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Relationship Between Economy, Education, Population, Healthcare and Prevalence of HIV/AIDS in Nigeria

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By

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Abstract

HIV/AIDS has been described as one of the deadliest epidemics of our lifetime. With the global efforts to scale down the effect of this disease through innovative programs, scientific researches and medical advancement, little success has been recorded in least developed nations. Nigeria is still one of the nations that is yet to achieve huge success in the fight against HIV/AIDS and meet Millennium Development Goal on HIV. Arguably, government needs to intensify more efforts in searching for factors that increase the prevalence of the disease.

To further understand the epidemic, this thesis is designed to study and answer research questions that are related to the prevalence of HIV/AIDS in Nigeria. The research paper evaluated the relationship between prevalence of HIV/AIDS, economy, education, population and healthcare; carefully articulated the government strategies on HIV/AIDS and economic impact of HIV/AIDS in Nigeria. The data from the research are from secondary sources, which were obtained from various Nigerian government websites, journals, international and local organization websites. Regression analysis statistic tool was used to determine the relationship between the dependent variables and independent variables.

The outcome of the research work stated otherwise on the prevalence of HIV/AIDS. It is fascinating that none of the suggested anticipated variables shows a significant relationship with prevalence of HIV/AIDS in Nigeria. Although, this cannot be fully understood without further researches, this is the most interesting finding of the results. In conclusion, the research recommended a combination of holistic and comprehensive measures.

CHAPTER ONE

Introduction.

1.1 Background

Since the first case of AIDS cases were reported in 1981, the Human

Immunodeficiency Virus (HIV) has become not only the deadliest epidemic in

contemporary history but also a major demographic, humanitarian and development crisis

(Gaigbe-Togbe & Weinberger, 2004). As at year end 2002, 42 million people were

infected with the HIV and 25 million had already lost their lives to the disease. More than

13 million AIDS orphan are currently living in sub-Saharan African (Gaigbe-Togbe &

Weinberger, 2004). This HIV/AIDS epidemic is leading to a reversal of hard-won gain in

life expectancy of the previous decades. Moreover, the HIV/AIDS epidemic has been

threatening the social fabric of societies in the most affected countries and eroding the

social and economic safety net (Gaigbe-Togbe & Weinberger, 2004).

Human Immunodeficiency Virus (HIV) impairs the function of the immune system and

progresses to Acquired Immunodeficiency Syndrome (AIDS) (Essig, Kang, & Sellers,

2015). The term HIV means 'human immunodeficiency virus,' which if left untreated in

the body will turn into AIDS, or 'acquired immunodeficiency syndrome'. AIDS is the

final stage of the HIV virus, and not all cases of HIV develop into AIDS. When HIV

develops to AIDS it is usually terminal, allowing their carrier a maximum of three years

to live (AIDS.gov 2015). The HIV virus attacks certain cells in the human body's

immune system known as the CD4 cells or T cells. If left untreated, over time the virus

can destroy so many of these cells that the body is left unable to prevent or fight other

diseases or infections. At this point in the HIV/AIDS cycle, there is no cure for the disease, although with proper treatment, and regular medical care, the virus can be controlled allowing the carrier for the most part to live a normal life. The drug for HIV treatment is called 'antiretroviral therapy" and it allows the body support to fight against the virus. The HIV virus enters the body through bodily fluids, such as blood, sexual fluids, or other fluid transfusions (AIDS.gov 2015).

Two types of HIV exist: HIV-1, which is common in most of the world, and HIV-2, which is uncommon in North America. Both HIV-1 and HIV-2 viruses are transmitted mostly through unprotected sexual intercourse with an HIV infected partner (Nasrallah, Ethridge, Delaney, Wesolowski, Granade, Schwendemann, & Branson, 2011). Both HIV-1 and HIV-2 exhibit the same symptoms and eventually lead to AIDS but differ in how they progress. HIV-1 is more infectious, easy to detect, and spreads much faster than HIV-2, whereas HIV-2 is hard to detect, hard to treat, and becomes more infectious in later stages than HIV-1 (Avert, 2014). The other ways of transmitting HIV are from HIV positive pregnant woman to her baby during pregnancy, childbirth, and breastfeeding; blood transfusion; and sharing of needles and sharp objects with an HIV-infect person (WHO, 2015).

There is no cure for HIV, but according to Allen, Mesner, Ganesan, O'Bryan, Deiss, Agan, and Okulicz (2015), when HIV is diagnosed early, people can access medicines called antiretroviral treatment (ART) that slow down the damage to CD4 cells and help the immune system to come back to a normal state, which allows the person to live an improved and longer life. Once the person is initiated on ART, they take the medicine for the rest of their life because stopping the medicine causes the virus to

bounce back and destroy the immune system (Mphaya, 2017). HIV infection can be prevented by not having sex with a partner who is HIV infected; using condoms during sex to prevent transmission; using ART in HIV-infected pregnant and breastfeeding women as prophylaxis for their babies; avoiding sharing needles and sharp objects; voluntary male medical circumcision; and screening blood for HIV before transfusion (WHO, 2015).

1.2. Research Questions.

This research work will attempt to answer these research questions:

1.   What is the relationship between prevalence of HIV/AIDS and human development index in Nigeria?

2.   What is the relationship between prevalence of HIV/AIDS and unemployment in Nigeria?

3.   What is the relationship between prevalence of HIV/AIDS and literacy rate in Nigeria?

4.   What is the relationship between prevalence of HIV/AIDS and the percentage of people who have heard of AIDS?

5.   What is the relationship between prevalence of HIV/AIDS and the percentage of budget spent on healthcare by each state?

6.   What is the relationship between prevalence of HIV/AIDs and population density?

1.3 Statement of Problem.

The federal government of Nigeria has long declared HIV/AIDS as a national emergency crisis that required prompt, proactive and sustainable policies and strategies in reducing the spread of this deadly disease. The objective of these initiatives is to reduce the risk of HIV infections by scaling up the prevention interventions and to increase access to and utilization of HIV counselling, testing, care and support services. Despite the increased funding, political commitment, progress in expanding access to HIV treatment, and major developments in the fight against HIV and AIDS, including anti-retroviral medicine, the rate of infection has not been significantly impacted with these interventions. The prevalence of the epidemic has outpaced the global response. Thus, if the country aspires to reverse the trend to a manageable situation, an effective and pragmatic interventive strategies are urgently needed through quantitative analysis of data.

The data report from the National HIV/AIDS and Reproductive Health Survey (NARHS, 2012) shows a prevalence rate of 3.4%. The underlying dynamic in the fluctuations in this prevalence is imprecise, and no literature fully provides holistic insights to the imbalance in these trends which would have availed policy makers to predict and prepare for future programs and strategies. In view of this worrisome trend, this research work will provide a scientific and rigorous analysis in understanding the associations between prevalence of HIV/AIDS, economy, education, healthcare and population. The existing knowledge in these variables will be useful in the development of policies, guidelines and programs that will provide quantitative knowledge required in scaling down the rate of HIV infection across the country.

1.4   Objective of the Study

The objective of the study is to examine the relationship between prevalence of AIDS and these variables: Education, Healthcare, Economy, and Population. More specifically, this research will investigate if correlation exist among the variables and why they exist. However, if the investigation reveals non-existence of the correlation in these variables, this research will further suggest why correlations do not exist. The combination of these variables could facilitate reduction in HIV risks and improve access to HIV services among people living with HIV/AIDS.

1.5. Prevalence of HIV/AIDS in Nigeria

Sub-Saharan Africa carries the most significant burden and accounts for almost 70% of global new infections, with 25.8 million people living with HIV in 2014 (WHO, 2016). Young people have been particularly affected, especially females ages 15 to 24 years, owing to engagement in risky sexual behaviors. Approximately 40% of all new HIV infections occurred in young people ages 15 to 24 years in 2012 (Averting HIV and AIDS, 2014).

Of all the people living with HIV globally, 9% of them live in Nigeria (UNAIDS, 2014). The country already burdened by political instability and endemic political corruption as a result of almost 33 years of military rule, now seems prepared to scale down the virus within a few decades (Nigeria National Agency for the Control of AIDS, 2012). Notwithstanding the progress in institutional reforms and political commitment to tackle the disease, the country has seen more citizens placed on life saving medication of

active antiretroviral therapy (AART) to increase the survival of such HIV seropositive individuals (Nigeria National Agency for the Control of AIDS, 2012).

In Nigeria, a sub-Saharan Africa nation, the prevalence of HIV/AIDS had drawn international observers because of its high prevalence rates. However, efforts have been geared by previous government administrations to scale down the spread and prevalence of HIV/AIDS through policies and initiatives. Based on the evidence of current statistics, government efforts have not substantially produced the desired results. According to Avert.Org (2017), an estimated 60% of new HIV infections in western and central Africa in 2015 occurred in Nigeria. This is despite achieving a 35% reduction in new infections between 2005 and 2013.

The first case of this epidemic was reported in Nigeria in 1986. This, established the presence of the epidemic in the country. Consequently, and in line with WHO guidelines, the government adopted Ante Natal Clinic sentinel surveillance as the system for assessing the epidemic (GARCPR, 2014). Between 1991 and 2001, Nigeria witnessed an increase in the prevalence of the HIV in the country. The first HIV Sentinel Survey in 1991 showed a prevalence of 1.8%. Subsequent sentinel surveys produced prevalence of 3.8% (1993), 4.5% (1996), 5.4% (1999), 5.8% (2001), 5.0% (2003), 4.4% (2005), 4.6% (2008) and 4.1% (2010) (GARCPR, 2014). A more comprehensive survey was conducted in 2012 by the National HIV/AIDS and Reproductive Health Survey (NARHS) which showed a decline to 3.4% in HIV prevalence, indicating a reversal of the epidemic in the country, compared to the 2007 figure of 3.6% (GARCPR, 2014).

Figure 1- Geographic Distribution of HIV Prevalence by States.
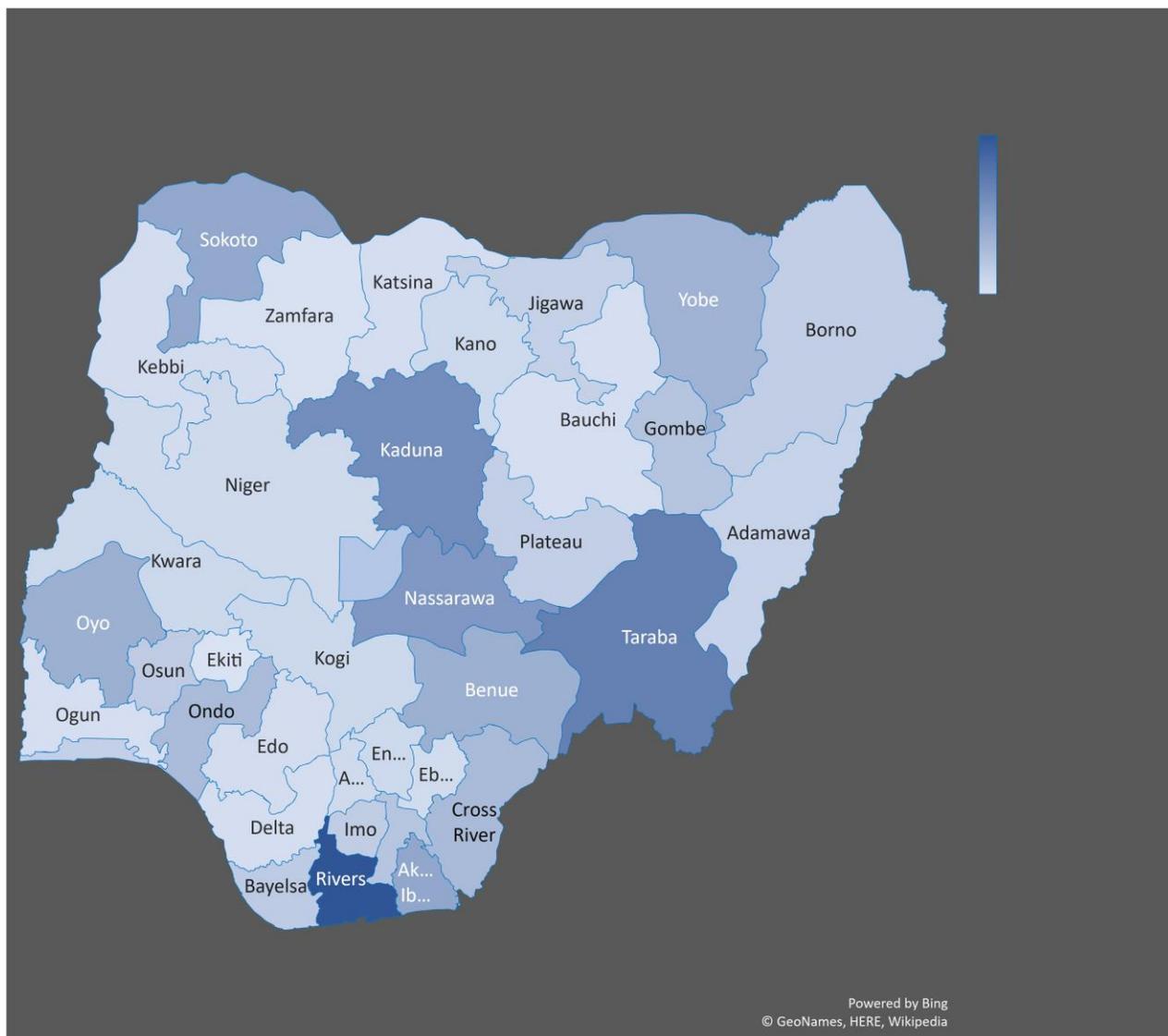
Source: GARCPR, 2014.

According to Global AIDS Response Country Progress Report (2014), the

HIV/AIDS epidemic in Nigeria is generalized, with wide variation in prevalence within

the country. An analysis of the 2012 NARHS prevalence data in the country's six

geopolitical zones shows that the prevalence is highest in the South-South Zone (5.5%)

while the lowest prevalence is in the South East Zone at 1.8%. There are also differences

between urban and rural areas with prevalence figure in urban 3% and 4% in rural areas.

The pattern of the distribution of HIV prevalence shows that irrespective of sex

disaggregation; however, the HIV prevalence pattern is the same across all selected

background characteristics. The data obtained by NARHS in 2007 and 2012 show

variations in the prevalence of the epidemic within the six geopolitical zone in Nigeria

(GARCPR, 2014).

Figure 2- HIV prevalence by Zones and National.
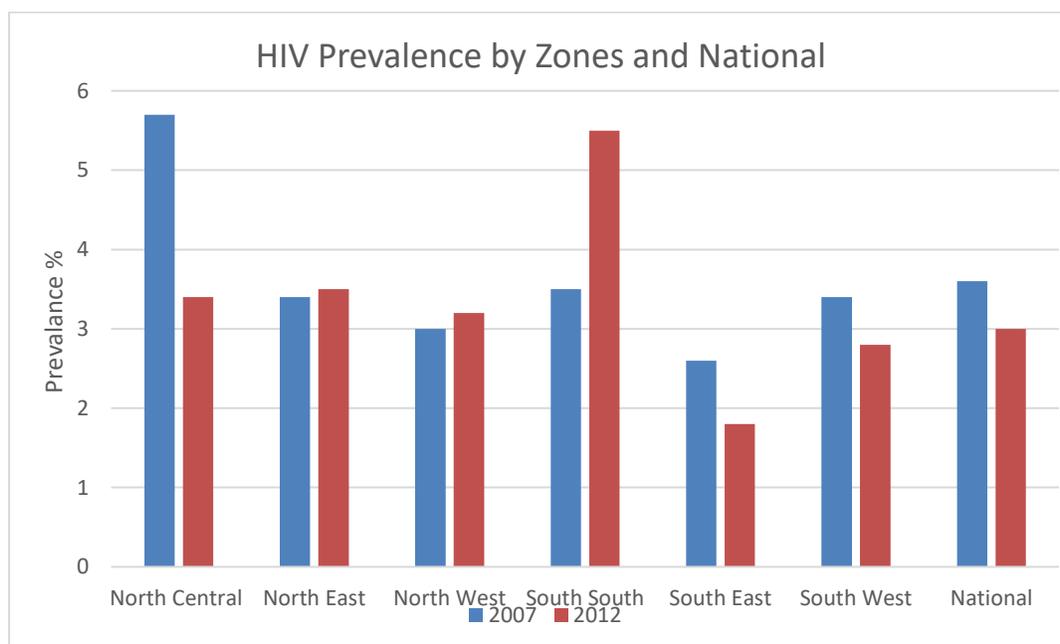
Source: GARCPR, 2014.

In 2007, North Central had a prevalence rate of 5.7%, North-East 3.4%, North-

West 3.0%, South-South 3.5%, South-East 2.6%, South-West 3.4% and nationally at

3.6%. In comparison with 2012, North Central recorded 3.4%, North-East had 3.5%,

North-West was 3.2%, South-South 5.5%, South-East 1.8%, South-West 2.8% and

national prevalence was 3.0% (GARCPR, 2014). Fourteen states reported a prevalence that was higher than the national prevalence of 3.0% while nine other states had a low prevalence ranging 0.2% to 0.9%. The four states with the highest prevalence were Rivers (15.2%), Taraba (10.5%), Kaduna (9.2%) and Nassarawa (8.1%) respectively. Ten States have prevalence ranging from 3.3%-6.5%. Ekiti state has the lowest prevalence among the states in the country (GARCPR, 2014). These marked differences in the prevalence rates among these states could be due to a number of factors including but not limited to cultural differences, varying levels of education, religious, differing social-economic structures. Indeed, there must be an interplay of these factors on HIV/AIDS outcome in these states (Awofala & Ogundele, 2018).

The variations in social-cultural and religious practices among the about 400 different ethical groups in Nigeria have implications on the risk of HIV transmission. Notably, some practices that include multiple and concurrent sex partners, delivery outside the health facility without a skilled birth attendant, female genital mutilation, unsterile traditional bloodletting and traditional marking and tattooing will lead to an increase in the risk of HIV transmission (Nigeria National Agency for the Control of AIDS, 2010).

Figure 3- HIV Prevalence by States.
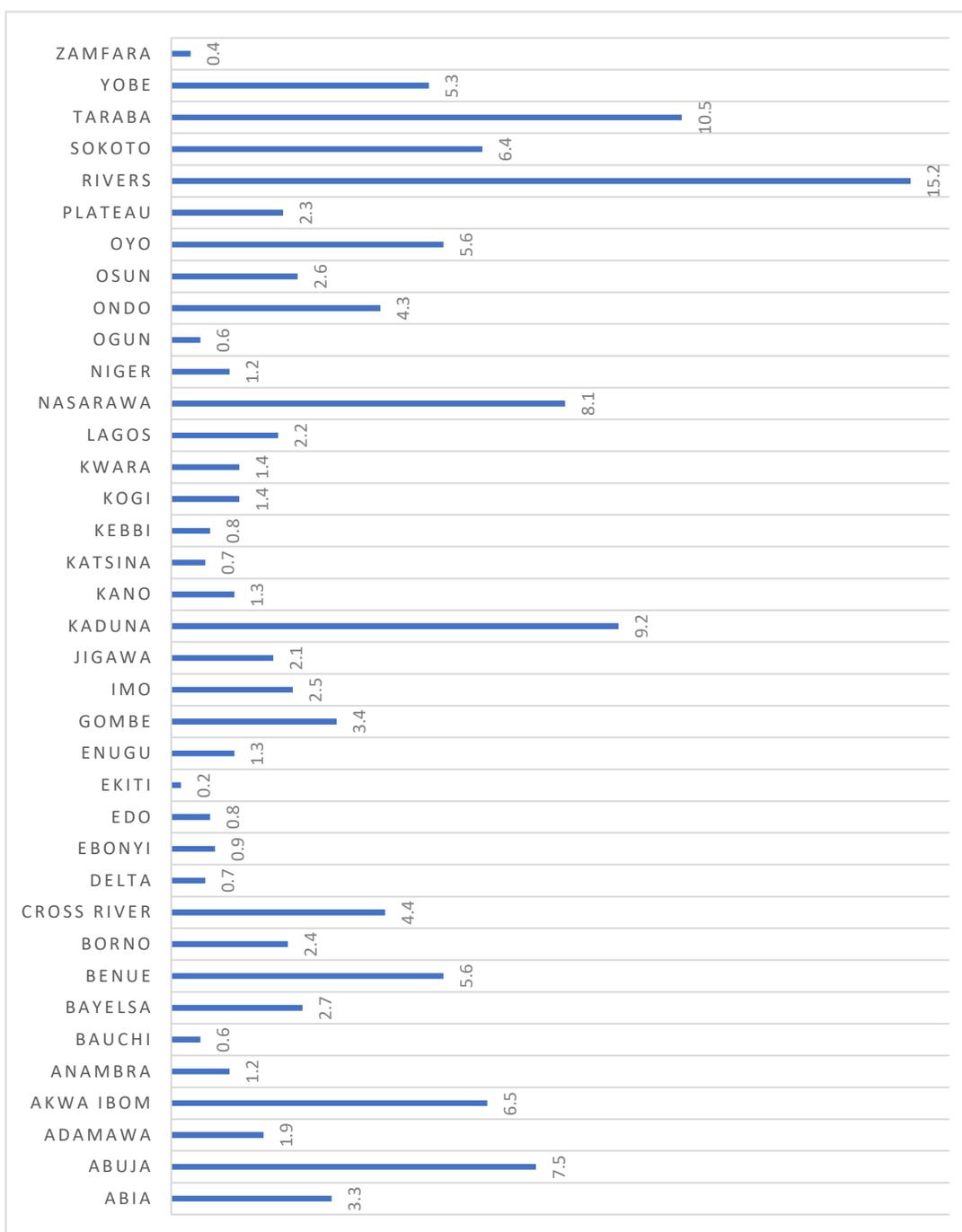
Source: NARHS, 2012

1.6. Methodology

To conduct the research, secondary data will be obtained from Nigerian government websites, journals and international organizations and local organization websites. More specifically, the data is obtained from the website of National Agency for the Control of AIDS (NACA), budgetit.com, National Human Development Report, UNESCO- Action Plan Nigeria, National Bureau of Statistics, National Population Commission and City Population.de.

Since the research will analyze HIV prevalence in all the states of the federation, it is imperative that data from all independent variables is obtained from all the 36 states Nigeria, including Federal Capital Territory. For the dependent variable, data for prevalence of HIV/AIDS obtain from National HIV/AIDS and Reproductive Health Survey (NARHS, 2012). For each of the independent variables, a sub-variable is selected to make the research broader. For variable of economy, sub-variables human development index (Data Source: National Human Development, 2015) and unemployment rate are selected, and data is obtained from all the states (Nigeria Data Portal, 2010). Under education variable, the sub variable is literacy rate (Data Source: Action Plan Nigeria UNESCO, 2012) and percentage of people who have heard of AIDS (Data Source: Nigeria Data Portal, 2010) is also obtained from all the states in the federation. For healthcare variable, the percentage of budget spent on healthcare by each state is considered (BudgITResearch, 2017). Furthermore, for population variable, a sub-variable of population density is obtained from all the states (citypopulation.de, 2016).

After the data is collected for all these variables, the researcher will analyze the data using regression analysis to determine the relationship between prevalence of HIV (dependent variable) and all independent variables.

1.7. Scope and Limitation of the Study.

There are several factors that have demonstrated to account for prevalence of HIV/AIDS in Sub-Saharan Africa and globally. More specifically, age at sexual debut, multiple sexual partners, non-use of condom, involvement in transactional sex, education status, marital status, place of residence and wealth quintile (Mphaya, 2017). It is important to note that the researcher has decided to refrain from some factors that are cultural, sectarian and sensitive in nature, if it is intended to be used as guide and recommendation for policy makers and other NGOs that propagate for low prevalence of HIV in Nigeria. As such, the scope of this research will be limited to economic, education, healthcare and population implications on the prevalence of HIV in Nigeria, a Sub-Saharan Africa. The outcome of this research can be generalized to Nigeria society and other Sub-Saharan Africa nations with similar variable compositions.

Furthermore, it is important to note that despite the reliability, quality and appropriateness of my data, one of the limitations of this study is the utilization of secondary data that were conducted at different points in time. Time is another limitation to be considered. Research of this nature requires tremendous amount of time and financial resources to conduct survey. Utilizing primary source of data for some of the variables will be the ideal situation, but the researcher does not have luxury of time and financial resource to implement such a plan.

Chapter 2.

Literature Review

2.1. Economy

Economy of a nation is usually thought of as the wealth and the resources of that country; the production and consumption of goods and services are often discussed in this topic as well. Gross Domestic Product (GDP) was accepted in the late 1930s and early 1940s all over the world as a perception of the overall economy achievement in a nationwide economy (Higgs, 2015). The definition of GDP is the overall value of all goods and services that are produced within a country's borders over a set period (Higgs, 2015). Higgs (2015) continues that it is fair to say that the market prices for a nation's goods and services that are used to calculate GDP are a measure of economic welfare. The Bureau of Economic Analysis (2015) gives a clear definition for GDP: "Gross domestic product (GDP) is the value of the goods and services produced by the nation's economy less the value of the goods and services used up in production".

GDP is also equal to the sum of personal consumption expenditures, gross private domestic investment, net exports of goods and services, and government consumption expenditures and gross investment". It can be tough to compare countries according to their GDP if one country is large and the other one is smaller. To be more accurate in a comparison of countries' GDP, the term called GDP per capita is the widely accepted measurement yardstick that can accurately compare countries' GDP. United Nations Statistic Division (2007) explains that the level of GDP per capita are obtained by

dividing GDP at current market prices by the population. A variation of the indicator could be the growth in real GDP per capital, which is derived as the percentage change in real GDP divided by the population. A growth in a country's GDP per capita is usually a sign that the economy is doing well and often it leads to a rise in productivity.

According to Schepelmann, Goossens, and Makipaa (2009), a country can boost its GDP value if it manages to raise the price that their goods and services will cost. One example of this would be to increase the quality of the goods and services produced. When the quality is higher, the demand for the good or service will go up, which in turn, leads to a higher production rate.

Schepelmann et.al. (2009) explain the reasons why GDP is still relevant today even though it was implemented a long time ago. GDP is a simple and forthright way of calculating various significant economy measures. There are also strong correlations between high GDP levels and factors that attribute to the welfare of our society, for example high literacy rates, improved technological communications, improved nutrition and healthcare, and life expectancy like high literacy rates, communication technology, better nutrition and health care, and life expectancy (Schepelmann et.al, 2009).

Another important economic indicator is discussed by Ray (2014), the Human Development Index (HDI). The HDI is published every year by the United Nations Development Program (UNDP) since its start in 1990. The HDI takes into consideration three key facets: Life Expectancy, Adult Literacy, and a Decent Standard of Living, to determine and rank a country's level of social and economic development.

Another factor that can indicate how the economy is doing is the unemployment rate. The rate of unemployment typically rises considerably during recessions then falls

as the economy recovers. According to Park (2010), in order to measure unemployment, economists have adopted a statistical definition that is only partially understood by the general public. The extent of unemployment is commonly expressed as the unemployment rate, which is calculated by expressing the number of unemployed persons as a percentage of the total number of persons in the labor force. Thus, the measurement of unemployment rate requires the measurement of both employment and unemployment. The rate of unemployment is a statistic that is very closely analyzed because an increasing unemployment rate is an indication of an economy that is getting weaker, which may lead to a declining interest rate (Parker, 2010).

The economy does have an important impact on HIV/AIDS. Within the last decade, the international community has supported the fight against the spread of the disease through provision of a record amount of financial support. It has been shown that the huge financial support provided in the fight against HIV/AIDS has provided treatment to people in need and that foreign aid has been effective. It is also proven that a country's economic wealth is correlated to the ability to offer treatment (Peiffer & Boussalis, 2010). Unfortunately, there are studies that show that people who live in poverty may choose to engage in risky behavior that might increase their chance of infections with HIV (Qiao, 2012). The engagement in risky behaviors (such as exchange sex for money) are as a result of desperation for livelihood survival. The World Bank's 1997 report *Confronting AIDS* explained that "widespread poverty and unequal distribution of income that typify underdevelopment appear to stimulate the spread of HIV. Similarly, the United Nationals Joint Program on HIV/AIDS (UNAIDS) in its report in 2001 stated that poverty, underdevelopment, the lack of choices and the inability to determine one's own

destiny fuel the HIV epidemic". However, the argument that poverty "fuels" the spread of HIV has been challenged by recent studies based on statistic correlations of epidemiological and socioeconomic data. This has left many wondering whether it is poverty or wealth that correlates with HIV infection prevalence.

Parkhurst (2009) altered the long-held belief in the field of human immunodeficiency virus (HIV) infection prevention that poverty drives HIV epidemics. The author's findings revealed that the relationship between the prevalence of HIV infection and house wealth quintile did not show consistent trend in all Sub-Saharan Africa countries. Parkhurst (2009) concluded that neither poverty nor wealth per se drives the HIV epidemic. Being poor or being wealthy is only associated with sets of behaviors that be either protective or risky for HIV infection. The author's analysis further shows that any trend in the association between relative wealth and risk of infection can vary among different countries and may change with time. A bottom-up focus is necessary to identify factors that drive the risk of HIV infection in both wealthy and poorer groups in a given setting. Once these factors have been identified, appropriate behavioral change interventions can be selected and implemented.

International Center for Research on Women (ICRW, 2010) also argues that economic empowerment serves as a deterrent for prevalence of HIV/AIDS. Malhotra and Schuler (2005) stated that economic empowerment requires more than financial resources; the holder of these resources must also have the authority and opportunities to control and apply those resources. The entry point for economic empowerment programs is to provide access to financial products and resources, such as credit, savings, and employment, which are likely to build assets. Economic assets can increase economic

security, self-esteem and enhance long-term planning. Economic assets are described to influence attitudes about risk taking and risk behavior, including sexual risk. In the context of HIV, it is believed that the assets, skill and social connections forged by economic empowerment programs can help improve resistance- the ability to avoid HIV infection, as well as resilience- the ability to recover quickly from the effects of major shocks (Loevinsohn & Gillespie, 2003).

Mutinta, Gow, George, Kunda and Katarina (2011) researched that low levels of wealth have a negative effect on HIV/AIDS knowledge and high wealth insulates individuals to HIV infection. Barnigghausen, Hoswgood, Timaeus, and Newell (2007) found that social-economic status is an important underlying factor which determines sexual risk behavior. The authors' finding revealed that wealth is positively and negatively associated with HIV prevalence. Johnson and Budlender (2002) argue that as a result of lack of resources, people engage in unprotected sexual intercourse. This occurs in the context of their circumstances, which include the lack of money to buy condoms or offering their bodies for financial gain in order to make ends meet.

2.2. Education

Education has been cited by several well-respected sources as one of the most important factors in helping to prevent HIV and AIDS (Kim &Ann, 2006). While various stakeholders advocate increasing educational attainment levels for youth in order to halt the spread of the pandemic, there has been relatively little research on the correlation between education levels and actual HIV prevalence. There are several reasons for this

lack of research on the topic, which include difficulties in setting up appropriate and accurate analyses (Hargreaves & Glynn, 2002).

According to Lourdu and Rexlin (2015), education is a unique and systematic process through which a child acquires attitude, skills, knowledge and it is necessary to think critically, solve complex problems, and succeed in the 21st century society. It is the process of facilitating learning or the acquisition of knowledge, skills, values, beliefs and habits. Educational methods include storytelling, discussion, teaching, training and directed research. Education has been described by UN experts as a "social vaccine" against HIV/AIDS (UNAIDS, 2006). These experts described education as predictive of better knowledge, safer behavior, and reduced infection rate. Studies show that young people with little or no education may be 2.2 times more likely to contract HIV than those who have completed high school education (UNAIDS, 2006). Nelson Mandela said that education is the most powerful weapon you can use to conquer the world and experts have also agreed that the world can use education to fight HIV/AIDS (UNAIDS, 2006).

Kelly (2000) explained that in the face of epidemic, education can generate hope because it can work in three levels where AIDS interventions are needed. First, while there is no infection at all, it provides knowledge that will inform self-protection, fostering the development of a personally held constructive value system, incorporated skills that will facilitate self-protection, promoting behaviour that will lower infection risks and enhance capacity to help others to protect themselves against risk. Secondly, when infection has occurred, it helps in strengthening the ability to cope with personal and/or family infection; promoting care for those who are infected; helping the young people stand up for human rights that are strengthened by their personal or family

HIV/AIDS condition; and reducing stigma, silence, shame, and discrimination. Thirdly, when AIDS has brought death, it helps to cope with the grief and loss in the reorganisation of life after the death of family members, and in the assertion of personal rights (Avert, 2014).

Bundy (2002) in his book *A Window of Hope* found that education of children and youths merits the highest priority in a world afflicted by HIV/AIDS because, often, education has been ranked among the most effective and cost-effective means of HIV prevention. The future of AIDS epidemic in Africa depends on the behaviour of the generation and this will manifest by educating the young people on HIV/AIDS. In turn, they can apply teaching to protect themselves, prevent spreading, helping the infected, and teaching others about AIDS (Duflo, Dupas, Kremer, & Sinei, 2007).

A Global Campaign for Education (GCE) report (2004) states that without education (ability to read and write), young people are less likely to understand the information regarding HIV/AIDS education, and less confident in accessing services and openly discussing the HIV epidemic. Blanc (2000) support this idea that school attendance may directly affect access to health services and exposure to health interventions. Blanc (2000) further argues that education promotes both logical and different ways to thinking, which allow better educated people to act in protecting their health. Since AIDS has been found to thrive in social and economic vulnerability of young women 15 to 24 years, World Bank (2002) states that "education protects against HIV infection through information and knowledge that may affect long-term behavioural change, particularly for women by reducing the social and economic vulnerability that

exposes them to a higher risk of HIV/AIDS than men", including prostitution and other forms of economic dependence on men.

Mbirimtengerenji (2007) stated poverty, education, and HIV/AIDS have been found to be interrelated. The author further stated that in Sub-Saharan Africa, the education level is low and hence poverty is on a high level. People engage in sexual activities for money and since they have no knowledge on how to handle AIDS, they end up spreading this deadly disease. World Bank report (2015) further assesses that 14,000 people are infected daily and 11,000 are dying daily for this reason. This has been attributed to the fact that 60% of people in Africa live below UN poverty line of 1 US dollar per day.

The evidence from the early 1990s suggested that higher levels of education were correlated with higher HIV prevalence (De Walque, 2002). Since then, however, the evidence is beginning to show that better-educated populations are reacting more strongly than less-educated populations in their responses towards protection through changes in risky sexual behaviour (De Walque, 2002). More literate African countries have higher rates of HIV infection because they tend to be the most developed countries. These countries often have the largest income disparities between women and men, a factor associated with HIV infection rates (World Bank, 2006). Also educated individuals are at the greater risk of infection at early stage in these countries. Educated individuals change partners more rapidly because they are mobile and have control over their own sexual behaviour (Blanc, 2000). Educated people also have a higher income, increase ability to travel and use commercial sex partners (Berkley, Widywirski, Okware, Downing,

Linnan, & White, 1989; Quigley, Munguti, Grosskurth, Todd, Mosha, Senkoro, Newell, Mayaud & ka-Gina, 1997).

Similarly educated women delay marriage, and thus being sexually active for a long period of time with a few sexual partners (Blanc & Way, 1998). The choice of contraception by these individuals is likely to be contraceptive pills which do not protect from HIV. However, evidence suggests that with time educated people should be able adopt safe sexual practices in response to health promotions (Fylkesnes, Mubanga, Kasumba, Ndhlovu, Mluanda, & Kaetano, 1997).

De Walque (2002) notes the difficulty in making the causal link between years of education and HIV prevalence. Instead of trying to test this correlation, researchers have continued to test the effects of levels of educational attainment on sexual behaviour such as condom use, number of non-marital sexual relations, and age of first sexual experience. While the evidence among research available points to an increasingly negative correlation between levels of education and HIV prevalence, there remains some uncertainty over this correlation in many countries due to changes in sexual behaviour since the early 1990s.

Recent evidence reveals the significant impact of education on HIV prevalence rates (Herz & Sperling, 2004). And despite these impressive statistics showing the benefits of education, the correlation between levels of education and HIV infection are dependent on the dynamic (s) of the epidemic and of public policy (including treatment policy) and are superimposed on societies with different social inequality and cultural characteristics (Ainsworth, 2004).

It is important to point out that education not only affects changes in sexual behaviour, but also predicts level of knowledge about disease. While the positive correlation between level of education and accurate HIV/AIDS knowledge is significant, this does not necessarily reflect a negative correlation between HIV/AIDS knowledge and prevalence rates (Kim & Ann, 2006).

The latest research by De Walque (2002) shows that the role of education in reducing HIV prevalence among adults cannot necessarily be attributed to exposure to HIV prevention classes. Despite such evidence, accurate HIV/AIDS knowledge remains an important and effective component of the comprehensive strategy to protect individuals against infection (Kim & Ann, 2006).

2.3. Population

The world's population currently stands at 7.15 billion people and has the potential to double in the next 50 years (Krans, 2014). For communities, inadequate shelter and overcrowding are major factors in the transmission of diseases with epidemic potential such as acute respiratory infections, HIV/AIDS, meningitis, typhus, cholera, scabies, etc. Outbreaks of disease are more frequent and more severe when the population density is high (WHO, n.d.).

Population Action International (2011) describes population density and urbanization as two major factors affecting disease spread. People who live near one another spread diseases more quickly and easily. These people are more vulnerable to infectious disease due to poor sanitation, high population density and high levels of poverty, all which increase disease incidence. While population growth has added

challenges to addressing the spread of HIV, the large number of young people around the world coming into their peak years of sexual activity presents a challenge for HIV/AIDS prevention. More than one-half of the world's population is under age 30, and a quarter is younger than 15 (PAI, 2011). Young people between the ages of 15 and 24 are at a higher risk of HIV infection. There is frequently overlap among countries with youthful populations, high rates of HIV prevalence, and low access to family planning (PAI, 2011).

As it becomes more common for people to travel throughout the world, it also becomes easier for disease to travel with them (Carol, 2014). An outbreak in one region that would have otherwise been contained can move into other uninfected regions when infected people travel or relocate to these areas. Also, the probability of encountering new diseases increase as humans move into previously uninhabited lands because of population growth, or as humans migrate into areas where they do not have resistance to certain disease (PAI, 2011).

With mobility and migration as key elements in the spread of the HIV/AIDS epidemic; these have been linked to several factors that increase vulnerability to HIV, including separation from regular partners, economic hardships and marginalization (Dzenovska, Rasheed, and Sandkjaer, 2005). Migration often results in sexual networking patterns involving commercial sex, as well as relationships both in the home base and with new partners away from home. Work related migration, a result of industrial and economic development patterns concentrating employment away from people's homes, paves the way for sexual behaviour that renders both those who migrate and their partners vulnerable to infections (Dzenovska et al, 2005).

An existing literature review suggested a strong correlation between the risk of pandemic and human population density (Gholipour, 2013). An increasing link between urbanization and diseases is also becoming important as the world is undergoing a dramatic process of urbanization. About 4 billion people- 55 percent of the global population- now live in what are considered urban areas; United Nations expects that number to grow to more than 6 billion by 2050 (Berg, 2016). Much of this growth is happening in countries such as India, China and Nigeria, where rural residents are flocking to cities at the same time cities are seeing their populations multiply from within (Berg, 2016).

This concentration of people can also mean a greater risk of exposure to pathogens and a higher likelihood that infectious diseases will spread. In Brazil, for example, an outbreak of the Zika virus is causing major concerns about public health as Rio de Janeiro prepares to host the Olympics in August 2016. Spread of virus has proven to be a pernicious urban problem, with dense populations providing a ready conduit for its spread (Berg, 2016). And it is not just major cities that are vulnerable. As the Ebola virus outbreak in West Africa in 2014 showed, what matters for infectious disease is the availability of pathways for travel, even if it is from village to village. The risks of urbanization are closely related to globalization, which has made it relatively easy for someone who is unknowingly carrying Zika, HIV/AIDS or other countless diseases to get on a plane and land in a densely packed city (Berg, 2016).

2.4. Healthcare

Healthcare is a uniquely vital service in the human experience, at times it is literally life and death (Clinton, 2014). According to Daniels (1985), effective healthcare services protect an individual's normal functioning, preserve an individual's ability to participate fully in society, and protect a fair share of the opportunities most people would choose. Daniels (1985) also noted that healthcare as a right derives from the societal obligation to protect equality of opportunity (Daniels, 1985).

Healthcare is often considered a merit good, a commodity that an individual or society should have based on need, rather than on the ability or the willingness to pay (Johnson, 2005). When health is considered a merit good, equitable access to healthcare without excessive burden becomes an ethical obligation of society (IOM, 1993). Thus, health care is both a social good and a human right (Gulliford, Figueroa-Munoz, Morgan, Hughes, Gibson, Beech & Hudson, 2002).

In reviewing access to healthcare services, this simply means timely use of personal health services to achieve the best health outcomes (Clinton, 2014). Furthermore, access to healthcare influences overall physical, social and mental health status; prevention of disease and disability; detection and treatment of health conditions; quality of life; preventable death; and life expectancy (Health People 2020.gov, 2012). According to Penchansky and Thomas (1981) access to healthcare is seen as a set of more specific dimensions describing the fit between the patient and the health care system. The specific dimensions are availability, accessibility, accommodation, affordability, and acceptability. Often, the academic literature and public policies inadequately describe or define access with reference to health insurance coverage and

public and/or healthcare provider distance to patients. Limiting the access discussion to dimensions of healthcare affordability and geographic proximity is readily understandable and relatively simple to measure (Khan & Bhardwaj, 1994).

Despite availability of a large body of literature on access to healthcare such as Clinton (2004) and Penchansky and Thomas (1981), there is little agreement on what constitutes access. Goddard & Smith (2001) defined access to healthcare services more specifically as "the ability to secure a specified level of quality, subject to specified maximum level of personal inconvenience and cost, while in possession of a specified amount of information" (Oliver and Mossialos, 2004). This definition suggests that what constitutes access to healthcare may vary from country to country or even within a country, depending on the availability of resources to finance healthcare; relevant range and quality of healthcare services; costs; and information required to take advantage of the available healthcare services.

Healthcare systems cannot perform adequately to guarantee access to care without enough numbers of skilled, motivated, and supported healthcare workers. A critical shortage of 59 million healthcare workers exist hampering the delivery of important health interventions, including scaling up HIV/AIDS services toward universal access (WHO, 2010). In fact, limited human resources for health are considered the biggest obstacle to obtaining universal antiretroviral therapy (WHO, 2010). Besides shortage of work force in scaling up the prevalence of HIV, some developing countries have inadequate health infrastructure for providing care and treatment to people living with HIV, because there are too few clinics, hospital beds, laboratories, and distant facilities. In fact, the traveling time to access healthcare for treatment of HIV in the rural part of

Africa accounted for the reason why some of the infected individuals decided to turn to

untrained personnel for treatment (Avert.org, 2014). For example, the number of hospital

beds per 1,000 persons is too low in these African countries compared with developed

nations. In the same vein, it is estimated that untrained family and associates may

provide up to 90 percent of treatment to people who are ill in their home, and up to 80

percent of AIDS related deaths occur in the home (Avert.org 2014).

Access to affordable medicines, including HIV treatment, is also of central

importance in access to healthcare. It is also a fundamental element in achieving the full

realization of the right of everyone to the enjoyment of the highest, attainable standard of

physical and mental health. Since 2001, UN General Assembly has committed to provide

access to affordable treatment as part of its political commitment to halting and reversing

the HIV epidemic and mitigating its impact. Access to medicine is a perquisite to

achieving several of the Millennium Development Goals (MDGS), which combating

HIV/AIDS is among the goals. In addition, the General Assembly of the United Nations

(UN) has committed itself to providing universal access to HIV/AIDS care by 2020

(UNAIDS, 2006).

In low- and mid-income countries it is estimated that two million people living

with HIV/AIDS were receiving treatment by the end of 2006 (World Health Report,

2006). In spite of the international initiatives to scale-up access to treatment among

people living with HIV/AID, coverage of Antiretroviral therapy varies by region with a

low of 6% in North Africa and Middle East, 15% in Eastern Europe and Central Asia;

19% in Southeast Asia, 28% in sub-Saharan Africa, Latin American and Caribbean at

72% overall (World Health Report, 2006). Sixty-seven percent of all people live on

Antiretroviral live in Sub- Saharan Africa and almost 90% of the two million children under the age of 15 in this region need treatment for HIV/AIDS. While the right to access to healthcare is globally recognized, achieving them is primarily the responsibility of government in each country (World Health Report, 2006).

KPMG (2013) explained that the most important criterion in evaluating healthcare systems is probably expenditure. Expenditure on healthcare in Africa can be divided into three categories: government spending (which goes into directly supplied healthcare services as well as towards national health insurance schemes), private spending (which split between out-of-pocket payments for healthcare services at point of delivery and private health insurance), and external sources. The question of how much government spending should account for total health expenditures is to a large extent an ideology one and impossible to resolve (KPMG, 2013).

The Millennium Development Goals (MDGs) adopted in September 2000 brought together 189 heads of state. In order to make progress of achieving the MDGs, the heads of state of African Union (AU) countries met in April 2001 in Abuja, Nigeria, and pledged to commit 15% of their national budgets to health spending. In 2010 only four African countries (Rwanda, Botswana, Zambia and Togo) were compliant with the Abuja pledge (KPMG, 2013). A number these countries now allocate a lower proportion of their budgets to healthcare than before the meeting in Abuja, Nigeria. Now, the governments which are successfully addressing their populations' medical needs are combining direct expenditure with other financing models, i.e. external donors. The future of healthcare in Africa lies in health insurance and private medical companies, although government and external funding will be important for the foreseeable future (KPMG, 2013).

Chapter 3

Government Sponsored National Policies and Strategic Plan on HIV/AIDS in Nigeria.

3.1. Guideline

The discussion on chapter 3 will rely heavily on Nigeria government documents on policies and strategies designed to slow down the growth of HIV/AIDS.

Nigeria has the second highest burden of Human Immunodeficiency Virus (HIV) infection in the world, with about 3.6 million people infected. Nigeria contributed 9% of the people living with HIV, 10% of new HIV infections, and 14% of HIV-related deaths in the world in 2013 (NHASP, 2017). To address her high HIV burden, Nigeria needs to institute a sustainable and efficiency national response to prevent new infections and ensure the health and well-being of those infected and affected by HIV. As such, the Nigeria national HIV/AIDS Strategic Framework and Plan was set to provide the backbone for such national response. This serves as a crucial platform for mobilizing the required resources to that end (NHASP, 2017).

Following the advent of democratic rule in 1999, a Presidential Committee on AIDS (PCA) and National Action Committee on AIDS (NACA) were established in 2001 to coordinate the multi-sectoral response at the federal level. This represented the crucial point that domestic political acknowledgement of the disease begun in earnest (GARPR, 2014). Six years later, NACA was transformed into an agency- the National Agency for the Control of AIDS (NACA). The agency (NACA) oversees the activities of the State

Action Committee on AIDS (SACAC) and Local Government Action Committee on AIDS (LACA) that coordinate response at the sub-national levels (GARPR, 2014).

As a mechanism to enhance harmonization and effectiveness of the national HIV/AIDS response, the "three ones" principle was adopted in 2005. NACA being the coordinating body for HIV National Response utilizes one National Strategic Framework (NSF), and one Monitoring and Evaluation system- Nigeria National Response Information Management System (NNRIMS). These are operationally in line with the "three ones" principle (GARPR, 2014).

The first National Strategic Framework (NSF) for action tagged NSF 2005-2009 was implemented following the review and expiration of the HIV/AIDS Emergency Action Plan (HEAP) 2001-2003 in 2004/2005. The expiration of NSF 2005-2009 provided yet another opportunity to review the national response with a view to deploying new strategies to ensure the attainment of the national development goals and objectives. This is designed to reposition the prevention of new HIV infections as the major focus of the national HIV/AIDS response, for the National/AIDS strategic plan (NSP) 2010-2015 (GARPR, 2014).

The National Strategic Plan 2010-2015 aligns with key priorities outlined in the poverty reduction strategy for Nigeria (Nigeria Vision 20:2020) and the National HIV policy. As a resource mobilization tool for the national response, it would helpe achieve universal access to HIV prevention, treatment, care and support and the Millennium Development Goal six on HIV in Nigeria (GARPR, 2014).

3.2. Government Policies on HIV/AIDS

The Nigeria government has long declared HIV/AIDS as a national emergency crisis that required prompt, proactive and sustainable policies and strategies in reducing the spread of this deadly diseases. Since the government views this incurable disease as a menace to the society, structurally its policies have focused on five components:

3.2.1. Prevention of HIV /AIDS

It is pertinent to recognize how this deadly disease spreads. The government of Nigeria recognizes that through unprotected, penetration sexual intercourse is the most common mode of transmission of HIV in Nigeria (Olusegun, 2013). Other modes of infection include mother-to-child transmission, transmission through blood and blood products, sharing of sharp instruments including hypodermic needles, and use of unsterilized tattoo and grooming equipment (Olusegun, 2013).

Nigeria recognizes these modes of transmission and their relative importance in the spread of HIV. Having an insight to how this disease spreads can mitigate its spread and reduce its burden on accessing health care. If people are fully aware, healthcare needs that are related to treatment of HIV will not be necessary in the first place. Accordingly, the Federal Government of Nigeria policy is directed towards reducing the risk of transmission through the following: promotion of safe sexual behavior, appropriate use of condoms, prevention of HIV/AIDS transmission through blood and blood products, voluntary counseling and testing, prevention of mother-to-child transmission, early diagnosis and effective treatment of sexually transmitted infections and adolescents and youth focused interventions (Olusegun, 2013).

3.2.2. Law

The lack of appropriate HIV-relevant legislation affects the ability of persons living with HIV/AIDS to live positively and persons susceptible or vulnerable to the disease from being able to protect themselves from the disease (Olusegun, 2013). In recognition that this lack adversely affects the nation's ability to reduce the spread of HIV/AIDS and mitigate its impact, the government of Nigeria commits itself to reviewing existing legislation and enacting appropriate new laws in the following areas: HIV/AIDS legislation in the workplace; protection of worker's rights on the job for those infected; Protection of workers who are infected while on the job; legislation on legal rights and property ownership of persons infected and affected by HIV/AIDS; legislation to improve access to legal services, and care and support for persons infected and affected by HIV/AIDS; legislation to protect the rights of victims of sexual violence; the establishment and codification of the nation's HIV/AIDS response structure (Olusegun, 2013).

3.2.3. Ethic and Human Rights

The government recognizes the stigma and discrimination facing people infected and affected by HIV/AIDS and realizes that the promotion and protection of human rights for all Nigerians can reduce the negative effects associated with the epidemic; therefore the Federal Government of Nigeria affirms the followings (Olusegun, 2013): persons living with or affected by HIV shall not be discriminated against on the basis of their health status with respect to education, training, employment, housing, travel, access to health care and other social amenities and citizenship rights; the denial of appropriate

care and support for persons living with HIV/AIDS is an abuse of their human rights, which is unethical and illegal; all persons shall respect the right to privacy and confidentiality of people living with HIV/AIDS and shall not disseminate information on the HIV status of individuals without the individual's consent, or that of the individual is incapable of giving such consent; where the dissemination of information is medically indicated, information being imparted shall be assigned the strictest measures of confidentiality on a strictly enforced "need-to-know" basis; HIV and STI testing shall not be included as part of a routine medical examination without the knowledge and prior consent of the client; mandatory HIV testing without consent is illegal except in the case of a person charged with any sexual offence that could involve risk of HIV; confidential pre- and post-test counselling services shall be made available to tested individuals and, if requested by an individual, to his/her family in all places where individuals are tested and/or notified of HIV test results; insurance of any kind shall not be revoked or affected by an individual's change in his/her health status following the issuance of an insurance policy; the government of Nigeria shall monitor human rights abuses and development enforcement mechanisms for redress (Olusegun, 2013).

3.2.4. Communication

A comprehensive information, education and communication (IEC) system is central to the nation's efforts to prevent the spread of HIV/AIDS and mitigate its impact (Olusegun, 2013). The communication policy focusses on the main area of need: information, education and communication (IEC) and public enlightenment (Olusegun, 2013).

The various governments of Nigeria realize that public support is essential to the success of the policy's goals and objectives, as the program must compete for resources with other national priorities; contingent upon policy reforms; and upon attitudinal and behavior changes in the general public, highest risk groups, healthcare providers and the various sectors of the country (Olusegun, 2013).

3.2.5. Care and Support

Nigeria government recognizes its responsibility to provide access to healthcare for all its citizens. Given that no effective curative therapy currently exists presently for AIDS, effective management of the condition must include an emphasis on compassion and support for the persons infected and affected by HIV/AIDS. The effects of the HIV/AIDS epidemic go beyond health and affects the ability of persons infected and affected to live productively therefore support is needed (Olusegun, 2013). The objectives for the policy on care and support are to provide accessible, affordable and sustainable quality care for those infected by HIV/AIDS. Infected people will also live positively despite their condition through clinical management, home-based care, opportunistic infections, and anti-retroviral therapy.

From a social-cultural context, traditional medicine continues to partially respond to the health needs of Nigeria's population. Traditional healers, when armed with accurate information, may become useful resources in pursuit of health care objectives (Olusegun, 2013). The following policies underscore the Federal Government of Nigeria's interest in ensuring that all possible resources are utilized in the prevention and mitigation of HIV/AIDS within Nigeria (Olusegun, 2013): the government shall

encourage traditional healers and other health practitioners to submit their HIV/AIDS

remedies to the Government for official verification and certification, the role of

traditional healers, including traditional birth attendants, in the transmission, prevention

and care of HIV/AIDS shall be studied and areas of risk will be eliminated, through

appropriate training, supervision and legislation. The Federal Government of Nigeria

shall develop, a regulatory framework to enhance and monitor the effectiveness of

traditional practitioners in the prevention and mitigation of HIV/AIDS in Nigeria

(Olusegun, 2013).

The government at all three tiers commit themselves to facilitating and promote

community initiatives to sustain the necessary level of care for people affected by

HIV/AIDS including orphan and vulnerable children care (Olusegun, 2013).

3.3. National HIV/AIDS Strategic Plan, 2010-2015.

The National HIV/AIDS Strategic Plan 2010-2015 is the third in a series of

national HIV/AIDS strategic plans which started with the HIV/AIDS Emergency Action

Plan (HEAP) 2001-2004. Gains from the Emergency Plan informed the development of

the second HIV/AIDs strategic plan, the National Strategic Framework (NSF) 2005-2009,

which ushered in a period of significant scale-up of HIV/AIDS services especially access

to HIV treatment (NSP, 2009). The NSP 2009- 2015 is six years long and is coterminous

with two important international commitments that Nigeria has signed on especially the

Millennium Development Goals and the Universal Access (UA) to HIV/AIDS prevention

and care and treatment services. The overarching priority of the NSP 2010-2015 is to

reposition HIV prevention as the centerpieces of the national HIV/AIDS response, with these strategies (NSP, 2009).

3.3.1. Promotional of Behavioral Change and Prevention of New HIV Infections.

Prevention remains the most important strategy and the most feasible approach for reversing the HIV epidemic before the invention of vaccines. Most Nigerians are HIV negative and keeping them uninfected is critical for altering the epidemic trajectory. This underscores the importance of prevention as a cornerstone of the national HIV and AIDS response (NSP, 2009). Furthermore, persistent HIV-risky behavior despite high level of HIV awareness requires continuous and concerted focus on effective preventive interventions that will address specific needs of key population segments and stimulate adoption of appropriate behavior that reduces the risk of HIV transmission (NSP, 2009).

Communication holds a vital and indispensable place in HIV prevention interventions. It has the potential to increase demand for HIV prevention services and have an impact on knowledge, attitudes, behaviors, and practices influencing the spread of HIV. Hence, in the quest for the effective control of HIV and AIDS communication for behavioral changes is of critical importance (NSP, 2009). The key interventions for achieving this strategy includes: Adapt, disseminate, and/or implement national policies, standards, protocols and guidelines for HIV prevention services, institutional/human technical capacity building for organizations and institutions involved in HIV prevention; accelerate the scale up of quality service provision with social focus on most-at-risk population; advocacy to critical stakeholders; promotion of evidenced based approach to

HIV prevention programming with special focus on strategic behavior change communication; integration of HIV prevention into other health related services especially sexual and reproductive health, public private and multisectoral collaborative activities; regular supply of drugs, commodities and consumables, improve referral, operationalize family life and HIV education curriculum implementation in schools; and undertake policy dialogue for the enactment and/or enforcement of relevant legislations especially those directly impacting on biomedical transmission of HIV (NSP, 2009).

3.3.2. Treatment of HIV/AIDS and Related Health Conditions.

All people living with HIV should receive quality treatment services for HIV/AID.

Over the last five years, the national response to the HIV epidemic has made significant strides with approximately 300,000 people accessing Antiretroviral therapy (NSP, 2009). This number, however, represents only about a third of those eligible for antiretroviral therapy. Also, there is wide variation in quality as well as access to services between urban and rural communities. Furthermore, the increasing incidence of TB among PLWHIV and associated health condition increased morbidity and mortality necessitates the scale up of TB/HIV collaborative activities. Compounding the problem further is the fact that the diagnostic algorithm for TB in Nigeria does not detect extra-pulmonary TB whereas many HIV positive TB patients have extrapulmonary TB (NSP, 2009). The key interventions for achieving treatment of HIV and TB/HIV collaboration objectives include: advocacy to relevant stakeholders, institutional and human capacity building, establishment of new and upgrading of existing service delivery facilities,

quality assurance and quality improvement mechanisms for clinical and laboratory services, integration and linkages of HIV/AIDS, TB and other related services, and monitoring and evaluation (NSP, 2009).

3.3.3. Care and Support for People Living with HIV/AIDS, People Affected by HIV/AIDS, Orphans and Vulnerable Children.

The goal of this strategy is to promote the survival and improve the quality of life of people living with HIV (PLHIV) and people affected by HIV/AIDS (PABA) especially orphan and vulnerable children. Over the last 5 years and buoyed by increasing accessing to effective ART, there has been a gradual change from the perception that HIV infection condemns one invariably to death to the reality that HIV/AIDS is a chronic illness requiring regular and sustained care and support (NSP, 2009). As the number of people infected and affected by HIV/AIDS rises, the burden of the epidemic on individuals, families and communities is increasingly evident, exacerbated by wide poverty. Some of the critical indicators of the social consequences of the epidemic are the increasing numbers of orphan and other vulnerable children and a general stigmatization of and discrimination against PLHIV. Also, access to anti-retroviral treatment (ART) means that more people living with HIV (PLHIV) are having longer and improved lives. This is a big challenge to the nation to provide the increasing care and support including palliative care for infected and affected persons (NSP, 2009).

Government recognizes not only the detrimental social and economic consequences of HIV/AIDS to the nation but also attaches great importance and is committed to providing care and support to people living with HIV (PLHIV) and to

orphan and vulnerable children (OVC). Civil society, especially community-based

organizations, has been the bedrock for the provision of care and support services to

people living with HIV (PLHIV), people affected by AIDS (PABA) and to OVC. Within

this strategic plan, the government has established effective supply chain management

systems; identification and partnering with other stakeholders; making grants to

stakeholders and implementers and conducting a study tours to successful care and

support projects (NSP, 2009).

3.3.4. Policy, Advocacy, Human Rights, and Legal Issues.

This strategy is developed to protect the rights of people living with HIV

(PLHIV) and people affected by HIV/AIDS (PABA), empower them and other groups

made vulnerable by HIV/AIDS by reducing their cultural, legal, and social economic

vulnerabilities and ensure their full participation in the national HIV/AIDS response and

other development initiatives (NSP, 2009).

Despite compelling evidence that reducing stigma, promotion and protecting

human rights, promoting greater involvement of people living with HIV (PLHIV) and

gender mainstreaming strengthen HIV/AIDS control, Nigeria's achievement in this

regard remain slow and hesitant. More than two decades after the identification of the

first case of HIV in Nigeria, violation of human rights of persons infected and affected is

still rampant and stigma remains pernicious and pervasive. This situation is compounded

by attitudes and practices which discriminate against widows and persons orphaned by

AIDS. Furthermore, the approach of the national response under the last National

Strategic Framework appears to accentuate the differential access to information, services

and participation by marginalized segments of the population and those with high vulnerability to HIV infection including women, young people, and persons who engage in transactional sex or same sex relationships. These situations call for stronger focus on advancing human rights in the context of the national response, demanding, among other vigorous promotion of relevant and legal frameworks (NSP, 2009).

To strengthen this strategy, the framework incorporated capacity building which includes training on research ethics and improving skills that link HIV programming and human rights issues; ensuring gender-responsiveness in programming, and ensure transparency and accountability in resources management; developing guidelines on human rights issue and establishment of committees for enhancing policy implementation; translate National HIV policy into local language including Hausa, Yoruba, Igbo, and Pidgin English; sensitization seminar -religious and traditional leaders and media houses to encourage removal of cultural and tradition barriers/practices that impede access to relevant HIV/AIDS- related information/services or practices that violate the human right of people living with HIV (PLHIV) and people affected by HIV/AIDS (PABA); provision of economic support for people living with HIV (PLHIV), promotion of family life and HIV education for young people, and support of youth-friendly centers, and production of educational materials (NSP, 2009).

3.3.5. Institutional Architecture, Systems, and Resourcing.

The goal of this strategy is to strengthen structures and systems for the coordination of a sustainable and gender-sensitive multisectoral HIV/AIDS response in Nigeria. Despite achievements towards control of HIV/AIDS, the epidemic continues to

pose significant challenges to national development. While the response has experienced

increased inflow of resources from government and development partners, significant

funding and resource gaps still exist. Also, the national response is largely donor

dependent and for most part, donor driven. The global financial meltdown signals

reduction in financial contributions by development partners. As such, Nigerian

governments and citizens should assume greater responsibility for scaling up and

sustaining HIV/AIDS response. Present realities compel urgent review and realignment

of the institutional framework, coordination mechanisms and resource mobilization and

application for the national response (NSP, 2009).

Besides financial resources and physical infrastructure, availability and capability

of human resources are pivotal to sustainability of HIV/AIDS response. Although it is

generally agreed that Nigeria has a good supply of health professionals compared with

other countries in the sub-region, there are wide regional disparities and the vast majority

are urban based. It is also true that the HIV/AIDS epidemic has significantly increased

pressures on health care delivery systems that are already overstretched (NSP, 2009).

Three initiatives were developed to implement this strategy. The first level of

initiative is to strengthen the capacities of National Agency for the Control of AIDS,

State Action Committees on AIDS/State Agency for the Control of AIDS, and Local

Government Action Committee on AIDS. In this regard key interventions include

capacity assessment and development of institutional capacity building plans by these

entities. Also, it includes the upgrade of State Action Committees on AIDS/State Agency

for the Control of AIDS (SACAs) to agencies and the establishment of Local

Government Action Committee on AIDS (LACAs) in local government councils where

they do not exist (NSP, 2009). The second level of interventions is designed to strengthen

program, financial, gender and other management systems at all levels. Significantly, all

States are to strengthen capacity of Local Government Action Committee on AIDS

(LACAs) which presently are the weakest links in the national response. The third level

of interventions established, maintained and sustained interactive platforms that positions

National Agency for the Control of AIDS (NACA), State Action Committees on

AIDS/State Agency for the Control of AIDS (SACAs) and Local Government Action

Committee on AIDS (LACAs) to effectively coordinate their constituency stakeholder

activities (NSP, 2009).

3.3.6. Monitoring and Evaluation Systems.

The goal of this strategy is to strengthen and embed a sustainable systems-based

approach to delivering a cost-effective, multidimensional and gender sensitive monitoring

and evaluation system, which supports the continuous improvement of the national

response.

A functional and effective monitoring and evaluation (M&E) system serves to

provide the data needed to guide the planning, coordination, and implementation of the

HIV response; assess the effectiveness of the HIV response; and identify areas for

program improvement. It also enables enhanced accountability to those infected or

affected by HIV/AIDS, as well as the funders. However, the effectiveness of the M&E

system depends on the seamless and systemic integration of the components of its

organizing framework (NSP, 2009).

The implementation of the Nigeria National Response Information Management System (NNRIMS) Operational Plan (2007-2010) has resulted in improved functionality of the national HIV M&E system. However, there are gaps regarding human capacity for ensuring good data quality, the use of M&E data for decision-making, and funding. Also, the infrastructure to underpin the national and sub-national M&E databases, routine HIV program monitoring, program evaluation, and research are still weak. Furthermore, the national response still contends with a proliferation of M&E sub-systems which are mostly donor-driven and not responsive to Nigeria National response Information Management System. For instance, each program area such as Orphans and Vulnerable Children (OVC), Antiretroviral Treatment (ART), and Prevention of Mother to Child Transmission (PMTCT) has its own routine information system which respond primarily to the need of program funders. Also, the low participation of the private sector, especially the private-for-profit players, in the submission of information using Nigeria National Response Information Management System (NNRIMS) platform is another critical issue. These as well as the other findings of a response analysis had informed the development of the strategic objectives and interventions of the M&E system of the National Strategic Framework (NSP)(NSP, 2009).

To support this strategy, National Agency for the Control of AIDS (NACA) established a podcast capability build to improve M&E systems, improved the provision of strategic information through upgrading NACA data management center including video conferencing, web portal and establishing a helpdesk. National Agency for the Control of AIDS (NACA) also supported special studies such as the National AIDS and reproductive Health Surveys (NARHS) and Integrated Biological and Behavioral

Surveillance Survey (IBBSS), compile a bibliography of AIDS research, and engage intensely with the media to promote its work and results (NSP, 2009).

3.4. National HIV/AIDS Strategic Plan, 2017-2021.

The current National HIV and AIDS Strategic Plan was developed through a highly participatory and consultative process. It involved a wide cross-section of stakeholders at various stages of its development. These stakeholders included policy makers and government officials from federal and state levels, technical experts, representatives of the national HIV and AIDS Technical Working Groups (TWGs), representatives of the civil society, as well as bilateral and multilateral development partners. The civil society participants cut across various segments of stakeholders in the national response such as representatives of the Network of People living with HIV and AIDS in Nigeria (NEPWHAN), the Association of Young People living with HIV in Nigeria, interest groups with focus on women and children living with HIV, and the key population secretariat (NSP, 2017).

The 2010-2015 National Strategic Plan gave strategic direction for the HIV response in Nigeria. Its implementation resulted in the reduction in HIV prevalence, increased uptake of HIV testing, improved access of people living with HIV to treatment, and increase in the proportion of vulnerable children with access to care and support (NSP, 2017). The use of data from various national surveys and studies resulted in stakeholders reaching a consensus on the need for greater focus on high burden states and key populations for greater effectiveness and outcome. The development of HIV investment framework at the global level has further strengthened the focus on

effectiveness and efficiency in HIV programming, resulting in call for greater focus on increasing access to high-quality, high-impact interventions and key populations (NSP, 2017). Also, new evidence-based guidelines on the use of antiretroviral drugs for treating and preventing new HIV infection issued by the World Health Organization (WHO), and the resultant changes to the Nigeria's HIV treatment protocol in 2015 with the adoption of the "test and treat approach" and acknowledgement of the need to use Antiretrovirals for HIV prevention meant that the National HIV response in Nigeria needs to take on new approaches (NSP, 2017).

The National Strategic Framework and National Strategic Plan 2017-2021 is the nation's attempt to build on past successes, achievement and gains made with the NSF 2010-2015 and NSP 2010-2015; and further intensify her national response in view of the gaps and challenges that needs to be addressed to achieve global and national goals. This new NSP aptly integrates lessons learnt from the earlier national HIV response and provides a pathway to achieving the national goals (NSP, 2017).

The national HIV prevention program strategically focuses on reducing the number of new HIV infections in Nigeria. The national HIV prevention efforts are therefore geared towards reducing the risk of HIV transmission acquired through HIV-risky sexual behaviors, unsafe blood and blood products, use of non-sterile needles in people who inject drugs (PWID), and mother-to-child transmission. This Plan also recognizes the efficacy of HIV combination prevention approaches by the application of a mix of evidence-based behavioral, biomedical and structural interventions to prevent new HIV infections based on the needs of, and its relevance for the target population. It

also recognizes HIV testing services (HTS) as the bridge between prevention interventions and treatment efforts (NSP, 2017).

Furthermore, the Plan recognizes that biomedical transmission of HIV (and other transfusion transmissible infections such as Hepatitis B and Hepatitis C) through unsafe blood transfusion services, unsafe injection practices and poor healthcare waste management is a distinctively avoidable risk given the available knowledge and technologies, and previous policy decisions and efforts of the Federal Ministry of Health on safer blood transfusion and safe injection practices. The HIV prevention programs are developed using an investment approach that facilitates access of those disproportionately affected by HIV transmission to targeted and effective HIV prevention services (NSP, 2017). The minimum prevention package intervention (MPPI) is an effort to ensure that populations receive a combination of appropriate interventions at a dose and intensity that can lead to behavior change. The Plan also acknowledges that implementation of harm reduction strategies for people who inject drugs, and promotion of access to pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), Treatment as Prevention (TasP) and effective treatment of sexually transmitted infections are critical elements of HIV prevention programs (NSP, 2017).

3.4.1. HIV Testing Services

HIV testing remains the entry point for HIV prevention, treatment and care services. Past national HIV prevention programs in Nigeria had focused on improving access of Nigerians – the general population and those at substantial risk for HIV (key

and vulnerable populations) – to HIV counselling and testing (HCT) services (NSP, 2017).

In line with the new World Health Organization consolidated guidelines and the national goal of fast tracking the end of the AIDS epidemic by 2030, the country adopted the use of HIV Testing Services (HTS) in place of the HIV counselling and testing HCT. The full range of HIV Testing Services (HTS) encompasses counselling (pre-test information and post-test counselling); linkage to appropriate HIV prevention, treatment and care services; and coordination with laboratory services to support quality assurance and the delivery of correct results. Access to accurate, high-quality HTS for diverse populations and settings with targeted approaches would improve yield and optimize the investment in HTS (NSP, 2017).

The 2017-2021 Framework and Plan aim to expand the coverage of HIV Testing Services (HTS) to populations in greatest need, to increase access to services, to improve the quality of testing services and to help achieve the new UNAIDS target of diagnosing 90% of all people living with HIV by 2020. Additionally, this Plan is designed to facilitate the provision of equitable, gender-sensitive, rights-based HTS over the next five years. It is expected that all program implementers will adhere to the principles of HTS namely consent, confidentiality, counselling, correct results and connection (NSP, 2017).

The strategic interventions is to foster an enabling environment for improved access to HIV Testing Services (HTS) and screening services for HIV co-infections; expand coverage of HTS services and screening for HIV co-infections; strengthen community systems to support testing and re-testing of key populations, vulnerable population and pregnant women; promote integration of, and strengthen referrals and

linkages systems between HTS, other HIV management services, blood transfusion service, and other health-related services; integrate screening for HIV coinfections into HTS; institute and strengthen the quality management systems for all HTS sites; improve the logistics and supply chain management for all testing commodities; conduct appropriate research to identify strategies that support improved access to HTS (NSP, 2017).

3.4.2. Elimination of Mother-to-Child Transmission of HIV.

The elimination of mother-to-child transmission of HIV (eMTCT) requires: the prevention of new HIV infections in young people; prevention of unintended pregnancies in HIV-infected women; prevention of transmission of HIV from infected mothers to their children; and provision of treatment, care and support to infected mothers, their husband/partners and children. This strategy embraces the Family Planning Blueprint (Scale-Up Plan) for Nigeria and its target of increasing the contraceptive prevalence rate to 36% by 2018, as fundamental to preventing unintended pregnancies in HIV-infected women (NSP, 2017). This strategy also aims at providing an effective platform for the country's efforts to eliminate new HIV infection in children born to mothers who are HIV positive in line with the national aspiration defined in the 2013 Presidential Comprehensive Response Plan. The current national test and treat program shall enhance the achievement of the goal of eliminating new HIV infections in infants. The elimination of mother-to-child transmission of HIV (eMTCT) interventions aims to prevent the transmission of HIV from infected mothers to their children; and ensure that all HIV negative infants born to HIV positive mothers remain so throughout infancy (NSP, 2017).

Major strategic interventions are: fostering an enabling environment for HIV positive pregnant and breastfeeding mothers and HIV-exposed infants to access antiretroviral drugs; strengthen contraceptive demand generation programs for HIV positive women; promote integration and strengthen referral and linkages between antenatal care, family planning, sexual and reproductive health services, maternal and child health and HIV services; expand access of HIV positive pregnant and breastfeeding mothers to antiretroviral therapy services; expand access of HIV exposed infants to early infant diagnosis (EID) services; expand access of HIV exposed infants to antiretroviral prophylaxis and cotrimoxazole prophylaxis within 2 months of birth; expand access of HIV exposed babies to HIV serological test at 18 months; strengthen community systems to support care for HIV exposed infant; institute and strengthen the quality management systems for all elimination of mother-to-child (MTCT) facilities; conduct appropriate research to identify strategies to facilitate the elimination of mother-to-child transmission of HIV (NSP, 2017).

3.4.3. HIV Treatment.

HIV treatment reduces mortality and morbidity among people living with HIV (PLHIV), improves their quality of life and reduces their potential to infect others. Nigeria adopted the recent World Health Organization's policy of test and treat, and the consolidated guidelines on the use of Antiretroviral (ART) for treatment and prevention of HIV. The national HIV treatment program is focused on increasing access of people living with HIV to antiretroviral therapy, providing them access to isoniazid prophylaxis for tuberculosis prevention; and reducing their risk for other opportunistic infections

using cotrimoxazole prophylaxis. The program also promotes screening and treatment of all persons living with HIV for tuberculosis, and screening and treatment of all newly infected or relapsed tuberculosis cases for HIV infection (NSP, 2017).

The treatment program also embraces the principle of differentiated care, which is a responsive, client-centered approach that simplifies and adapts HIV services across the cascade to better serve individual needs and reduce unnecessary burdens on the health system, with a view to increasing access and quality of ART services, and retention in care (NSP, 2017). This Plan aims to drive Nigeria's efforts at providing effective, quality, gender responsive and rights-based ART services to all persons who test positive for HIV in an equitable and sustainable manner over the next five years (NSP, 2017).

The strategic interventions for this plan to foster an enabling environment for people living with HIV and AIDS to access antiretroviral treatment (ART) and opportunistic infection management services; expand access of people living with HIV and AIDS to antiretroviral treatment (ART), monitoring and coinfection management services; improve the logistics and supply chain management for antiretroviral treatment (ART) commodities; institutionalize and strengthen the quality management systems for all antiretroviral treatments (ART) and viral load assessment services; promote integration and strengthen referrals and linkages systems for HIV, tuberculous (TB), and non-communicable disease coinfection management; strengthen community systems for effective differentiated care; improve facility-based adherence counselling and tracking mechanisms for people living with HIV (PLHIV); conduct appropriate research to identify strategies that support the access of people living with HIV (PLHIV) to HIV treatment services and adherence to antiretroviral treatments (ART) (NSP, 2017).

3.4.4. HIV Care, Support and Adherence to Treatment.

HIV and AIDS care, support and adherence program are the holistic and comprehensive client-focused, community centered care service provided by a multidisciplinary team at all stages of the 1 HIV infection. It is an integral part of the HIV and AIDS continuum of management that facilitates access of people living with HIV (PLHIV), people affected by HIV (PABA) and children vulnerable to HIV (VC) to HIV care services outside of the health care facilities. It also facilitates their retention in care (NSP, 2017). The access of people living with HIV (PLHIV), people affected by HIV (PABA) and children vulnerable to HIV (VC) and AIDS care, support and adherence services have so far been facilitated by the Hub and Spoke model (integrated cluster system) adopted by the Federal Ministry of Health for the delivery of comprehensive health care for all Nigerians. This health care delivery approach recognizes the potential impact that engagement of people living with HIV (PLHIV)-led organizations, and the engagement of PLHIV in the delivery of care for their peers (NSP, 2017).

This current National Strategic Plan is designed to facilitate, among others, the implementation of the 2011 comprehensive guidelines on nutritional care for PLHIV, the 2014 Act to Protect the Rights of the People living with HIV (HIV and AIDS Anti-discrimination Act), the 2014 guidelines on care and support of people living with HIV (PLHIV), the 2016 plan of action on the removal of legal and human rights barriers to HIV and AIDS response in Nigeria, and the 2015 National Plan of Action for orphans and vulnerable children. Furthermore, the Plan will support the implementation of the 2013-2020 National Priority Agenda for Vulnerable Children by adhering to the

vulnerable children's standard of services. The Plan also incorporates the prevention of

HIV re-infection interventions into routine care for PLHIV as part of positive health,

dignity and prevention (PHDP) strategy (NSP, 2017).

Chapter 4

Access to Healthcare, Financing Healthcare and Economic Impact of HIV in

Nigeria.

4.1. Access to Healthcare.

In Nigeria, understanding access to healthcare among people living with HIV (PLWHIV) will be incomplete without a comprehensive knowledge of responsibility-sharing among various levels of government. Healthcare responsibility in Nigeria is split between the different levels of government. The Federal government is responsible for establishing policy objectives, training health professionals, coordinating activities, and for the building and operation of Federal medical centers and teaching hospitals (HAA & PHR, 2006). The states are responsible for the secondary health facilities and for providing funding to the Local Government Areas (LGAs), which are responsible for primary health care centers. In addition to government-run public facilities, there are also private health facilities, most of which are secondary level facilities. Many Nigerians do not go to government facilities first but rather seek health care from traditional healers, patent medicine stores, lay consultants and private medical practices and facilities owned and managed faith-based organizations (HAA & PHR, 2006).

The healthcare system in Nigeria is inadequately funded and understaffed and suffers from material scarcity and inadequacy of infrastructure which may contribute to overall discriminatory behavior. The blood transfusion system is inadequate and access to quality health care is limited. There are regional disparities in education, health status, poverty level, and other aspects of human development. As in other countries, Nigeria's

health professionals "are poorly paid and work long hours with shortages of

equipment in obsolete facilities" (HAA & PHR, 2006). This contributes to the "brain

drain" phenomenon of young educated people leaving the country in search of better

opportunity. Health indices have been getting worse. As with all health data in Nigeria,

there are issues of data quality. In the 1990s, trends in health status including child

mortality seemed to be getting worse. Nigeria's healthy life expectancy has declined from

50 years in 1994 to 43 years in 2005. The increasing prevalence of HIV/AIDS has

significantly contributed to this decline (HAA & PHR, 2006).

Antenatal care and delivery assistance are more accessible in urban areas.

According to UNAIDS (2006), the infant mortality rate for 1995 – 2000 was 88 deaths

per 1,000 live births. About 58% of all deliveries in Nigeria take place at the home,

however, in the north, approximately 90% of births occur in the home; of assisted births,

midwifes and nurses attend 42% deliveries, doctors oversee 8% and traditional birth

attendants assist 20% of births (1999). Reproductive health issues for adolescents include

low use of contraception, having more than one sexual partner, and teenage pregnancy

(HAA & PHR, 2006).

4.2. Financing HealthCare.

Healthcare in Nigeria is largely financed by user fees. Field studies by the World

Bank estimate that Nigerian households pay roughly 45% of total health expenditures in

the country (HAA & PHR, 2006). The Federal Government subsidizes staff salaries in

federal facilities, which usually account for more than 65% of recurrent expenditure in

the health service. In non-federal facilities, staff salaries are paid through the funds

allocated by the Federal Government to the LGAs. However, since LGAs receive "block allocations" or one pool of money from which to finance all their projects, this funding is often insufficient for covering salaries or purchasing prescription drugs (HAA & PHR, 2006). As a result, the cost of medication, tests, hospital beds and facilities used by patients during their visits is expected to be borne by them. Nigeria's budgetary allocation to health has remained lower than that recommended by WHO, and in most years, it has fallen to 5% of GDP and 3.2 % of total government expenditure (HAA & PHR, 2006).

Recent attempts to introduce a National Health Insurance Scheme have not yet been successful at assisting those most at need. The current plan favors the employed, as entrance into the scheme requires a percentage of an employee's salary be deducted and compulsory contributions by employers. The unemployed citizens face huge premium which must be paid once before membership into the scheme (HAA & PHR, 2006). Till this day, this system has been met with skepticism. The Federally driven national health insurance scheme has also been met with resentment by some states that have implemented different health financing programs by their governments. Nigeria government has been successful to include access and treatment of HIV medicine as part of public health insurance. Individuals are not forced to purchase medicines in the private market. However, lack of available of medicines drive citizens in need of vital medicines are forced to incur high out-of-pocket expenditures for medicine, which are usually borrowed and has the potential of leading to economic hardship (HAA & PHR, 2006).

Even in the case of HIV treatment, access to older generation ART (lamivudine, stavudine, and nevirapine) costs significantly less ($52 per person per year) than the

newer WHO recommended treatment regimens that include tenofovir and cost over $100

per person per year. Despite WHO's recommendations to phase out stavudine (d4T)-

based regimens because of their long-term side effects, governments have been nervous

about switching over to newer treatment options given the costs. The costs of diagnostic

and monitoring tools are also expensive, further limiting access (Sarah, 2013).

Nigeria is a long way off meeting the global target of enrolling 90% of people

diagnosed with HIV on antiretroviral treatment (ART). Just 33% of all people living with

HIV were receiving treatment in 2017. Among children this is even lower, with just 26%

on ART. Of the people on HIV treatment, only 24% had achieved viral suppression in

2016. Poor treatment coverage and adherence means that the number of AIDS-related

deaths in the country has remained high with 150,000 deaths in 2017 (Avert.org, 2018).

Even though Nigeria adopted a 'test and treat' policy in 2015, which means that

anyone with a positive diagnosis is eligible for treatment, this is far from a reality.

Nevertheless, efforts have been made to scale-up treatment access, and 212,000 more

people were enrolled on antiretroviral treatment between 2016 and March 2017

(Avert.org, 2018). Yet weaknesses in the health system exist and create a barrier to many

people accessing or staying on treatment. Even when ART can be accessed, drug supplies

are known to run out and cause stockouts. To address this, the National Strategic

Framework for the HIV response has made strengthening supply chains and improving

logistics around treatment a priority (Avert.org, 2018).

The UNAIDS catch-up plan for Nigeria, also identifies removing 'user-fees' as

being a key next step in expanding treatment coverage. Although accessing the

antiretroviral drugs themselves is free, often patients will be asked to pay for other

services, for example running other tests. Studies have shown that these fees and high costs of travel to clinics can be a barrier to many people accessing care (Avert.org, 2018). Nigeria aims to triple treatment coverage in the next three years, ensuring that 90% of the population living with HIV are on treatment by 2021. To do this, they will also need to address stigma and discrimination around the virus and have committed to work to foster an enabling environment for people living with HIV to come forwards (Avert.org, 2018).

4.3. Economic Impact of HIV/AIDS

AIDS has the potential to create severe economic impacts in many African countries, including Nigeria. It is different from most other diseases because it strikes people in the most productive age groups. The effects vary according to the severity of the AIDS epidemic and the structure of the national economies. The two major economic effects are a reduction in the labor supply and increase health cost (Bollinger, Stover & Nwaorgu, 1999).

Nigeria is largely an agricultural state, but it is also rich in natural resources-particularly oil, which is found primarily in the Delta region. Notwithstanding, poverty is widespread, especially among female-headed households. Much of the country's wealth is spent on servicing Nigeria's debt (HAA & PHR, 2006). The primary source of activity for the Nigerian population is agriculture, which occupied about 70 percent of the employed labor force, and was estimated to contribute 21% of GDP (Anderson, Marita, Musiime & Thiam, 2017).

The economic effects of AIDS are felt by infected individuals and their families, then ripple outsides to firms and business and the macro-economy (Bollinger et.al, 1999).

The household impacts begin as soon as a member of the household starts to suffer from HIV-related illnesses: loss of income of the patient who is frequently the main breadwinner; house expenditures for medical expenses may increase substantially; other members of the household, usually daughters and wives, may miss school or work less in order to care for the sick person; death results in a permanent loss of income, from less labor on the farm or from lower remittances; funeral and mourning cots, and removal of children from school in order to save on educational expenses and increase household labor, resulting in a severe loss of future earning potential (Bollinger et.al, 1999).

Since agriculture is the largest sector in Nigeria economy accounting for a large portion of production and most of the employment are in the rural area. The loss of a few workers at the crucial periods of planting and harvesting can significantly reduce the size of the harvest (Bollinger et.al, 1999). In Nigeria where food security has been a continuous issue because of drought, any declines in household production can have serious consequences. Additionally, a loss of agricultural labor is likely to cause farmers to switch to less-labor-intensive crops, in many cases this may mean switching from export crops to food crops. Thus, AIDS could affect the production of cash crops as well as food crops (Bollinger et.al, 1999).

AIDS also have a significant impact on some firms. AIDS-related illness and deaths to employees affect a firm by both increasing expenditures and reducing revenues. Expenditures are increased for health care costs, burial fees and training and recruitment of replacement employees. Revenues may be decreased because of absenteeism due to illness or attendance at funerals and time spent on training. Labor turnover can lead to a less experienced labor force that is less productive (Bollinger et.al, 1999). For some

smaller firms the loss of one or more key employees could be catastrophic, leading to the collapse of the firm. In others, the impact may be small. Firms in some key sectors, such as transportation and mining, are likely to suffer larger impacts than firms in other sector. In poorly managed situations the HIV-related costs to companies can be high. However, with proactive management those costs can be mitigated through effective prevention and management strategies (Bollinger et.al, 1999).

AIDS also have significant effects in other key sectors: health and education. HIV/AIDS places a burden on the health sector. The cost of care and treatment is high, and more people need services as prevalence of the disease increases (Anderson et.al, 2017). And, maintaining a healthy population is an important goal and is crucial to the development of a productive workforce essential for economic development (Bollinger et.al, 1999). Effect on education also include the need for expansion of educational curricula to address HIV/AIDS, the loss of teachers to HIV and increased work burden of those remaining. Children, disproportional girls, may be withdrawn from school to care for relatives or because low family income results in the inability to afford school fees (Anderson et.al, 2017).

Chapter 5

Data Analysis and Interpretation

5.1. Source of Data

The data from the research are from secondary sources, which were obtained from various Nigerian government websites, journal, international, and local organization websites. These various government websites are: National Agency for the Control of AIDS (NACA), budgetit.com, National Human Development Report, UNESCO- Action Plan Nigeria, National Bureau of Statistics, National Population Commission and City Population.de.

The data for prevalence of HIV/AIDS rate was obtained for all the 36 states of the federation of Nigeria, including the Federal Capital Territory. The data was obtained from National HIV/AIDS and Reproductive Health Survey (NARHS, 2012). For each of the independent variables, a sub-variable is selected to make the research broader. For variable of economy, sub-variables of human development index (Data Source: National Human Development, 2015) and unemployment rate was selected, and data is obtained from all the states (Nigeria Data Portal, 2010). Under education variable, the sub variable is literacy rate (Data Source: Action Plan Nigeria UNESCO, 2012) and percentage of people who have heard of AIDS (Data Source: Nigeria Data Portal, 2010) is also obtained from all the states in the federation. Furthermore, for population variable, a sub-variable of population density is obtained from all the states (citypopulation.de, 2016). For healthcare variable, the percentage of budget spent on healthcare by each state is considered (BudgITResearch, 2017).

5.2. Definition of variables:

The HIV prevalence rate is the number of people of living with HIV per 100,000 population (Spach & Coffey, 2019).

Human Development Index: The Human Development Index is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living (UNDP, 2019).

Unemployment Rate: The unemployment rate of a nation is calculated by expressing the number of unemployed persons as a percentage of the total number of persons in the labor force (ILO, 2013).

Literacy Rate: It is the total number of literate persons in a given age group, expressed as a percentage of the total population in that age group (UNESCO, N.D).

The high literacy rate (or low illiteracy rate) suggests the existence of an effective primary education system and/or literacy programs that have enabled a large proportion of the population to acquire the ability of using the written word (and making simple arithmetic calculations) in daily life and continue learning (UNESCO, N.D).

Percentage of People Who have Heard of HIV/AIDS: This represent the number of people who have heard and have been informed about HIV/AIDS.

Population Density: The population density is the number of populations per unit of total land area of a country (OECD, 2001).

Percentage of budget spent on healthcare: This is the proportion or percentage of budget allocated to healthcare.

For the data analysis segment of this thesis, the researcher determined six independent variables from the list of possible variables that affect the prevalence of HIV/AIDS in Nigeria.

5.3. Interpretation of Data.

These six independent variables were chosen because they were estimated by the researcher to have the highest impact on the HIV/AIDS prevalence rate. The six variables chosen are: human development index, unemployment rate, literacy rate, percentage of people who have heard of AIDS, the percentage of budget spent on healthcare and population density. (See table 1 and table 2)

Table 1 (Prevalence of HIV/AIDS in all the states (including FCT)

States	Prevalence of HIV/AIDS	States	Prevalence of HIV/AIDS
Abia	3.3%	Kaduna	9.2%
Abuja	7.5%	Kano	1.3%
Adamawa	1.9%	Katsina	0.7%
Akwa Ibom	6.5%	Kebbi	0.8%
Anambra	1.2%	Kogi	1.4%
Bauchi	0.6%	Kwara	1.4%
Bayelsa	2.7%	Lagos	2.2%
Benue	5.6%	Nasarawa	8.1%
Borno	2.4%	Niger	1.2%
Cross River	4.4%	Ogun	0.6%
Delta	0.7%	Ondo	4.3%
Ebonyi	0.9%	Osun	2.6%
Edo	0.8%	Oyo	5.6%
Ekiti	0.2%	Plateau	2.3%
Enugu	1.3%	Rivers	15.2%
Gombe	3.4%	Sokoto	6.4%
Imo	2.5%	Taraba	5.3%
Jigawa	2.1%	Yobe	5.3%
Zamfara	0.4%		

Source: National HIV/AIDS and Reproductive Health Survey (NARHS, 2012).

Table 2 (Independent Variables showing all 36 States (including FCT) in Nigeria

36 States and Federal Capital	Percentage who have heard of AIDS%	Population Density	Unemployment Rate%	Percentage of Budget on Health%	Human Development Index	Literacy Rate%
Abia	100	581	23	4	0.5	94
Abuja	99	487	12	2	0.5	79
Adamawa	85	86	25	6	0.4	56
Akwa Ibom	99	774	28	1	0.6	79
Anambra	99	1141	11	5	0.4	92
Bauchi	89	143	27	15	0.3	19
Bayelsa	90	211	27	3	0.6	87
Benue	95	169	6	8	0.4	74
Borno	79	83	27	10	0.2	23
Cross River	97	192	28	5	0.5	89
Delta	81	320	28	3	0.6	87
Ebonyi	96	508	25	4	0.3	78
Edo	92	318	28	2	0.5	91
Ekiti	91	515	28	4	0.4	96
Enugu	97	615	28	1	0.4	89
Gombe	77	174	27	9	0.2	29
Imo	99	978	28	3	0.5	96
Jigawa	73	252	14	5	0.1	25
Kaduna	90	179	12	8	0.4	47
Kano	74	650	15	13	0.4	36
Katsina	89	324	11	11	0.2	10
Kebbi	96	121	11	4	0.2	21
Kogi	98	150	10	9	0.4	84
Kwara	84	87	3	13	0.4	70
Lagos	96	3752	27	9	0.7	96
Nasarawa	86	93	3	10	0.4	59
Niger	87	73	12	12	0.3	23
Ogun	89	311	28	6	0.5	81
Ondo	97	320	28	5	0.05	81
Osun	98	509	27	0.7	0.5	91
Oyo	91	276	28	1	0.5	80
Plateau	98	136	10	3	0.4	64
Rivers	90	659	28	0.4	0.4	96
Sokoto	67	192	16	9	0.2	15
Taraba	69	563	25	5	0.3	72
Yobe	81	72	26	7	0.1	7
Zamfara	67	114	15	4	0.3	19

Sources: National Human Development, 2015, Nigeria Data Porta, 2010, Action Plan Nigeria UNESCO, 2012, Nigeria Data Portal, 2010, BudgITResearch, 2017, citypopulation.de, 2016.

Table 3 (Correlation Matrix)

Correlation Matrix	
Prevalence of HIV	1
Percentages of people who have heard about HIV/AIDS	0.014190119
Population Density	-0.212111876
Unemployment rate	-0.025299416
Percentage of budget Spent on Healthcare	-0.213699772
Human Development Index	0..31787854
Literacy Rate	0.115787924

From the data obtained from this research as shown (in table 1 and 2), a correlation matrix table was constructed to analysis the statistically significant of both independent and dependent variables. As shown in (Table 3), the correlation matrix between the dependent and independent variables show that all the correlations are quite small, indicating no relationship between the independent and dependent variables.

Furthermore, the first regression model was run using all the data obtained from all the independent variables and HIV/AIDS prevalence rate as the dependent variable for all the 36 states in Nigeria (including the Federal Capital Territory) (see table 3). *Coefficient * Std. error* P-Value

Table 4 (Multiple Regression Models)

MULTIPLE REGRESSION RESULTS FOR ALL THE MODELS				
Dependent Variable	Prevalence of HIV/AIDS	Prevalence of HIV/AIDS	Prevalence of HIV/AIDS	Prevalence of HIV/AIDS
Independent Variables	Model 1	Model 2	Model 3	Model 4
Percentages of people who have heard about HIV/AIDS	-0.0955 (0.0764) 0.2210	−0.0946596 (0.0755514) 0.2196	−0.0830812 (0.0744971) 0.2731	−0.0838730 (0.0734812) 0.2622
Population Density	0.0002 (0.0011) 0.8615	3.30760e-05 (0.00104434) 0.9749	−0.000178455 (0.00104326) 0.8653	
Unemployment rate	−0.0636858 (0.0779432) 0.4203	−0.0614198 (0.0769622) 0.4309		
Percentage of budget Spent on Healthcare	−0.226747 (0.198204) 0.2617	−0.233013 (0.195660) 0.2427		−0.169872 (0.178527) 0.3485
Human Development Index	−3.13405 (5.64877) 0.5831		−3.30826 (5.57917) 0.5574	−2.88474 (5.33577) 0.5925
Literacy Rate	0.0310829 (0.0353674) 0.3865	0.0204014 (0.0293352) 0.4919	0.0430020 (0.0306837) 0.1707	0.0277638 (0.0339552) 0.4196
Constant	13.7208* 6.96305 0.0581 *	13.1877* 6.81901 0.0623 *	9.44246* 5.90765 0.1198	11.2463* 6.08919 0.0740 *
F-test	0.715814	0.632571	0.696240	0.540405
R2	0.109675	0.100539	0.064965	0.089861
N	37	37	37	37
*p < 0.1 ** p < 0.05.				

5.4. Explanation of Hypothesis.

Hypothesis one: Increased in percentage of people who have heard about HIV/AIDS is associated with lower prevalence of HIV/AIDS.

Model 1

As shown in Table 4.

B_0= 13.72. B_0= when all the X-Variables=0, Y variable- Prevalence of HIV/AIDS is 13.72.

What does this mean?

It implies that a 1- unit increase in percentage of people who heard about HIV/AIDS yields -0.096 decrease in prevalence of HIV/AIDS controlling for the effect of all other variables in the model. This shows a negative correlation between prevalence of HIV/AIDS and the percentage of people who have heard about HIV/AIDS and this suggests that the more people heard about HIV/AIDS, the lower is the prevalence of HIV/AIDS in Nigeria.

However, the P-value for the variable explained otherwise. The P-Value is at 0.221 level, which is above statistically significant level of $p \leq 0.05$. This indicates that there is no relationship between the percentage of people who have heard about HIV/AIDS and prevalence of HIV/AIDS.

Hypothesis two: Higher Budget on Healthcare is associated with Lower Prevalence of HIV/AIDS.

For this hypothesis, the regression analysis indicates that a 1-unit increase in the amount budget spent on healthcare yields −0.227 decrease in prevalence of HIV/AIDS controlling for the effect of all other variables. This indicates that the government expenditure on healthcare helps to scale down the prevalence of HIV/AIDS. However, the p-value of 0.262 level is above statistically significant level of $p \le 0.05$. This indicates that there is no relationship between the percentage of budget spent on healthcare and prevalence of HIV/AIDS.

Hypothesis three: Higher Human Development Index is associated with lower Prevalence of HIV/AIDS.

For the third hypothesis, a unit increase in human development index yields −3.134 decrease in the prevalence of HIV/AIDS controlling for the effect of all other variables. This indicates that a strong human development index could push down the prevalence of HIV/AIDS. Like other variables, the p-value has a level above the required threshold of 0.05, which further illustrates that a relationship does not exist between human development index and prevalence of HIV/AIDS.

Hypothesis Four: Higher Literacy Rate is associated with lower prevalence of HIV/AIDS.

The regression analysis suggested otherwise for the fourth hypothesis. As literacy rate increased by 1 unit, this led to 0.0311 increase in prevalence of HIV/AIDS,

controlling for the effect of all other variables. This shows a positive relationship between the two variables (X and Y). However, the P-Value for this X-variable remains beyond the statistically threshold of 0.05, which lead to the conclusion that there is no relationship between literacy rate and prevalence of HIV/AIDS.

Hypothesis Five: Higher Population Density is associated with Higher Prevalence of HIV/AIDS.

With the fifth hypothesis, a 1 unit increase in population density also yields 0.0002 increase in prevalence of HIV/AIDS controlling for the effect of all other variables. This shows a positive relationship between the two variables. As with literacy rate, the population density variable also suggested a higher HIV prevalence in a more densely populated area. However, with a P-Value of 0.8615, this stands beyond the statistically threshold of 0.05, which indicated that there is no relationship between population density and prevalence of HIV/AIDS.

The F-test in first model is above the statistic significant level. The F-test of 0.716 indicates that l cannot say with 95% confidence that Percentages of people who have about HIV/AIDS, Population Density, Unemployment rate, Human Development Index, Percentage of budget Spent on Healthcare and Literacy Rate (X-Variables) explain a significant relationship of the prevalence of HIV/AIDS (X variable), which leads to inconclusive result. Table 3 further explains the F-test for all other models.

The first regression statistics also show that the regression model had an R-Square of 0.109675, which explained the variability of Y as explained by all the six independent variables. This means that the variables have the regression which accounted for 10.9%

of the HIV/AIDS prevalence rate as found in Table 4. Consequently, the statistic outcome

and interpretation of this model show some evidence of multicollinearity based on the

less significant level in first model.

   The researcher further readjusted the model by eliminating Human Development

Index. Since human development index is a measurement of a nation's life expectancy,

adult literacy, decent standard of living which were captured as separate variables in the

model. Eliminating this variable is expected to resolve the perceived multicollinearity in

the model. After an attempt to eliminate human development index from my model, the

researcher also ran two more models to reaffirm the relationship between the independent

variables and dependent variable, with the goal to overcome the existence of

multicollinearity, uphold the reliability and accuracy of the models and to reconfirm if

there are significant relationships between X- variables and Y-variable (Please refer the

Table 4) In all the three other models, the pattern of correlation coefficient for all the

variables as hypothesized remain the same for all the models, except population density

in Model 3 with a decline of −0.0002

   Likewise, the P-value for all the models are greater than the 0.05 thresholds (see

table 4). The outcome from the other models help to substantiate the reliability of the data

and it also helps to eliminate the suspicion of multicollinearity. The F-test in all these

models also stretch beyond the recommended significant threshold of 0.05 p-value, which

makes me to conclude with 95% confidence that all the X-variables does not explain a

significant relationship of the Y variables. It is also worth noting that the outcome of

both correlation matrix and regression analysis show that none of the independent

variables significantly impact dependent variable.

It is also fascinating to note that three independent variables (Human development index, Unemployment rate, Percentages of people who have heard about HIV/AIDS, and Percentage of budget Spent on Healthcare) stood out in the all the models with the lowest P-Value in all the four models, ranging from 0.2196 to 0.5925, which have negative correlation coefficient with prevalence of HIV/AIDS (See Table 4). Even though none of these X variables has significant relationship with prevalence of HIV/AIDS, it is worth noting that the data was able to answer my hypotheses, which shows the usefulness of this study.

Furthermore, literacy rate had a positive slope, meaning that as literacy rate increases, so does the prevalence rate. Similarly, unemployment rate had a negative slope which suggested that as unemployment levels go up, the prevalence of HIV/AIDS goes down at a lower rate. This data was against the estimation of the researcher's projections for literacy rate and unemployment. Although, this cannot be fully understood without further researches, this is the most interesting finding of the results.

Chapter 6

Conclusion, Implication/Limitation of Study and Recommendations.

In general, it is obvious that HIV/AIDS has significant negative consequences on the carriers and puts enormous stress on the resources of a nation; and it is worth noting that the least developed nations of the world suffer more from this epidemic. This epidemic has preyed and inflicted a lot of pain in the fabric of Nigeria society. However, the Federal Government of Nigeria has long engaged in initiatives to mitigate the menace of this deadly disease. Despite the Federal Government of Nigeria initiatives on expanding access of healthcare to people living with HIV/AIDS and other proactive measures in curtailing the spread of HIV and access to healthcare, there is little evidence to show for its success.

As such, this research work is carried out to better understand and mitigate the negative effects of HIV/AIDS disease. The purpose of the study is to fill a gap in the literature by examining the impact of economic, education, healthcare and population on prevalence on HIV/AIDS in Nigeria. In investigating these major determinant variables, the research is constrained with availability of data, availability of resources and thesis completion timeline. The researcher used data within 5 years range, and the sample size for the research is small. It is expected that further researches take these limitations into consideration by exploring a wide range of data, increase the sample size by capturing the prevalence of HIV/AIDS in each of the local government in Federal Republic of Nigeria. This thesis utilized data from each states of the country, which is not the best measure for this research. Data from each of the 774-local governments in Nigeria should be accessed

for this purpose. Data from these local governments will be extremely useful for this study and these data are not accessible from the secondary sources.

The research work is also constrained by financial resources and completion timeline. If financial resource and extensive timeline were available, researcher would have made use of primary data from each of the states in Nigeria. This will require travelling to each of the 36 states in Nigeria to source for this information and clear the doubt on the unclear drawn of border line among the states in Nigeria, which further threaten the reliability of the data on prevalence of HIV/AIDS.

Furthermore, future study should explore other related research questions that this thesis did not take into consideration. Such questions will have the potential to answer future variables in relation to the prevalence of HIV/AIDS in Nigeria.

Despite these limitations, using Gretl regression tool to analyze the data component of this research has helped to conclude that none of the variables discussed is significantly correlated with prevalence of HIV/AIDS in Nigeria. However, there is considerable evidence that the literacy, percentage of people who have heard about HIV, unemployment rate, human development index impacted the prevalence of HIV/AIDS. This implies that simply increasing expenditure on healthcare, improved economy and education on HIV will not necessarily improve the prevalence of HIV/AIDS in Nigeria.

The policy implementation of the findings of the research is that achieving HIV/AIDS National Strategic Plan (Nigeria Vision 2020) and Millennium Development Goal on HIV in Nigeria required combination of holistic and comprehensive measures. I recommend that policy makers should abstain from corrupt practices and mismanagement

of funds. Funds allocated for eradication of HIV/AIDS should be utilized for its purpose, without being diverted to personal account or other projects.

It is important for policy makers and/or programmers to develop age and gender specific HIV/AIDS prevention strategies in all the local languages in Nigeria, that focus on sex education and promoting the delay of sexual debut, which attributes to multiple sexual relationships and scale up the risk of being infected with the virus. Since HIV has no cure, policy makers should engage in further researches at every point in time. There should be regular studies on HIV/AIDS that focus on the actual predicators which are evidence based and well targeted.

Government should enact various laws that should protect against stigmatization among people living with HIV/AIDS. Currently, the right of these groups of people is being abused without any attempt to put those who circumvent these laws to trial. Most of the times though, the carriers of this disease do not even know that such laws exist to protect them in the first place.

It is also important the government step up access to healthcare. A pragmatic and sustainable approaches are required in order to scale down the denial of access to those who urgently need it. The Federal Government of Nigeria needs to mobilize and sustain partnership with public, private and international initiatives and resources. Institutional framework for national, state and local statutory organizations to enact laws at different levels of governments; resources mobilization through public and private donors; expansion of private health insurance; research and development; monitoring and evaluation and international partnerships.

The government should also ensure that there is consistency in its policies towards sustainable HIV/AIDS related programs. Successive governments should deem it fit to continue its predecessors' programs instead of terminating and commencing new program, purposely because of political gains or party loyalty. Inconsistent program designs that tackle and mitigate HIV/AIDS programs has contributed to unsuccessful or slowdown of government efforts in achieving a sustainable transition to care after diagnosis among people living with HIV/AIDS in Nigeria. A more effective and efficient approaches will translate to reduction in mortality rate among this group of people. Finally, Nigeria requires strong leadership at all levels of the society for an effective response to this epidemic.

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Appendices

Regression Model 1

Model 1: OLS, using observations 1-37
Dependent variable: Prevalence of HIV

	Coefficient	Std. Error	t-ratio	p-value	
const	13.7208	6.96305	1.971	0.0581	*
Percentagewhohav eheardofAI	−0.0955342	0.0764255	−1.250	0.2210	
PopulationDensity	0.000192582	0.00109462	0.1759	0.8615	
UnemploymentRat e	−0.0636858	0.0779432	−0.8171	0.4203	
PecentageofBudget onHealth	−0.226747	0.198204	−1.144	0.2617	
HumanDevelopme ntIndex	−3.13405	5.64877	−0.5548	0.5831	
LiteracyRate	0.0310829	0.0353674	0.8789	0.3865	

Mean dependent var	3.445946	S.D. dependent var	3.338046
Sum squared resid	357.1379	S.E. of regression	3.450304
R-squared	0.109675	Adjusted R-squared	-0.068391
F(6, 30)	0.615924	P-value(F)	0.715814
Log-likelihood	−94.44400	Akaike criterion	202.8880
Schwarz criterion	214.1644	Hannan-Quinn	206.8635

Regression Model 2

Model 2: OLS, using observations 1-37
Dependent variable: Prevalence of HIV

	Coefficient	Std. Error	t-ratio	p-value	
const	13.1877	6.81901	1.934	0.0623	*
LiteracyRate	0.0204014	0.0293352	0.6955	0.4919	
PopulationDensity	3.30760e-05	0.00104434	0.03167	0.9749	
UnemploymentRate	−0.0614198	0.0769622	−0.7981	0.4309	
PercentagewhohaveheardofAI	−0.0946596	0.0755514	−1.253	0.2196	
PecentageofBudgetonHealth	−0.233013	0.195660	−1.191	0.2427	

Mean dependent var	3.445946	S.D. dependent var	3.338046
Sum squared resid	360.8024	S.E. of regression	3.411567
R-squared	0.100539	Adjusted R-squared	-0.044535
F(5, 31)	0.693018	P-value(F)	0.632571
Log-likelihood	−94.63286	Akaike criterion	201.2657
Schwarz criterion	210.9312	Hannan-Quinn	204.6733

Regression Model 3

Model 3: OLS, using observations 1-37

Dependent variable: Prevalence of HIV

	coefficient	std. error	t-ratio	p-value
const	9.44246	5.90765	1.598	0.1198
Percentagewhohav~	−0.0830812	0.0744971	−1.115	0.2731
PopulationDensity	−0.000178455	0.00104326	−0.1711	0.8653
HumanDevelopment~	−3.30826	5.57917	−0.5930	0.5574
LiteracyRate	0.0430020	0.0306837	1.401	0.1707

Mean dependent var	3.445946	S.D. dependent var	3.338046
Sum squared resid	375.0726	S.E. of regression	3.423597
R-squared	0.064965	Adjusted R-squared	-0.051915
F(4, 32)	0.555825	P-value(F)	0.696240
Log-likelihood	−95.35045	Akaike criterion	200.7009
Schwarz criterion	208.7555	Hannan-Quinn	203.5405

Regression Model 4

Model 4: OLS, using observations 1-37

Dependent variable: Prevalence of HIV

	coefficient	std. error	t-ratio	p-value
const	11.2463	6.08919	1.847	0.0740 *
Percentagewhohav~	−0.0838730	0.0734812	−1.141	0.2622
PecentageofBudge~	−0.169872	0.178527	−0.9515	0.3485
HumanDevelopment~	−2.88474	5.33577	−0.5406	0.5925
LiteracyRate	0.0277638	0.0339552	0.8177	0.4196

Mean dependent var	3.445946	S.D. dependent var	3.338046
Sum squared resid	365.0860	S.E. of regression	3.377712
R-squared	0.089861	Adjusted R-squared	-0.023907
F(4, 32)	0.789861	P-value(F)	0.540405
Log-likelihood	−94.85120	Akaike criterion	199.7024
Schwarz criterion	207.7570	Hannan-Quinn	202.5420