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Effects of Nonadherence to HIV/AIDS Drugs on HIV-Related Comorbidities in Eastern Nigeria

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Abstract

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PhD, Walden University, 2019

MHSA, Strayer University, 2009

Dissertation Submitted in Partial Fulfillment
Of the Requirements for the Degree of
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Abstract

Developing countries like Nigeria continue to have HIV epidemic challenge due to the scarcity of evidence-based information and lack of resources to boost HIV education. The study population, Owerri, is one of the states in Nigeria with a high incidence rate of HIV. The purpose of this phenomenological study was to explore the experiences of people living with HIV/AIDS regarding the effects of nonadherence to HIV/AIDS drugs. The integrated theory of health behavior model provided the framework for the study. I collected, transcribed, and analyzed interview data to identify clusters and themes. Results showed that various factors influenced and (e.g., free drugs, fear, culture, medication side effects, discrimination, relationship/support system, poverty, belief, easy access) contributed to adherence behavior among respondents. People living with HIV/AIDS may be encouraged to adhere to drug treatments because of these research findings. This study contributed to a positive social change in that respondents were excited and open about sharing their fears, challenges, struggles and hope with the anticipation to influence others to be open about their HIV disease.

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Dedication

I thank God Almighty for the completion of this study; this would be a dream without God’s strength and grace to persevere to the end. I dedicate this dissertation to my late mother Christiana Asinobi Egenamba, like a candle in the wind your light was diminished early on in life from a preventable/chronic disease due to lack of quality medical care in Nigeria. Mom, we miss you every day. I believe you are with God and looking down on us with pride. To my dependable epic grandmother Beatrice Uloukwu Asinobi a woman of grace, passion, strength, and the rock of our family, you held everything together with love and purity of heart. People say I look like you; I wish I have your profound intellect (without education) wisdom, resilience, motivation, understanding of every challenge, and unparalleled love for all. I know that I inherited your quest for knowledge and the joy of living; I love and misses you immensely Nne. To my son Joshua, my pride and joy, I love you more than life; you make my life meaningful with your steadfast love, loyalty and words of encouragement. My husband Emenike Ojukwu, I appreciate your understanding and endurance in the long period spent for the pursuit of this dream. Thank you for teaching me to catch whatever life throws at me. My uncle Nelson and Aunty Hannah who are resting with the saints; you gave me the solid foundation on which I stand. You are the best uncle and aunt; I will forever love you.

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Chapter 1: Introduction to the Study

Human immunodeficiency virus/acquired immunodeficiency syndrome has claimed more lives than any other disease since its appearance. A report by United Nations Children's Fund (UNICEF) (2017) noted that Nigeria has one of the largest shares of new HIV infections among children 0 – 14 year. Nigeria has a population of 182 million people (UNICEF, 2017) and the vast size of Nigeria and its absolute HIV burden can obscure understanding of significant heterogeneity. Most pregnant women with HIV attending at least one antenatal care visit in West and Central African countries was above 80 percent except these four countries (the Central African Republic, Chad, Mali and Nigeria) that had coverage rates below 80 per cent. Odimegwu, Akinyemi, and Alabi (2017) wrote that among the countries of Africa, Nigeria has a large HIV burden, with over 3.8 million people living with HIV/AID, and the second largest rating globally. The prevalence of adult with HIV 3.1%., about 44% of adults and children living with HIV have access to ART based on the eligibility criteria of CD4 count of 350 cells/mm^3 (Odimegwu, Akinyemi, & Alabi (2017).

Only 2 in every 10 people living with HIV have access to antiretroviral treatment causing 19% of AIDS-related deaths in Nigeria (UNAIDS, 2014). In the southern states of Nigeria, HIV prevalence is higher at 5.5 % than 1.8 % recorded in the southeast states. The rural areas also have higher rates (4%) than 3% in urban areas (AVERT, 2017). WHO reported that Tuberculosis is still a significant public health issue in Nigeria, ranking 5th among the 22 countries with the highest TB burden globally (WHO Health Topics, 2019).

AVERT (2017) reported that 22% of PLWHA have TB and that Nigeria ranks fourth in the TB epidemic worldwide. However, people living with HIV/AIDS (PLWHA) who are taking ART treatment decreases the risk of TB infection (AVERT, 2017). Research has shown that lack of medication adherence by infected individuals contributed to HIV/AIDS comorbidities (e.g., cancer, tuberculosis, renal failure, hepatitis) and high mortality rates (Bigna et al., 2015; Gray & Cohn 2013; Monroe, Chander & Moore 2011). HIV/AIDS patients with opportunistic diseases such as tuberculosis may receive antiretroviral therapy (ART) treatment to boost their immune systems (AIDSinfo, 2015; Kaplan et al., 2009). AVERT (2015) reported that in 2014, only 51% of all people with HIV in Nigeria received ART due to low provision, including 12% of children and 30% of pregnant women. The inconsequential delivery of ART and uptake of HIV treatment in Nigeria has contributed to the development of TB from HIV infected individuals. This has eroded the target plan of cutting TB prevalence in the country in half (AVERT, 2017).

The primary goal of ART is to prevent HIV-associated morbidity and mortality (AIDSinfo, 2016). In resource-limited countries such as Nigeria, however, seropositive people are struggling to have access to ART and available prophylactic measures. Dahab et al., (2008) noted multiple barriers to treatment adherence for individuals with HIV, including denial of HIV-positive status, belief, use of traditional medicines, and long waiting times at clinics, feeling better after the first treatment, and perceived severity of side effects. There is a significant research vacuum on strategies to reduce nonadherence to ART drugs in the eastern part of Nigeria. Research on the target population has focused on sociocultural influences and other factors affecting HIV spread, with insufficient research and information pertaining specifically to ART. The purpose of the current study was to add knowledge on this topic and provide recommendations for the design of preventive medicine to improve access and adherence to antiretroviral drugs. This study’s social implications for people living with HIV/AIDS include the potential to promote positive behavioral change that facilitates increased awareness of the benefits of ART adherence.

Background

The term *antiretroviral therapy (ART)* refers to a combination of at least three antiretroviral (ARV) drugs (World Health Organization [WHO], 2015) manufactured to contain the attack of HIV on an infected person’s immune system and reduce HIV-related morbidity and mortality. HIV infection progresses to full-blown AIDS, which is the final stage of HIV infection. At this stage, the infected person is susceptible to opportunistic infections due to damaged immune systems (AIDS.gov, n.d.). Suppression of virology and immunology of an HIV-infected person is achievable through adherence to ART treatment (AIDSinfo, n. d; Nsimba, Irunde & Comoro, 2010). Adherence includes taking 95% of prescribed HIV drugs and complying with the HIV/AIDS regimen to boost optimal health outcomes (Aragone, Sanchez, Campos, & Perez, 2011; Mendelsohn, Schilperoord, Spiegel, & Ross, 2012; Schaecher, 2013). WHO (2015) reported that ensuring adherence to ART remains a problem despite improved access to HIV/AIDS treatment and care services in low- and middle-income countries.

About 36.7 million people were living with HIV worldwide by the end of 2015 (WHO, 2016), and in 2012 only 9.7 million people living with HIV/AIDS in developing countries were receiving ART. However, by mid-2016 an estimated 18.2 million HIV infected individuals were receiving ARV. HIV/AIDS patients in developing countries, in contrast to those from developed countries, have limited access to ARVs. Nigeria falls in the category of low- and middle-income country, and Imo state is one of the most burdened states in the country with a high HIV incidence rate (Smith, 2014). Despite free testing provided by the Imo state government through Owerri Federal Medical Hospital Center and other government programs, many people in Nigeria do not yet know their HIV status (Ijioma, Kalu, Nwachukwu, & Nwachukwu, 2010).

Empirical studies have shown that several factors contribute to medication adherence and noncompliance (Mills et al., 2006; Nandoya, 2014; Palella et al., 2006; Peltzer & Pengpid, 2013; Shittu et al., 2013). The most common factors noted as affecting medication adherence negatively in sub-Saharan Africa are cost, stigmatization, fear of disclosing HIV status, and difficulty in following complex drug regimens (Mills et al., 2006). A study by Penn, Watermeyer, and Evans (2011) conducted in four clinics in South Africa showed that despite the complex and multifaceted factors leading to nonadherence, communication between health care professionals and patients can play a critical role in achieving optimal success in adherence.

There are not enough data on adherence and nonadherence to combination ARV drugs to determine prevalence/incidence rates among seropositive people or ARV outcomes in the targeted population. Through this study, I sought to provide information and recommendations for Imo state to promote optimal use of HIV/AIDS ART. Studies on HIV/AIDS ART adherence in African settings have indicated increased challenges to adherence (Bedelu, Ford, Hilderbrand, & Reuter, 2007; Katz et al., 2013; Nsimba et al., 2010; Root & Whiteside, 2013).

Problem Statement

Nigeria has the second-largest burden of HIV among the countries of Africa, with over 3.6 million people living with the disease (UNAIDS, 2013). Some have argued that this number is unreliable due to a lack of credible statistics to represent the population severely burdened with HIV/AIDS in Nigeria (AVERT n.d). The CDC (n.d.) reported that lack of knowledge affects rates of HIV in communities. People in rural communities without adequate information and access to treatment are more susceptible to HIV/AIDS infection (Muula, 2008). HIV/AIDS disease has plagued the world since its appearance, with developing countries bearing the most significant burden (WHO, 2018). HIV prevention strategies and therapy have advanced, offering the potential to prevent further spread of the disease (Bertozzi et al.; 2006).

The National Agency for the Control of AIDS (NACA, 2012) ranked Nigeria third in the world among countries with the highest prevalence rate of HIV/AIDS. Research conducted by Ijioma, Kalu Nwachukwu & Nwachukwu (2010) to determine the HIV/AIDS incidence rate from 2007–2009 showed that 17,964 patients (1,110 [16.3%] females and 6,954 [38.7%] males) tested positive for HIV/AIDS disease. Causal influences that prompt nonadherence to ART drugs include denial of HIV-positive status, belief, use of traditional medicines, and long waiting times at clinics (Bedelu et al., 2007;

Dahab et al., 2008; Uzochukwu et al., 2009). Additional influences include knowledge of HIV/AIDS, feeling better after the first treatment, lack of counseling or inadequate counseling, and perceived severity of side effects (Jelsma, MacLean, Hughes, Tinise, & Darder, 2005; Nsimba et al., 2010; Uzochukwu et al., 2009). In sub-Saharan Africa, cost, fear of stigmatization, alcohol abuse, and difficulty in following complicated drug regimens are the most common factors in nonadherence to ART (Mills et al., 2006; Shittu et al., 2013). The gap in the literature that I intended to fill with this research concerned the effect of the identified barriers to adherence to HIV treatment in relation to the enormous spread of HIV infection in Owerri, Imo State, Nigeria.

Purpose of the Study

The purpose of this study was to identify and describe the challenges of adherence to anti retrovirus therapy (ART) for people living with HIV/AIDS (PLWHA) in Owerri, Nigeria, and to describe the effects on opportunistic diseases. Doing so may help to fill the gap in the literature regarding HIV-related comorbidity among patients who are receiving combination antiretroviral therapy (cART). I used a qualitative phenomenological approach. We collected data from participants through in-depth interviews and observation of patients attending the hospital treatment center to capture occurring behaviors in a natural setting.

Research Question

I conducted this study to answer the following question: What are the challenges for people living with HIV/AIDS in adhering to anti-retrovirus therapy and what are the effects on opportunistic diseases? To answer this question, I addressed the following subtopics:

1. identify the reasons for adherence or nonadherence to ART drugs for HIV/AIDS or related illness as perceived by PLWHA residing in Owerri,
2. identify known factors to ART adherence that affect PLWHA general well-being (i.e., emotions, physicality, spiritual, and social life) in Owerri,
3. identify and describe the social support for those who take ART drugs as perceived by PLWHA residing in Owerri,
4. identify and describe the challenges of assessing HIV/AIDS medication as understood by those infected by the disease,
5. identify and describe the factors that contribute to the increase in HIV infection in Owerri as perceived by PLWHA residing in Owerri.
6. describe the perception of effectiveness in the programs in Owerri that address the concerns of PLWHA as perceived by PLWHA living in Owerri.

Theoretical Framework

This integrated theory of health behavior model (ITHB) informed data collection strategy and analysis (see Creswell, 2009). Glanz, Rimer, and Viswanath (2008) stated that the theory of health behavior focuses on the individual emotion to health behavior, which, motivate and influence by uncontrollable and unconscious factors. Previous researchers who adapted the ITHB model to examine HIV/AIDS adherence showed its effectiveness (Kalichman et al., 2011; Munro et al., 2011). HIV/AIDS research often includes theories that rely on multiple health promotions to explore the dynamics of networks, couples, communities, and societal influences on individual behaviors (Traube, Holloway, & Smith, 2011). In the current study, I examined the lives and practices of PLWHA (participants) taking antiretroviral drugs and used ITHB to provide theoretical perspectives on ART and strategies that enhance adherence in the community. The ITHB model serves as a lens for questions on gender, status, education, and income (Creswell, 2008). A semi-structured questionnaire was used to explore the underlying psychological, cultural, and educational, government, and family support and socioeconomic influences on the participants' ability to adhere to HIV/AIDS treatment recommendations.

Nature of the Study

I used a qualitative phenomenological design to identify challenges of ART adherence among PLWHA, the effects on opportunistic diseases, and incidence rate. Qualitative research serves as an orienting lens and advocating perspective that guides research questions and data collection (Creswell, 2013). I examined the phenomenon that some people in the targeted community do not adhere to ART regimen, which may contribute to HIV comorbidities. The aim was to explore this phenomenon to extract views and experiences of participants. Patton (2002) stated that the qualitative approach is holistic, naturalistic, and well suited to exploration; it allows the researcher to define a situation without imposing preexisting expectations.

The design was a qualitative phenomenology used to obtain information for analysis through recorded in-depth interview responses, observations, and data from sample participants. The intention in the current study was to use the interview questions to probe and get participants to discuss individual sociocultural influences on ARV adherence, to obtain a general overview of challenges to access care that PLWHA face. The setting was a tertiary hospital Owerri where participants were receiving treatment for HIV/AIDS or other HIV-related diseases. Creswell (2013) noted that characteristics of qualitative research include; conducting a study in a natural setting, collection of multiple types of data, researcher relies on own instrument as a tool, uses both inductive and deductive reasoning to understand data, focuses on participants' perspectives, emergent and evolving exploration.

A qualitative phenomenological design includes asking questions on why and how to understand the phenomenon the researcher is studying. This design served as a conduit into the lives and experiences of PLWHA to understand the characteristics of the population demographics (i.e., age, gender, level of education, income status, and other traits). The researcher needed effective communication to obtain a precise assessment and perception of who the target population is, how they live their lives, and their cultural norms.

Significance

U.S. Food and Drug Administration has approved over 31 antiretroviral drugs to treat HIV infection. PLWHA are now living longer and quality lives because of better treatment (CDC.gov 2019). There is no known cure for HIV infection; however; this treatment regimen reduces the progression of the disease from HIV to AIDS and HIV-related comorbid diseases (HealthCentral.com 2019). Regardless of the reported benefits of drug compliance to HIV/AIDS management (CDC.gov 2017; Nih.gov 2015; Schaecher 2013), many people in Owerri are struggling to accept an HIV-positive status or to receive treatment for fear of being labeled. Compliance is of particular importance when it comes to the treatment of HIV infection and transmission (Igwebe, Ugboaja & Nwajiaku, 2010; Oladepo & Fayemi, 2011).

Previous research showed that 95% of highly active antiretroviral therapy (HAART) adherence decreases HIV-related diseases (i.e. tuberculosis, cancer, pneumonia), yields optimal immunology and viral loads, and improves survival rate (Abaasa et al., 2008; Elul et al., 2013; Nachega et al., 2009; Tran et al., 2013). Socioeconomic status, environment, lifestyle, culture, and beliefs are other factors that influence adherence (Anosike, 2010; Arnold, Fisher & Mcfarland; Mukoma et al., 2009; Rhodes et al., 2007). My population lack data on antiretroviral treatment or other combined ART due to insufficient research on how factors like gender, cost, beliefs, education, stigma, adverse effects, and lack of access to ART affect the lives and relationships of PLWHA.

The goal of this research was to facilitate a positive social change in the way people in Owerri perceive HIV disease. The results from this study can positively affect the lives of HIV/AIDS patients who struggle to access and adhere to treatment regimens due to personal challenges. Additionally, evidence-based information generated from data analysis was available for policymakers to guide them in making decisions on the development and implementation of projects that increase HIV/AIDS medication accessibility and the promotion of preventive programs to contain comorbidity among people living with HIV/AIDS in Owerri.

Summary

This chapter provided an explanation of the research background, the scope of the research topic, the purpose of the study, the use of theoretical framework to examine the problem, and the positive social impact. This study addressed the implications and the relevance of adhering to prescribed HIV treatment for PLWHA in Eastern Nigeria. In Chapter 2, I review the literature related to the topic.

Chapter 2: Literature Review

Researchers have examined HIV drug adherence and factors that contribute to nonadherence among people diagnosed with HIV infection. Some researchers agreed that nonadherence to HIV therapy negatively affects an infected person (Do, Phiri, Bussman, Marlink, & Wester, 2010; Root & Whiteside, 2013). Inadequate care, a limited supply of antiretroviral (ARV) drugs, and lack of education on the benefits of ARV have contributed to the spread of HIV and HIV-related comorbidities in the eastern part of Nigeria. Several researchers including Aragones, Sanchez, Campos and Perez (2011); Kim, Gerver, Fidler and Ward (2014); Mendelsohn et al., (2012); Schaecher, (2013); Tapp et al., (2011); Wasti, Simkhada, Randall, Freeman, & van Teijlingen, (2012) have examined ART adherence across the world. This include most sub-Saharan African countries (Aransiola, Akinyemi, & Fatusi, 2014; Dahab et al., 2008; Egole-Oziri, 2015; Ford, Calmy, & Mills, 2011; Nwauche, Erhabor, Ejele, & Akani, 2006). However, a gap exists in research on the target population. Broader research on ART adherence has been conducted on different groups including children (Akahara, Nwolisa, Odinaka, & Okolo, 2017), pregnant women (Onyenero, Ebenebe, Nwamoh, & Emelumadu, 2013) and PLWHA determinants of adherence to HAART (Oku, Owoaje, Oku, & Monjok, 2014).

The primary aim of this study was to understand why people living with HIV and AIDS in Eastern Nigeria struggle to initiate and adhere to ART. I also wanted to determine the implications of nonadherence (e.g., the development of HIV opportunistic diseases) among HIV patients. This chapter includes a review of pertinent literature related to ARV adherence, HIV, and HIV-related comorbidities and the implications of nonadherence for the development of HIV-opportunistic diseases. Katz et al. (2015) posited that despite South Africa's implementation of a popular ART program, only one third of the 6 million people with HIV in the country are receiving care. Those who choose to receive care often initiate a late treatment when their CD4+ cell counts and comorbidities put them at the high risk of mortality (Aidsinfo.org, 2016).

Mistrust and conspiracy of HIV disease and prescribed drugs (ARV) impede the global goal of fighting HIV infection. African Americans and Africans in most sub-Saharan African countries question the mystery of HIV/AIDS. Bogart, Wagner, Galvan, and Banks (2014) maintained that the prevalence of mistrust among African Americans influences health care behaviors such as medication adherence to HIV treatment. Distrust of governments and support of AIDS-related conspiracy theories (ACTs) have intensified misconceptions about the origin of HIV/AIDS among specific groups (Ford, Wallace, Newman, Lee, & Cunningham, 2013). ACTs echo suspicion that some racial groups have regarding the source of HIV and why it generally affects poor and minority communities (Ford, et al.). One conspiracy theory identified in a study by Ross, Essien and Torres (2006) claimed that African Americans believed that government and scientists created HIV virus to eliminate certain groups. Ford et al. (2014) cited several studies conducted among population-based, racially/ethnically diverse populations that affirm ACTs. These individuals often believe that humans cause HIV and that those taking ART are guinea pigs (experimental subjects) for the government (Bogart et al., 2010; Ford et al., 2014).

Because an HIV-infected person already has a weakened immune system, not complying with prescribed HIV drugs may result in the development of opportunistic diseases. Diseases such as cardiovascular disease, diabetes, renal disease, cholesterol metabolism, cancer, tuberculosis, and emotional and psychological disorders is linked to HIV (Abaasa et al., 2008; Calza, 2012; Nachega et al., 2009; Webster, 2010). Adverse effects of ARV are one of the contributing factors for HIV medication nonadherence and loss of retention (AIDSinfo.gov, 2015; Christopoulos et al., 2015; Okoronkwo, Okeke, Chinweuba, & Ihenacho, 2013; Thames et al., 2012). Researchers from the Medical Monitoring Project found out that one in 20 U.S. individuals who had started ART at some point in their lives had discontinued the treatment (Christopoulos et al., 2015). According to Christopoulos et al., these individuals cited fear of side effects, unstable psychological conditions, substance abuse, and conspiracy beliefs as reasons for adherence. In a similar study conducted in Uganda to assess the impact of adherence to highly active antiretroviral therapy (HAART) on survival in HAART community program, Abaasa et al. (2008) found a significant correlation between nonadherence and mortality.

However, antiretroviral therapy regimen has been improved to reduce adverse effects and achieve the goal of ARV treatment after initiation, including maximal suppression of plasma HIV RNA, restored and preserved immunity, decreased HIV-associated morbidity, and prolonged duration of survival and prevented HIV transmission (AIDSinfo, 2015). Chritoupoulos et al. (2015) used the dyadic theoretical framework to explore (a) the implications of patients and providers’ ARV adherence, (b) the dyadic experience of negotiating ART, and (c) decisions to encourage, prescribe, and initiate ART. The findings suggested that patients are willing to initiate ART due to newer tolerable drugs and provider recommendation for the patient to start ART treatment. However, this improved ART approach may be limited in areas such as the target population.

Literature Search Strategy

The literature review centered on the dependent and independent variables (age, education, income, gender, marital status, HIV status, and subcomponents of HIV/AIDS treatment adherence). I used different literature search strategies including automated electronic database searches, HIV listservs, relevant references pertaining to the study, and Google Scholar. I used the following databases to find peer-reviewed literature: EBSCOHOST, CINAHL, ProQuest, PubMed, and Science Direct. I also searched HIV listservs and the websites of the Centers for Disease Control and Prevention (CDC), AIDSInfo, National Agency for the Control of AIDS Nigeria (NACA-Nigeria), National Center for Biotechnology Information (NCBI), World Health Organization (WHO), The Joint United Nations Programme on HIV/AIDS (UNAIDS), and the National Institute of Health (NIH). Key words used to search for information included *HIV/AIDS medication adherence*, *HIV co-morbidity*, *challenges to ART*, *availability and accessibility to ARV in resource-limited settings*, *HIV and integrated behavioral model*, and *effects of non-adherence of ARV to HIV transmission*.

Perception and Acceptance of HIV Antiretroviral Drugs

Human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS) have acquired many names including Oria Nwabekee (White man's disease), obirina aja ocha (ends in the grave), and others by ignorant and illiterate people in Nigeria. Most people believe HIV/AIDS to be a White man's disease or an infliction from God on homosexuals and prostitutes. People do not openly engage in a discussion about the issue for lack of courage. Feyissa, Abebe, Girma & Woldie (2012) wrote that stigma and discrimination are major obstacles in the way of effective responses to HIV disease, understanding the magnitude and underlying HIV – related stigma and discrimination is important to the development and implications of programs that deals with it.

The HIV disease attacks the immune system of an infected person by destroying the CD4 positive (CD4+) T cells, which are the white blood cells that fend off infections and diseases (NIH, n.d). HIV disease usually leaves the infected person vulnerable to other diseases, otherwise known as opportunistic infections, due to the weakened immune system of the infected person. AIDS is the final stage of HIV disease caused by very low CD4+ T cells and complications from HIV-related comorbidity such as tuberculosis, cancer, pneumonia, and malaria. Since the onset of HIV infection, the disease has claimed many lives, rendered many orphans and widows/widowers, and sapped the financial capability of people with the disease to live in material comfort due to the high cost of HIV drugs.

The American Foundation for AIDS Research (amFAR) reported that nearly 37 million people now live with HIV, and about 5600 people are infected daily, and this is more than 230 people per hour (amFAR: AIDS Worldwide Statistics, 2015). HIV prevalence in developing countries continue to be a challenge for public health professionals. Nigerian's have trust issues when it comes to accepting the myth of HIV as many believe the HIV- related conspiracies . Regardless of good intentions of the global community, skepticism still abounds among Nigerians of Western funded HIV/AIDS intervention programs. Smith (2014) posited that these interventions rather than improve the negative moral concerns of HIV disease, exacerbated the anxiety. Smith noted that some HIV/AIDS education and prevention programs that Nigerians rejected and taunted such as; the scientific account that AIDS originated from African monkeys and other species passed to humans. These suggestions implied that apes infected some Africans through sexual contact. Nigerians felt angry and dehumanized by this explanation, and they felt it was a Western plot to link and blame Africans for the disease (Smith, 2014).

In addition, Nigerians resented Western HIV information and intervention programs at the early stages; they had their own various conspiracy theories (Smith, 2014) regarding ubiquitously messages communicated to them through media networks. The most common conspiracy theory was that the Central Intelligence Agency (CIA) invented HIV disease to reduce African population. Subsequent ominous predictions by the international community and published by the U.S. National Intelligence Council (NIC) in 2002, suggested that by 2010 Nigeria would have 10 to 15 million people infected with HIV proved not to be true. As it stands Nigeria has about 3 - 4 million PLWHA, the exaggerated projection was a propaganda (Smith, 2014). This complicated and undermined the intention of the global community to educate Nigerians and increase awareness about the deadly HIV infection. Other factors that has significantly impacted HIV infection awareness, and the acceptance of HIV drugs in Nigeria are; traditional beliefs, culture, religion, inequality (Awoniyi, 2015; Smith, 2014, Sofolahana &

Airhihenbuwa, 2012), poverty, lack of knowledge, low personal risk perception, inadequate access to and poor quality of healthcare services (Anosike, 2010; Ogungbemi et al., 2012; Saki et al., 2015).

HIV/AIDS Antiretroviral Drugs

Gottlieb (2018, December 1) reported that the FDA has approved the 200th antiretroviral drug application, which includes 30 formulations specific for children under the President's Emergency Plan for AIDS Relief (PEPFAR). Pharmaceutical companies and scientists have not relented in the development of HIV drugs for PLWHA. The most commonly used HIV/AIDS drugs are the ARV and the combination antiretroviral therapy (cART). The medical dictionary defines ARV drugs as inhibitors to the reproduction of retroviruses. That means (virus) that composed of ribonucleic acid (RNA) rather than the deoxyribonucleic acid (DNA). HIV is a retrovirus, known as the causative agent of AIDS. ARV is not curative but significantly suppresses the virus and slows the onward progression of HIV to AIDS and death. The recommended simplified, less toxic combination ARV regimens for first fixed dose taken once a day is [(TDF + FTC or TDF + 3TC) + EFV] for adults and children older than three years (WHO, 2015).

The United States Food and Drug Administration (FDA) have approved more than twenty-five commonly used HIV drugs that is classified in six drug classes for the treatment of HIV/AIDS (AIDSInfo, 2016), and some of the drugs are in combination (two or more drugs put together as one pill). The six drugs are grouped by their strength to fight HIV including; non-nucleoside reverse transcriptase inhibitors (NNRTIs), Nucleoside reverse transcriptase inhibitors (NRTIs), Protease inhibitors (PIs), Fusion inhibitors, CCR5 antagonists (CCR5s) (entry inhibitors), and Integrase strand transfer inhibitors (INSTIs) (AIDS.gov, n.d). World Health organization recommends an immediate prescription of ART for anyone diagnosed with HIV to stop the progression of HIV disease, transmission, and the development of opportunistic disease without any restrictions of CD4 counts.

Antiretroviral Therapy Global Guidelines

Adherence means the act, action, or quality of adhering or, doing what is required (Merriam-Webster Dictionary). In this case, what is required is adherence to HIV/AIDS drugs treatment therapy for optimal living. The World Health Organization (WHO, 2015) noted huge reductions in death rates and infections after patients received the potent ART regimen in the early stages of HIV infection. The ARV regimen comes with some difficulties, which prompted some guidelines from different institutions. Dybul, Fauci, Bartlett, Kaplan and Pau (2002) wrote that the US Department of Health and Human Services and Henry J. Kaiser Family Foundation convened in 1996 to develop evidence -based guidelines for the clinical management of HIV infections.

The DHS updated the guidelines in 1998, with the goal of obtaining maximal suppression of HIV viral loads, preserving immunologic functions, and improving the quality of life and the reduction of morbidity and mortality rate. The guideline for offering treatment to asymptomatic patients requires analysis of potential risks and benefits. Individuals with < 350 CD4+ T cells/mm3 or plasma HIV ribonucleic acid (RNA) levels of > 55000 copies/mL (by b-deoxyribonucleic acid [bDNA] or reverse transcriptase-polymerase chain reaction [RT-PCR] assays get to receive treatment. A recommendation from the report is that treatment should be contingent upon an individual willingness and readiness to adhere to the regimen (Dybul et al., 2002).

The World Health Organization (WHO) has published global HIV antiretroviral guidelines in 2002, and followed with revisions in 2003, 2006, and 2010. In 2013, WHO achieved the first consolidated guidelines for ARV drugs for all populations, leading to the adoption and the implementation of early treatment approach by many countries including Brazil, France, USA, Rwanda, Thailand, Zambia, Indonesia, Mozambique, and Vietnam. (WHO, HIV Treatment Report, July 2015). In July 2014, comparison among 58 World Health Organization countries, which had adopted the guidelines, showed that 58% of these countries had changed the guideline threshold of CD4+ T cell count to 500 cells/mm3 for adults. Similarly, by November 2013, 71% of these countries have planned policies for serodiscordant couples (WHO, Global Fund Report; January 2015). Due to funding challenges in resource-limited settings, WHO Global Fund, suggested a scale up of the availability and accessibility of ARV treatment for the most vulnerable. WHO estimated that between 2015 and 2017 the number of persons that will be eligible for ARV would increase by 1.5% (WHO, 2015).

ARV Implementation and Adherence Challenges

There are complexities and challenges in adopting and implementing ARV that make it difficult for developing countries to effectively provide the drugs for those that need it the most, such as sex workers, gay and lesbians, men who have sex with men, and those living with HIV/AIDS. Public health workers face challenges like outdated clinical infrastructure, adverse government policies and strategies that constraint them from executing quality health care services. In Nepal, factors such as structural inadequacy of government health care system, financial constraint, social and cultural challenges hindered healthcare workers (Wasti, Simkhada, Randall, & Teijlingen, 2009). Other hindering factors are stigmatization and perception (Shittu et al., 2013), lack of knowledge of ART regimen benefits (Mill et al., 2006); systemic issues and the complex interplay of HIV/AIDS and communication (Penn, Watermeyer, & Evans, 2011). These elements play major roles in the implementation of ARV and medication adherence.

Several studies have associated poverty with HIV diseases (Chow et al., 2015; Pascoe et al., 2015; Oxlade & Murray, 2013, Shittu et al., 2013, WHO Report 2012,), poverty to non-adherence leading to mortality (Kalichman & Grebler, 2010; Rolnick, Pawloski, Hedblom, Ascher, & Bruzek, 2013, Nachega et al., 2014). Low-income earners or poor people may not be able to afford the high cost of ARV. In resource - limited settings, a lack of qualified healthcare personnel, access to treatment settings, enrollment and retention (Ford, Calmy, & Mills 2011) are hindering the delivery of care despite the scale up of ARV drugs supplies by World Health Organization.

In 2015, WHO reported that about 1.2 to 1.6 million people died from HIV - related diseases. Approximately 36.9 million people worldwide are living with the disease, and new infections totaled HIV over 2 million people in 2014. The sub - Saharan Africa is a region most affected by HIV, with an estimated 25.8 million people infected, representing 70 % of total global new infections (WHO Key Facts, 2015). Nigerian government first reported HIV infection in 1986, since then HIV has infected most Nigerians, and more are predisposed to HIV infection. Heterosexual sex, mother - to-child transmission, transfusion of infected blood, multiple sexual partners, gender inequality, chronic poverty, and stubborn persistence of HIV/AIDS-related discrimination and stigma (National Agency for the Control of AIDS 2014; Ogungbemi et al., 2012) caused the high prevalence of HIV in Nigeria. In Imo state, predictors of the spread of HIV and loss of patient retention in treatment include; low personal risk perception, unavailability of ARV and limited access to care, level of education, multiple sexual partner, fear of knowing HIV status, and discrimination (Adefolalu & Nkosi 2012, Nwaokoro et al., 2014; Ugwu & Eneh 2012). HIV continues to be a public health predicament, despite global efforts to eradicate the disease through large scale up of ARV, improved access and affordability plan, pre - exposure prophylaxis (PrEP), and WHO partnership with private sectors to develop vital strategies to contain the infection.

Theoretical Foundation

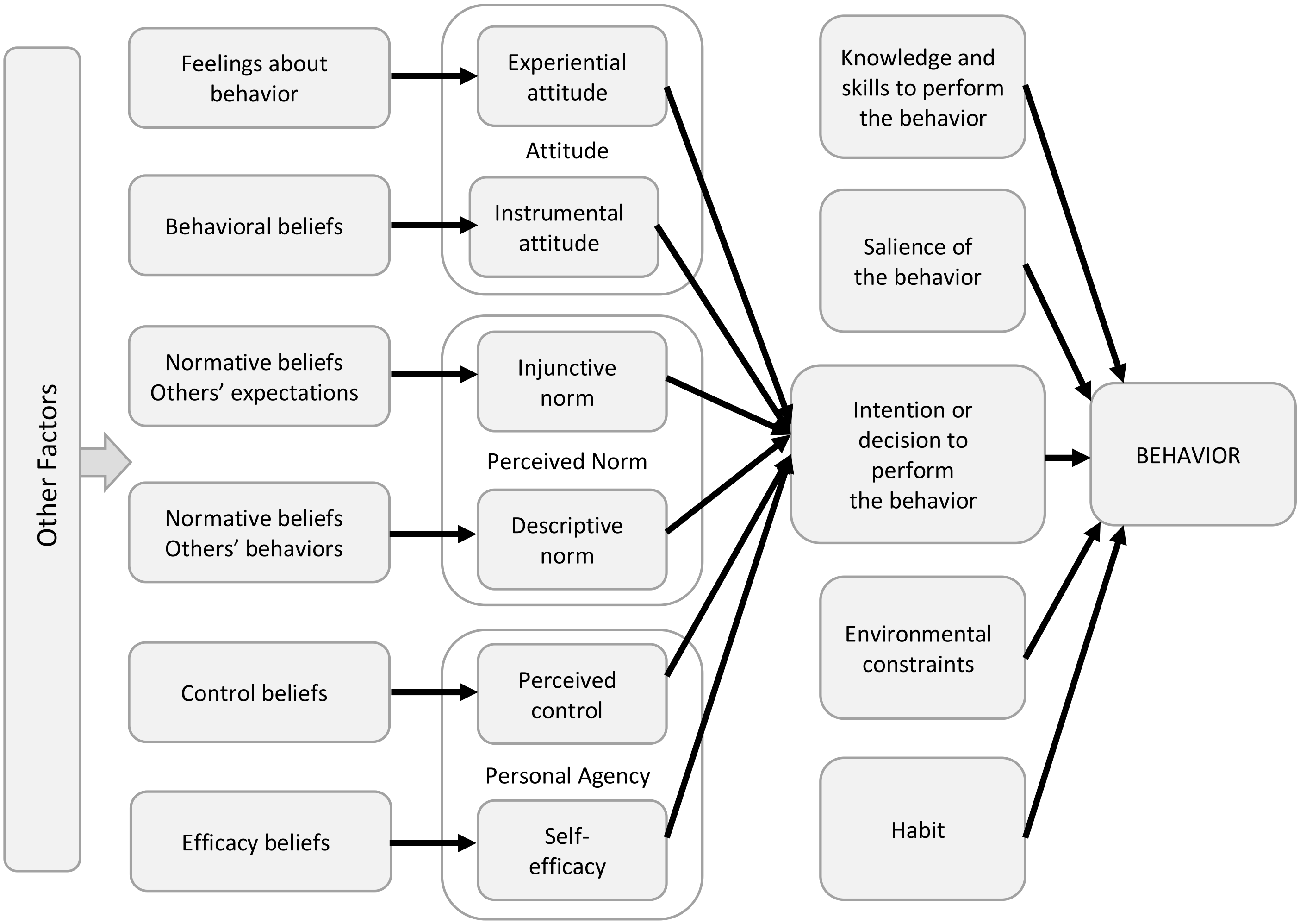
Glanz, Rimer, and Viswanath (2008) recommended an integrated behavioral model (IBM) developed in 1967 by Fishbein (1975) from the constructs of the theory of reasoned action (TRA) and theory of planned behavior (TPB). The Integrated model of behavioral prediction (Fishbein & Ajzen 2010) was developed in 2000, an extension of IBM and TRA which, broadens the scope of normative determinants focusing on skills and environmental barriers as representatives of intention - behavior relationship (Yzer, 2012). The Integrated behavioral model (IBM) concept allows individuals to make health behavior changes based on intention to act, and that intention is motivated by attitude, perceived norms, and personal agency (self-efficacy, perceived power). Some have argued that IBM theory is not applicable cross - cultural, and some researchers refer to it as “Western”; however, Glanz, Rimer and Viswanath (2008) argued that the interviewing process to identify a key population’s normative, efficacy, and control beliefs about behavior is what makes it applicable to all cultures.

Theories of HIV/AIDS studies guide risk behavior prevention efforts as well as examine multiple health promotions that explore the dynamics of networks, couples, and communities (Traube, Holloway, & Smith 2011); psychosocial concern of children infected with HIV/AIDS (Vranda & Mothi, 2013). The effects of environment on PLWHA (Nichols, Tchounwou, Mena, & Sarpong 2009, Surratt, Kurtz, Levi-Minzi, & Chen 2015) influences individual health behavior. Within this theory is basis for an investigator to conduct interviews with the studied population to elicit salient issues that influence behavior. IBM has been vital for research by providing a roadmap that facilitates the identification of factors that influence behavior. Curry and Mermelstein (2013) stated that the roadmap is salient for the development and implementation of effective approaches to health behavior change. They posited that behavior change theory has evolved, and with integrative models a researcher can now examine how individual, interpersonal, social, cultural, and environmental factors relate to behavior. A systematic review of previous studies showed the efficacy of IBM model on HIV/AIDS adherence (Kalichman et al., 2011, Kalichman et al., 2010, Munro et al., 2011) hence, the decision to adopt the model.

Conceptual Framework

The conceptual framework of this theory as depicted in Fig. (1) Advocated for an understanding of the issues that directly (threat, family responsibilities, cost, education, personal and social support) or indirectly (environmental factors, culture, religion, beliefs, motivation) affect self-efficacy beliefs, intention, and behavioral change action. Fishbein and Ajzen (2010) argued that Integrated Behavior Model (IBM) or IBM theory predicts that people are motivated to act on their intentions when they have necessary skills, and where environmental factors do not pose as a hindrance to behavioral action. Figure 1shows the five components of IBM: behavioral intention, attitude, perceived norms, personal agency, and self-efficacy.

Figure 1. The components and subcomponents of IBM that motivates behavior. Copied from Health Behavior and Health Education website.



Ryan (2009) posited that many people with chronic diseases could manage and improve their condition when the individual and their families assume responsibility. Hence, health care providers must assume a greater role in co-coordinating care for the patient. Several researchers have adopted IBM conceptual framework for conducting studies, and for recommending interventions to improve HIV/AIDS treatment adherence, reduce transmission (Kalichman et al., 2011), improve nursing practices (Ryan. 2009), decrease rejection of recommended vaccination and treatment (Mills, Head, Robin & Vanderpool, 2013), and to optimize health outcome. Others have influenced health policies (Glanz et al., 2008) using IBM conceptual framework.

Using IBM to Improve ART Adherence and Reduce Transmission

Some researchers have used the Integrated Behavioral Model (IBM) effectively in the past (Bonnel & Imrie 2001, Freeman, Patel, Collins & Bertolote 2005; Kaufman et al., 2014) to improve interventions of medication adherence, and reduce transmission of HIV disease. Kalichman et al. (2011) used integrated behavioral intervention to enhance the use of HIV treatment by improving HIV medication adherence, and transmission reduction. The researchers recruited 310 men and 126 women from AIDS service provider in Atlanta, Georgia. Criteria for inclusion was 18 years or older and name matching proof of HIV-positive status using photo identification. The IBM conceptual framework guided the development of the research using the postulates that the strongest determinant of behavior is the intention with the other components (attitude, perceived norms, personal agency and self - efficacy) affecting the behavioral outcome. Investigators monitored ART adherence and viral load, sexual risk behaviors, followed with unannounced telephone pills counts with patients and questionnaire that asked about their sexual partners, the frequency of protected and unprotected sexual behaviors (i.e. anal and vaginal intercourse).

Kalichman et al. (2011) clearly specified that ART adherence interventions did not address HIV transmission risks, optimal outcomes for HIV treatment and transmission. They went on to state that thee goal of HIV prevention remains unattainable as adherence to ART has not been properly addressed. Kalichman et al mentioned that the trial was “the first test of an intervention designed to simultaneously and synergistically reduce HIV transmission risks by improving adherence, reducing unprotected intercourse, and minimizing risk compensation” (p. 7). The results found that both the primary and secondary outcomes suggested that IBM theory has the potential to enhance HIV treatment adherence and prevent new HIV transmission. The researchers examined the Healthy Living Project and used the theory to address treatment adherence in multi - site trials targeting mental health, treatment adherence, and risk behaviors. The investigators of the project analyzed the modules independently and found that medication module showed significant reductions in HIV transmission risk behaviors (Kalichman et al., 2011).

Knowledge/Awareness

Some studies I reviewed used IBM approach to enhance medication adherence while focusing on the theoretical construct of behavioral intentions, beliefs, attitudes, perceptions, and environmental challenges. All the studies showed the relevance of IBM in support of positive treatment adherence. Appalachian Kentucky women has High prevalence of cervical cancer, and lower rate of HPV due to lack of vaccination compliance. Mills et al. (2013) believe that this population lack the knowledge of HPV, and HPV vaccine. They conducted a qualitative study using IBM to determine causal effect of Kentucky women decline to HPV vaccination, and the challenges to completing the initiated 3 - dose regimen. The researchers noted the limited research addressing the issue of young women and insufficient vaccination in the population. More so, young Appalachian women misunderstood HPV and HPV vaccine, and this undermined vaccination compliance. Recruitment of participants was collaborative with a regional Federal Qualified Health Center (FQHC). The researchers' protocol identified female clinic patients aged 18 to 26 who either had declined HPV vaccine or have failed in completing already initiated vaccine. The number of women eligible for the study was 150, among those, 65 declined the vaccine, and 85 received doses 1 or 2. The authors noted that only 18 Caucasian women enrolled for the study, and they had a mean age of 22 years; and of the total enrollees, nine initiated vaccine series, and eight declined.

The researchers guided the conceptual framework of the study using the IBM constructs that knowledge, attitudes, perceptions, behavioral intention are necessary for behavioral function and that environmental factors may be barriers that obstruct intended behavior. Outcomes of the study included that environmental barriers (transportation, responsibilities like childcare, school, and work) were persistent in their decisions. Moreover, that social influences (religion, family), and ambiguous sources from which information of HPV was communicated to the women were part of the hindrance to acceptance. In summary, Mills et al. (2013) found that women were both misinformed and uninformed about cervical cancer, HPV, and HPV vaccine. They also found that environmental and life challenges (e.g., transportation, and prioritizing health over other responsibilities like work, school, and childcare created a challenge. The authors stated that the limitation of the study was the sample size, which is not a proper representation of the community.

Environmental Factors

Surratt, Kurtz, Levi-Minzi, and Chen (2015) conducted a study in South Florida, which they hypothesized that highly disorderly neighborhood would expose residents to environmental pressures that will lead to reduced ARV medication adherence. Surratt et al. found that disorderly neighborhood influences increase engagement in sexual risk behaviors, reduced access to HIV medical treatment, contributes to HIV- related co-morbidities, and high mortality rate. Sample participants were 503 socioeconomically disadvantaged HIV-positive substance users in urban South Florida. Investigators noted at gap in research on the impact of neighborhood disorder on behavioral disease management among HIV-positive individuals, which is critical for viral suppression. A county level-indicator data located six geographic targets with high HIV prevalence and high poverty rates. The researchers collected information on participants ARV diversion from healthcare providers, community outreach workers, and illicit drug users. The mean age of the participants was 41.6 years, and these individuals had been living with HIV for 13.3 years on average. Two-thirds of participants identified as African American, 18.1%, Latinos or Latinas, and 13.5% White.

The results identified environmental stressors, psychological distress, addiction severity, and social exclusion, Inaccessibility of medical care, economic disadvantage, poverty and decay as drivers to adverse health outcomes. Surratt et al. (2015) result had differing outcomes. The result indicated that significant reduction to ARV was due to neighborhood disorder. Similarly, environmental issues also played the most role in adherence behavior. Participants (95%) reported that environmental circumstances and neighborhood disorder had many diversions - related nonadherence. Limitations of the study as identified by the researchers were the use of cross-sectional data gathered from a single interview, thus the absence of longitudinal data limits their ability to outline causal relationships among key variables. Another limitation is the sampling design strategy, which was not a true generalization of HIV - positive patients. Lastly, the reliance of data collection on self-report, exposing it to inaccuracies of reporting participant's responses to interview questions.

HIV Comorbidity and Mental Impairment

Individuals living with HIV disease conforming to a recommended treatment by their health care provider live a quality life like any other patient with a chronic disease. However, the growing burden of HIV-related co-morbidities is fast becoming a health care concern. HIV infection has complex regimen contributing to the loss of retention among patients prescribed the ARV treatment. HIV has been associated with specific diseases (HIV - opportunistic diseases) like mental illness and substance use (Bouis et al., 2007, De Hert et al., 2011, Health Resources & Services Admin, n.d.). Substance Abuse and Mental Health Services Administration (SAMHSA, n.d) reported that people diagnosed with mental and substance use disorders are predisposed to infect and contract HIV infection due to drug misuse. Moore and Posada (2013) reported an overlap in research addressing HIV and serious mental disorders like depressive disorder and bipolar disorder, for example De Hert et al. (2011) report that the prevalence of HIV individuals with a serious mental illness ranges from 1 % to 24 % and that these are higher than the rates found among HIV-uninfected persons. Bouis et al. (2007) conducted research using trans-theoretical model, which was a behavioral change model to examine HIV patients with mental disease and substance use. The conceptual framework included client motivation to modify medical and behavioral health risk behaviors using patient readiness to act. Treatment intervention using an integrated model, which included individual therapy, group therapy, and psychiatric medication management, led to positive outcomes.

HIV Comorbidity and Viral Hepatitis and Tuberculosis

Like HIV, transmission of viral hepatitis B and C may occur via injection drug use, sexual intercourse, mother to child transmission (AIDSinfo 2016; CDC, 2015). Viral hepatitis and tuberculosis have significantly higher morbidity and mortality rates among those living with HIV. World Health Organization (WHO, 2015) reported that Sub-Saharan Africa bears the greatest burden of HIV and TB, in that 95% of TB deaths occur in low and middle-income countries. WHO reported that in 2014, 9.6 million people and 1.5 million died from the TB infection or co-infection with HIV and TB (WHO, 2015). USAID reported in 2015 that an estimated 2 billion people - one-third of the global population have TB, and that 80% of individuals with active TB are HIV-positive. TB affect women more than TB affect men, and it is among the five top causes of death for women aged 15 to 44 years of age (WHO, 2015). Nigeria National Tuberculosis and Leprosy Control Programme (NTLCP) report revealed that TB prevalence in the country was two times higher than previously thought. Worldwide Nigeria ranks third behind

India and China among countries with a higher number of TB cases (Vassall, 2015). The U.S. also has a disproportionate burden of this disease (Dean & Fenton, 2010) and other HIV - related diseases regardless of all efforts to address the complex inequities of the problem. HIV progression to TB and other infections HIV-related diseases due to drug resistant and high viral loads is linked to nonadherence to ARV which eventually, accelerate to full-blown AIDS and death.

A study presented at the 15th European AIDS Conference in Barcelona claimed that a person living with HIV for a lengthy period taking ART has twice the risk of heart attack regardless of age (Alcom 2015). Associations of HIV and co-morbidities have researchers looking at different predictors to determine how to prevent them. Long-term therapy of ART drug tenofovir increases the risk of end-stage liver disease and liver cancer (Carter, 2016). Similarly, Belani et al. (2012) conducted a systematic review of studies to synthesize the existing evidence of the effectiveness of integrated services for the prevention and control of HIV co-infection of viral hepatitis, sexually transmitted disease (STDs), and TB for drug users. The integrated approach enabled the investigators to synchronize intervention services with health care providers, increased access to care, timeliness of care delivery enhancement and efforts to prevent common risk factors, behaviors, and social determinants. Belani et al. effectively portrayed the successful use of integrated health services to facilitate health behavior change. They recommended an integrated conceptual framework that includes planning at the local level to reduce barriers, and to clarify delivery services.

Socioeconomic Factors

Centers for Disease Control and Prevention (CDC, 2016) argued that social determinants of health are circumstances, which, people are born, grow, live, work, and age, as well as the systems, put in place to deal with illness. Cohen, Chavez & Chemini (2010) wrote that to reach the broad sector of the population, interventions that address social environmental predictors must be the focal point towards influencing lifestyle and behavioral change. Socioeconomic factors affecting health behavior are education, income level, unemployment, and access to care/insurance. Empirical studies have associated socioeconomic status (SES) and HIV infection (Alsan, et al., 2011; Anosike, 2010; Arnold, Fisher, & McFarland 2011; Ogunmola, Oladosu, & Olamoyegun 2014; WHO, n.d,). Anosike (2010) insisted that population living in poverty and low literacy levels are susceptible to HIV/AIDS infection associated with drug use, lack of drug treatment, unemployment and inadequate access to medical care. A combination of environmental, social, and individual influences on behavior spur people to greater self-efficacy, making positive or negative decisions about health. Understanding the socioeconomic status affecting PLWHA in the targeted population is vital in other to effectively conduct and provide outcomes from the study that is crucial for policy decisions and intervention programs development.

Figure 2 shows the dynamic relationship that exist between socioeconomic status and health, birth, adolescence, place of work, level of education attained, and income are health related. The ladder position illustrates that the position of an individual in the ladder is significant. Educated individuals are more likely to get good jobs, earn high income, leave in good environment/housing, make good health decisions and live longer. Unlike people with less education, who are poor, live in unhealthy environment, more vulnerable to diseases, make poor health decisions and do not leave long. Notice socioeconomic status, which is work, education, income and retirement, are contributory to health. Individual life experiences guide self-decisions and health outcomes.

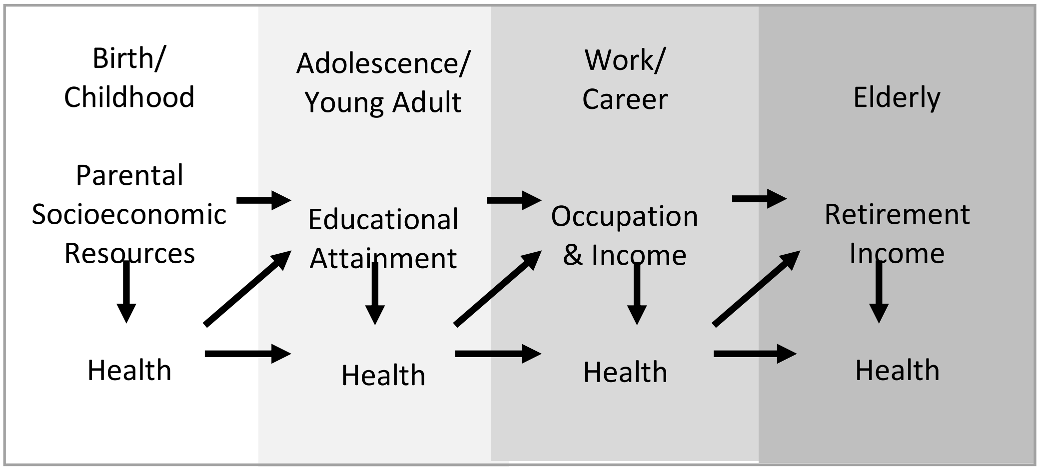


Figure 2. The dynamic relationship between health and ladder position. Source: Adler et al., (2000) from the MacArthur Network.

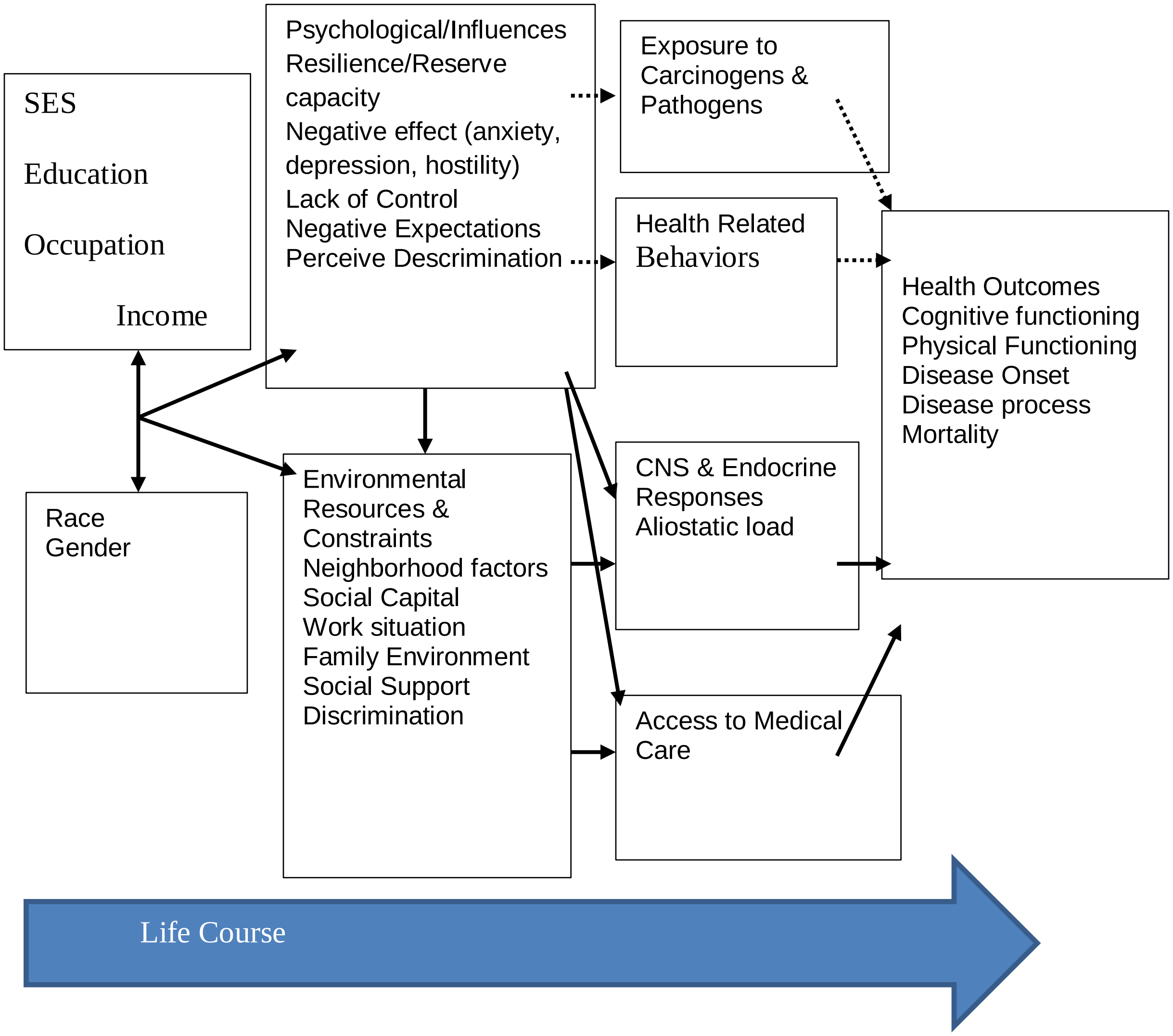


Figure 3. Socioeconomic and environmental influences on health.

HIV Risky Behavior

The Centers for Disease Control and Prevention (2015) stated that HIV risk behavior is dependent on a person's exposure to infection. Risk behaviors come from engaging in multiple sexual relationships, unprotected sex, injection drug use, substance abuse. Transmission of HIV infection is from an infected person to uninfected person through sexual intercourse (anal, oral or vaginal), shared contaminated injection needle, tattoo, body piercing, and contaminated blood transfusion. Another means of being infected is from a pregnant mother-to-child transmission (PMTCT) (CDC.gov, 2015). People leaving with HIV/AIDS (PLWHA) have a high viral load (amount of HIV in a sample blood) and are more vulnerable to HIV co- morbidities and transmission. Studies have shown that adherence to ARV regimen has significantly reduced the level of virus (Aidala et al., 2016; Kaufman, Cornish, Zimmerman, & Johnson 2014; Strathdee et al., 2012).

Different variables increase people's exposure to HIV risky behaviors e.g. gender, age, education, peer-group influence, and neighborhood (Nachmias & Nachmias 2008). NACA noted risk indicators to HIV epidemic in Nigeria to include; low-risk perception, multiple concurrent partners, informal transactional sex, gender inequalities, stigma, and inadequate health services (NACA.org). In Nigeria, HIV is a taboo due to cultural beliefs; those who are infected leave a life of secrecy. The moral attitudes of Nigerians to those leaving with HIV/AIDS is that of ignorance and neglect. HIV/AIDS patients face stigmatization and discrimination; often Faith-based leaders view HIV/AIDS as the cause of immoral behavior (Nasidi & Harry 2006, Smith 2014). Another misinformation is a major factor contributing to the high level of HIV risk behavior, and inadequate adherence to ART treatment in Nigeria. Lack of knowledge or limited knowledge of HIV/AIDS and the benefits of ARV have hindered optimal outcomes of implemented prophylactic programs in this region.

Summary

There is a notable disparity between the rich (corrupt politicians, businesspersons), the poor, and the extremely poor in Nigeria. Most people in Owerri have no access to healthcare, have a low perception of HIV, are traditionalists, and suffer depravity; these people would do anything to survive including sex trade, prostitution, drugs, and alcohol abuse, unsafe sexual practices that makes them vulnerable to HIV infection. Addressing the variety of health and social issues in a population requires a paradigm shift, moving from clinical to prevention that generates health equity for the most vulnerable members of the populace (Cohen, Chavez, & Chemini 2010). A synopsis of past literature reviewed that used IBM conceptual framework in the development of their studies provided the needed insight on the applicability of the theory. The construct where applied in the investigation to understand specific factors inherent in that society that affected behavior.

Environmental factors play major role in health behavior; Aidala et al. (2016) noted that adequate housing considerably affected consistent and appropriate HIV medical care, access and adherence to medication, sustained viral suppression, and risk to transmission. Surratt et al. (2015) stated that ARV adherence models and theory-based interventions have primarily focused on individual - level factors. Kaufman, Cornish, Zimmerman, and Blair (2014) commended the benefits of behavioral theories like TRA, TPB, Trans theoretical model, social cognitive theory (SCT) and other individual level based behavioral theories. Kaufman et al. insisted that theories like Multiple Domain Model and IBM propose multi - faceted domain of influences (behavioral intentions, preparatory behaviors, self-efficacy beliefs, social and environmental factors) affecting health behavior.

The recommendations serve as a foundation in replicating what worked and how to address identified gap. An extensive review of the existing body of the literature showed the effectiveness of qualitative phenomenology study using the theory of integrated behavioral model to explore HIV adherence and co-morbidities, challenges to adherence and predictors to nonadherence in different settings. I explored the complexities of ART regimen and the causal effect of nonadherence to guide the current study using integrated conceptual framework. Having outlined the literature reviewed in this chapter, the following chapter will give clarity to research methodology, instrumentation, participant's selection and recruitments, data collection and analysis. I will also address issues of trustworthiness, ethical concerns and strategies to eliminate.

Chapter 3: Research Method

The yearning to find a mechanism, strategy, cure, or complete eradication of human immunodeficiency virus (HIV) disease is what motivates the quest for research on HIV worldwide. Research studies conducted on HIV/AIDS adherence to treatment, but none has addressed the target population, Owerri. The aim of this study was to investigate the challenges that PLWHA face in accessing AVR drugs, and how noncompliance with treatment affects HIV-opportunistic diseases. I explored the magnitude and effects of HIV/AIDS in Owerri to fill the knowledge gap, provide recommendations, and develop a strategy for positive social change given the impact of HIV/AIDS on human conditions, finance, social status, and psychological well-being. I used an exploratory approach to probe and gather relevant answers to understand the experiences of participants. A phenomenological design and integrated conceptual framework addressed the purpose of this study. In this chapter, I outline the research design and rationale, methodology, instrument for recruitment, and data collection process. I also include the methods for data analysis, ethical procedures, limitations, and a summary.

Research Design and Rationale

I used a phenomenological approach to answer the following question: What are the challenges for people living with HIV/AIDS in adhering to anti-retrovirus therapy (ART), and what are the effects on opportunistic diseases and incidence rate? Creswell (2013) wrote that a qualitative research approach analyze phenomena in a natural setting. Creswell (2013) stated that the characteristics of a qualitative design include conducting the research in a natural setting, collecting multiple types of data, relying on the researcher as the instrument to collect data, focusing on the participant’s perspective, and using inductive and deductive reasoning to analyze data. Leedy and Ormrod (2005) stated that qualitative research is the best approach to obtain information when little information is available on a topic, the variables are vague and unknown, and there is no identified and relevant theory.

Central Phenomenon

The central phenomenon under exploration was adherence to ART (i.e., adherence to HIV/AIDS medication, factors fueling nonadherence, and effects of nonadherence on the development of HIV-related comorbidities in the targeted population of Owerri, Nigeria). HIV infection and AIDS are deadly diseases. The Mayo Clinic (n.d) defined HIV as a sexually transmitted disease that is spread by humans through contact with infected blood, transmissions from a pregnant mother to child, needle sharing, and breastfeeding and childbirth. HIV weakens the immune system by destroying the body’s ability to fight the organisms that cause HIV, thereby resulting in AIDS (CDC, 2016). AIDS is potentially life threatening, and there is no cure for HIV/AIDS; however, early diagnosis of HIV and medications can slow the progression of the disease (Mayo Clinic, n.d). People can avoid HIV infection, and there are several programs and support services funded by government and interest groups to mitigate HIV/AIDS infection and transmission.

HIV comorbidities include high susceptibility to infections of all kinds, some types of cancers, tuberculosis, wasting syndrome, mental complications, and death (Arinze-Onyia, Aguwa, & Modebe 2014). Internationally, the HIV/AIDS epidemic is primarily a disease of poverty; however, no group appears immune to HIV infection (CDC, 2015; Mufune, 2015; Shao & Williamson, 2012). Developing countries can controlled HIV/AIDS epidemic when they have access to the same information and care available to developed countries (Bertozzi, Padian, Wegbrenght, DeMaria, Feldman et al., 2006). Increasing the reach of testing, early diagnosis, and prophylactic measures in centers where locals can have easy access will facilitate the elimination of HIV epidemic (Aids.gov, n.d).

Phenomenological Approach

Patton (2002) stated that "a qualitative strategy of inquiry proposes active, involved role for the social scientist….it is participation in an activity that generates interest, purpose, the point of view, value, meaning, and intelligibility" (p. 55). I reviewed some studies on HIV/AIDS and noted that some researchers preferred qualitative methodology to investigate topics on HIV/AIDS disease. Strategies for a qualitative inquiry include naturalistic inquiry (research takes place in a natural setting), emergent inquiry (stories can determine what path a researcher pursues as story emerge), and purposeful sampling to ensure that participants have experience of the studied phenomenon and can offer relevant information (Patton, 2002).

Groenewald (2004) wrote that Husserl was the founder of qualitative phenomenology, which is the science of pure phenomena. Husserl (as cited in Subramoney, 2015) argued that all realities are pure phenomena from which all studies must commence. Heidegger introduced the concept of *dasein* or being there, which is a dialogue between a person and his or her world (Patton, 2002). Heidegger (as cited in

Subramoney, 2015) argued that culture, history, and worldviews influence the interpretations of meanings. Many scholars have adopted and expanded the qualitative phenomenological approach of Husserl to understand phenomena. Subramoney (2015) affirmed that phenomenology serves as a gap between what exists (metaphysics) and epistemology or the way knowledge is gained.

Moustakas (1994) stated, “The empirical phenomenological approach involves a return to experience to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience” (p. 13). Bricki and Green (2015) postulated that qualitative methods answer the why, what, and how rather than the quantitative how many and how much. Qualitative methods are appropriate for the exploration of how experiences, attitudes, and life circumstances affect health needs and the perspectives of professionals and patients (Bricki & Green, 2015). The inadequate data on the issues and complexities associated with HIV/AIDS in the targeted state prompted the use of a qualitative phenomenology in the current study. Qualitative methods were appropriate because I could ask participants sensitive questions addressing their views on HIV/AIDS care and its availability and accessibility. Qualitative data collection often occurs through interviews, questionnaires, and focus groups. Many researchers have used qualitative methods to explore HIV/AIDS topics (Christopoulos et al. 2015; Cocohoba, Comfort, Kianfar, & Johnson 2013; Wekessa & Coast 2013; Katz et al. 2015; Murray, Farrington, Sekol, & Olsen, 2009).

Akpaka, Tulloch-Reid, Justiz-Vaillant, and Smikle (2006) recommended the use of a qualitative approach to study sensitive issues like HIV/AIDS. By using a qualitative approach, a researcher can be responsive to complex phenomena such as HIV-related health issues. Further, with qualitative methods, a researcher may attend to different modes of communication and be considerate of the sociocultural context of the participants (Akpaka et al). For this study, these approaches were taken to overcome participant resistance to discussing issues associated with HIV. My aim was to understand the perspectives of those experiencing the disease (see Akpaka et al., 2006). The use of qualitative methods is common in HIV/AIDS research because of the need to understand of the sociobehavioral aspects of the illness (Syed, Syed Sulaiman, Hassali, Thiruchelvum, & Lee, 2015). Results from studies around the world have shown there was a prevalence of poor understanding of HIV/AIDS and its transmission (Nubed & Akoachere 2016; Mufune 2015. Qualitative data collection may include interviews, observations of participants in a natural setting, reviews of pertinent documents, and examinations of audio-visual materials (Creswell, 2009). I will use participants' narratives from their perspectives to provide rich information that gives clarity for analysis.

Bradley, Curry, and Devers (2007) emphasized that qualitative inquiry be appropriate for explaining and understanding of real-world phenomena in context (e.g., HIV/AIDS) as related to health services research. For example, through use of qualitative methods, a more compelling story of a person's experiences of spousal abuse may be explored; the details of such a story can have profound effects that are distinct from quantitative results taken from a large-scale survey, regardless of the importance of the survey results (Soriano 2013). The researcher's worldview or personal set of beliefs and assumptions guide qualitative studies. Qualitative phenomenology is appropriate for this exploratory study because the setting for the study is a natural one, and I used the flexibility of this research design to allow the stories of participants to evolve. Using this research design, I provided the participants an opportunity to make a descriptive account of their experiences, and as a researcher, I was the primary instrument for data collection and analysis.

Quantitative and mixed methods designs are alternatives to qualitative methods and designs. However, these are not appropriate for this proposed study. Quantitative and mixed methods may be effective but not the optimal approach for this inquiry; the goal of this study was not to use an experimental or quasi-experimental design to determine cause and effect of treatment or a program (Ojukwu, 2012). Mixed methods design consists of both qualitative and quantitative methods to understand and explain the phenomena under study. Creswell (2009) noted the challenges that mixed methods pose for a researcher including the need for extensive data collection, time-intensive analysis of both text and numeric data, and the need for research skills related to qualitative and quantitative methods. These two are ruled out, and as Creswell emphasized, the choice of investigation method depends on “the nature of the research problem or issue being addressed, the researcher’s personal experiences, including the audiences for the study” (p.3).

Role of the Researcher

A qualitative researcher’s beliefs and philosophical assumptions guide their work. Subramoney (2015) stated that philosophical assumptions are ontological, axiological, epistemological, and methodological. The researcher adopts a view based on assumptions, which have implications and guide the research. Patton (2002), postulates that “In a qualitative inquiry, the researcher is the instrument” (p.14), in this case, the instruments I used were the research questions and interview questions. In qualitative research, the researcher seeks answers to the qualitative questions of “what, why, and how” from chosen respondents with similar demographics. The qualitative phenomenological researcher is not objective but focuses on the subjectivity of participants’ reality (Ojukwu, 2012). In this framework, the researcher clearly defines a role to play using an aspect of self as the instrument for data collection and their qualified knowledge and experiences to conduct the research. The researcher also defines the limitations, recommendation and expected outcomes of the study. In selecting participants, the researcher recognizes commonality and shared experiences of the topic in the population under study. This research approach is fundamental for the collection of detailed information and identifying patterns and themes from the data. The participants selected for this study (PLWHA) gave an account of their views on HIV/AIDS medication availability and accessibility in Owerri. These individuals has interpreted the issues as it influenced them. I as the researcher will ask questions, record responses, observes, and documents information as it unfolds in a natural setting (e.g., with field notes, pictures, and recorded interactions with participants).

The aim of a qualitative researcher is to describe accurately the phenomenon studied without influence from any pre-given structure while truthfully maintaining fact (Groenewald 2004). Avoiding bias during the qualitative study is significant; a researcher can reduce bias through “empathic neutrality”, that is, by applying a non-judgemental attitude to separate their perspectives from those of the participants (Patton 2002). Similarly, epoche requires that researchers set aside preconceived notions, personal experiences, and biases before conducting research to allow participants’ give their lived experiences and views of the phenomenon without any influence from the researcher (Patton, 2002; Walden Laureate 2013). The assumption is that an epoche outlook allows the researcher to apply a phenomenological attitude shift during data collection. “Epoche enables the researcher to investigate the phenomenon from a fresh point of view without judgment or imposing meaning too soon” (Patton, 2002 p.485). Patton also cited Ihde (1979) who was of the view that epoche demands a researcher not to judge, but to look beyond, “what is real or most real” until most or all the evidence was received. Being part of the community enables the researcher to understand participants’ responses and hidden messages. In this role, the researchers can interpret the indirect implications of the message, wishes, expectations and personal opinions as conveyed by the individual respondent (Devetak, Glazar, & Vogrinc 2008). As a native of the state who is familiar with the cultural and religious implications, I will ensure that my opinion does not interfere with the conduct of the study and the interpretation of data. In conducting this research, I will not focus interest on any group, organization, or individual. I do not have any relationships with participants, and the selection of participants followed a rigorous criteria exclusion and inclusion process to avoid bias. The fundamental core of any form of research should rely on fact and trust, not on the researcher’s opinion or personal experience.

I will hire research assistants to assist with data collection and recording of participant’s responses. I will also play the role of a non-observer (study and document events as I observe) in some situations or setting. Creswell (2013) emphasized the significance of observing the participants’ physical setting, interactions, activities, and behaviors using the five senses (sight, hearing, touch, smell, taste). Research using observational methods can be either overt where the researcher informs the participants that they will be observed or covert where participants are not told they will be observed. In either case, the inquirer observes and gathers data on events, behavior, physical characteristics in a natural setting (Centers for Disease and Control Prevention, 2008). The strength of observational method includes (a) allowing the researcher to observe, take field notes, and make decisions without relying entirely on participants re-telling of their stories; (b) the researcher gets firsthand information by interacting and observing participants; (c) letting the researcher notice participants’ intimate behaviors or personal attitudes, and other information that participants may not be willing to reveal or share verbally; (d) providing the researcher accurate, reliable, and detailed data about the phenomena or event under study (www.southalabama.edu). Collecting data through observation for qualitative research makes the results vulnerable to bias, which can be a threat to the study if not controlled.

Leedy and Ormrod (2010) stated: “Bias is any influence, condition, or set of conditions that singly or in combination distort the data” (p.215). Mechanics of observation can derail findings; for example, the observer may forget to take field notes, record quotes accurately, and determine the appropriate timing to switch from being a participant to a nonparticipant (Creswell, 2013). Bias can go undetected in a study if not controlled efficiently. Deady (2011) asserted that bias is implicit during the research process, subject selection, data collection, analysis, and publication by stating that "Bias can influence a study from start to finish" (p.42). Therefore, to reduce bias, I was fully involved in sample recruitment, data collection, and analysis. A lack of planning in a research design can introduce bias and create ethical issues in a study.

Participant Population

The tertiary Hospital Owerri is an appropriate location for this study because the aim is to understand the challenges for PLWHA who are receiving treatment and accessing HIV/AIDS drugs in the Hospital HIV/AIDS Center. Owerri is the developing capital of Imo State, one of the thirty- six States that made-up Nigeria. The people of the region have named Imo State after Imo River, which flows from the upland Okigwe area into the Atlantic Ocean. About 4 million people inhabit the state, and it ranks as 13th in the nation's populace. The commonly spoken language is Igbo with various dialects. The people have a rich cultural heritage inherent in their dress, music, festivals, arts, and crafts (ngex.com, n.d). They are predominantly Christians, traders, literate, business-oriented, and traditionalists. Education is finding its root in the state with about five higher institutions localized in the city. Owerri is a University town and as described by Smith (2014) "perhaps the two most striking features of the city's human landscape were the tens of thousands of students attending the five growing local universities and the hundreds of motorcycle taxis (Okada)" (p. 31). Sexual immorality is rife due to students' financial needs while living in an urban area, and their willingness to have sexual intercourse for money.

Thus, with the people’s quest for materialism and desire for a western way of living, moral decadence increased the spread of HIV in Owerri. Smith (2014) wrote that amid the HIV/AIDS pandemic, Owerri is a hub for HIV infections due to okada men having sex with University girls. The increased level of HIV infection in Owerri may be due to unprotected sex, as commonly practiced by young adults, including men who have sex with men (MSM) and married men with their mistresses. As discussed in chapter one, people of the town have a wide variety of beliefs about HIV deriving from their cultural beliefs and various levels of education.

Recruitment of Sample Procedures

The sampling strategy I chose for this qualitative research aligns with the research design, methods, and ethical concerns. Selecting participants involves using criteria for the sample to guide the process. Frankfort-Nachmias and Nachmias, (2008) “A sample is a representation if the analyses made using the sampling units produce results like those that would be obtained had the entire population been analyzed” (p.167). Sample sizes differ across studies, Mason (2010) implied that some believe that interviewing many people does not necessarily lead to new information. The sample size of a qualitative study is meant to inform the research objective, questions, and design (Onwuegbuzie & Collins 2007). For this proposed qualitative study, purposive sampling is appropriate. The sampling is purposive because participants’ have knowledge of the phenomena (HIV/AIDS treatment adherence), and it is that knowledge which, inform the development and categorization of the research questions. Patton (2002) posits that purposive sampling offers information-rich data that manifests in the study topic. This method of sampling is suitable for the studies of people, organizations, communities, cultures, and events. Selection criteria include the number of participants and their characteristics (e.g., age, gender, and marital status, HIV/AIDS status) (Family Health International, n.d).

I sampled participants from a tertiary hospital in Owerri for a sample size of 11 HIV/AIDS patients, which included males and females infected with HIV/AIDS and who have HIV-related diseases. These participants were ages 18-65 years and were receiving cART treatment or any other combination of HIV/AIDS drugs and therapy. This number represented the population under study, and was consistent with similar qualitative studies concerning HIV/AIDS patients (Aransiola et al., 2014; Dahab et al., 2007, Huang et al., 2008); therefore, I expected data saturation using this sample size. Mason (2010) cited an assertion by Ette, Grover, and Kech (2003) that having an understanding in a chosen topic can reduce the number of needed participants' in a study. Crosby, DiClemente, and Salazar (2006) wrote, "The goal of any sampling technique is to maximize the generalizability of the sample to the population" (p.290). Charmaz (2006) suggested that small study with a modest claim might achieve quicker saturation than describing a process at length. I used word of mouth to attract potential participants. Willing participants provided their cell phone numbers for a follow-up call to schedule a meeting to discuss the study procedure. Sample participants completed consent forms, which contained information about the study purpose, methods, selection criteria, and ethical issues. The consent form contained information for the participants concerning the study risks, the potential benefits, and the opportunity to participate, refuse, or opt out if they so desire without any harm to self. There was no stipend, or any payment made for participation. The procedures assured the confidentiality of participants except as otherwise requested by a participant. Those who accepted then signed the consent form as required by Walden University IRB. I observed participants and gave open-ended questions about their lived experiences and perception of HIV/AIDS medication availability and accessibility in Owerri (Ojukwu, 2013).

The inclusion criteria were residency or citizenship in the Imo State, educational status i.e. literate (being able to read) or illiterate (cannot read), MSM, gay, lesbian, tested positive for HIV, and PLWHA who are receiving therapy. This population was sexually active and had some knowledge of ART. HIV infected individuals who leave with the disease, were willing to discuss their lifestyles, experiences, and sex practices. Exclusionary criteria were non-Owerri indigene, heterosexual males, and females, under 18 years and above 60. Failure to reach data saturation failure can affect research quality and hamper content validity (Fusch & Ness 2015).

Data Collection

The data collection tools include interviews, observations and document reviews, the most common data collection technique for a qualitative research (Creswell, 2009; Patton, 2002). Creswell (2013) suggested that three stages of data analysis are (1) the preparation of data (transcription), (2) reduction of data into themes and categories, and (3) representation of the data in figures, tables, and discussion.

On-site observations and one-on-one structured interviews with participants were primary data collection tools. This approach is consistent with qualitative data collection methods (Crosby et al., 2006, Creswell 2013, Leedy & Ormrod 2010). An interview guide is beneficial to a researcher by providing themes to be explored and questions to elucidate specific subjects; the protocol ensures that the interviewer determines how best to maximize the limited time available in an interview (Patton 2002).

1. The site and setting for the research were the Owerri Specialist Hospital/Center (OSH). I identified participants as PLWHA who met inclusion criteria and who volunteered through purposeful sampling.
2. I developed a rapport with the staff and HIV/AIDS patients in OSH. The assistant researcher and I met with chosen participants and the staff to establish a cordial relationship for smooth transitions during data collection.
3. Recruited participants signed the consent forms and completed a demographic survey. I arranged the interview date, time and venue and collected contact information in the form of emails and phone numbers for follow-up contacts.
4. I held meetings with participants to discuss study purpose, confidentiality, ethical concerns, and answer any participant’s questions and concerns. I reviewed the research question to ensure that everyone understands the questions.
5. I began the interview process by ensuring that I have paper and pen, and that the audio recorder were working.

6. I made observations of participants in OSH HIV/AIDS center, and I took field notes
7. After the participants had reviewed the data transcripts for correctness and accuracy, I stored the data.

Figure 4 depicts the process for data collection.

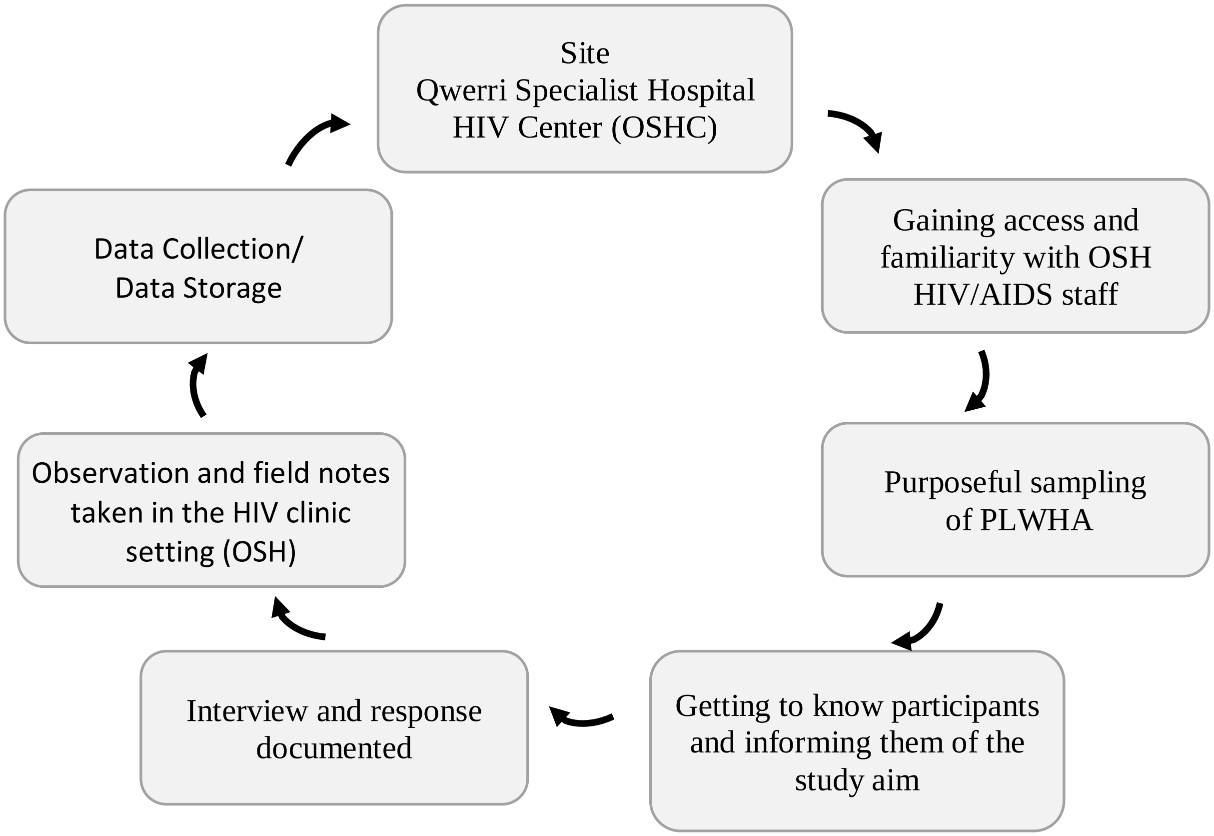


Figure 4. *Data collection guide for the study*

Pilot Test

A pilot test helps the researcher determine the limitations of a study design and issues for revision before implementation (Turner 2010). Rudestam and Newton (2007) recommend that researchers pilot test instruments for reliability and validity of a data analysis outcome. Furthermore, the authors state that pilot testing point out areas that may pose challenges for participants and gives them incentives on scaling through the huddles.

I conducted a pilot study of the interview questions with six people: four clinical professionals (two doctors, two nurses) and two FMC staff. Each of the pilot participants signed a consent form to meet the University review board requirements. The group participants and I met in a private staff lounge in the hospital. I informed them of the study purpose, the expected period for the interview, and methods of documenting interviews including, using audiotape and writing on a note. Here are the following questions posed to them :

1. What are the challenges patient's face from assessing HIV/AIDS medication in this Center?
2. What are the factors contributing to patients' non-adherence to treatment from your expertise and clinical point of view?
3. What is your opinion about the questions asked do they cover all areas of PLWHA concerns; is there anything you would suggest or remove from the question?

Creswell (2013) stated that during pilot testing a researcher should ask all the questions within the time specified, be respectful of the interviewee, be a good listener, and record information using the interview protocol and audio recording. I will have no existing relationship with participants except on professional level. As the researcher-interviewer, I observed participants' attitude, the time taken to respond, and other challenging factors that hindered open discussion of the issues. Conducting a pilot study enables a researcher to be familiar and acquainted with the setting and the personnel, and it allows a researcher to test their skills as an interviewer and observer (Janesick, 2011). At the end of the interviews and observation periods, there was a debriefing with the group to discuss opinions, and patterns in the collected data. Questions and feedback collected from participants helped to reconstruct the original questions as necessary and revised the instrumentation. A pilot test ensures that the interviewer is competent enough to conduct a satisfactory study and determine the "nuts and bolts issues" (Janesick, 2011) that can corrupt the study outcomes. I included the IRB approval number (11-03-17-0200643) approved for the study.

Recruitment Procedures and Data Collection

Creswell (2009) posited that data collection involves locating a site and individuals, gaining permissions to interview or observe participants', conducting sampling using a strategy, developing an effective means of recording information both digitally and on paper, collecting the information, storing the data, and anticipating ethical issues (p.145). The proposed data collection procedures met approval from Walden University review board and included consent forms with explanations of the research purpose and the procedures, risks, and benefits, and compensation. For ethical purposes, participants signed a consent form if they choose to participate in the study in agreement with the research protocol. I informed the participants of their rights to engage in the activity or opt out without any penalty (Ojukwu, 2014). I conducted observations in the hospital HIV Center; I observed participant’s actions and noted any shared cultural practices because these may influence their attitudes, behaviors, and perceptions. I administered a demographic survey adapted from the US 2000 Census, which included gender, marital status, age, education, employment status, indigene, and spoken languages. I informed participants that they could withdraw from the study at their choice without any consequences. I asked participants who remained throughout the duration of the study to review and share their data. A debrief was conducted to collect information about participant’s research experiences, contributions, and confirmation of documented interview responses before beginning the data analysis.

Interviews and observations occurred in a room provided by the Hospital facility for privacy and freedom from distraction. I asked the participants open-ended interview questions, and their responses were audio-recorded, and I took notes. During the process, I made observations, and recorded field notes concerning participants’ attitudes and hesitancy in responding to questions. I conducted observation in the Hospital HIV/AIDS clinic to monitor participant’s interactions, activities, and conversations in the setting. Crosby, Salazar, DiClemente, & Lang. (2006) stated that rigor is essential in observational research. This purposeful sample of individuals have in common their experiences of living HIV/AIDS and receiving ART or Cart in Owerri. Creswell (2013) posited that participants all have narratives about their lived experiences on the issue. The narratives, descriptions of experiences, and field notes collected were vast. There were differences in perceptions of participants, and the results showed in-depth insights into the problem to provide meaning for understanding the phenomena from their point of view.

Data Analysis

The purpose of data analysis is to interpret collected information into a convincing story about the phenomenon. Patton (2002) claimed that the goal of a qualitative data analysis is to uncover emerging themes, patterns, concepts, insights, and understanding. Through the analysis, I addressed this question: What are the reasons for adherence to antiretroviral drugs among HIV/AIDS patients residing in Owerri, and the effects of non-adherence to HIV related diseases? The goal of addressing this question was to determine the effects of ART adherence among those taking the medications.

Qualitative data analysis is complex due to the volumes of information collected from divergent sources. After the researcher reviews the data, a general understanding of the scope and contexts of the experiences of participants develops, the coding of data provides the analyst with a formal system to organize the data, uncovering and documenting additional links within and between concepts and experiences described. Codes are tags (Miles & Huberman, 1994) or labels, assigned to the whole or portions of documents (i.e., paragraphs, sentences, or words) to help catalog key concepts while preserving the context in which these concepts occur (Ojukwu, 2014).

Kawulich (2004) stated that data interpretation entails integration, categorization, and making connections or relationships between the categories and themes, and then visually displaying the results. Data analysis followed Creswell's (2013) three stages of data analysis: (1) the preparation of data (transcription), (2) reduction of data into themes and categories, and (3) representation of the data in figures, tables, and discussion. Creswell's (2013) process of coding, which involves aggregating data from different sources into small categories of information and assigning labels or headings as codes, was adopted for this study because of the amount of information collected.

Issues of Trustworthiness

Creswell (2016) stated that a qualitative study is useful to understand the deep structure of knowledge that is only possible from personal interactions with participants, which cannot be devoid of infiltration from either the researcher, or participants. Researchers operating in a reality-oriented stance are concerned with validity, reliability, and objectivity (Patton, 2002). Researchers understand that it is impossible to achieve a value-free inquiry without concern about a researcher's values and preconceptions that may influence the interpretation of what I saw, heard and recorded in the field. These concerns lead researchers to struggle with their values, to make their biases explicit, and to mitigate researcher bias in the interpretation of the data (Patton, 2002). Lincoln and Guba (1985) stated four criteria for evaluating the worth and trustworthiness of a study: credibility, transferability, dependability and confirmability. These are the most effective for qualitative research. I applied these four criteria to obtain rigor in this study. Houghton, Casey, Shaw and Murphy (2013) reviewed these criteria and described credibility as conducting a believable study, dependability and confirmability as the neutrality, accuracy, and reliability of the data, and transferability as the capacity to transfer or apply the study concept to a similar situation.

If the data are reliable, then this confirms that the study results will be consistent if researchers repeat the study many times. A study can be reliable and not valid, and because of many threats to validity and reliability, a researcher cannot assume validity no matter how reliable the measurements are (O'Connor, 2011). To preserve the validity of the study, I followed a systematic process of documenting participants' responses, observations, field notes, and transparency in transcribing collected data, including checks for coding errors. Participants reviewed and confirmed interpretations of data as a verbatim representation of their views for transparency and accuracy purposes. Data analysis was ongoing, and I was reflective during analysis to facilitate trustworthy, accurate, and reliable results (Ojukwu, 2014).

Ethical Considerations

Creswell (2009) wrote that during research, many ethical issues arise but a researcher ought to respect participants and not to put them at any potential risk. Rudestam and Newton (2007) warned that two main ethical concerns for researchers using human subjects in social science research are "the need for fully informed consent to participate and the need to emerge from the experience unharmed" (p.276).

To protect the human subjects in this study, I considered the Belmont Report's recommendations for respect of persons, beneficence, and justice (Ojukwu, 2013). I considered participants' dignity, cultural norms, tradition, religion, and confidentiality during data collection. I followed Walden Institutional Review Board (IRB) procedures, ensures that students conducting research comply with the University ethical standards and federal regulations (Walden Center for Research, 2014; Ojukwu 2014). I obtained Informed consent for each participant, as is a mandatory requirement by Walden University IRB. The National Institute of Health (NIH, 2014) emphasized that human research subjects must consent to voluntariness, comprehension, and disclosure before they can participate in a study.

Ethical concerns that arise in a qualitative study usually surface during collection of data (Creswell 2013). For example, ethical questions can arise concerning how to make the right decisions on data sharing for fair outcomes, who benefits from the research, who pays for the research, and what will be a legitimate approach to ensure privacy (Spriggs, Arnold, Pearce & Fry, 2011). During research, many ethical issues arise but as noted by Creswell (2009) a researcher ought to respect participants and not to put them in potential risk. The National Institute of Health (NIH, 2016) mandated that researchers obtain informed consent for human subjects based on these three factors, “voluntariness, comprehension, and disclosure”. Informed consent is designed to disclose information about the study to the participants concerning the study purpose, risks, potential benefits and opportunities to participate or not to participate based on their moral values. Comprehension means that participants must satisfactorily understand study purpose, their involvement, and the risks and benefits of the study if any. In the element of voluntariness, participants must willingly agree to participate in the study with undue influence, and they must be able to withdraw at any time without penalty. Walden

Institutional Review Board (IRB) requires students conducting research to comply with the University ethical standards (Walden Center for Research, 2014). Once the University principles and guidelines, which include minimized risks, equitable selection of participants, obtained informed consent, and minimized coercion to participation are complete, the IRB approves the collection of data. I received Walden IRB approval after the completion of all the requirements to continue to data collection.

Ethical Concerns Related to Recruitment

Due to the sensitive nature of the study, participants received a full disclosure of study objectives and goal. As the researcher, I solely conducted the selection process, and as stated above purposive sampling was the most appropriate and practical technique for this study. Sample participants were HIV/AIDS patients' from Federal Medical Center (FMC) Owerri whom have been diagnosed with other HIV-related diseases and taking ART. The participants received and signed a consent form, which contained the study methods, selection criteria, location, duration, dates, and ethical issues. Participants who signed and returned their form indicated their comprehension and consent. Age, gender, and social-economic status were part of the selection inclusion criteria. Participant's identities were confidential during and after the study. Creswell (2009) stated that the characteristics of selected sample, the limited setting, and the timing of the study are potential factors contributing to the external validity of a study. To address ethical concerns related to recruitment of participants, I ensured that sample size was a true representation of the population. Participants must be above 18 years of age, of sound mind and understand study purpose.

Ethical Concerns Related to Data

The fundamental core of any form of research relies on fact and trust, and not on the researcher's opinion or personal experiences. It is unethical to falsify, suppress information, and report biased outcomes, as these are fraudulent practices, and are not acceptable in the professional research communities (Creswell, 2009). The process of data collection and storage are the researcher's responsibility, I and the assistant have access to collected data due to the sensitive nature of the study. Retention and confidentiality are top priorities; Creswell (2009) indicated that some participants might not want their identity to remain confidential. If such situations arise then participants can be given the right to retain their voices (Creswell, 2009), and briefed on final data report. Another area of ethical concern that I anticipated during data collection was that participants would be revealing sensitive, harmful, and intimate information. These ethical issues arise with qualitative studies; however, I used the research plan to address these.

Summary

I stated the study purpose, research questions, and the study phenomenon in this chapter. In this chapter, an in-depth explanation of the research design and methodology, the role of the researcher and data instrumentation are stated, including the data analysis plan and strategies that established the validity of the study. The intention of research questions were to obtain participants experiences as PLWHA with other HIV opportunistic diseases, who are taking ART. The data including the responses to interviews, observations made, field notes, and the researcher audit trail was stored safely for analysis. The four criteria required for a qualitative study validity are; credibility, transferability, confirmability, and dependability. The criteria effectively discussed external and internal validity. I have explained the scope and rigor of the study design as intended to ensure trustworthiness. I included ethical issues and strategies in this chapter. Data analysis and the results are in the following chapter.

Chapter 4: Results

I conducted a qualitative study to identify and describe the challenges of adherence to anti-retrovirus therapy (ART) for people living with HIV/AIDS (PLWHA) in Owerri, Nigeria, and to describe the effects of adherence to opportunistic diseases. The question w organized into six subtopics:

1. identify the reasons for adherence or non-adherence to ART drugs for HIV/AIDS or related illness as perceived by PLWHA residing in Owerri,
2. identify known factors to ART adherence that affect PLWHA general well-being (i.e., emotions, physicality, spiritual, and social life) in Owerri,
3. identify and describe the social support for those who take ART drugs as perceived by PLWHA residing in Owerri,
4. identify and describe the challenges of assessing HIV/AIDS medication as perceived by those infected by the disease,
5. identify and describe the factors that contribute to the increase in HIV infection in Owerri as perceived by PLWHA residing in Owerri,
6. describe the perception of effectiveness of the programs in Owerri that address the concerns of PLWHA as perceived by PLWHA living in Owerri.

Procedure

I went to the hospital on days that HIV/AIDS patients attend the clinic for medical assessment, follow up doctor’s appointment and treatment. I collection data during this time from patients attending the clinic and from respondents of this study through interviews, face-to-face private conversations, and observations. Respondents agreed to a follow-up interview if needed. Data analysis followed Creswell’s (2013) three stages of data analysis: (a) preparation of data (transcription), (b) reduction of data into themes and categories, and (c) representation of the data in figures, tables, and discussion. Through on-site visits, I observed the activities and behaviors of patients who have HIV, AIDS, and HIV-related diseases. I also observed the activities of clinicians (i.e., physicians, nurses, caregivers) who attended HIV/AIDS patients for quality of care given and the proceedings toward obtaining care. I observed and documented patients encounter and the challenges they faced in the process of receiving treatment first-hand.

During the interview and observations process, I went with two trained research assistants Ngozi Kalu (social worker) and Isabella Asinobi,(MA) we wrote down what was observed, interview responses were audio recorded and transcribed. Interview questions focused on participants’ perspectives on medication accessibility, quality of care from the clinic staff, medication adherence and its effects, and affordability of treatment. I asked each participant the same question, and his or her responses recorded. I designed the questions to elicit the respondent’s perceptions of accessibility and affordability to ART and factors affecting adherence to the medications.

Pilot Study

I selected four clinicians from the hospital (two nurses, one laboratory technician, and one caregiver) for a pilot testing of the questionnaire that I developed for the study. I told these four individuals of the study purpose and the essence of the pilot testing. I administered questionnaire to participants’ and documented their responses to restructure the interview protocol. I addressed their questions, concerns, and recommendations. Their responses provided a significant guideline for the study, but they were not included in the final data analysis.

Settings and Study Participants

I spent two weeks visiting the clinic three times a week when patients attended the clinic for evaluation and treatment. Potential participants signed the consent form, I assembled them on one side of the clinic, introduced my assistants and myself. I explained the purpose of the study and the benefits to them. I notified participants that I did not pay compensation to anyone for being in the study, it was voluntary and that anyone can opt out at any time without penalty. After the introduction, respondents introduced themselves and consented to participate in the research by signing the consent form. We gave them a copy of the questionnaire individually, asked them questions and documented responses via audio recording with the permission of the interviewees. I also conducted an observation of patients in the clinic, documented my observations in written notes and in my journal. We screened patients diagnosed with HIV, HIV/AIDS, and HIV-opportunistic diseases receiving treatment at the hospital HIV clinic for participation. Potential participants were adults 21-65 years of age, male and female, educated, receiving ART for HIV or HIV-opportunistic diseases, and natives of Imo state. Twelve patients volunteered to participate in the study. I explained the aim of the study, guidelines to follow, and that no compensation or monetary is due anyone for participation. Patients signed consent forms and provided telephone numbers for future contact, which granted me the permission to ask them questions and use their responses as research data. Participants were PLWHA who met the inclusion criterion. A few of the patients spoke to me about their plight and their concerns. They urged me to contact them for further research to help their situation in Owerri.

During data collection, the hospital was going through a renovation and administrative changes. There was power outage, which patients complained have lasted for a couple of months as most hospital operations were functioning a generator. Participants were complacent about the situation and were contented that doctors attended to them and gave them treatment. The circumstances did not influence participants involved in the study in any capacity. Participants were Owerri indigenes living in the city or in the village. We administered a demographic survey to obtain participants' demographic information. The demographic survey, as recommended by Rudestam and Newton (2007), addressed participants' age, gender, place of birth, education, marital status, patient first diagnosis with HIV, and time that treatment commenced. I used the survey to determine the participants' eligibility for the study. Ages of potential participants ranged from 22 to 65. Participants were male and female, had HIV, HIV/AIDS or HIV-related diseases, and were receiving ART treatment in the hospital. Participants had some level of education, spoke and understood English, and were natives of Imo state.

A purposeful selection of 12 participants through the assistance of the clinic staff was an accurate representation of the PLWHA population in Owerri. There was no significant variation from the stated plan of data collection; however, the number of expected participants reduced because I reached data saturation after interviewing 12 participants.

Data Analysis

Data for the study consisted of narratives of on-site observations and transcripts of personal interviews. This section includes the results of the on-site observations, a summary of the personal interviews with HIV patients, identification of themes, and a cluster analysis of the themes.

Key Themes from On-Site Observations

The narrative of the reports from the on-site observations is contained in Appendix A. Table 1 presents a summary of the common, contrasting, and unique themes discerned from the on-site observations.

Table 1

Key Themes From On-Site Observations

Common themes	Contrasting themes	Unique themes
The room was not spacious for 35–50 patients,	The room was clean and spacious, some mothers were breastfeeding in there	An angry nurse who was furious that a patient missed a couple of appointments
No air conditioner, television, or educational tools on HIV	Room was conducive with fan for ventilation	The hospital clinic had no program that educates on HIV transmission or ways to promote healthy living
Familiarity among patients and staff, patients seem contented with the care they received.	Staff were friendly, or angry if a patient did not adhere to treatment. Few malnourished patients	A woman patient willing to be the face of HIV promotion in Imo state and abroad.
Lack of privacy and confidentiality	Conversations were going on among patients, and with staff that were private. Disorderly in a way	Another woman with an office at the back of the central room who comes out and almost knows all the patients by name. She goes in with a patient from time to time for a private meeting.
Blood was drawn from new patients, a folder opened with patient’s name and ID # assigned to the person	Patients leave after they have received ID number without seeing a doctor	Noted a very sick patient who was looking gaunt and was coughing
Power outage during clinical and hospital visit hours, patients seem used to it	Some patients were disappointed and voiced frustration with the way government and hospital admin has ignored restoring the electricity transformer that blew up for the past 6 months.	Few of the patients were curious about why they were there, not speaking but writing stuff down

General Interpretation of Themes from On-Site Observations

The onsite observation illuminated the patient’s beliefs, faith, challenges, hope, and emotional concerns. During the observation, I gave attention to the existing relationship between hospital staff and HIV/AIDS patients, the way clinicians communicate with patients, services rendered, and patient’s demeanor. I noticed that some of the patients were conflicted, disappointed with the system, while others voiced satisfaction for receiving free treatment and drugs. Some patients showed concern and asked the attendant nurse why we were in the clinic. One of the patients approached me and volunteered herself for any research or program that increases education on HIV/AIDS medication adherence or any topic on HIV/AIDS. I noticed that the patients and the medical team have a cordial relationship, communication was with respect, and both the patients and the clinical staff knew their role.

Key Themes from Personal Interviews

A transcript of the interviews appears in Appendix B – Transcripts of Personal Interviews to some of the research questions. Table 2 depicts common, contrasting, and unique patterns discerned from the responses in the interviews.

Table 2

Key Themes from Interviews

Common pattern	Contrasting pattern	Unique pattern
Feeling of optimism that stem from ART drugs. "*I feel good with the medication"*	Feeling of hopelessness due to HIV/AIDS, and related diseases. "*I don't feel good with the genital warts I now have due to HIV"*	A woman was distraught for the loss of her husband due to HIV, she said it was him that infected her with the disease and is dead living her with nothing to take care of her children. "*I feel okay under the circumstance of being infected with HIV*"
Denial of ART medication after effects. "*No bad or after effect*"	Initial side effects that got better with time; or change of dosage. "*I used to have hallucinations that got better with time*"	Another woman told of relocating with her family from the country's capital Abuja to Owerri because her husband lost his job and they could not pay their house rent and the children's school fees. "*Get the medication free and regularly since relocation due to financial hardship, feel dizzy sometimes"*
Existing relationship/and or married "*Yes, I am married*	Difficult finding love, or being in a relationship due to HIV "*People do not want to date someone with HIV*"	A patient did not seek medical attention when he was first diagnosed; rather he sought religious help through prayers and was promised healing. Three years later he became very sick and nearly died.
Indicated their desire to see government role include assisting them financially *"Is easy to get drugs from here, but the money for transport that is not available is my problem*":	Feel satisfied and gratitude to government for providing free medication "*Is always available, easy access and free*"	One of the men asked if I can help him get a driving job, that he is willing to travel outside Owerri to work and earn money to take care of his wife who is seronegative to HIV. "*Due to financial hardship, I am willing to work anywhere*"
Improved health due to ART adherence "*Yes, I comply 100%"*	Change of ART due to the dosage strength, new medication is working perfectly.	Fear of rejection and stigmatization if HIV status is known
Lack of money to afford daily needs. Fear of death from HIV/AIDS	Few have menial consistent jobs to take care of them. Concern is to get better and live quality life	Support system is absent from the lives of the patients. Emotional challenge is also an issue

Cluster Analysis

Table 3 depicts the clusters of themes that emerged from an integrated analysis of the themes from the on-site observations and interviews.

Table 3

Cluster Analysis

Cluster	Description	Link to research question
Christianity	Patients believe in biblical doctrines and harbor the notion that staying alive despite the infection of HIV is because of their Christian beliefs.	Beliefs in God and cultural tradition may have influenced behavior of patients towards adhering to ART medication
Monetary problems	Due to high reported unemployment, no work to earn a living, most of them are anxious on how to earn a living.	Poverty and lack of resources to sustain a healthy lifestyle played a major role on adherence
Fear, scared, staying alive, Healthy relationship	Adherence from the data collected is motivated by fear of dying, stigma and staying alive for love ones.	Respondents were scared of living isolated and dejected life due to HIV infection prompting them to adhere to treatment
No discrimination, Availability and easy access to ART	All the participants echoed that they have not experienced discrimination or stigmatization in the clinic. They feel treated respectfully and supported by the hospital staff. Medication is available whenever a patient is scheduled for a visit.	– Respondents were grateful for the free treatment, and the support of the hospital healthcare providers that attend to them. This factor motivates them to comply to their medication
Emotional concern	Positive outlook because of ART adherence, and negative impact that arise from the thought of being a HIV infected person.	Psychological and emotional distress from being an HIV patients was a concern for PLWHA, and taking prescribed drugs keep them alive and healthy.

Interpretation of Results

I discussed interpreted results in relation to each research question investigated in this study. I provided interpretation of respondents' experiences along with the direct quotes of the respondents as perceived by PLWHA residing in Owerri.

Reasons for Adherence/Nonadherence to ART Drugs for HIV/AIDS

The respondents discussed some reasons behind adherence to medication, which they thought important. First, the respondents were happy that the government was paying for the medicine. They had access to the hospital where they could get the medication without any cost. Most of the respondents were quite happy and satisfied with the services provided to them. Since most of the respondents belonged to a low socioeconomic background, they knew that if the treatment and medication were not given to them for free, it would have been quite difficult for them to purchase it. The respondents' access to medication and their satisfaction with the services provided to them in the hospital played an important role in their adherence to the medication. The following are some of the direct quotes from the respondents that revealed the importance of free medication to increase their adherence to HIV medication:

- "It helped that government is the one paying for the medicine."
- "I have the medicine free of charge and will take it to stay healthy."
- "Factors that contribute to my taking the medicine as prescribed is to avoid other sicknesses that can come due to HIV infection, and medicine is free from the hospital." (Imo/02/4112)

This indicates that the easy and free access to medication was one of the important factors that increased the respondents' adherence to medication. Given the socioeconomic status of the respondents, it is likely that those areas where medication was not available or not free for the respondents decreased the rates of adherence to the drugs/ treatment. This evidence implies that one of the main reasons behind high adherence to medication among HIV patients was the availability of free medication for them.

More so, respondents were optimistic about their lives. They all voiced the intent to live healthy lives with their families and spouse/partner. Many respondents mentioned that they loved their children, spouse/partner, and would love to spend more time with them. Participants stated that it is significant to adhere to prescribed drugs to maintain optimal health in other to live a quality life and be in a healthy relationship. They believed that adherence to medication may help boost their immunology and prevent them from developing other HIV related diseases. Another perceived perception is that adherence will not only help them maintain a healthy life but will also minimize the negative effects of HIV infection on their health condition.

They understood that the medication they were taking would protect them from any other diseases or infections that could have come from HIV infection. Most of the participants in this research were keenly aware of their susceptibility to additional diseases due to HIV complications, and declined immune system. Hence, the respondents perceived that adherence to medication was the only way to keep from HIV – related diseases and, to maintain a healthy lifestyle, which was essential for them to spend the desired happy life with their family, children, and spouse/partner. The following are some of the responses to my questions from respondents, who considered these factors very important to increase the adherence to medication:

- "I want to live for my wife and children, and by the way my children do not know that I have HIV except my wife."
- "Factors that contribute to my taking the medicine as prescribed is to avoid other sicknesses that can come due to HIV infection."
- "The factor that motivates my adherence is that I want to have a healthy relationship that may lead to marriage. Adhering to the drugs will help me stay away from other HIV related diseases."
- "To live a little longer before succumbing to the cold hands of death due to low immunity from AIDS." Respondents (Imo/2/280019) (Imo/2/4379) (Imo/2/4380)

Factors to ART Adherence That Affect PLWHA General Well-Being

These responses indicate that the respondents were optimistic about their lives. They look forward to living healthy lives with their family members particularly children and spouse/partner. Their self-motivation of living a healthy life increased their adherence to medication. In addition to that, the respondents' high motivational level was also due to the presence of their family members whom they wanted to spend their lives in a happier and healthier manner.

There were some activities that the respondents were performing, which helped them improve their overall well-being. These activities also facilitated them adhere to medication. For instance, the respondents mentioned that they had to go to work every day to earn for their families and themselves. Their work forces them to move, talk, and communicate, which improves their overall well-being. The respondents believed that their work provided them with the opportunity to be active and share their experiences with their colleagues. The respondents felt better after doing their job, talking to their colleagues, and spending time in the workplace.

Another important factor that respondents discussed was emotional support, having someone who could listen to their experiences, feelings, and situation. The respondents said that they discussed their HIV infection with those who also had been going through the similar situation that the respondents were experiencing. The respondents felt better when they were able to share their experiences with those people who could understand their condition and feel the situation that the respondents were experiencing. These interactions were helping them to improve their overall wellbeing and the adherence to medication.

In addition, the respondents also told that they provided these people (PLWHA) with important information about HIV infection, which increased their knowledge and understanding about this disease and how to handle it. The respondents felt happy to educate the people who did not have the adequate level of information and education about HIV infection. This process of educating other people and providing them with appropriate information about HIV infection developed pleasant feelings among the respondents, which improved their overall well-being.

The evidence indicates that the respondents were able to find out some ways through which they were helping themselves to improve their overall wellbeing. Among these factors, the emotional support was the most important, which was helping the respondents to experience optimum health. One of the major sources through which the respondents were receiving the emotional support, was the people who also had HIV infections. Consequently, the improvement in the overall wellbeing was helping the respondents adhere to medication. Research also shows the importance of having emotional support from people that can make a substantial difference in people lives who have chronic diseases, such as HIV infection.

Some of these respondents had family support. They mentioned that they received the support from their family members including spouse/partner. The family support was also playing an important role in improving the respondent’s wellbeing because the respondents were sharing their experiences with the family members particularly the significant ones who listen to them and understood their feelings. The respondents could reveal with their family members about their HIV infection. It is important to mention that some of the respondents admitted that their family was supporting them even when they found out that they are HIV positive. The family support significantly contributed to the respondent’s wellbeing because their family members were providing the respondents with the emotional support, which was imperative in their situation. The emotional support that the respondents received from their family members not only improved their overall wellbeing but also increased adherence to medication. The following are some of the responses from the respondents:

- “My husband is infected and yes, we do have family support.”
- “Yes my wife who is HIV positive.”
- “My husband is infected and yes, we do have family support.”
- “Yes I have support from my family.” Respondents (Imo/2/807) (Imo/2/4379).

This depicts that the respondents could seek some support from the family, which was extremely important for them to manage HIV infection. This also helped them to improve their overall wellbeing since the family members were the primary individuals with whom they respondents would have shared their experiences while living with HIV infection. Hence, these findings illuminate that the support from the family members and non-family members played an important role for HIV positive patients to manage this chronic disease and live a healthy life. The support from family members and other people who experienced the same situation developed optimism among the respondents, which increased their overall wellbeing. When the respondents felt a significant improvement in the health and wellbeing, they adhered to treatment because they knew that they could manage HIV infection since they had the support from people within and outside their family.

Moreover, those people who were also going through this experience of having HIV infection and they effectively managed this chronic disease, were very important individuals who could become a role model for those who lost hope after getting HIV infection. I found energetic people through direct observation who had high self-esteem to combat the disease through treatment compliance in a successfully way doing it were found through the direct observation of the researcher. They were few in numbers, but these few individuals were so committed and ready to do anything to help HIV positive individuals to live a healthy life.

During the direct observation, the researcher met with a woman who used to work with the Imo State Government HIV program. She mentioned that she worked with newly diagnosed HIV positive individuals who were discouraged and desperate after knowing that they had HIV infection. Her work elaborated the significance of providing education and awareness to HIV patients to increase the rates of early treatment and adherence among them. Individuals like the woman who successfully lives a healthy life while having HIV infection can become great role models. Their success stories can make a substantial difference in the lives of HIV positive individuals. Their life stories can eliminate the wrong perceptions about HIV infection among people in Owerri by telling them that it is still possible to live a happy and healthy living after having HIV infection. Their physical presence and discussion with HIV patients can bring a dramatic change in the lives of HIV patients in Owerri and substantially increase the adherence to treatment and medication among them. The following is the description of direct observation:

One of the participants I interviewed for my study approached me and told me how she had worked for the Imo State government HIV program of which, I asked her to explain the work she did. She said she speaks to newly HIV diagnosed patients who are distraught and hopeless because of the diagnoses. She counsels and educates them using her life story; she tells them of the benefits of early treatment and adhering to prescribed medication. She makes them understand that for them to live a healthy life, which is possible with HIV, it is important that they adhere to their drugs regimen. She commented that her story gives some of them hope, because looking at her you cannot tell that she has HIV.

This evidence showed that such individuals who are successfully living their lives while having HIV infection can provide education from their experience and increase awareness among newly HIV positive individuals. The success stories of these individuals may have a big impact on HIV positive individuals who feel depressed and hopeless. These successful individuals already experienced the situation that the other is experiencing, they know how and what to do to help these individuals. The direct observation of these successful individuals by HIV patients and the discussion with them would greatly benefit HIV patients and provide them with a hope to live a healthy life. It is important to mention, that these individuals are also willing and committed to working with the government and other agencies for the betterment of HIV positive individuals. Hence, it is extremely important to utilize these individuals, which may help to increase the adherence to treatment and medication.

Social Support for Those Who Take ART Drugs

The respondents did not receive any social support from their church, age grades, or community groups. One of the important reasons that limited the social support was the non-disclosure of the respondents about HIV infection. The respondents did not uncover or share their situation with their friends, people in the church, people who were of their age, or any groups in their community or neighborhood. The main reason to keep it secret was for fear stigmatization and discrimination. Most of the respondents mentioned that these reasons restricted them from discussing their situation with the other people. The respondents thought that sharing their situation with people in these domains might have negatively affected their interaction with them. The respondents believed that people did not respect those individuals who had HIV infection. They were afraid of being isolated.

They were concerned of being expel from church, community groups after sharing their information about HIV infection. The respondents did not want to lose their friendships because they perceived that their friends might not have contact with them anymore after hearing about their HIV infection. Hence, they never discussed their HIV infection with people in these domains. Consequently, the respondents missed the social support that they might have obtained from these people if they would have told them about their HIV infection. This question “Identify and describe the social support for those who take ART drugs as perceived by PLWHA residing in Owerri” received the following direct quotes from respondents:

- “Pastor is aware and is keeping it confidential, so the rest of the church does not know.”
- “No, we kept it secret from people due to discrimination, isolation and stigmatization.”
- “No I don’t receive any social support but sometimes individuals from church give me something as they know I have no job, but they are not aware of my sickness.”

- “None, no social support because they’re unaware of the true sickness.”
- “No I did not tell the church members.” Respondents - (Imo/2/4379; Imo/2/2444; Imo/2/3106).

The above evidence furnishes how the respondents feared sharing about their HIV infection. They knew the nature of the environment in which they were living and people’s negative perception of HIV positive individuals. The respondents believed that the context of their situation would not have supported them. They would have experienced adverse consequences in terms of losing their friendships and social connections if they shared the information about HIV infection. These findings revealed how the environment became non-supportive for the individuals who needed additional social support than the others.

The social norms forced people to perceive HIV positive individuals differently, probably in a negative manner, which perpetuated discrimination and stigmatization against them. Consequently, HIV positive individuals, had fear of divulging information about their sickness and experiences with friends people they interacted with. As a result, they ended up lacking social support from their friends and community people who could have helped them manage this chronic disease and increase adherence to medication.

Challenges of Accessing HIV/AIDS Medications

Respondents were satisfied with the availability of HIV/AIDS medication. They mentioned that drugs are always available, and they could access the medicine easily. The clinic usually opened twice a week for the patients for the clinical and treatment purposes. Those patients who came to the clinic received the treatment as well as the medicine on the same day. The respondents were quite happy that the treatment and medication were free in the clinic. They showed immense confidence in the availability of the medicine. There was no instance in which the patients were asked to come back to receive the medication. The respondents mentioned that even it was not difficult for the new patients to receive treatment and medication on the very first visit. The process of registration was quite simple and easy. The new patients could register on the very first visit to the clinic. Once the new patients were registered, they could have received the treatment as well as the medication right away. The regular supply of medicines meant a lot for the patients particularly for those who did not have money to purchase the medicine. It was an important aspect of the clinic that they made the procedure of getting the treatment and medication quite straightforward and easy for the patients, which reduced considered amount of stress from the patients. Respondents admired staff efforts to ease their challenges by ensuring that they receive treatment and available medicine. The following are some of the responses from the respondents:

- “We have access to drugs.”
- “The clinic is open twice a week for clinical and treatment, on that day HIV/AIDS patients come to see the doctor and collect their medications. New patients are also seen on the same day.”
- “I believe that the hospital always has medication for HIV/AIDS patients because whenever I come I receive my drugs. There has never been a time they ask anyone to go and come back due to the unavailability of medicine. Is easy to receive your medicine here, once they open a folder for you as a

> newcomer and you see the doctor that’s it.” Respondents (Imo/2/28079; 2/3106; 2/4380; 2/4379)

These findings illuminate the level of satisfaction and happiness among the respondents regarding the availability of the medication and the treatment provided in the clinic. These patients have low socioeconomic status and consequently, lacked economic resources. Therefore, it was an efficient action by the hospital to ensure full and free availability of drugs and treatment for the patients. This furnishes that one of the major reasons to increase adherence among HIV patients was to provide them with free medication and treatment in a simple managing and regular basis. When the respondents were satisfied and happy about the services provided to them, they were more likely to adhere to prescribed medication. Their easy and regular access to medication and treatment played an important role to improve their adherence to treatment.

Factors Contributing to Increase and Spread of HIV in Imo State

A question posed to respondents of which, every one of them had factors they believed to be contributory to the high incidence HIV rate in the state. The respondents discussed many important factors that contributed to the increase in HIV infection. First, a significantly factor mentioned was the lack of education and awareness, this factor is a major contributing factor to the increase in HIV infection. They further elaborated that people did not want to accept HIV/AIDS as a disease due to the taboo associated with it. There were lack of public targeted information about HIV or increased HIV education to create awareness, which caused people to believe there, was no treatment for HIV infection. They were ignorant due to the lack of education, knowledge, awareness, and information, which made them susceptible to HIV infection.

Respondents said that due to lack of awareness about the preventive measures of HIV infection, unprotected sex practices were very common in Owerri. People did not care about getting HIV infection, as they doubted its existence. Some people denied the reality of HIV infection because they did not think it as a disease that can affect them. The respondents also described that people in Owerri believed there was no treatment of HIV infection, and that once contracted the end is death. The following are some of the direct quotes of the respondents

- “I believe that people are still in denial and need to be educated about the disease. Nobody talks about it is a taboo and people refuse to accept it as a sickness that can be avoided due to ignorance.”
- “People are unaware and not careful about who they have sex with.”
- “Yes there must be increased in HIV education, people are still in denial of the disease.” Respondents (Imo/002/499; 002/142; 02/499)

It is important to mention that the respondents believed that when PLWHA in Owerri are educated and aware of the benefits of HIV drugs and treatment, the likeliness of adhering to drugs increases. Similarly, if people had information about the adverse effects of unprotected sex and the consequences of HIV infection, they would be more cautious with whom they have sexual intercourse with. The respondents also mentioned the need for adequate information on HIV infection; which will substantially decrease prevalence in the state. Most of the respondents said that after knowing the benefits of the treatment and the medication, they started using it. The following are some of the responses from the respondents:

- “I am complying with the drugs given to me because I know the benefits.”
- “I am aware, and I comply.”
- “Yes, I am in compliance.” Respondents (Imo/002/142; 02/807)

The second factor, which contributed to the increase in HIV infection in Owerri according to the perception of respondents, was retaliation. The respondents explained that those people, who already knew that they had HIV infection, intentionally infected other people. They avoided notifying their sexual partner on purpose to infect them equally. Since unprotected sex, practices were very common in Owerri, and no policy guarding against knowingly infecting others, these individuals could achieve their goals with impunity. These infected people did not think HIV infection has a cure or that one can have quality of life living with HIV disease. They believed that once infected with HIV, is the end of their lives. They wanted to get the revenge of having HIV infection by infecting others and spreading the disease. Since there was no awareness about this disease among people, these HIV positive individuals found many people who could potentially become the victims of HIV infection. As a result, HIV infection was spreading rapidly in Owerri. The following are some of the responses from the respondents:

- “I think is very common in the state because some HIV patients go out intentionally to infect others in retaliation for being infected. People should know that being infected is not the end of the world, and also know how to protect themselves against getting infected."

- "I believe is mainly due to unprotected sex practices in the state, when people have information, they will make informed decision about HIV infection and staying safe." Respondents (Imo/02/807; 02/1978)

Another significant third reason mentioned as contributing to the increase in HIV infection in Owerri was the lack of appropriate measures carried out by the government. The respondents expressed a substantial need of public policies and interventions at the macro level, which might have shown a trickledown effect at the local level. The respondents mentioned that the government should have adequately provided the public with proper information on HIV infection. They highlighted the importance of preventive measures, which could have saved people from HIV/AIDS infection. In addition, respondents mentioned sharing of barber blades and promiscuity besides the unhealthy practices of unprotected sex, which, substantially contributed to the increase in HIV infection. They believed that the government could have enacted health policies that controls this health hazard and reduce HIV high incidence rate in the state.

Awareness programs on HIV infection and the effective interventions from the government could potentially make a significant difference in bringing HIV positive rate down in Owerri. Respondent's direct response to the question are as follows;

- "HIV is common here, is a public information, eliminating the sharing of barber blades and less of promiscuity can ease HIV spread."

- "It's common, and there should be prevention programs funded by government to educate people." Respondents (Imo/02/4870; 02/280019)

I observed the inefficiency of the government handling of HIV programs through direct observation. The researcher had discussions with the staff members of the clinic and the patients during her direct observations about government programs for HIV patients. Both the staff members and the patients complained the lack of government involvement in establishing programs, research and preventive measure that promote the health status of PLWHA in the state. The government was unable to fund the clinic and the staff properly. The hospital has been operating without power, using generator daily to run the hospital. These affected the staff and patients, and there were no adequate measures carried out by the government to alleviate this problem, which showed lack of seriousness and commitment of the government in this important matter. Such lack of responses from the government may not only discourage the patients but it may also demotivate the staff members, which may negatively affect the adherence to treatment and medication among HIV patients.

The researcher overheard the staff and patients during the observation process discussing their disgust with the situation of power issue: They complained about the incompetency of government in matters that are very significant to people's life. I overheard patients discussing that electricity transformer that supplies power to the hospital have been blown for the past three months and since then the hospital has been using generator to power electricity to run the hospital. The respondents also mentioned that government did not fully equip the clinic with resources that could help the patients gain more information and education about HIV infection. The respondents mentioned that the clinic lacked modern technology and important sources of information, such as the internet, television, and computer. These important resources could substantially improve the knowledge and HIV information for PLWHA. This evidence depicts the government lack of adequate efforts to help HIV patients, which may decrease the adherence to treatment and medication among HIV patients. It is important to mention that the staff members were willing to make their best effort to help HIV patients in their adherence to treatment and medication. However, the experience of lack of support from government demoralizes the staff and the patients respectively, which, may contribute to less adherence to medication and treatment.

Effectiveness of Government Programs That Address PLWHA Concerns

To address this question; respondents were conflicted, while some are quite satisfied with the program through which they were receiving the treatment and medication, some added that government can do more to alleviate their challenges. The supply and availability of medicines were consistent. The process of registration, receiving medication and treatment were quite simple and straightforward. The clinic never ran out of medicine and the respondents received the medication and the treatment on the same day of their visit. There were no delays in the treatment and even the respondent who visited the very first day received treatment. Most of the respondents were also satisfied with the staff members who were providing them with the services in the clinic. The staff members were supportive and respectful of the patients. Hence, the level of satisfaction among the respondents about the services provided to them was quite high and satisfactory. Direct citations and quotes from respondents are below;

- “They are always respectful and supportive.”
- “The staff are cooperative with the patients.”
- “Even the doctors and other clinical staff do come out to chat with us.”
- “They are very good in the way they relate to patients.”
- “It helped that government is the one paying for the medicine, my own is to take the med.” Respondents (Imo/02/4380; 002/499; 02/807)

There were no other government program/s put in place to educate people about HIV, prevent the spread of the diseases, and facilitate job opportunities that provide some economic assistance to PLWHA. They believed that the government have the resources to develop and implement programs that can assist them and contain the spread of the disease in the state. I highlighted evidence noted from direct interview and observation process the inadequate informational resources including print and electronic media. The researcher noticed that there was no use of electronic media, such as television, through which the respondents could have provided easy and better information about HIV/AIDS, its causes, and preventive measures. The unavailability of educational pamphlets/ journals, or resourceful leaflets that could be potential sources to educate and create awareness of HIV infections was evident. It was quite ironic that many young adults including men and women were in the clinic, of which HIV education to the public would have averted this tragedy.

The researcher noted the effectiveness and reputation of the staff members who work in the clinic during observation in the clinic. I noticed that the attitudes and behaviors of the staff members were quite polite and appropriate with patients. The staff members showed the patients that they really cared about them and remembered them. Staff members also cautioned patients on absenteeism by explaining the adverse consequences of their careless actions or not attending to their appointment. It was clear that the staff members were devoted to their patients and committed to carry out their duties in assisting with patients. They took these responsibilities because not only it was their job and they had to earn a living from it, but also they thought it as their moral obligation to help the patients who were in a desperate condition.

The researcher observed that the staff were very cordial and respectful in the way they communicated with patients as well. I noticed that a nurse was cautioning a patient who has not adhered to her medicine. She warned and told her the implications of not coming for medical care and taking prescribed medicines. I overheard the patient stating that it was not intentional, but lack of fund to transport herself as her petty trading business has not been lucrative for some time putting her in a financial burden. There were some instances when the respondents showed some dissatisfaction about the staff and the clinic because of the way some staff members showed complacency.

Another problem highlighted by the researcher through the direct observation was the lack of privacy. The staff members were unable to maintain an adequate level of privacy with the patients. They were asking very private questions before the other patients, and that made the patients very uncomfortable. Noticeably, the patients were careful by speaking in a low voice when providing their private information in response to the questions asked by the staff members in the clinic. However, the staff members were not quite as sensitive to the situation as the patients. Staff was very loud, calling the patients' ID before everyone, and discussing the private information without maintaining an appropriate level of privacy. This lack of privacy created an awkward situation for patients who were disillusioned but did not voice their opinion nor complain. The researcher concluded that these patients felt gratification towards the good deed of receiving free health services and medication that lack of confidentiality was not an issue. The following is the description of direct observation:

> There was lack of privacy noted, as the conversation was not really in low voices. The nurses or staff asked patients some intimate questions in a loud voice without being mindful of who hears; however, the patients were cautious when responding. I took it that they were not very comfortable seeing outsiders my assistants) and (me in their midst and therefore, spoke in low voices. Another observation I noted was that patients who are HIV/AIDS infected were very weak and sleeping on the pew benches, other patients shook to wake these individuals up when it got to their number (Chizomam Ojukwu).

I mentioned about the inappropriate attitude of some staff members with the patients, which I picked during the direct observation in the clinic. The staff member was very impolite to the patient, scolded the patients just because the patient missed the appointment. The nurse was repeatedly cautioning the patient firmly which made the patient very uncomfortable, but she just listened to the staff without interruption. The other patients were also present in the clinic and overheard the conversation. It was a very insensitive way to communicate with the patient who is already experiencing a very miserable situation. These types of actions and behaviors may discourage and demotivate the patients from complying or adhering to treatment and medication. Despite these few instances, respondents were quite satisfied with the program through which they were receiving free treatment and medication in the clinic. Respondents made it clear that they are not complaining but voicing concerns and recommendations to improve the program, which provide great benefits to PLWHA.

To conclude, the respondents who are HIV positive, and have other HIV related diseases were optimistic and hopeful in adhering to their prescribed drugs for optimal health. They were also receiving appropriate free treatment and medication a significant factor that increased their level of satisfaction and increased the adherence to treatment among PLWHA in Owerri. Additionally, the process of receiving treatment and medication was quite easy and staff attitude was admirable to patients, which contributed to the increase in adherence to medication among the respondents. Most of the respondents were receiving emotional support from their family members. The relationship of the respondents with HIV positive individuals with whom these respondents shared their experiences and current situation was also a substantial source of emotional support for the respondents.

Factors that respondents mentioned as contributing to the wide spread of HIV, and noncompliance to prescribed medication were lack of HIV awareness, socioeconomic status, unprotected sex, cultural/traditional beliefs that made them ignorant of HIV infection. Hence, when people contract the infection they stay in denial, and will not seek medical attention nor discuss the disease. The context of Owerri was also not supportive of HIV positive individuals because it promoted discrimination and stigmatization against PLWHA. As a result, people lacked social and emotional support, which further limited their ability to fight HIV infection.

Furthermore, the respondents admitted that unhealthy and unprotected sex practices were very common in Owerri. They also expressed their concerns about the lack of effective programs and interventions by the government to educate people about HIV, promote awareness, eliminate unhealthy practices and provide resources that facilitates economic stability. The respondents believed that the government could play an important role in reducing the high rate of HIV infection in Owerri. Respondents expressed dissatisfaction with government current role, they alleged that government should increase awareness of HIV, develop intervention programs that properly highlight HIV/AIDS prevalence in Owerri.

Validity and Credibility of the Results

The researcher used multiple strategies to increase the research validity and trustworthiness of the current study. First, I collected data through more than one method, and analyzed both primary and secondary data collected. The researcher conducted in-depth interviews, focus groups, direct observations, and desk reviews to validate the evidence through multiple sources. These data collection methods provided the researcher with consistent results. Second, the researcher shared her interpretation of the respondents’ experiences with them. The respondents read her transcriptions and made sure that the researcher adequately interpreted their experiences. The researcher also had consistent discussions with her critical friends throughout the analysis. During these discussions, the researcher shared her decisions, approaches, and interpretation of the respondents' experiences with her critical friends. The researcher justified her approaches and decisions that she made throughout the analysis process before her critical friends. Third, the researcher also wrote reflective journals in which she wrote about her challenges, biases, and positionality that could have affected the research process and how she made the adequate decisions to deal with these biases to make the research process more open, valid, and trustworthy.

Fourth, the researcher spent an extensive amount of time with the respondents individually and on the site. She established a strong relationship with the respondents. Consequently, the researcher was able to develop a considerable trust and good repute among the respondents. This strategy helped the researcher to gain important insights from the respondents. The respondents uncovered essential information to the researcher because they had trust in her. Finally, the researcher also did the pilot testing for the current study. During the pilot testing, the researcher conducted an interview with hospital staff. In these interviews, the researcher asked the questions and received feedback from the respondents about the wording and meaning of the questions asked in the interview protocol. The researcher also sought help from the experts in this area along with her critical friends and incorporated all their feedback during the pilot-testing phase of the study. The pilot testing helped the researcher to validate the interview protocol and made it consistent with the context of the respondents targeted through the current study.

The pilot testing also led the researcher to be culturally appropriate and guided her to ask the most appropriate questions in the right way to uncover insightful information with the goal to find out the answers to the research questions investigated through the current study. Hence, the strategies, such as members’ checking, data triangulation, researchers’ triangulation, reflective journaling, building relationships, and pilot testing used to increase the validity of the current research. These commonly used strategies in qualitative research showed considerable results in terms of making the research process more rigorous and trustworthy.

Chapter 5: Discussion, Conclusions, and Recommendations

I discussed the qualitative phenomenological study finding in this chapter. This chapter addressed the research question, what were the challenges people living with HIV/AIDS in Owerri face in adhering to antiretrovirus therapy, and what are the effects on HIV-related diseases? The responses collected from individual narratives of respondents varied as to what influences adherence. The conclusion from data collection and analysis indicated that various factors influence adherence, including culture, fear of disclosure and rejection, support system, poverty, easy access and availability to drugs, limited information on the benefits of adherence, and willingness to survive.

Interpretation of the Findings

The purpose of this study was to identify challenges of adherence to ART from people living with HIV/AIDS in Owerri, Imo State. Findings revealed that the significant challenges for people living with HIV/AIDS in adhering to their ART treatments include monetary issues, fear of dying/exposure, lack of knowledge, medication side effects, discrimination, beliefs, and support systems. The findings present a convincing picture of personal objectives that motivate PLWHA to adhere to ART medication and the challenges of receiving treatment in Owerri. Findings also reflected the individual experienced narratives of respondents regarding living with HIV/AIDS, which was consistent with findings from other studies. I collected data directly from respondents and used the findings for recommendations on improving life for PLWHA in Owerri. The findings may provide advantage for future study and evidence-based information for policymakers in Imo state. Findings indicated that patients taking ART in this clinic are hopeful and appreciative because of the treatment and drugs the government is providing for them. The factors that influenced their compliance with doctor's order were monetary issues, religious beliefs, access and availability to drugs, stigma, educational level, existing relationships, support system, and fear of others knowing their HIV status. These findings were consistent with those from other studies conducted in Nigeria (Awoniyi, 2015; Ogungbemi et al., 2012; Smith, 2014; Sofalahan & Airhihenbuwa, 2012) in which traditional beliefs, culture, religion, inequality, poverty, lack of knowledge, and low personal risk perception were cited as factors impeding prevention of HIV spread. A few participants in the current study reported complacency and acceptance of their HIV positive situation and stated that it could have been worse.

The result also supported Omonaiye, Kusljic, Nicholson, and Masias (2018) study on pregnant HIV-infected women taking ART in sub-Saharan Africa. Omonaiye, Kusljic, Nicholson and Masias found that stigma, cost of transportation, and a woman's disclosure of HIV status to partner and family members were enablers and influencers of ART adherence. Findings from the current study also supported Awoniyi's (2015) findings that lack of ART knowledge, culture, and tradition affected medication adherence. Responses from participants in this study varied from one other and showed illustrated diverse contextual factors that motivated health behavior. I identified five prominent themes as influencers of adherence: (s) financial/cost, (b) fear/denial, (c) emotional/social support, (d) belief system, and (e) government inadequacies. In Chapter 5, I explain how each theme supports the IBM conceptual framework, which I used to study intention regarding adherence.

The integrated behavioral model (IBM) asserts that intention is the most significant predictor to behavior. Intention is determined by the constructs of attitude (available knowledge and skills to act, the overall benefits or unbeneficial outcome towards that behavioral action), perceived norms (belief that the intended behavior will yield a favorable/social accepted outcome, personal agency, and self-efficacy), and environmental constraints (factors that pose as hindrances towards acting on a behavior) (Ryan, 2009). My dissertation focused on the challenges patients face and the factors that motivate them to adhere or not adhere to prescribed medication. Cost/financial pressure seemed to be the deciding factor on health behavior and optimum adherence to ART among the respondents in my study. Many of the participants admitted to adhering because the treatment and medication given to them are free of charge. There was a positive attitude because of the free treatment and medication offered to patients in the clinic, and all the patients needed to do was take the medication, which they believed was for their own good. Some of the participants in my study stated that what motivates them to adhere to ART is easy access, availability to drugs, and not paying out of pocket, which is a huge relief for them.

Similarly, Naik et al. (2009) found the cost of treatment to be the single biggest obstacle to HIV/AIDS medication adherence. Naik et al. conducted a study in Mumbai, India, which has a high prevalence of HIV/AIDS, and found that 75% of participants stated that cost was a major obstacle to ART medication adherence. Achappa, Madi, Bhaskaran, Ramapuran et al. (2013) followed 116 participants on ART in India for 1 year and found that financial constraints, forgetting to take medication, lack of family care, depression, and social stigma were barriers to adherence.

Financial stress for PLWHA in the targeted community has reduced due to free treatment and medication provided to them through a government-funded program in Imo state. Empirical studies (Chow et al., 2015; Pascoe et al., 2015; Oxlade & Murray, 2013; Shittu et al., 2013) have linked poverty to HIV diseases. Respondents in the current study stated that easy access and availability to drugs without paying out of pocket is a huge relief for them and motivates them to adhere to ART.

Furthermore, in agreement with other studies, respondents in the current study voiced fear of exposure of HIV status (Wekesa & Coast, 2013) as one of the reasons they attend the clinic to be checked and to receive and take recommended HIV drugs. Participants stated that factors such as fear of dying, medication side effects, leaving loved ones, fear of knowing HIV status, discrimination, and stigma are concerns that affect their actions. Ogbochi, Modeste, Lee, Gleason, and Maynard-Tucker (2015) interviewed eight health care providers in rural and urban hospitals in Southern Malawi to determine obstacles women in that community face to ART adherence. Ogbochi et al. found that fear of disclosure and discrimination, medication side effects, staff, and drug shortages were factors that affected ART adherence. Ogbochi et al. stated that participants indicated that the women fear that disclosing their status increases stigma and may lead to losing a spouse when the husband finds out. In my study, respondents also specified that fear of dying from the disease, fear of discrimination, and fear of rejection encouraged them to take doctor’s prescribed drugs. I talked to respondents about the feelings of liberty from knowing HIV status and being open about struggles keeping in mind the community may not be sensitive to their situation.

Belief system has a conceptual connection to adherence and is pivotal, like social support, in how PLWHA respond to HIV drug regimens. An interesting observation I noted during data collection was the diverse belief systems that influenced health behavior among participants. The perspectives of most respondents were guided mundane thoughts; and others were either spiritual or traditionally rooted. The conspiracy belief that HIV was a hoax caused some of them to delay seeking treatment. Others reported that medication could not cure them except through spiritual means (i.e., through prayers and fasting). I noted a sharp contrast between the perspectives of educated PLWHA and those who lacked knowledge of HIV disease and the benefits of HIV treatment/medication. One of the participants said that God created the universe and allowed HIV disease, and that God is capable of healing anyone from it. This emphasizes the IBM notion that a patient’s attitude and behavior have a significant positive outcome when they have knowledge.

Some other studies referred to government inadequacies as a challenge to curbing HIV spread, (Kar, 2014; Wasti, Simkhada, Randall, Freeman & Teijlingen 2012). Kar had recommended that in India government policies and program need to integrate with healthcare systems for a stronger approach in addressing HIV. However, in my research data analysis showed that Imo state government is effectively working with the health care system to confront the HIV epidemic. Yes, more can be done to demonstrate competency, and promote knowledge as some of my participants acknowledged lack of

HIV information besides knowing their status and taking prescribed medication. Ho, Jacob, and Tangiisuran (2017) recommend that patient -identified barriers could facilitate quality health care and policymakers to design interventions aimed at eliminating key barriers and promote measures to promote adherence. The impact of a government program aimed to improve individual's behavioral health and attitude will reduce HIV spread in Imo state, and tackle challenges experienced by PLWHA.

Limitations of the Study

One of the limitations of this study was the number of recruited participants involved in the study, it limited the generalization of the population of PLWHA in Imo state and how they perceive ART challenges. The small number also did not provide enough patients with HIV related - comorbidities for me to determine the effects of non-adherence to HIV spread. Moreover, during the observation protocol, some of the patients were aware of our presence and warned the staff that they do not wish to be observed for fear of exposure.

Recommendations

Results of this study suggest further research into HIV medication adherence and the effects of HIV on comorbidity. More studies into the topic will facilitate the development and implementation of HIV intervention programs that targets the reduction of HIV spread, HIV medication benefits, and community support. New studies may evaluate the improvement on programs that have proven a success in reducing the burden of the disease on PLWHA. Additionally, explore government healthcare providers and stakeholder's inclusion strategies for intervention programs that promote health in the community. My study highlighted the lack of specific intervention programs that promote HIV awareness, and the decrease of the burden on the public. Further studies should be undertaken on the lack of inclusiveness of government, healthcare administrators, and stakeholders in educating the public to increase knowledge of HIV medication benefits in the community. The lack of support system was a major concern voiced by respondents. Through inclusion (government, healthcare providers and PLWHA) an evaluation is necessary to ascertain what is beneficial to the community and individual progress on ART made for improvement in the programs.

Implications

Systematic review of previous studies showed the efficacy of IBM model on HIV/AIDS adherence (Kalichman et al., 2011, Kalichman et al., 2010, Munro et al., 2011). Koh and Nowinsky, (2010) cited Ruffin, A Call to Action, we must be operational in providing knowledge and ideas for effective practice and policies, including necessary changes in social policies that influence health disparities. Thus, addressing the variety of health and social problems in the target population requires a paradigm shift, moving from clinical to prevention that generate equity for the most vulnerable members of the populace (Cohen, Chavez, & Chemini, 2010). HIV assumptions reflect deeply held values and conceptual views of the population. The study addressed negative assumptions about HIV/AIDS, medication adherence benefits, social influences, and cultural diversity that affect health behavior towards HIV medication adherence in Imo state. The willingness for people to adopt behavioral change that translates to social positive change depends on appropriate intervention programs, awareness, and personal knowledge.

There is need for increase awareness in the targeted population, where a lack of data, access to quality care and medication is a challenge to the people. The study result provided information from data analysis to increase awareness of HIV/AIDS ART adherence for social positive change. Communities need to understand that people living with HIV/AIDS (PLWHA) needs support, not discrimination. The intention is to facilitate an appropriate community assessment design that is sensitive to religion, cultural norms and values; is inclusive and allow collective action plan to address HIV infection in the community. Dissemination of result outcomes through multi-media channels will encourage social support, screening to know HIV status, adherence to treatment, and other preventive measures, which, is crucial for social positive change. This strategy is to enhance relationship and foster trust for the adoption of new health behavior. Building trust, honesty and inclusiveness of healthcare providers and the targeted population to increase awareness of the benefits of adherence will facilitate a positive change. The fact that respondents were excited to share their fears, challenges, struggles and hope with the assumption to influence others to be open about their disease is, in itself, a positive social change.

Conclusion

This study has revealed that the significant challenges for people living with HIV/AIDS in adhering to their ART treatments include monetary issues, fear of dying/exposure, lack of knowledge, medication side effects, discrimination, beliefs, and support systems among others. My study explored challenges to HIV medication adherence, and how non-adherence affect the health of a person with an already suppressed immune system. Waste et al., (2012) posit that a successful ART adherence solely depends on a patient's beliefs about the treatment and following treatment-seeking behaviors in practice. These challenges need government and clinical attention to achieve optimal success for PLWHA taking ART. Enriquez and McKinsey (2011) wrote that individual readiness to adhere to medication occurs when people reach a conscious awareness for a behavior desired and beneficial. This study illuminated the relevance of acquired knowledge to handle HIV situation, an interaction that existed between hospital staff and PLWHA, and the interdependency with each other that fosters positive outcome. The dependency was a factor that they voiced out repeatedly due to patients' fear of isolation and dying. This reciprocal dependency boosted and persuaded most of them to comply with ART. It is crucial to pay attention to the identified challenges in this community, designed challenges targeted programs that foster optimum adherence, and quality of care. Imo state Health Care Administration and the government need to integrate a system that promotes inclusiveness, pre-exposure prophylaxis, ART benefits, increased awareness, and social support programs for a superlative success.

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Appendix A: On-Site Observations

Following is a report on observation of three sites for HIV treatment.

Observation A: November 05, 2017, 9:45 AM to 5:00 PM; Laura Ojukwu, observer

On November 05, 2017, I observed the Owerri Specialist Hospital, HIV Clinic, from 9:45 AM to 5:00 PM. I arrived there with two of my research assistants, and we were seated in different locations. I sat in a corner that gave me a vantage point in the room and I commenced to observe the interaction, mood, demeanor, and communication between the staff and the patients. The patients were more than forty in number, male and female, young and old; pregnant women, and nursing mom. Some of them I recognized as participants to the study, and many of them were new faces. There are two tables in the room, three nurses wearing white scrub are sitting in the first table, one of them is drawing specimen blood, another calling out patient’s names, and the third lady writing and directing them to a doctor’s office to go to for further care. Seating on the second table are two clinicians (nurses) attending to new patients, explaining protocol to them, new patients have their blood drawn, a folder opened for them with their Id # assigned to the folder. The nurse will write in a piece of paper the id number and hand it to the patient and is asked to go and return in five days’ time for treatment.

The ambience was that of malaise, depression, and hope at the same time among the patients. I noticed that some looked really dejected, sad while some look hopeful. No television, HIV educational pamphlets/journal or resourceful leaflets that enlightens on HIV/AIDS. There are more young adults (men & women) than the elderly. Some of the patients are breastfeeding mothers who came with their babies, and spouses who came together. The staff were noticeably familiar with the patients, I noticed that a nurse was cautioning a patient who has not complied with her medicine. She warned and told her the implications of not coming for medical care and taking prescribed medicine. I overheard the lady stating that it was not intentional, but lack of fund as her petty trading business has not been lucrative for some time putting her in a financial burden. The staff were very cordial and respectful in the way they communicated with them. One of the participant's I interviewed for my study approached me and told me how she had worked for Imo State government HIV program of which, I asked her to explain the work she did. She said she speaks to newly HIV diagnosed patients who are distraught and hopeless because of the diagnoses. She counsels and educate them using her life story; she tells them of the benefits of early treatment and adhering to prescribed medication. She makes them understand that for them to live a healthy life which is possible with HIV, it is important that they adhere to their drugs regimen. She commented that her story gives some of them hope, because looking at her you cannot tell that she has HIV. She stated that she is willing to travel outside Imo state, even abroad to do any kind of work using her face and life story to educate people about HIV, and the benefits of adherence. I thanked her and told her that I have her phone number and will contact her if I have a need to do that. I took 30 minutes break and returned to change of shift, the morning shift left and now the evening shift have taken over. I commenced observation after my break; I noticed two separate rooms opposite one another within the big reception area. These two rooms I learnt are the doctor's offices, and it is in there that patients are sent to be seen by the doctor after their assessment with the nurses in the open room. There is no rest room visible from my observation for visitors or patients to use. There is another room at the rear that belongs to a female staff, while the clinicians are dressed in white, this lady was dressed formally in a skirt and. She seems to be the social worker there as everyone (staff & patient) gravitate to her, most of the time the door is closed when she has a patient or staff in her office. She came and introduced herself and thanked me for conducting the study, which she stated is highly needed. Immediately after that chat, power went and that was exactly 3:12 PM. Both patients and staff started to complain about the inefficiency of government in matters that are very significant to people's life. I overheard them saying that the transformer that supplies power to the hospital have been blown for the past three months and since then the hospital has been using generator to power electricity to run the hospital. Some people complained about the heat in the room and stepped outside, within fifteen minutes the room has been vacated. We stayed outside for another 45 minutes before power is restored.

I started my observation once we came back in around 4 PM and stayed for another hour before wrapping it up with my assistants. There was lack of privacy noted, as the conversation was not really in low voices. The nurses or staff asked patients some intimate questions in a loud voice without being mindful of who hears, however, the patients were cautious when responding. I took it that they were not very comfortable seeing outsiders (me and my assistants) in their midst and therefore, spoke in low voices. Another observation I noted was that patients who are HIV/AIDS infected were very weak and sleeping on the pew benches, they get awakened by another patient when their id number is called. My focus was both narrow and wide ranged, as I focused on a single individual (activity, demeanor, interaction) to all the occupants in the room. Of great importance is the lack of resources, or program for PLWHA to reduce the burden of disease, and incentives that encourages adherence to drugs. I realized that most of them are curious to why and what I was doing there. I was done when the last patient was seen, I thanked the staff for allowing us to observe, spoke to the Clinic director and ended my observation.

Observation B: HIV Clinic, Imo State Specialist Hospital, 10 AM; Isa Asinobi, observer

On getting to the hospital, patients were already seated, noted more than thirty-five patients in the room. The room was clean enough and the environment was conducive. A nurse with a folder was calling out names, and I noticed they were all present. There was mutual love from my observation between the nurses and HIV patients they were attending to, no discrimination. I observed that some of the patients are new, one of the nurses on duty opened a folder once the patient is called and seen, a blue card with identity/folder numbers on it is given to the person for future visits to the clinic. All the nurses were busy attending to patients, collecting blood specimen for the laboratory to determine their CD 4 level and viral load. However, I noticed that the room is small for the number of patients in here, it has no air conditioner but fan. No T.V or radio in the room, the ventilation was tolerable.

Another observation is the patients' demeanor, they were acting respectful and orderly. Some of them have smiling faces and acting very normal, there are married couples, pregnant women nursing mothers, young boys and girls. Looking at most of them without prior information or being told you can never tell that they are HIV positive. I observed that one of the patients was being scolded and counseled by a nurse who said the patient had missed her appointments for some months. She was very firm in cautioning that for her own good she should not repeat it again, she explained to her the benefits of regular checkup and adhering to medication. She also told her that the medicine is free, free health care and that she has no good reason not to come. I observed that few of the patients have HIV/AIDS and you can tell from the way they look – emaciated and low-spirited. There are people of diverse ages, and they all get attended to, power went off and workers started complaining that government need to repair the hospital transformer that blew up some months back. So, it was a generator that the hospital is using, the room became a little hot and the windows were all opened allowing air in. We took a short break while the generator is being prepared to power on, when we came back there was still no power and patients were sweating and complaining. One of the patients complained of the way he has emaciated few months after diagnosis. I suspected she has TB because of the profuse coughing. Most of the patients looked healthy enough, however, one of the patients a 22 years old patient with Id # 4112 told me that she is adhering to his drugs to live a healthy life. He said his parents are not aware of his sickness except his twin brother. Some of the patients were so bold as to ask if we are scarred of being infected by them. I believe the stigmatization effect is waning.

Good thing the room was not as crowded as patient leaves after their visit with the doctor. The clinic nurse saw the last patient at 4:55 PM, and another clinic day is scheduled in two days. The staff thanked us for coming and for what we are doing, we left at about 5:00 PM after the researcher's private discussion with some of the staff in the clinic.

Observation C: XXXXXXXXX 10:00 AM Ngozi Kanu, observer

When we arrived at the hospital HIV clinic the patients were all seated and they are more than thirty in number. The environment was clean, and well kept. The nurses were calling names of patients with their folders, and I noticed nobody was late to their appointment. There was mutual respect between the staff of the clinic and the patients, no discrimination rather cooperation is what I observed. I noticed from the nurse's conversations that some are new patients, a folder is opened, and a blue card given to them. All the nurses were busy attending to patients, one is collecting blood for a specimen called CD 4 and viral load for the laboratory. The room was kind of small for people in it, no air conditioner, but fan for ventilation, and no TV. I noticed that relatively the younger patients look normal, you couldn't tell that they are HIV positive. Some of the people are couples who are HIV positive, young boys and girls, and middle age patients. It is difficult to tell their status if not told, and few that are very thin because they have developed full blown AIDS. One of them who came to ask what is it that we are documenting without talking to them, I told her that we are observing how they are treated in the hospital and if they adhere to treatment. He told me that he does, because he knows the importance of the medication, and that he loves his life. I noticed that few of the patients looked malnourished of which I suspected AIDS judging from their looks. The nurses were carrying out their assignments with joy, diligence and caring attitude towards the patients. I observed that one of the patients missed her appointment, and the nurse was livid with her for not coming, and advised her not to repeat it for her own good. She tried to educate her about the benefits of keeping to appointment and adhering to medications. I noticed that they do not come every day but selected days of the week for treatment and drugs. Their blood gets screened to determine the level of immunology and advancement or not of the disease. The nurses are doing their job with excitement and the patients also seem content. No stigmatization or discrimination but cooperation. I observed that patients leave after seeing the doctor, and gradually there are less patients in the room.

I took a 30 minutes break and came back. I observed when I came back that the nurses I met in the morning has been replaced by the evening shift staff, the doctors stayed despite the change in shift for nurses seeing patients. One of the patients asked me to shift on the bench that I was sitting and I got up. When I got up he asked me why I had to do that, if I am scared of being infected. I reassured her that it was not so but do need a place of my own to be able to work effectively. I reassured him of our support and care through what we have been doing by educating them about HIV infection. Power was interrupted and everyone went outside for a while. We came back in the room when power was restored, all the patients were seen by the doctor and gradually I noticed that they have all been seen by the doctor and had gone. At this point the staff thanked us and the researcher went to speak to some of the directors. We closed at 5:00 PM.

Appendix B: Transcripts of Personal Interviews

The following table contains a verbatim transcript of the responses to 30 questions asked of 11 respondents. Their identifications were coded with a random code to protect their ACTUAL identities. As each respondent was asked the exact same question, their respective responses have been integrated under each question to facilitate comparison.

Respondent	Response
Q1 *I would start by asking your name. (Actual name withheld to preserve anonymity)*	
3106	3106
4379	4379
31014	31014
2444	2444
28079	28079
4380	4380
499	499
142	142
807	807
4112	4112
280019	280019
Q2 *How old you are (Age and date of birth)*	
3106	(1967)
4379	21
31014	31014-52
2444	*60*
28079	I was born in 1963
4380	41
499	*32*
142	*38*
807	*55*
4112	*22*
280019	*51*
Q3 *What is your level of education? Can you read and understand spoken English?*	
3106	Primary 6, not fluently
4379	Yes, secondary (High School)
31014	High school and I understand and speak English
2444	I went to school and finished secondary school, so yes, I can read and understand English,
28079	I attended Elementary School, and yes, I can understand and speak some English
4380	I attended Polytechnic, and yes I can read and understand English
499	Attended University (BA)

142	High School
807	High School
4112	High School
280019	College
Q4 *How can you describe your health status today, has your medication improve your health?*	
3106	I feel good with medications
4379	I don’t feel very well, I have been diagnosed with HIV and now I have genital warts due to HIV
31014	No problems, I feel very good with the drugs
2444	I should say it has, initially when I started with the ART therapy I had minor side effects but after continuous use my body became use to it. I believe that the medication has helped me a lot
28079	A little bit, has HIV/AIDS and cough, I feel very weak
4380	I am doing good under the situation of being infected with HIV
499	I believe that the medication has helped me with falling ill
142	Yes it has been helpful, the drugs are really helpful
807	I have noticed a huge difference since I commenced using the drugs
4112	I feel good and healthy because of the drugs
280019	I am looking healthy and has improved health due to the prescribed drugs
Q5 *Do you have any after effects from the medications? If yes did you report back to your doctor?*	
3106	Initially I had hallucination/dizziness but it has gone away with occasional insomnia
4379	Yes, I get dizzy after the medication that was given to me in Benin when I was diagnosed with HIV before I returned to Owerri. Right now I am not on any medication as this is the second visit to the clinic and will probably be given some HIV and warts medicine
31014	No bad or side effects from the drugs
2444	I should say it has, initially when I started with the ART therapy I had minor side effects but after continuous use my body became use to it. I believe that the medication has helped me a lot
28079	Yes, vomiting and diarrhea and I reported to the doctor. I believe they changed my medication and I don’t have those symptoms anymore
4380	I feel dizzy after taking my medication, I have come to report to the doctor as my medication was recently changed
499	Yes
142	Imo State, Mbaise
807	Imo state
4112	resident
280019	yes
Q6 *Are you an indigene of Imo state or a resident?*	
3106	yes, from Imo state
4379	Imo state
31014	yes from Irette
2444	I am from Imo state
28079	I am a native of Mbaise, Imo state
4380	I am a resident of Imo State

499	yes
142	Imo state-Mbaise
807	Imo state
4112	Yes
280019	yes
Q7 *Are you currently employed, trade or have any business you do to support yourself financially?*	
3106	I am a petty trader
4379	Parental support, training as a barber
31014	Self employed
2444	I do menial jobs sometimes to survive, but family members are also very supportive. Thank God the medication is free, all you have to do is bring yourself here and the clinic must attend to you which is good, besides that government do not offer us any supportive resources to survive,
28079	As you can see I am frail and cannot do any hard labor, I leave on the mercy of my family and village people. Some don't want to be seen around you and blame you for the sickness why others show pity and help you with free food and money
4380	I work as a driver
499	I am a tracker with Family Health International
142	I volunteer with HIV program for the government
807	No I do not have a job, but always available to do any kind of job to earn money for food
4112	I am a student
280019	I use to trade but has recently ran out of funds to continue to trade
Q8 *How do you afford your treatment and medications?*	
3106	They're free
4379	Free medication
31014	Free
2444	Is free from the government
28079	In this place is free treatment and medicine
4380	Treatment is received free
499	They offer us free treatment
142	Freely given to people who tested positive to HIV
807	Once I come on my scheduled appointment day, I receive my drugs free
4112	We are not charged for it
280019	The government provide it free of charge
Q9 *Are you in a relationship i.e. married, friendship, lover or committed?*	
3106	I am married
4379	None
31014	Married
2444	Yes I am married
28079	No
4380	Married
499	Married
142	Yes, I have a boyfriend
807	I am married

4112	I am in a relationship
280019	Widow
Q9A *Is your husband, wife/partner HIV positive?*	
3106	*yes*
4379	No
31014	*yes*
2444	Yes, he is and he comes here to receive treatment as well
28079	*yes*
4380	yes
499	yes
142	no
807	yes
4112	no
280019	Yes and he died from it
Q10 *When were you diagnosed with HIV? Did you commence treatment right after diagnosis?*	
3106	Diagnosed June 10, 2014, and yes I did
4379	First diagnosed in 2015, and did not seek medical attention till 2017
31014	In 2014, and yes I sought treatment right away
2444	Yes, I did as soon as the diagnosis was made
28079	In 2005, and I was in denial and did not seek treatment right away. I started treatment after almost fours after as I got very sick
4380	Diagnosed a month ago and started medication right away
499	Diagnosed in 2011 but started treatment in 2005
142	I was diagnosed in 2005 and started treatment in 2008, I wasted years seeking alternative treatment for healing
807	2008 and started treatment same year
4112	May of 2017 and I have been here in the past for treatment
280019	Diagnosed in 2008 and started taking medication that same year
Q11 *What medication regimen are you taking?*	
3106	1st line ART
4379	None, today is my second day of coming here, they have drawn my blood on the first day and am here today to see the doctor.
31014	1st line
2444	ART
28079	I don't know what it is called, but is a combination of medicines
4380	Ist Line
499	cART
142	ART
807	Don't know what it is called but a combination of medicines
4112	Ist Line

280019	ART
Q12	*Where do you get your medications, i.e. hospital clinic, pharmacy or government program?*
3106	This hospital clinic
4379	Hospital Clinic here
31014	Hospital clinic
2444	We used to live in Abuja when my husband and I were first diagnosed and we were getting treatment and drugs from General Hospital Abuja until we relocated back here due to financial difficulty. So now we receive treatment and drugs from Owerri Specialist Hospital, here in Owerri.
28079	Here in the Hospital clinic
4380	From here
499	Owerri Specialist Hospital HIV clinic (OSH)
142	Owerri Specialist Hospital HIV clinic (OSH)
807	Owerri Specialist Hospital HIV clinic (OSH)
4112	Owerri Specialist Hospital HIV clinic (OSH)
280019	Owerri Specialist Hospital HIV clinic (OSH)
Q13	*Do you have any HIV-related disease/s that you are being treated for like TB?*
3106	No
4379	No, but has severe genital warts
31014	No
2444	No not really except what the doctor called dehydration.
28079	Yes, TB and AIDS
4380	No
499	No
142	No
807	No
4112	Yes breast lump
280019	No
Q14	*Do you have any other person infected in your family? If no do you have your family support?*
3106	yes, my husband
4379	Nobody, and yes I have support from my family
31014	Yes my wife who is HIV positive,
2444	My husband is infected and yes, we do have family support
28079	No
4380	None
499	None
142	Late brother
807	None
4112	None
280019	None
Q15	*How about support from your church, age grades, or groups?*
3106	None, they're unaware
4379	Pastor is aware and is keeping it confidential so the rest of the church does not know.

31014	No I did not tell them
2444	No, we kept it secret from people due to discrimination and stigmatization
28079	I told you from some village people, I don't go to church because of my condition
4380	No I don't because they are not aware
499	I use my life savings to support myself
142	No support from anyone
807	No support from anyone
4112	None
280019	No
Q16	*What is your occupation, has this disease cause you to reduce your physical activities?*
3106	No, not as a housewife, my husband and I still have sexual intercourse
4379	one, weakness
31014	I am a taxi driver
2444	I have no steady job but sometimes work in other village women farms and get paid for it. I do experience some weakness on my legs occasionally
28079	Very much so due to the weakness
4380	I have no job due to the effect of HIV disease
499	It has not caused me any physical disability, and I do some menial job to survive
142	No I am okay but is difficult to get a job in this state. I work any available job to survive
807	I am a farmer
4112	I am a student, no HIV has not made me less active
280019	I am a trader
Q17	*If yes, what are the activities that you cannot do?*
3106	I do everything that I want to do
4379	Can't walk long distances
31014	I can still do what I used to do
2444	I can still do everything that I used to do before HIV diagnosis
28079	Almost all activities
4380	Nothing, I can do all that I want to do
499	I get tired easily
142	Nothing
807	Nothing
4112	I still do what I do before HIV diagnosis
280019	Nothing
Q18	*Do you have a car, drive or use public transport?*
3106	Public transportation
4379	Public transportation
31014	I own the keke (tricycle) that I drive
2444	I use public transport
28079	Public transport

4380	No
499	No
142	No
807	No
4112	No
280019	No
Q19 *How do you describe the state of medication availability in Owerri? Is it easy to access or very difficult to get?*	
3106	We have access to drugs
4379	The clinic is open twice a week for clinicals and treatment, on that day HIV/AIDS patients come to see the doctor and collect their medications. New patients are also seen on the same day
31014	Available and free
2444	I believe that the hospital always has medication for HIV/AIDS patients because whenever I come I receive my drugs. There has never been a time they ask anyone to go and come back due to the unavailability of medicine. Is easy to receive your medicine here, once they open a folder for you as a new comer and you see the doctor that's it.
28079	Is easy for me is the money that is not available
4380	Is always available for patients
499	Once a patient is registered the medication is available
142	There is regular supplies of medication and we have easy access to obtaining medicine
807	Available and easily accessible
4112	Easy access and medication availability is guaranteed
280019	Easy access
Q20 *Do you perceive any discrimination between male and female HIV patients in the clinic?*	
3106	None
4379	None, they are organized and effective in the way they attend to patients
31014	No
2444	I refuse to answer that
28079	No
4380	Nothing like that
499	No evidence nor have I noticed anything like that
142	Oh no
807	I have not
4112	No
280019	I have not seen it here
Q20A *Okay, do you feel like anyone of the staff is discriminatory towards patients or towards you?*	
3106	*No*
4379	*No*
31014	They are always respectful and supportive
2444	No they are supportive
28079	I have only noticed that sometimes when patients are complacent with their treatment, the staff get angry and try to caution them
4380	Oh no nothing like that

499	I have not seen it here
142	No maybe from some new people not from the staff
807	No
4112	The staff are cooperative with the patients
280019	No even the doctors and other clinical staff do come out to chat with us
21	*How would you rate the treatment you receive?*
3106	Its fine no complaint
4379	100% perfect
31014	good
2444	Very good
28079	Good
4380	I think they are okay
499	I would rate them 100 % effective in their services
142	I should say 80 % considering the state of the clinic and how services are rendered, for ex. There is no TV, resources that are informational, computer, and lacking in modern technology
807	They are very good in the way they relate to patients
4112	Okay I should say
280019	I should say that the treatment is okay, but they should include blood tonic to the medicine we receive here to help us build up blood.
Q22	*When the doctor prescribes an order for your medication do you follow the doctors order in taking your medication?*
3106	Yes as prescribed
4379	Yes, I have to because the drugs help in boosting my immune system
31014	Yes, I follow the order
2444	Ah, I take my drugs as the doctor prescribed it, the doctor explains the reason for
28079	Yes
4380	I follow the order religiously
499	I do not miss a day of my medication
142	I comply 100 % , except if I don't have money for other medications like cough or malaria medicine
807	
4112	Yes I am in compliance of the prescribed and given medicine
280019	Yes, I do
Q23	*Because of the emotional, physical and mental challenge from HIV, do you have problem interacting with people, concentrating or remembering?*
3106	No
4379	Yes I do
31014	No
2444	Since I don't look like someone ill, people don't know so I don't have problems interacting with people.
28079	Yes, they can tell from the way I look and nobody wants to interact with you
4380	No

499	No, I interact with people alright, only very few people know that I am HIV positive
142	Initially it was tough, people did not want to interact with me but since they know that I volunteer for government and that hospital staff feel free with me they are now friendlier with me.
807	No, I have no problem remembering or interacting with people
4112	No problem at all with that
280019	No I interact with people and I have no issues remembering things
Q24	*Are you a Christian or a traditionalist?*
3106	I am a Christian
4379	Christian
31014	Christian
2444	I am a Christian
28079	Christian
4380	yes
499	yes
142	I am a Christian but also use and believe in traditional medicine,
807	yes
4112	Yes
280019	Yes I am
Q25	*Do you believe that the medication can help improve your health?*
3106	Yes
4379	Yes
31014	Yes
2444	Yes, 100%
28079	Is just helping me stay alive for now, but they said it cannot improve my health because it has developed into AIDS already
4380	I believe and know that is helping me stay healthy
499	It is helping, yes
142	ART is immune booster and is working well with me.
807	Yes
4112	Yes I do
280019	Yes
Q26	*Why do you think that HIV are so common in the state? Do you think that something can be done to lessen the spread?*
3106	Its common, there should be prevention programs to educate people
4379	Yes there must be increased in HIV education, people are still in denial of the disease
31014	People are unaware and not careful
2444	I don’t think is as bad as it is in other states
28079	I believe that people are still in denial and need to be educated about the disease. Nobody talks about it is a taboo and people refuse to accept it as a sickness that can be avoided due to ignorance
4380	
499	

142	I think is very common in the state because some HIV patients go out intentionally to infect others in retaliation for being infected. People should know that being infected is not the end of the world, and also know how to protect themselves against getting infected.
807	I believe is mainly due to unprotected sex practices in the state, when people have information they will make informed decision about HIV infection and staying safe
4112	It's common here, public enlightenment, eliminating the sharing of barber blades and the less of promiscuity can facilitate the reduction of HIV spread
280019	I don't really know the answer to that but there must be public education about HIV infection
Q27	*Are there factors that contribute to your adhering or not adhering to your prescribed drugs?*
3106	None
4379	I am yet to start on ART
31014	I want to live for my wife and children, and by the way my children do not know that I have HIV except my wife
2444	Factors that contribute to my taking the medicine as prescribed is to avoid other sicknesses that can come due to HIV infection, and medicine is free from the hospital.
28079	To live a little more longer before succumbing to the cold hands of death due to low immunity from AIDS
4380	No except to stay healthy
499	There is nothing except to stay alife
142	The factor that motivates my adherence is that I want to have a healthy relationship that may lead to marriage. Adhering to the drugs will help me stay away from other HIV related diseases.
807	It helped that government is the one paying for the medicine, my own is the take the med
4112	Not really
280019	Well, no I have the medicine free of charge and will take it to stay healthy
Q28	*Are you engaged in any activity to promote wellness?*
3106	Yes
4379	None
31014	Yes, I go to work every day and still hussles to cater for my family
2444	No
28079	No
4380	I try to discuss HIV infection with people sometimes and educate them
499	I exercise, walk and lift to promote my strength
142	No
807	No
4112	None besides working menial jobs
280019	None
Q29	*If you are more informed about the benefits of your drugs are you likely to comply?*
3106	Yes
4379	Yes
31014	Yes
2444	I am complying with the drugs given to me because I know the benefits
28079	Well, that is late for me now
4380	Yes

499	Yes
142	Yes, I know
807	Yes
4112	I am aware and I comply
280019	Yes, am in compliance
Q30 *What can you tell me to be your challenges and concern?*	
3106	Fear of death from the disease
4379	Still very concerned about the warts and the general outcome of this whole disease
31014	Improving my health
2444	Emotional challenge is my biggest problem, patient started crying, I am childless and my husband married another woman who has children for him. The second wife makes sure my husband doesn’t pay me any attention, if I get sick she makes ridicule of me and said I should die. She tells me I have no reason to live, that my being alive is only costing them money. Is hard to live that kind of life. I am not as strong as I used to be and is difficult making money to take care of myself.
28079	My concern is how to survive one day at a time, I have no money and sometimes cannot even go to Owerri HIV clinic for treatment because I have no money for transport
4380	My concern is to remain healthy and to get any other disease
499	Emotional torture of having this disease, I feel depressed anytime I bring out the medicine to take
142	Money to take care and to keep living,
807	My concern is getting a job to earn a living and live life
4112	To get well and feel free to live among my peers
280019	My concern is to how to train my children, I am a widow and life is hard for me and my children.