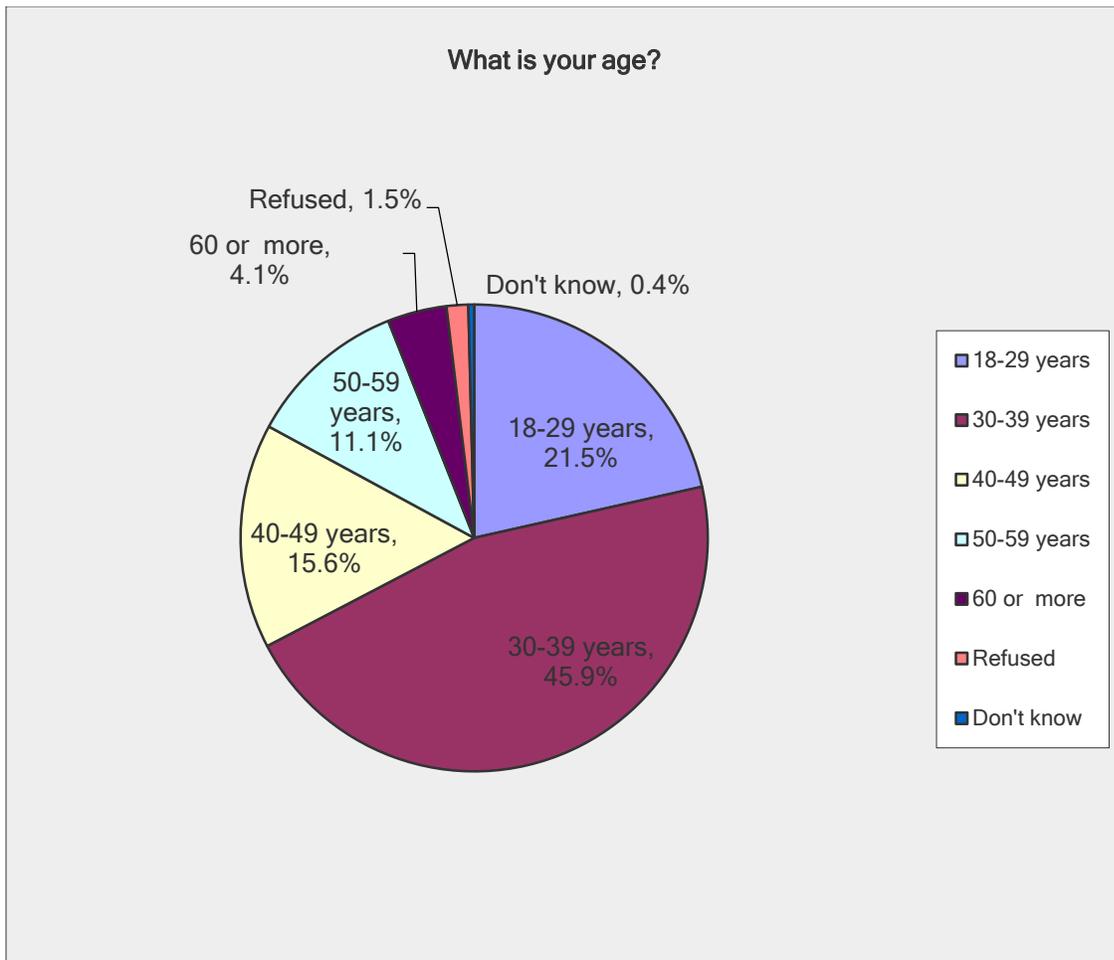
Answer Options	Response Percent	Response Count
Refused	3.3%	9
Don't Know	2.2%	6
\$0.000 - \$19,999	21.6%	59
\$20,000 - \$34,999	32.6%	89
\$35,000 - \$49,999	13.9%	38
\$50,000 - \$74,999	10.6%	29
\$75,000 - \$99,999	7.7%	21
\$100,000 or more	8.1%	22
<i>answered question</i>		273
<i>skipped question</i>		8



Q19

What is your age?

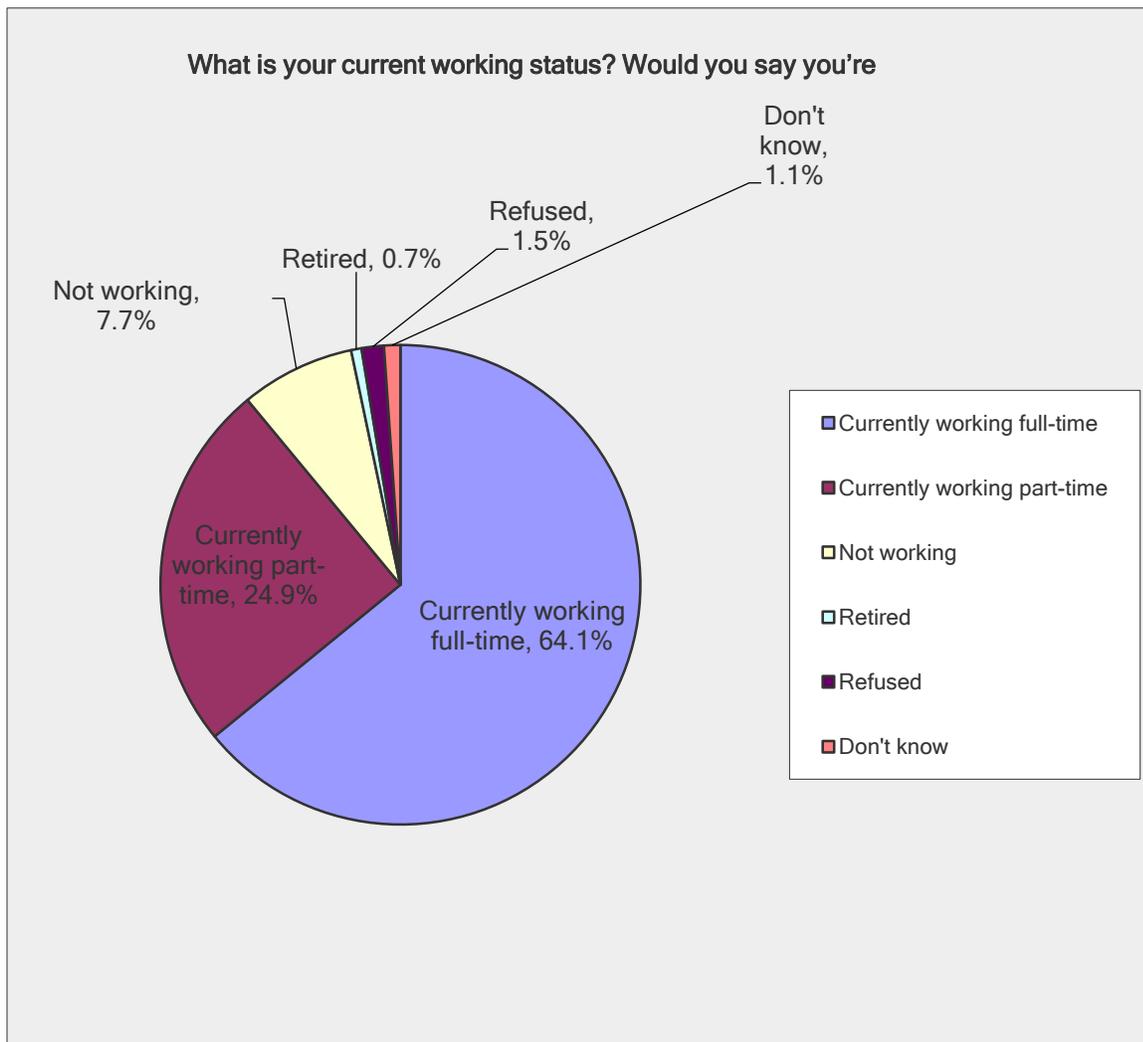
Answer Options	Response Percent	Response Count
18-29 years	21.5%	58
30-39 years	45.9%	124
40-49 years	15.6%	42
50-59 years	11.1%	30
60 or more	4.1%	11
Refused	1.5%	4
Don't know	0.4%	1
<i>answered question</i>		270
<i>skipped question</i>		11



Q 20

What is your current working status? Would you say you're

Answer Options	Response Percent	Response Count
Currently working full-time	64.1%	175
Currently working part-time	24.9%	68
Not working	7.7%	21
Retired	0.7%	2
Refused	1.5%	4
Don't know	1.1%	3
<i>answered question</i>		273
<i>skipped question</i>		8

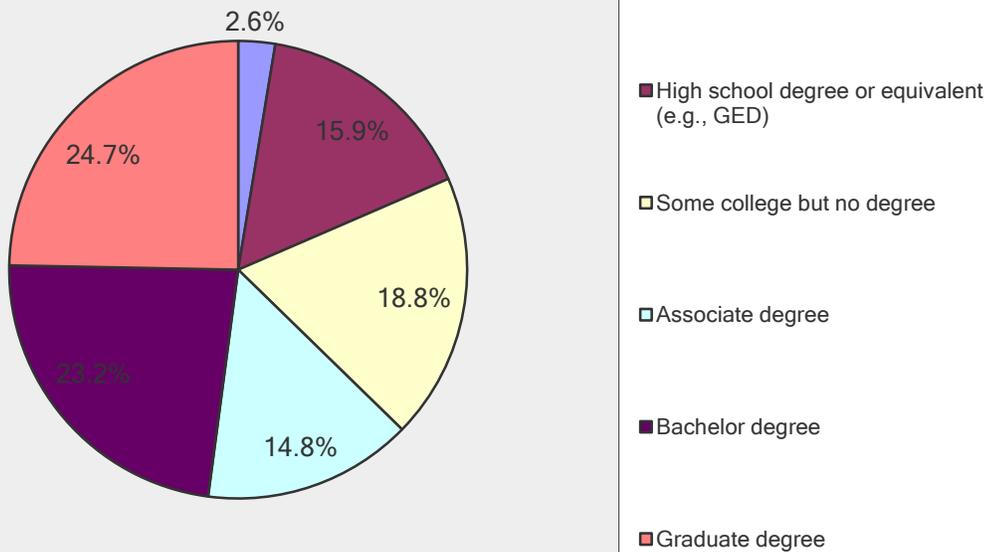


Q21

What is the highest level of school you have completed or the highest degree you have received?

Answer Options	Response Percent	Response Count
Less than high school degree	2.6%	7
High school degree or equivalent (e.g., GED)	15.9%	43
Some college but no degree	18.8%	51
Associate degree	14.8%	40
Bachelor degree	23.2%	63
Graduate degree	24.7%	67
<i>answered question</i>		271
<i>skipped question</i>		10

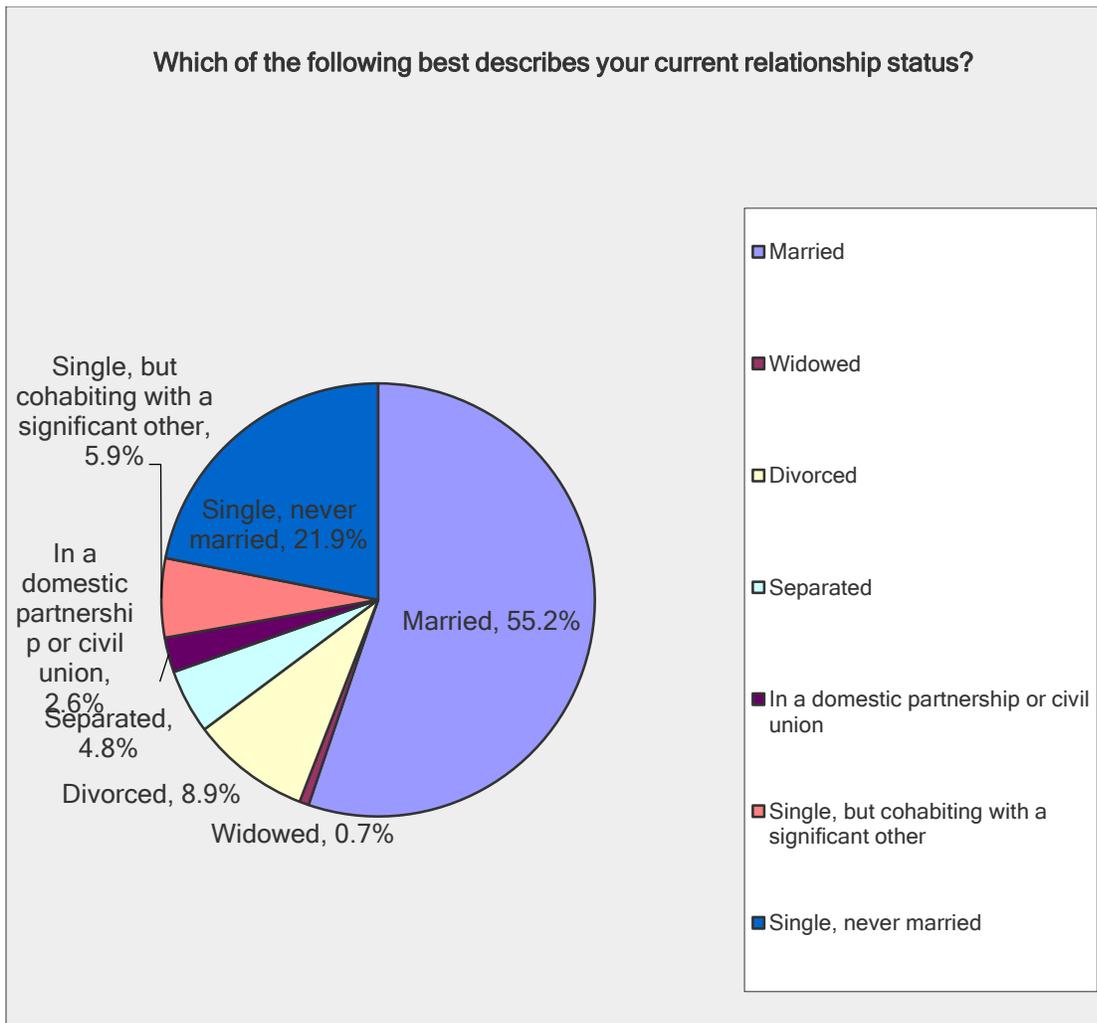
What is the highest level of school you have completed or the highest degree you have received?



Q 22

Which of the following best describes your current relationship status?

Answer Options	Response Percent	Response Count
Married	55.2%	149
Widowed	0.7%	2
Divorced	8.9%	24
Separated	4.8%	13
In a domestic partnership or civil union	2.6%	7
Single, but cohabiting with a significant other	5.9%	16
Single, never married	21.9%	59
<i>answered question</i>		270
<i>skipped question</i>		11

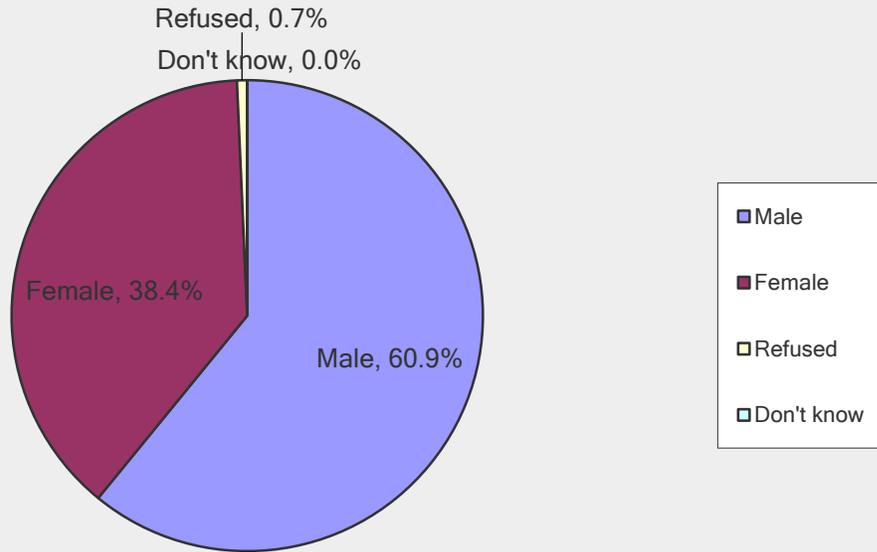


Q 23

Please tell me about your gender. Are you Male or Female?

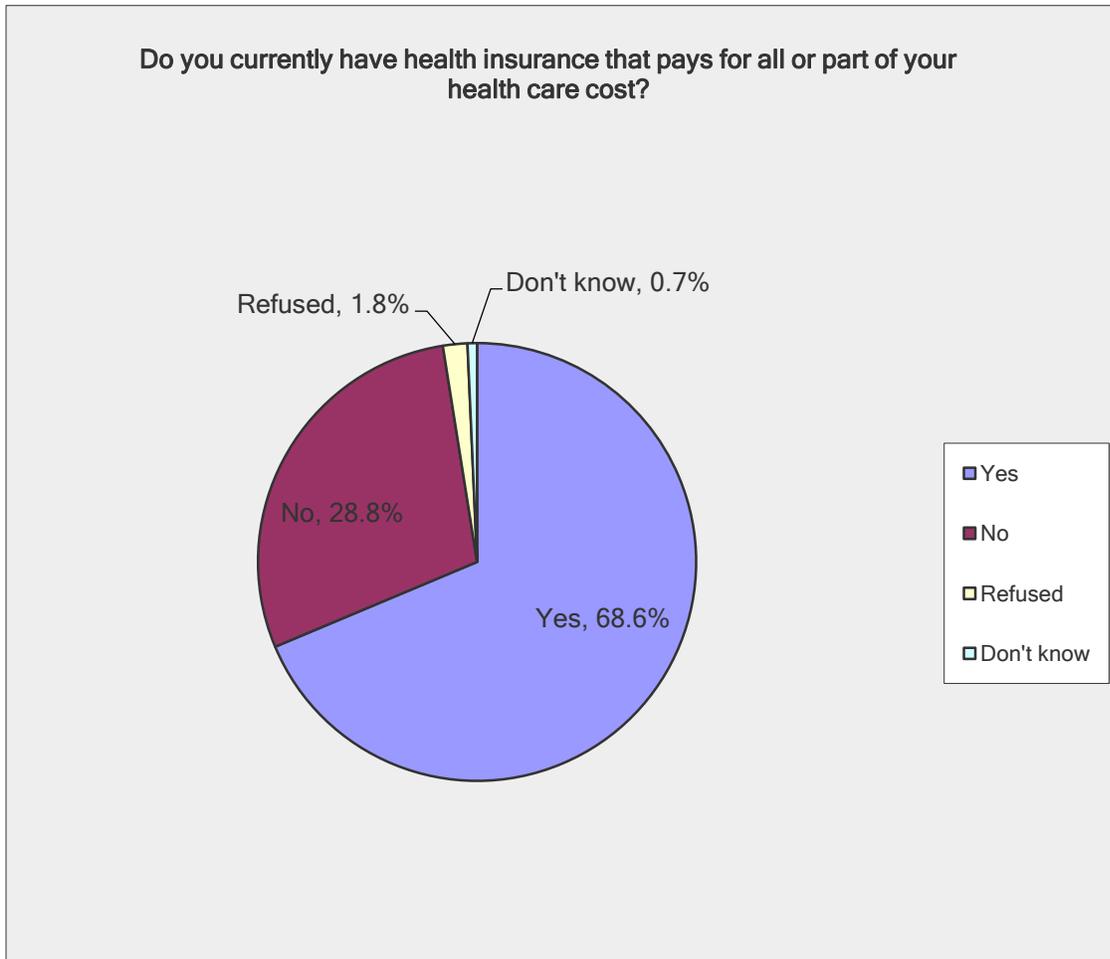
Answer Options	Response Percent	Response Count
Male	60.9%	165
Female	38.4%	104
Refused	0.7%	2
Don't know	0.0%	0
<i>answered question</i>		271
<i>skipped question</i>		10

Please tell me about your gender. Are you Male or Female?



Q 24

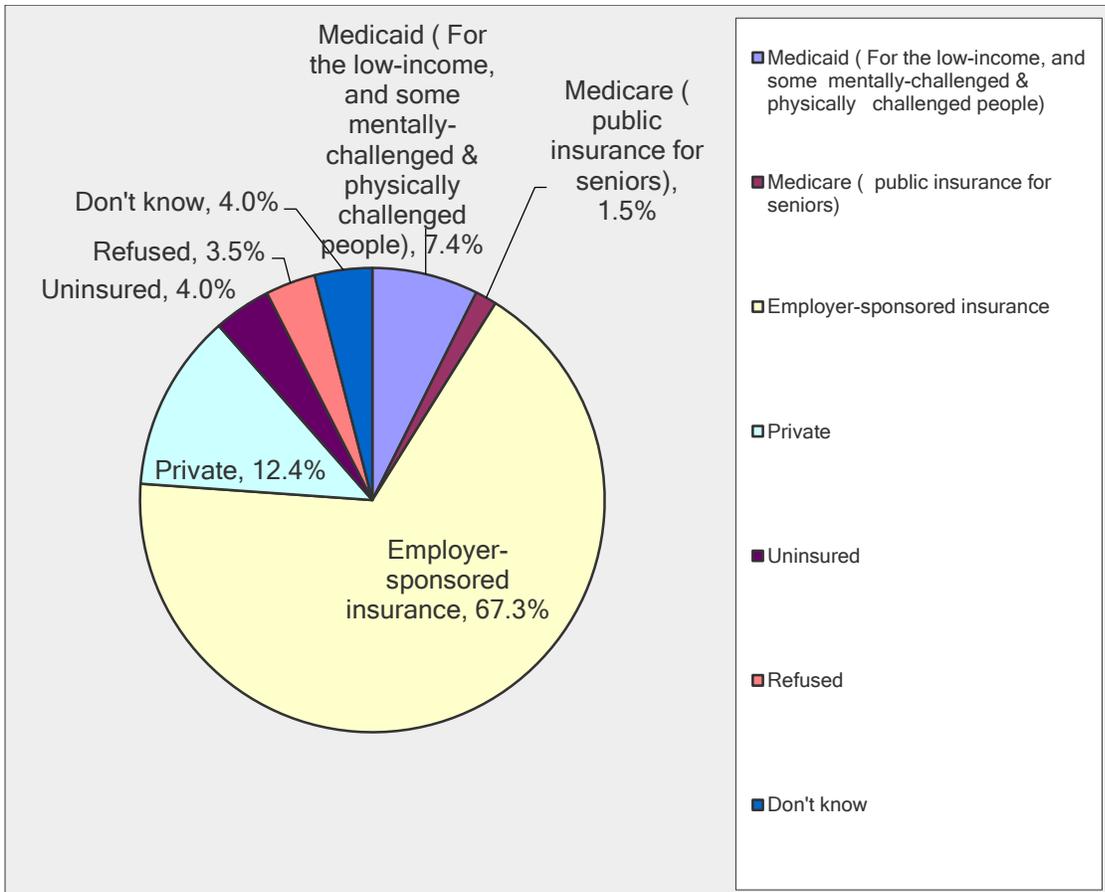
Do you currently have health insurance that pays for all or part of your health care cost?		
Answer Options	Response Percent	Response Count
Yes	68.6%	186
No	28.8%	78
Refused	1.8%	5
Don't know	0.7%	2
<i>answered question</i>		271
<i>skipped question</i>		10



Q25

What kind of health insurance do you have?

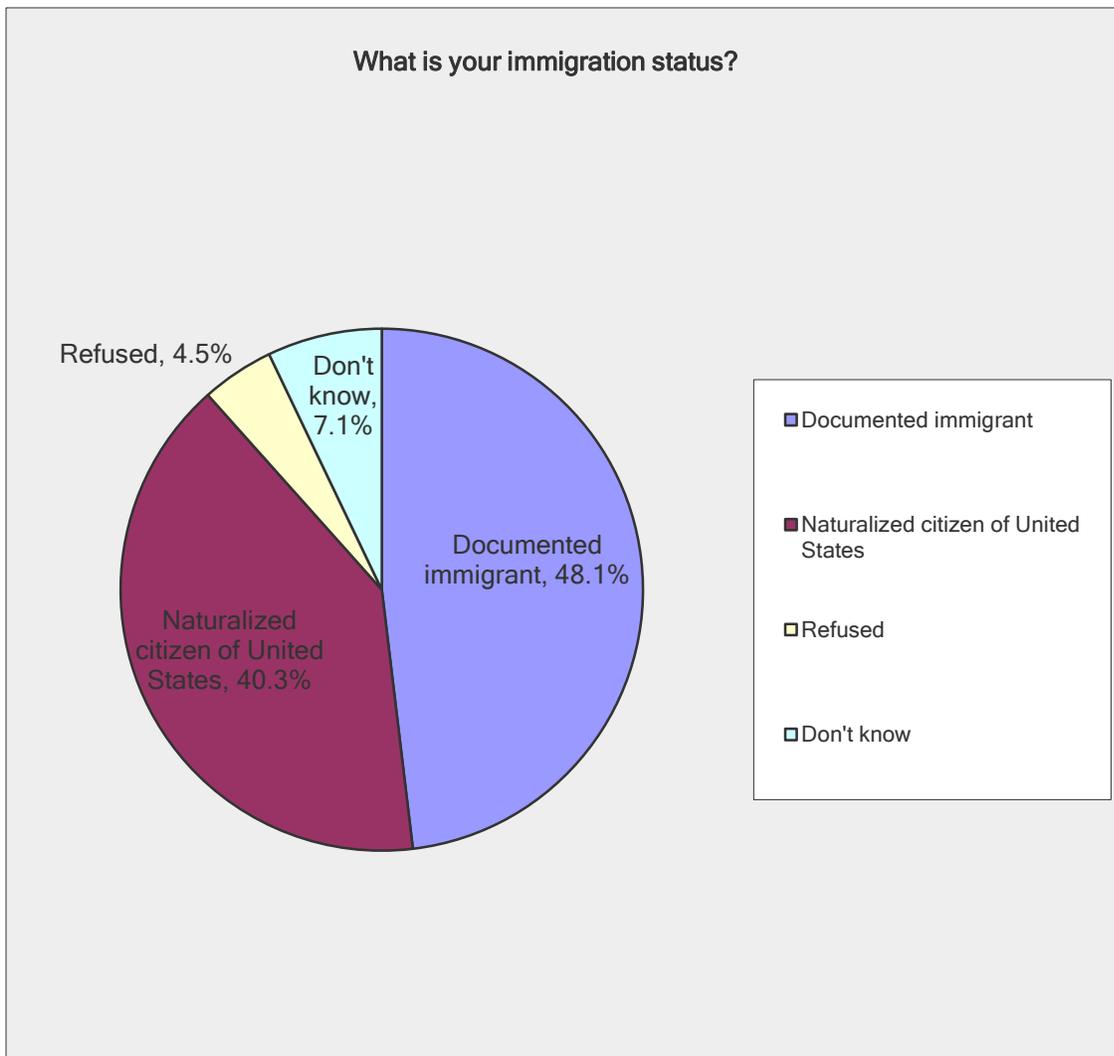
Answer Options	Response Percent	Response Count
Medicaid (For the low-income, and some mentally-challenged & physically challenged people)	7.4%	15
Medicare (public insurance for seniors)	1.5%	3
Employer-sponsored insurance	67.3%	136
Private	12.4%	25
Uninsured	4.0%	8
Refused	3.5%	7
Don't know	4.0%	8
answered question		202
skipped question		79



Q26

What is your immigration status?

Answer Options	Response Percent	Response Count
Documented immigrant	48.1%	129
Naturalized citizen of United States	40.3%	108
Refused	4.5%	12
Don't know	7.1%	19
Other (please specify)		4
<i>answered question</i>		268
<i>skipped question</i>		13



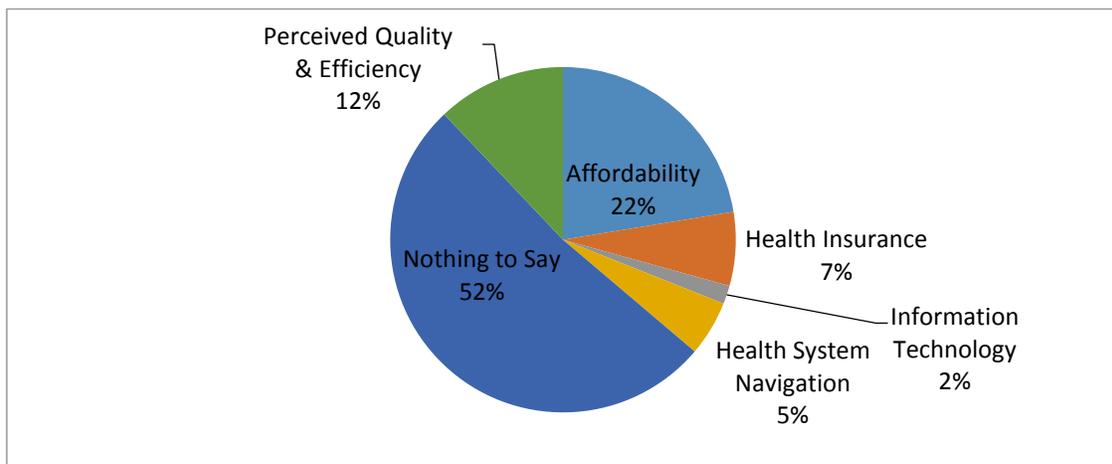
Q27²

Is there anything else you would like to tell us about your access and use of health care services in the United States?

Answer Options	Response Count
	58
<i>answered question</i>	58
<i>skipped question</i>	223

Categories	Frequency
Affordability	13
Health Insurance	4
Information Technology	1
Health System Navigation	3
Nothing to Say	30
Perceived Quality & Efficiency	7
Total	58

Pie Chart: Qualitative Data Categorization



² Please, see Appendix III for the raw data of Question 27.

APPENDIX III

Data Dictionary for the Study

Overview

The data dictionary provides information on elements of the data in respect of AVN, IW, Values, and level of measurement. It was designed for the audience of the study. The data was primarily collected via the Survey Monkey, and integrated into the IBM Statistical Package for the Social Sciences (SPSS).

Concept and Terms

1. **Health care access:** Health care access was used in two ways:
 - a. **Usual source of care (Usoc)** means potential access to care. It does not measure the actual use of health care services. Usoc is a probabilistic measure of access to health care services.
 - b. **Realized Access to Care (RAC) means** real or actual use of health care goods and services. It measures the actual use of health care services. RAC is actual demand for health care services. Thus, the ability to pay for and willingness to utilize health care services in a timely fashion in a given health care system, all else being equal.
 - c. **Coding:** It is a process of converting data gleaned from questionnaires or other sources into an analyzable data (Babbie et al., 2007).
 - d. **Re-coding:** It is a technique of combining or grouping two or more categories of a variable together to foster statistical analysis (Babbie et al., 2007).
2. **Instrument variable name (IVN):** It indicates how the data name is abbreviated and used in the study.
3. **Item words (IW):** It is the full wording of the question employed in the interview.
4. **Processing Variable Name (PVN):** It represents the contracted name of the variable in the final SPSS data output (e.g. Agecat→ Age). The PVN and IVN are deployed in a similar fashion for some variables in the study (e.g. gender→gender).
5. **Value labels (VL):** It represents coding or recoding value of a specific variable. For instance, in 1=Male, 1 is the value label while Male is the PVN.
6. **Level of Measurement (LOM):** It indicates the variable type whether it is an ordinal, a nominal or an interval/ratio data.

IVN	Question #, Item Words , Value Labels, and Recoded Value labels	Level of Measurement
Usoc	<p>1. Is there a place that you USUALLY go to when you are sick or need advice about your health? Yes There is No place Refused Don't Know</p> <p>Recoded: 0= There is No place 1= Yes</p>	Nominal
Kusocare	<p>2. If yes, what kind of place is it?</p> <ol style="list-style-type: none"> 1. Clinic or health center 2. Doctor's office 3. Hospital emergency room 4. Some other place 5. Refused 6. Don't know 	Ordinal
WnoUsoc	<p>3. If no, why don't you have a usual source of medical care?</p> <ol style="list-style-type: none"> 1. I don't have any health problems 2. I don't know where to go 3. Health care is too expensive 4. I don't have health insurance plan 5. I speak different language 6. Refused 7. Don't know 	Ordinal
Prevcare	<p>4. DURING THE PAST 12 MONTHS, have you seen a health care provider for your own routine or preventive care (physical exams or check-ups) at a doctor's office, a clinic, or some other place? Do not include times you were hospitalized overnight, visits to hospital emergency rooms, or telephone calls.</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Refused 4. Don't know <p>Recoded as Hutilization: 1=Yes 0= No</p>	Nominal

Abflushot	<p>5. DURING THE PAST 12 MONTHS, have you had a flu shot? A flu shot is usually given in the fall season and it protects against influenza for the flu season</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know 4. Refused <p>Recoded as FlushotUtiz: 1= Yes 0=No</p>	Nominal
Wnoflshot	<p>6. If no, why didn't you get a flu shot?</p> <ol style="list-style-type: none"> 1. I didn't have money for it. 2. My insurance didn't pay for it. 3. I felt I didn't need it. 4. I'm allergic to any egg-made drug. 5. I didn't know where to get it. 	Nominal
HomeRem	<p>7. Do you usually use home remedies (herbal medicine from Africa) to cure or meet your health care need?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know 4. Refused 	Nominal
Wnohrem	<p>8. If yes, did you use herbal medicine from Africa for the following reasons?</p> <ol style="list-style-type: none"> 1. I wanted to save money 2. I didn't have health insurance plan 3. I couldn't pay for a prescription drug 4. It helps me. 5. Don't know 6. Refused 	Nominal
Ablengthstay	<p>9. About how long have you lived in the United States?</p> <ol style="list-style-type: none"> 1. Less than 5 years 2. 6 to 10 years 3. 11 to 20 years 4. 21 years and over 5. Don't know 6. Refused 	Ordinal
Absocialize	<p>10. Do you hang out or get together (socialize) with U.S. born citizens, such as Whites, Blacks-Americans, and Hispanics? This includes taking part in social activities such as visiting, attending clubs and meetings, and going to parties, making and maintaining relationships with U.S born citizens etc.</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know 4. Refused 	Nominal

Abwamovies	<p>11. How often do you watch American movies, television (TV), video programs in English?</p> <ol style="list-style-type: none"> 1. Always 2. About half of the time 3. Once a while 4. Never 5. Refused 6. Don't know 	Ordinal
AbMdvisits	<p>12. At any time during the past 12 months, HOW MANY TIMES have you seen a doctor or other health care professional about your own health at a DOCTOR'S OFFICE, A CLINIC, OR SOME OTHER PLACE? You must include times you were hospitalized overnight, visits to hospital emergency rooms, home visits, dental visits, eye doctor visits, or telephone calls.</p> <ol style="list-style-type: none"> 1. 1 -3 times in a year 2. 4-7 times in a year 3. 8-12 times in a year 4. 13-16 times a year 5. 17 or more times in year 6. Never 7. Refused 8. Don't know <p>Recoded as MDvisits 0=Never 1=1-5 office visits 2= 6-10 office visits 3= 11-15 office visits 4= 16 or more office visits</p>	Ordinal
Abqtycare	<p>13. If yes, how would you rate the quality health care that you received?</p> <p>Excellent Very good Good Fair Poor Don't Know Refused</p> <p>Recoded as PQtyCare: 1= Fair/ poor 2= Very good 3= Excellent/very good</p>	Ordinal
Abhthsatfn	<p>14. In general, how satisfied are you with the health care you received in the past 12 months?</p> <ol style="list-style-type: none"> 1. Somewhat satisfied 2. Neither satisfied or dissatisfied 3. Somewhat dissatisfied 4. Very dissatisfied 5. Don't know 6. Refused <p>Recoded as SatisIndicator: 1= Dissatisfied 2= Satisfied</p>	Ordinal

AbPcuse	<p>15. During the past 12 months, have you ever used a computer, or smart-phone to look up health information, fill a prescriptions, schedule an appointment with a health care provider, chat with a health provider by emails, or chat online with chat groups to learn about health topics?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Don't Know 4. Refused 	Nominal
AbHlthstatus	<p>16. In general, what would you say your health status is? Would you say it is</p> <ol style="list-style-type: none"> 1. Excellent 2. Very good 3. Good 4. Fair 5. Poor 6. Don't know 7. Refused <p>Recoded as Health status: Fair/Poor Good Excellent/Very good</p>	Ordinal
Country	<p>17. In what African country are you from?</p> <ol style="list-style-type: none"> 1. Ethiopia 2. Ghana 3. Nigeria 4. Cameroon 5. Ivory Coast 6. Liberia 7. Sierra Leone 8. Egypt 9. Tunisia 10. Other (please specify)..... 	Nominal
Income	<p>18. Before taxes and other deductions, in the past 12 months, what was your total household or individual income from all sources?</p> <ol style="list-style-type: none"> 1. \$0,000 —\$19,999 2. \$20,000 —34,999 3. \$35,000 —\$49,999 4. \$50,000 —\$74,999 5. \$75,000 —\$99,999 6. \$100,000 or more 	Ordinal

Age	<p>19. What is your age?</p> <ol style="list-style-type: none"> 1. 18-29 years 2. 30-39 years 3. 40-49 years 4. 50-59 years 5. 60 or more 6. Don't know 7. Refused 	Ordinal
Employment	<p>20. What is your current working status? Would you say you're:</p> <ol style="list-style-type: none"> 1. Currently working full-time 2. Currently working part-time 3. Not working 4. Retired 5. Don know. 6. Refused. 	Nominal
Education	<p>21. What is the HIGHEST level of school that you have completed or the highest degree that you have received?</p> <ol style="list-style-type: none"> 1. Less than a high school diploma 2. High school diploma or GED 3. Some college degree but no degree 4. Associate degree 5. Bachelor degree 6. Graduate degree <p>Recoded as Educat:</p> <ol style="list-style-type: none"> 1= Less than high school diploma 2= High school diploma or equivalency 3= Some college or associate degree 4= Bachelor's degree or higher 	Ordinal

Maristatus	<p>22. What is your marital status?</p> <ol style="list-style-type: none"> 1. Married 2. Widowed 3. Divorced or separated 4. Living with a partner 5. In a domestic partnership or civil union 6. Single, but cohabiting with a significant other 7. Single, never married. 	Nominal
Gender	<p>23. Please tell me about your gender. Are you Male or Female?</p> <ol style="list-style-type: none"> 1. Male 2. Female 3. Don't know 4. Refused <p style="text-align: center;">Recoded as: 1=Female 0=Male</p>	Nominal
Hinsurance	<p>24. Do you currently have health insurance that pays for all or part of your health care cost?</p> <ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know 4. Refused <p>Recoded as 1= Yes, have health insurance No= does not have health insurance</p>	Nominal
Abhthkind	<p>25. What kind of health insurance do you have?</p> <ol style="list-style-type: none"> 1. Medicaid (For the low-income, and some mentally-challenged & physically challenged people) 2. Medicare (public insurance for seniors) 3. Employer-sponsored insurance 4. Private 5. Uninsured 6. Don't know 7. Refused 	Nominal
Immistatus	<p>26. What is your immigration status?</p> <ol style="list-style-type: none"> 1. Documented immigrant 2. Naturalized citizen of United States 3. Other 4. Don't Know 5. Refused 	Nominal
Not included	<p>27. Is there anything else you would like to tell us about your access and use of health care services in the United States? Please write in the space below:</p>	Undefined/Qualitative Data

APPENDIX IV

University of Baltimore Institutional Review Board Approval Letter



Office of Sponsored Research
T: 410.837.6191 f: 410.837.5249 www.ubalt.edu

April 21, 2014

Idris A. Boundaoni
13905 Castle Blvd.
Apt. 31
Silver Spring, MD 20904

Dear Idris Boundaoni:

This letter serves as official confirmation of the Institutional Review Board's review of your protocol for a study entitled "Health Care Access and Utilization among African-Immigrants in the District of Columbia Metro Area in the United States: A Comparative Analysis," submitted for review on April 10, 2014.

The Institutional Review Board considered your request and concluded that your protocol poses no more than minimal risk to participants. In addition, research involving the use of widely acceptable survey/interview procedures where the results are kept confidential and the questions pose minimal discomfort to participants is exempt from IRB full-committee review per 45 CFR 46.101 (b) (2). As a result, the Institutional Review Board has designated your proposal as exempt.

Investigators are responsible for reporting in writing to the IRB any changes to the human subject research protocol, measures, or in the informed consent documents. This includes changes to the research design or procedures that could introduce new or increased risks to human subjects and thereby change the nature of the research. In addition, you must report any adverse events or unanticipated problems to the IRB for review.

If you have any questions, please do not hesitate to contact me directly by phone or via email.

As authorized by Eric B. Easton, J.D., Ph.D.
Chair, Institutional Review Board
University of Baltimore
1420 N. Charles St. Baltimore, MD 21201-5779



Marc P. Lennon
Coordinator, Institutional Review Board
cc: Dr. C. Spencer