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FACTORS INFLUENCING ACCESS TO ANTI-RETROVIRAL DRUGS:

A CASE OF NAIROBI KIBERA SLUMS

By

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(BA Couns.Psych)

157/12164/04

A thesis submitted in partial fulfillment of the requirements for the award of the degree of
Master of Public Health in the School of Public Health, Kenyatta University.

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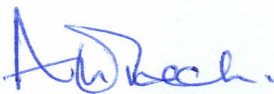
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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

This work is dedicated to my loving husband Prof. Otieno Odek for all the unwavering support that has sustained me through all the stages of the thesis development.

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
AMREF	African Medical Research Foundation
ARVs	Antiretroviral Drugs
ART	Antiretroviral Therapy
CBO	Community Based Organization
CHWs	Community Health Workers
CI	Confidence Interval
HIV	Human Immunodeficiency Virus
KAIS	Kenya AIDS Indicator Survey
KNASP	Kenya National AIDS Strategic Plan
MDG	Millennium Development Goals
MSF	Medicine san Frontiers
NACC	National AIDS Control Council
NASCOP	National AIDS and Sexually Transmitted Diseases Control Programme
NGO	Non-Government Organization
OR	Odds Ratio
PAG	Pentecostal Assembly of God
SPSS	Statistical Package for Social Science
UNAIDS	United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
W.H.O	World Health Organization

OPERATIONAL DEFINATION OF TERMS

ACCESS: The opportunity to reach and obtain appropriate health or the distribution of benefits according to demonstrable need

EQUITY: Fairness, justice, impartiality, equal treatment, legitimacy or even-handedness

INFORMAL SETTLEMENT: A slum area devoid of proper infrastructural facilities such as clean water, sanitary waste disposal, access roads, drainage, health and educational services, decency and privacy (see slum)

OUTPATIENT CARE: Care received on an ambulatory basis, not involving spending a night in hospital health

SLUM: An informal settlement devoid of quality social amenities and formal infrastructure

ABSTRACT

At the end of 2009, there were 33.3 million people living with HIV. In 2009, there were an estimated 2.6 million people who became newly infected with HIV. The number of annual AIDS-related deaths worldwide is steadily decreasing from the peak of 2.1 million in 2004 to an estimated 1.8 million in 2009. Sub-Saharan Africa still bears an inordinate share of the global HIV burden. In Kenya, the number of people living with HIV in 2009 was 1,500,000. The number of people receiving ART in December 2009 was 336,980. Anti-retroviral therapy (ART) coverage in Kenya according to 2010 World Health Organization's guidelines stands at 50%. In the last one year, Kenya has lost 20% of patients enrolled to HIV/AIDS treatment programs raising serious concerns about access to ARVs medication. The study therefore aimed to determine the factors influencing access to ARVs in Nairobi's Kibera slums. A descriptive cross-sectional study was conducted with a desired sample size of 384 study participants. Purposive sampling was used to sample seven of the busiest sites offering ART services. The sample was then distributed proportionate to size in each selected site. Systematic random sampling was then used to select the individual study participant. Data were collected using structured interview schedule and key informant interviews. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 11.5. The findings showed 54.9% of the respondents accessing ARVs. Several factors were established to hinder access to ARVs. These included the gender of the respondent (OR=0.632, 95% CI 0.421-0.950, $p=0.028$), the distance to the ARVs delivery points (OR=5.921, 95% CI 3.710-9.447, $p=0.0001$), attitude towards the open ARVs access program (OR=0.642, 95% CI 0.427-0.964, $p=0.033$) and knowledge to the free ARVs provision (OR=0.590, 95% CI 0.390-0.891, $p=0.012$). Several challenges to the open access ARVs program highlighted in the study were distance and transport difficulties, stigma, poor drug adherence, lack of funds, staff shortages, lack of drugs to treat opportunistic infections, cultural beliefs, illiteracy among patients, patient migration, lack of proper nutrition, long waiting time and transfer of counsellors. It is evident that that there were eminent factors and challenges affecting access to ARVs by HIV/AIDS patients in Kibera slum. The study therefore recommends devolvement of ARVs delivery points to increase physical access, education of the public about the free provision of ARVs to increase awareness and the review of the free open access program to make it more patient friendly.

CHAPTER ONE: INTRODUCTION

1.1 Background

At the end of 2009, there were 33.3 million people living with HIV compared with 26.2 million in 1999—a 27% increase. The annual number of new HIV infections has been steadily declining since the late 1990s. In 2009, there were an estimated 2.6 million people who became newly infected with HIV. This is nearly one fifth (19%) fewer than the 3.1 million people newly infected in 1999, and more than one fifth (21%) fewer than the estimated 3.2 million in 1997, the year in which annual new infections peaked. The number of annual AIDS-related deaths worldwide is steadily decreasing from the peak of 2.1 million in 2004 to an estimated 1.8 million in 2009. The decline reflects the increased availability of antiretroviral therapy, as well as care and support, to people living with HIV, particularly in middle- and low-income countries; it is also a result of decreasing incidence starting in the late 1990s (UNAIDS, 2010).

Sub-Saharan Africa still bears an inordinate share of the global HIV burden. Although the rate of new HIV infections has decreased, the total number of people living with HIV continues to rise. In 2009, that number reached 22.5 million, 68% of the global total. Sub-Saharan Africa has more women than men living with HIV. The HIV incidence (number of people newly infected with HIV) appears to have peaked in the mid-1990s, and there is evidence of declines in incidence in several countries in sub-Saharan Africa. Between 2001 and 2009, the incidence of HIV infection declined by more than 25% in an estimated 22 countries (UNAIDS, 2010).

The 2007 Kenya AIDS indicator Survey (KAIS) showed a reversal of the declining trend, with an estimated HIV prevalence of 7.4% among adults age 15-49 years. These results indicate estimated 1.4 million adults age 15-64 are infected with HIV/AIDS, with about 1 million rural and 400,000 urban residents infected (NAS COP, 2008).

In 2009 alone, 1.2 million people received HIV antiretroviral therapy for the first time—an increase in the number of people receiving treatment of 30% in a single year. Overall, the number of people receiving therapy has grown 13-fold, more than five million people in low- and middle-income countries, since 2004. Expanding access to treatment has contributed to a 19% decline in deaths among people living with HIV between 2004 and 2009. Advances toward universal access to treatment, care and support services were a significant achievement in 2009, especially given the considerable challenges that accompanied the flattening of global funding for HIV programmes in low and middle-income countries (UNAIDS, 2010). As of December 2009, an estimated 5.2 million people in low- and middle income countries were receiving antiretroviral therapy (WHO, 2010). This represented an increase of 1.2 million people, or 30%, over the number receiving such treatment 12 months earlier. In sub-Saharan Africa, nearly 37% of people eligible for treatment were able to access life-saving medicines in 2009 (UNAIDS, 2010).

1.2 Statement of the problem

At the end of 2009, 36% (about 5.2 million) of the 15 million people in need in low- and middle-income countries were receiving antiretroviral therapy. In sub-Saharan Africa, nearly 37% of people eligible for treatment were able to access life-saving medicines in 2009.

Advances toward universal access to treatment, care and support services were a significant achievement in 2009, especially given the considerable challenges that accompanied the flattening of global funding for HIV programmes in low and middle-income countries. More people are receiving antiretroviral therapy in all regions of the world than at any previous time in the epidemic. However, progress toward universal access goals remained mixed, with substantially greater gains in some settings and on certain aspects of treatment, care, and support than in others (UNAIDS, 2010).

In Kenya, The number of people living with HIV in 2009 was 1,500,000. The number of people receiving ART in December 2009 was 336,980. ART coverage according to 2010 World Health Organization's guidelines stands at 50% (UNAIDS, 2010). This figure was far much lower compared to the Millennium Development Goal (MDG) target 6 which aimed at achieving by 2010 universal access to treatment for all those who need it. In addition, Kenya has been listed among those countries retaining at least 80% of people in treatment for at least one year (UNAIDS, 2010). An attrition rate of 20% per year is quite high given the negative consequences of failing to adhere to HIV medication. The current study therefore endeavours to establish factors influencing access to ARVs with the primary purpose of optimizing treatment retention and adherence among HIV/AIDS patients in the slums.

1.3 Justification

Long-term retention, access and adherence to HIV/AIDS treatment are critical for health outcomes. The findings of this study will form a basis to improve patient access to ARVs in the slums, thereby contributing positively to patient adherence and retention to treatment. In

the light of increasing resistance to ARVs medication by HIV/AIDS patients and the high cost of second-line ARVs medication makes the study findings relevant in suggesting effective and evidence-based policies.

1.4 Objectives

1.4.1 Broad objective

To determine the factors associated with access to ARVs for eligible residents of Kibera slums

1.4.2 Specific objectives

The study focused on the following specific objectives:

- 1) To assess the proportion of clients accessing ARVs
- 2) To establish the factors hindering access to ARVs
- 3) To identify the challenges of the free ARVs open access program

1.5 Research questions

The study was guided by the following research questions:

- 1) What is the proportion of clients accessing ARVs?
- 2) Which are the factors hindering access to ARVs?
- 3) Which challenges face the free ARVs open access program?

1.6 Research hypothesis

H₀: Access to ARV services in Kibera slum is independent of any factors and/ or challenges.

1.7 Assumptions of the study

Having applied systematic random sampling to select individual respondents for the study, one assumption was that there was no hidden periodicity in the population in terms of the desired study traits. It was therefore assumed that the respondents' characteristics were randomly distributed in the target population.

1.8 Significance of the study

The findings of this study will serve as a policy guide for equitable distribution of ARVs. The findings will be communicated to Ministry of Public Health and Sanitation, community-health care workers in Nairobi, private practitioners, local Provincial Administration and other stakeholders as an effort to help put into place the appropriate measures to curb the barriers experienced in the access of ARVs to those in need. The findings will also add to the scholarly body of knowledge.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

HIV incidence has fallen by more than 25% in 33 countries between 2001 and 2009. Of these countries, 22 are in sub-Saharan Africa. The biggest epidemics in sub-Saharan Africa—Ethiopia, Nigeria, South Africa, Zambia, and Zimbabwe—have either stabilized or are showing signs of decline. The number of annual AIDS-related deaths worldwide is steadily decreasing from the peak of 2.1 million in 2004 to an estimated 1.8 million in 2009. The decline reflects the increased availability of antiretroviral therapy, as well as care and support, to people living with HIV, particularly in middle- and low-income countries; it is also a result of decreasing incidence starting in the late 1990s. The effects of antiretroviral therapy are especially evident in sub-Saharan Africa, where an estimated 320 000 (or 20%) fewer people died of AIDS-related causes in 2009 than in 2004, when antiretroviral therapy began to be dramatically expanded. AIDS-related mortality began to decline in sub-Saharan Africa and the Caribbean in 2005. Different patterns have emerged in other regions. In North America and Western and Central Europe, deaths due to AIDS began to decline soon after antiretroviral therapy was introduced in 1996. In Asia and Central and South America, the number of deaths has stabilized, but there is no indication yet of decline. Deaths continue to increase in Eastern Europe (UNAIDS, 2010).

Sub-Saharan Africa still bears an inordinate share of the global HIV burden. Although the rate of new HIV infections has decreased, the total number of people living with HIV continues to rise. The largest epidemics in sub-Saharan Africa—Ethiopia, Nigeria, South Africa, Zambia, and Zimbabwe—have either stabilized or are showing signs of decline. The

estimated 1.3 million people who died of HIV related illnesses in sub-Saharan Africa in 2009 comprised 72% of the global total of 1.8 million deaths attributable to the epidemic. The HIV incidence (number of people newly infected with HIV) appears to have peaked in the mid-1990s, and there is evidence of declines in incidence in several countries in sub-Saharan Africa. Between 2001 and 2009, the incidence of HIV infection declined by more than 25% in an estimated 22 countries (UNAIDS, 2010).

In Zimbabwe, the main behavioural change appears to have been a reduction in the proportion of men with casual partners, while condom use with non-regular partners has remained high since the late 1990s (Gregson *et al.*, 2010; Gregson *et al.*, 2006). With an estimated 5.6 million people living with HIV in 2009, South Africa's epidemic remains the largest in the world. New indications show a slowing of HIV incidence amid some signs of a shift towards safer sex among young people (Shisana *et al.*, 2010). The annual HIV incidence among 18-year-olds declined sharply from 1.8% in 2005 to 0.8% in 2008, and among women 15–24 years old it dropped from 5.5% in 2003–2005 to 2.2% in 2005–2008 (Rehle *et al.*, 2010). Other epidemics in southern Africa have also leveled off at very high levels. At an estimated 25.9% in 2009, Swaziland has the highest adult HIV prevalence in the world (UNAIDS, 2010). The epidemics in East Africa have declined since 2000 but are stabilizing in many countries. The HIV incidence slowed in the United Republic of Tanzania to about 3.4 per 1000 person-years between 2004 and 2008 (Hallett *et al.*, 2010). The national HIV prevalence in Kenya fell from about 14% in the mid-1990s to 5% in 2006 (NASCOP, 2007)). The HIV prevalence in Uganda has stabilized at between 6.5% and 7.0% since 2001. The HIV prevalence in Rwanda has been about 3.0% since 2005 (UNAIDS, 2010).

The 2007 Kenya AIDS Indicator Survey (KAIS) showed a reversal of the declining trend, with an estimated HIV prevalence of 7.4% among adults age 15-49 years. These results indicate proportionately more women (8.8%) than men (5.5%) age 15-49 are infected. An estimated 1.4 million adults age 15-64 are infected with HIV/AIDS, with about 1 million rural and 400,000 urban residents infected (NASCO, 2008). The government of Kenya first established a National AIDS Control Council (NACC) in 1999 and has developed the third National AIDS Strategic Plan (KNASP III) launched in January 2010 (NACC, 2009).

2.2 Gender equality

Although gender relationships, practices and HIV epidemics differ around the world, power imbalances, harmful social gender norms, gender-based violence and marginalization clearly increase the vulnerability of both women and men to HIV infection. The consequences of gender inequalities in terms of low socioeconomic and political status, unequal access to education, and fear of violence, add to the greater biological vulnerability of women and girls being infected with HIV. Too often they have little capacity to negotiate safer sex, access the services they need, and utilize opportunities for empowerment (Greg *et al.*, 2008). In nearly all countries in sub-Saharan Africa and certain Caribbean countries, the majority of people living with HIV are women, especially girls and women aged 15–24 years (Gay *et al.*, 2010).

In sub-Saharan Africa, women are more likely to become infected with HIV than are men. The most recent prevalence data show that in sub-Saharan Africa, 13 women become infected for every 10 men infected. One half of people living with HIV globally are women and 76% of all HIV-positive women live in sub-Saharan Africa. Conversely, traditional roles and

societal values related to masculinity might encourage boys and men to adopt risky behaviours, including excessive alcohol use and concurrent sexual relationships, so increasing their risk of acquiring and transmitting HIV. Many harmful norms related to masculinity and femininity also stigmatize transgender people, men who have sex with men, and other sexual minorities. Levels of new HIV infections in sub-Saharan Africa continue to remain higher among women, a pattern that applies to every sub-region in sub-Saharan Africa. Female-to-male ratios of new HIV infections range from 1.22:1 in West and East Africa to 1.33:1 in southern Africa, despite the different types of epidemics and predominant modes of transmission in these sub-regions. In other regions, men are more likely to be infected with HIV than women, often in concentrated epidemics involving men who have sex with men or people who inject drugs. Men who have sex with men continue to bear a high burden of HIV infection even in regions with generalized epidemics. In sub-Saharan Africa, HIV programming has largely neglected same-sex behaviour because of homophobia and the widespread criminalization of homosexuality (UNAIDS, 2010).

Research has found significantly higher levels of infection among men who have sex with men than among men in general, and has also confirmed that many men who have sex with men also have sex with women (Smith *et al.*, 2009). Understanding the complexities of relationships engaged in by some married and long-term partners is important in focusing the HIV response. A recent study conducted in Botswana, Malawi, and Namibia found that 34% of men who have sex with men were married to women, and a total of 54% reported sex with both men and women in the previous six months (UNAIDS, 2010). Marriage thus serves as a way to protect against possible prosecution and stigma against men who have sex with men

(White and Carr, 2005). In Asia, women are predominantly infected by their husband or intimate partner. For example, recent data on HIV infection patterns in India reveal that 90% of women in India were infected within long-term relationships (UNAIDS, 2010).

2.3 Human rights in the era of HIV and AIDS

Human rights are no longer considered peripheral to the AIDS response. Today, the vast majorities of countries (89%) explicitly acknowledge or address human rights in their national AIDS strategies, with 92% of countries reporting that they have programmes in place to reduce HIV-related stigma and discrimination. At the same time, however, criminalization of people living with HIV still presents significant challenges to the AIDS response. More than 80 countries across the world have laws against same-sex behaviour, and the free travel of people living with HIV is restricted in 51 countries, territories and areas. Such laws are not only discriminatory and unjust—they also drive HIV underground and inhibit efforts to expand access to life-saving HIV prevention, treatment, care and support (UNAIDS, 2010).

In the context of HIV, protections comprise legal approaches that implement international human rights commitments as well as efforts to address harmful social and gender norms that put women, men, and children at increased risk of HIV infection and increase its impact. A rights-based approach to HIV requires: realization and protection of the rights people need to avoid exposure to HIV; enabling and protecting people living with HIV so that they can live and thrive with dignity; attention to the most marginalized within societies; and empowerment of key populations through encouraging social participation, promoting inclusion and raising rights-awareness. Significant advances have been made in expanding

HIV prevention, treatment, care, and support services in recent years but some key populations at higher risk such as sex workers, people who inject drugs and men who have sex with men, remain often underserved. Resources directed towards the needs of these populations, including support for them to claim and exercise their rights, are often not proportional to the degree to which they are affected by the epidemic (UNAIDS, 2010).

2.4 Treatment

Overall, the number of people receiving therapy has grown 13-fold, more than five million people in low- and middle-income countries, since 2004. Expanding access to treatment has contributed to a 19% decline in deaths among people living with HIV between 2004 and 2009. Having more than 5 million people receiving treatment is a major public health achievement—but still represents only 35% of the people who need HIV therapy now, according to WHO guidelines issued in early 2010. Reaching the two thirds of people who need treatment, but are not yet receiving it, and financing this expansion in access to HIV therapy will require a continued and expanded global commitment to providing high quality HIV care for all. Advances toward universal access to treatment, care and support services were a significant achievement in 2009, especially given the considerable challenges that accompanied the flattening of global funding for HIV programmes in low and middle-income countries. More people are receiving antiretroviral therapy in all regions of the world than at any previous time in the epidemic. However, progress toward universal access goals remained mixed, with substantially greater gains in some settings and on certain aspects of treatment, care, and support than in others (UNAIDS, 2010).

As of December 2009, an estimated 5.2 million people in low- and middle income countries were receiving antiretroviral therapy (WHO, UNICEF and UNAIDS 2010). This represented an increase of 1.2 million people, or 30%, over the number receiving such treatment 12 months earlier. In sub-Saharan Africa, nearly 37% of people eligible for treatment were able to access life-saving medicines in 2009. Similarly 42% in Central and South America, 51% in Oceania, 48% in the Caribbean, and 19% in Eastern Europe and Central Asia were accessing such treatment. The increase in the number of people receiving antiretroviral therapy in 2009 was virtually even across Eastern Europe (34%), sub-Saharan Africa (33%), Asia (29%) and the Caribbean (30%). Only in Central and South America (6%), where antiretroviral therapy coverage was already high, was the rate of increase in access in 2009 significantly lower (UNAIDS, 2010).

In 2010, WHO issued revised treatment guidelines (WHO, 2010) recommending earlier initiation of antiretroviral therapy, at a CD4 count of <350 cells/mm³. These new criteria increased the total number of people medically eligible for antiretroviral therapy by roughly 50%—from 10 million to 15 million in 2009. Half or more of all adults eligible for treatment (CD4 <350 cells/mm³) were receiving antiretroviral therapy in 29 of the 109 low- and middle-income countries for which data are available by December 2009. Eight countries—Botswana, Cambodia, Croatia, Cuba, Guyana, Namibia, Romania and Rwanda—achieved antiretroviral therapy coverage of 80% or more. Of the 19 of the 25 low- and middle-income countries with the largest number of people living with HIV, Rwanda achieved 88% coverage among adults, Botswana 83%, and Namibia 76%. Eleven countries (Cameroon, Côte d'Ivoire, Ghana, India, Indonesia, Mozambique, South Africa, Ukraine, United Republic of

Tanzania, Vietnam and Zimbabwe) had coverage of less than 40%. Indonesia and Ukraine reported less than 20% of eligible adults were receiving antiretroviral therapy (UNAIDS, 2010).

2.4.1 Treatment 2.0

Treatment 2.0 is a new approach to simplifying the way HIV treatment is currently provided and to scale up access to life-saving medicines. Using a combination of efforts, it could reduce treatment costs, make treatment regimens simpler and smarter, reduce the burden on health systems and improve the quality of life for people living with HIV and their families. Modelling suggests that, compared with current treatment approaches, Treatment 2.0 could avert an additional 10 million deaths by 2025. In addition, the new approach could also reduce the number of people newly infected with HIV by up to 1 million annually if countries provide antiretroviral therapy to everyone who needs it, following the 2010 WHO treatment guidelines. Today, 5 million of the 15 million people in need are accessing these life-saving medicines. Achieving the full benefits of Treatment 2.0 requires progress across five areas (UNAIDS, 2010);

Optimize drug regimens: UNAIDS calls for the development of new pharmaceutical compounds that will lead to a “smarter, better pill” that will be less toxic, longer-acting and easier to use. Combined with dose optimization and improved sequencing of first and second line regimens this will simplify treatment protocols and improve efficacy. Optimizing HIV treatment will also result in other health benefits, including much lower rates of TB and malaria among people living with HIV.

Provide access to point of care diagnostics: Monitoring treatment requires complex equipment and specialized laboratory technicians. Simplifying diagnostic tools in order to provide viral load and CD4 cell counts at the point of care could help to reduce the burden on health systems. Such a simplified treatment platform will defray costs and increase people's access to treatment.

Reduce costs: Despite drastic reductions in drug pricing over the past decade, the costs of antiretroviral therapy programmes continue to rise. While drugs must continue to be made more affordable- including first and second line regimens – potential gains are highest in reducing the non-drug-related costs of providing treatment, such as hospitalization, monitoring treatment, and out-of-pocket expenses. These costs are currently twice the cost of the drugs themselves.

Adapt delivery systems: Simpler diagnostics and treatment regimes will also allow for further decentralizing and integrating service delivery systems, thereby reducing redundancy and complexity, and facilitating a more effective continuum of care. Task shifting and strengthening procurement and supply systems will be important elements of this change.

Mobilize communities: Treatment access and adherence can be improved by involving the community in managing treatment programmes. Strengthening the demand and uptake for testing and treatment will both improve treatment coverage and help to reduce costs for extensive outreach. Greater involvement of community based organizations in treatment maintenance, adherence support and monitoring will reduce the burden on health systems.

2.5 Treatment retention

New data provide strong evidence that high antiretroviral therapy retention rates are achievable. Of the countries for which data are available, 26 report that at least 95% of people are still receiving treatment one year after initiating antiretroviral therapy. Of the 25 countries with the highest number of people living with HIV, Botswana, Brazil and Cameroon report that more than 90% remain on treatment 12 months after initiation. Ghana, India, Kenya, Lesotho, Thailand, Uganda, Ukraine, and Viet Nam all report retaining at least 80% of people in treatment for at least one year. Sudan reports a 12-month retention rate of 56% and Chad only 47%. One likely reason for lower treatment retention rates is initiating treatment at a late stage of HIV illness and the premature death of the treatment recipient. Evidence shows that retention rates need to be improved, at least in part, through ongoing efforts to initiate HIV treatment earlier. Long-term retention in treatment is critical for health outcomes, but many people are lost to follow-up during the first year. Loss to follow-up in antiretroviral therapy programmes tends to increase over time (UNAIDS, 2010).

In Malawi, which has rapidly scaled up antiretroviral therapy in recent years, data suggest that 70% of the people initiating treatment are still recorded as “in treatment” after 24 months, dropping to about 55% after 48 months. In Burundi and the Central African Republic, the 48-month retention rate is between 60% and 70%, whereas in Botswana it exceeds 80%. Retention rates may not always be directly comparable; however, as some countries may report data from tertiary hospitals only, report survival rather than retention, or erroneously record transfers to different treatment sites as loss to follow-up. Better understanding of the factors that depress longer-term retention is needed, and new strategies

are needed to increase retention in antiretroviral therapy programmes. Possible factors limiting treatment retention include constraints within health and community systems such as overly centralized treatment programmes that limit geographical accessibility; health worker shortages; drug stock-outs; and weak community treatment literacy (UNAIDS, 2010).

2.6 Effects of HIV treatment on health systems

In many countries, overburdened health systems are struggling valiantly to address the challenges posed by HIV, including health worker shortages, centralized programmes, fragmented rather than integrated and holistic services delivery, and weak procurement and supply systems. This is especially true for health systems in sub-Saharan Africa, which must care for two of three people living with HIV but have only 3% of the world's health care providers (WHO, 2006). Challenges associated with health-system capacity are not limited to sub-Saharan Africa, however. Countries in Asia, the Middle East and North Africa report that an inadequate supply of health care workers skilled in delivering antiretroviral therapy impedes treatment scale-up. In response, many countries have implemented innovative strategies to expand the capacity of health systems to address HIV and other challenges. These include increasing the use of civil society partners to manage health care facilities, other forms of task-shifting in clinical settings, and institutional twinning arrangements between local clinics and institutions in high-income countries. Shortages of human resources for health have severely hampered the rolling out of antiretroviral therapy in sub-Saharan Africa. Current roll-out models are hospital- and physician-intensive (UNAIDS, 2010). A recent review (Callaghan *et al.*, 2010) has shown that task shifting, or delegating tasks performed by physicians to staff with lower-level qualifications, including lay and

community workers, is an effective strategy for addressing shortages of human resources for health in HIV treatment and care. South Africa is using a nurse-driven model to decentralize antiretroviral therapy provision and expedite treatment scale-up. A randomized controlled trial that has assessed the effectiveness of task-shifting for antiretroviral therapy delivery in urban clinics of Johannesburg and Cape Town found that nurse-managed antiretroviral therapy was not inferior to doctor-managed antiretroviral therapy: both treatment arms had similar outcomes of viral suppression, adherence, toxicity, and death (Shabusho *et al.*, 2009).

Task-shifting offers high-quality, cost-effective care to more people than a physician-centred model. The main challenges to implementation include adequate and sustainable training, support and pay for staff in new roles, integrating new members into health care teams, and compliance with regulations. Task-shifting should be considered for careful implementation where shortages of human resources for health threaten roll-out programmes. Systemic deficiencies in commodity procurement and supply management undermine treatment efforts in many countries (UNAIDS, 2010). Of 94 countries, 38% responding to surveys report at least one drug stock-out in 2009 (WHO, UNICEF and UNAIDS, 2010). The Islamic Republic of Iran, Tunisia, Yemen and several countries in Central and South America cite drug supply interruptions as notable barriers to access to antiretroviral therapy (UNAIDS, 2010). In an effort to avoid stock-outs, Rwanda has moved to convene a Coordinated Procurement and Distribution System, which unites the national government, donors, international organizations, and other country level partners in a common effort to ensure an uninterrupted supply of HIV drugs and other commodities (WHO, UNICEF and UNAIDS, 2010).

Across health systems, scaling up antiretroviral therapy provision presents not only challenges but also opportunities and benefits that extend well beyond HIV. In hyper-endemic settings in which people living with HIV have accounted for the bulk of hospital patients in recent years, the scaling up of therapy is freeing up health system capacity to address other health priorities and is reducing absenteeism and deaths among health care workers living with HIV. In addition, infrastructure improvements financed by HIV funding—including refurbished clinics, improved laboratory capacity and strengthened systems for commodity procurement and supply management—are enhancing the availability and quality of care services for everyone, regardless of HIV serostatus (UNAIDS, 2010).

2.7 ARVs adherence disparities and barriers

Evidence suggests that the poor and other vulnerable groups are impeded from benefiting from public spending due to costs of access, lack of information, cultural barriers (supply factors) as well as demand-side barriers (Tim and Stephanie, 2004). The cost of the ARV drugs has for a long time been beyond the reach of those living in poverty. Another barrier has been the lack of an adequate health infrastructure for drug delivery. A highly technical and specialized approach, including frequent laboratory tests to monitor patients' immune status, drug side-effects and the development of drug resistance is required. Poor adherence gradually compounds HIV resistance to ARVs in all individuals taking them hence need for new drug combinations. Drug-resistant HIV can then be transmitted to other people. Other than providing ARVs, there is need to provide prevention of TB and other infections, treatment of HIV-related illnesses, pain relief, treatment for sexually transmitted infections (STIs), prevention of further HIV spread (for example, by supplying condoms), family

planning, psychological support and end-of-life care. HIV/AIDS care aims to relieve individual suffering, enable people with HIV to remain productive for longer, control ARV use to prevent drug resistance, improve HIV prevention efforts and provide hope and counter the stigma of HIV (Attawall and Mundy, 2003).

2.8 Factors influencing access to ARVs

A study in Uganda has established distance to the ART centres and lack of transportation as the major obstacles to ART access (Kunihira *et al.*, 2010). In the developing countries, the most frequently cited barrier at the health system level was long distance from home to the health facility (Posse *et al.*, 2008). Studies show that even when services are available at a near distance, factors such as temporal accessibility, disease perception, stigmatization, and outright discrimination heavily influence “effective demand” (Mashamba and Robson, 2002). Social barriers such as stigma and discrimination have also been shown to present great challenges to promoting successful ART in Rakai District in Uganda. In addition, shortage of staff and long waiting time was a major obstacle to ART access (Kunihira *et al.*, 2010).

A study in Malawi has indicated access to information, staff shortage and inadequacy of effective community support groups as some of the key issues affecting equity in access to ART (Ntata, 2007). In the developing countries, the most frequently cited barrier at the population level was lack of information about antiretroviral therapy and stigma (Posse *et al.*, 2008). Promoting sound information about the availability and benefits of ARV treatment will stimulate demand for treatment and help to sustain treatment adherence (WHO, 2004). According to the WHO (2004), women are chronically disadvantaged in their access to cash

and productive resources. An international conference of AIDS in Bangkok, Thailand cited low income of women and presumed dependence on spouses as a factor making access to antiretroviral therapy among African women difficult (Kwalombota and Shumba, 2004).

2.9 Access to ARVs among marginalized groups

Few data are available about access to antiretroviral therapy by sex workers, men who have sex with men and people who inject drugs. Most countries do not collect such data. For example, in Eastern Europe and Central Asia, only four of the 12 countries collect such data (UNAIDS, 2010). Many countries in Asia, Central and South America and other regions report that negative attitudes on the part of health care workers often deter people at high risk of HIV infection from seeking treatment services (De Wit and Ellard, 2010). Further obstacles to antiretroviral therapy access include laws in a number of countries with sizeable populations of people born outside national borders that limit antiretroviral therapy access to citizens (European Centre for Disease Prevention and Control, 2010). Many prison systems limit access to antiretroviral therapy, according to country reports to UNAIDS. Of the 21 countries that have data on antiretroviral therapy coverage for people living with HIV who inject drugs, 14 countries treat 5% or fewer of all such individuals. In only nine countries does treatment reach more than 10% of people living with HIV who inject drugs (UNAIDS, 2010).

CHAPTER THREE: METHODOLOGY

3.1 Study Area

The study was conducted in Kibera, an urban slum in Nairobi, the capital city of Kenya (appendix I). Kibera is the largest slums not only in Kenya but also in sub-Saharan Africa. It is located in Langata Division 7 km from the city and covers an area of about 2256 hectares (Olima, 2001). It is divided into 12 villages which are Gatwikiriga, Mashimoni, Lainisaba, Lindi, Soweto, Silanga Kiende Mekina/DC. Raila Odinga, Darajani and Kisumu Ndogo.

Kibera slum is faced with many problems including lack of education facilities, accessible roads, adequate water and poor sewage disposal and social problems such as unemployment. Most residents comprise of semi-skilled or unskilled workforce in the industrial area and building sites. Health Services in the area are mostly provided by the Government facilities (City Council clinics) and private clinics provided by CBOs, and NGOs.

3.2 Study Design

Descriptive cross sectional survey was conducted in attempt to establish factors influencing access to ARVs, services in Kibera slums. This design has been used by a number of authors investigating various aspects of access to ARVs among HIV/AIDS patients. Among the few authors include Kouanda *et al.*, (2010), Garcia *et al.*, (2006), Mugusi *et al.*, (2010) and Nsimba *et al.*, (2010). The study collected both qualitative and quantitative data.

3.3 Study variables

3.3.1 Dependent variable

A dependent variable is a response variable that depends upon an independent variable. Any change in an independent variable influences the dependent variable. For the purposes of this study, access to ARVs was considered to be the dependent variable.

3.3.2 Independent variables

Independent variables are those that can be intentionally manipulated or controlled. Basically, independent variables are those which have direct impact on dependent variables and have power to influence them. For the sake of this study, socio-demographic factors, socio-economic factors, knowledge of the free ARVs provision and attitude towards the ARVs open access program were considered to be the independent variables.

3.4 Target population

The target population was 2613 HIV-positive patients enrolled into the ARVs program in clinics of Kibera slums.

3.5 Study population

The study population is the experimentally accessible population (Mugenda and Mugenda, 1999) and according to the study it comprised of HIV-positive patients accessing ARVs in Kibera slums.

3.6 Inclusion criteria

- a) All PLWAs (Adult and Children aged 6 months and above) attending the 7 selected clinics
- b) All patients without chronic illnesses e.g. tuberculosis, cancer of the stomach or any opportunistic infection that may have necessitated admission
- c) All patients/parents/guardian that consent to participate in the study
- d) All patients who have lived in Nairobi for at least six (6) months prior to the study

3.6.1 Exclusion criteria

- a) All PLWAs (Adult and Children aged 6 months and above) who are not attending the 7 selected clinics
- b) All patients with chronic illnesses e.g. tuberculosis, cancer of the stomach or any opportunistic infection that may have necessitated admission
- c) All patients/parents/guardian that fail to give consent to participate in the study
- d) All patients who have lived in Nairobi for a period below six (6) months prior to the study

3.7 Sample size determination

The sample size was determined using the following formulae by Kothari (2003)

$$n = \frac{Z^2 pq}{e^2}$$

Where:

Z = standard variate at a given confidence level.

p = Sample proportion of respondents who don't access ARV services

$$q = 1-p$$

e = error margin

$$p = 0.5 \text{ (no related study)}$$

$$q = 0.5$$

$$Z = 1.96 \text{ (95\% confidence level)}$$

$$e = 0.05$$

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2}$$

$$= 384$$

3.8 Sampling technique and sampling procedure

3.8.1 Sampling for respondents living with HIV/AIDS

All the four public health clinics in Kibera were selected purposively. This was because most of the respondents were likely to utilize these facilities for accessing their ARV regimen. This approach was intended to enhance representativeness of the data collected since it was likely to capture residents from the 12 villages in Kibera. The four public health clinics in Kibera slums included AMREF Community Based Health Centre, Kibera South Health Centre, Langata Health Centre and Anderson hall in Mbagathi Hospital. Since there were several other community based programmes that aid in the provision of ARVs, three of the busiest sites were selected purposively and included in the study. The three additional sites targeted included PAG/MSF Belgium (Gatwikira), Leatoto Kibera (Olympic) and MSF/Kawanga (Lindi). Since the clientele in each site was not equal, the sample respondents were distributed proportionate to size.

Table 3.1 Sampling proportionate to size

Name of Site	Registered clients	Ratios	Desired sample
Kibera AMREF clinic	320	0.12	47
Langata Health Centre	702	0.27	103
Anderson hall	157	0.06	23
Kibera South Health Centre	308	0.118	45
PAG	412	0.158	61
Kawanga	203	0.08	30
Leatoto	511	0.196	75
Total	2613	1	384

Then from each site, systematic random sampling was used where every n^{th} (where n is the total number of registered clients divided by the desired sample size) respondent who consented to participate in the study was interviewed. A total of 384 respondents were interviewed.

3.8.2 Sampling for key informants

Finally from each study site, a minimum of 3 CHWs were selected conveniently. A total of 30 key informants were interviewed in Kibera slums. The separate selection CHWs as the key informants was dictated by the fact that these were the key care givers at the household level and acted as an important link between the patient and the health centre.

3.9 Research instruments

3.9.1 Structured interview schedule

A structured interview schedule with open and closed questions was used to collect the data of participants who were registered at each HIV delivery point. The instrument captured

socio-economic factors, socio-demographic factors, knowledge, attitude and choice that influence access to ARVs among HIV patients in Kibera slums.

3.9.2 Key informant interview guide

A key informant interview guide with closed open ended questions was used to capture information about the challenges facing the open access program of ARVs access. These responses were used to supplement the findings of the study.

3.10 Pre-testing

Pre-testing of the research instrument (structured interview schedule) was done before the actual data collection at Kenyatta National Hospital's Comprehensive Care Centre. Pre-testing was done using purposive sample of 40 respondents (10% of the sample size) to enhance the validity and reliability of the instrument of data collection. Inappropriate questions were detected and re-structured to ensure an easy understanding. These changes were incorporated into the final questionnaire. The key informant interview guide was also pre-tested on a purposive sample of 5 respondents who were care givers at the Comprehensive Care Clinic in Kenyatta National Hospital. Any inconsistencies identified on the instrument were also addressed in the final tool.

3.11 Validity

Validity is the accuracy and meaningfulness of inferences, which are based on research results. It is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study (Mugenda and Mugenda, 1999). Validity focuses on

reducing error during the measurement process. To achieve this, cross checking, inspection and scrutinization of the information on the research instruments was conducted to ensure accuracy, relevance, completeness, consistency and uniformity of the collected data.

3.12 Reliability

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials (Mugenda and Mugenda, 1999). The conditions under which the measurements took place were standardized i.e. a private room was used to interview respondents to reduce the external sources of variation such as fatigue. By broadening the sample of respondents (use of statistically determined sample size), the equivalence aspect was improved. Research assistants were also trained in data collection and how to translate questions in case they encountered language barrier. However, translation bias could not have been fully eliminated for failure to translate questions prior to the data collection period.

3.13 Data analysis

Data were coded, sorted, entered into the computer and processed using SPSS software version 11.5. Descriptive statistics namely frequencies, pie chart, bar graphs and percentages were used to describe, organize and summarize collected data. Logistic regression was used to test the relationship between the variables. Generally, logistic regression is well suited for describing and testing hypothesis about relationships between a dichotomous outcome variable (dependent) and one or more independent variables. In using a logistic regression, the dependent variable in the analysis will always be dichotomous (in this case, access or no access to ARVs). Unlike a Chi-square test which only describes the strength of association

between any two variables, a logistic regression will allow you to predict the likelihood of an outcome. Responses from open-ended questions and key informant interviews were analyzed qualitatively according to emerging themes and then used to supplement, explain and interpret quantitative data.

3.14 Ethical consideration

Permission to carry out the study was given by the relevant authorization bodies: Kenyatta University Graduate School, the Ministry of Science and Technology, the District Commissioner of Kibera and the Community Based Organization Committee. Informed consent was sought from all the study participants. For the case children, informed consent was sought from their parents. Anonymity, confidentiality and privacy of the study participants were safeguarded.

CHAPTER IV: RESULTS AND DISCUSSION

4.1 Introduction

The results and discussion of the data are presented in this section. This section explores the background characteristics of the respondents, factors hindering access to ARVs and challenges facing the open access program to ARVs.

4.2 Socio-demographic factors

4.2.1 Age of the respondents

The age of respondents varied between 14 to 80 years, with a median age being 34.16 years.

4.2.2 Gender of the respondent

One hundred and sixty five (43.0%) of the respondents were males while two hundred and nineteen (57.0%) were females (Figure 4.1).

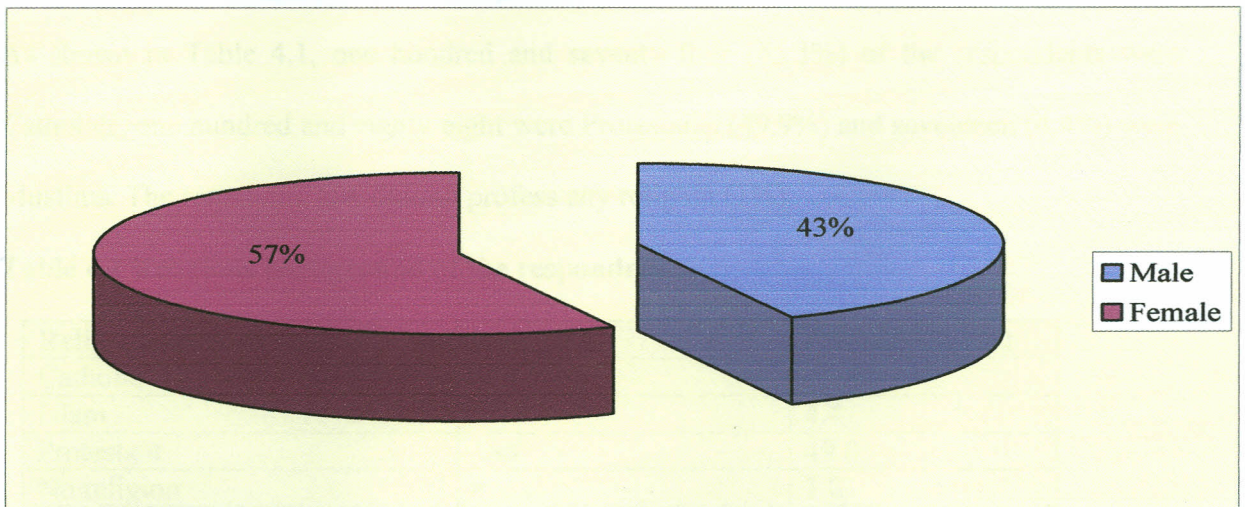


Figure 4.1 Gender of the respondent

4.2.3 Marital status of the respondent

One hundred and twenty (31.2%) of the respondents were single, one hundred and seventy three (45.1%) were married, sixty two (16.1%) were widowed while twenty nine (7.6%) were separated (Figure 4.2).

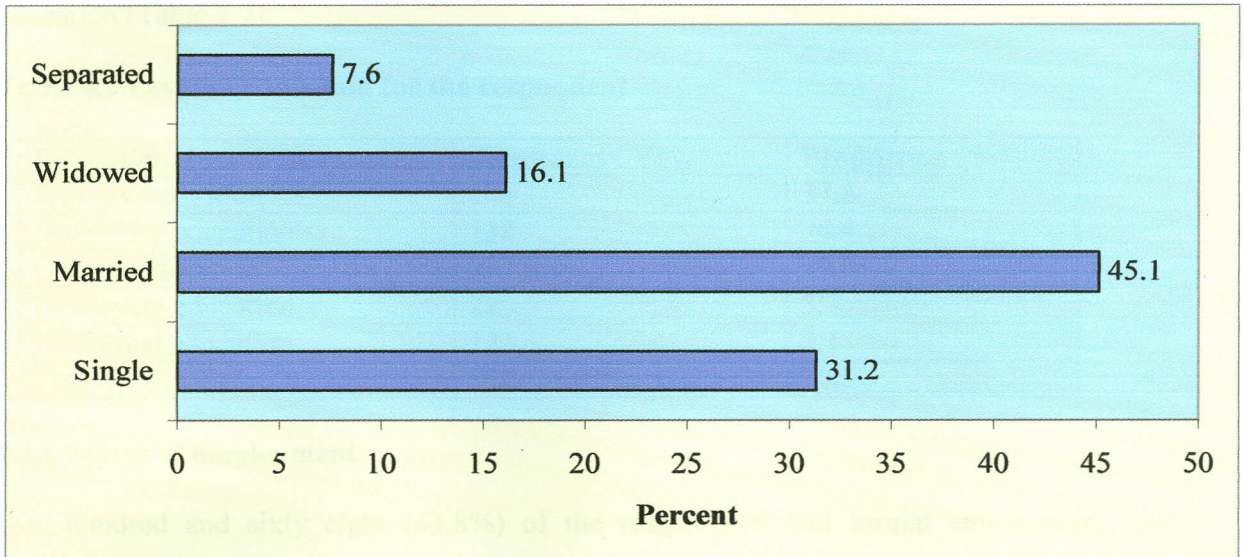


Figure 4.2 Marital status of the respondent

4.2.4 Religious background of the respondents

As shown in Table 4.1, one hundred and seventy four (45.3%) of the respondents were Catholics, one hundred and eighty eight were Protestants (49.9%) and seventeen (4.4%) were Muslims. The remaining few did not profess any religion (1%).

Table 4.1 Religious background of the respondent

Religious background	Frequency	Proportion (%)
Catholic	174	45.3
Islam	17	4.4
Protestant	188	49.0
No religion	4	1.0
Others	1	0.3
Total	384	100

4.2.5 Education level of the respondent

One hundred and forty five (37.8%) of the respondents had primary education, one hundred and thirty two (34.4%) had secondary education, seventy three (19.0%) had college education, twenty two (5.7%) had university education while twelve (3.1%) had no formal education (Table 4.2).

Table 4.2 Level of education for the respondent

Educational level	Frequency	Proportion (%)
Primary education	145	37.8
Secondary education	132	34.4
College education	73	19.0
University education	22	5.7
No formal education	12	3.1
Total	384	100

4.2.6 Status of employment

One hundred and sixty eight (43.8%) of the respondents had formal employment, one hundred and forty three (37.2%) were self-employed while seventy three (19.0%) were unemployed (Figure 4.3).

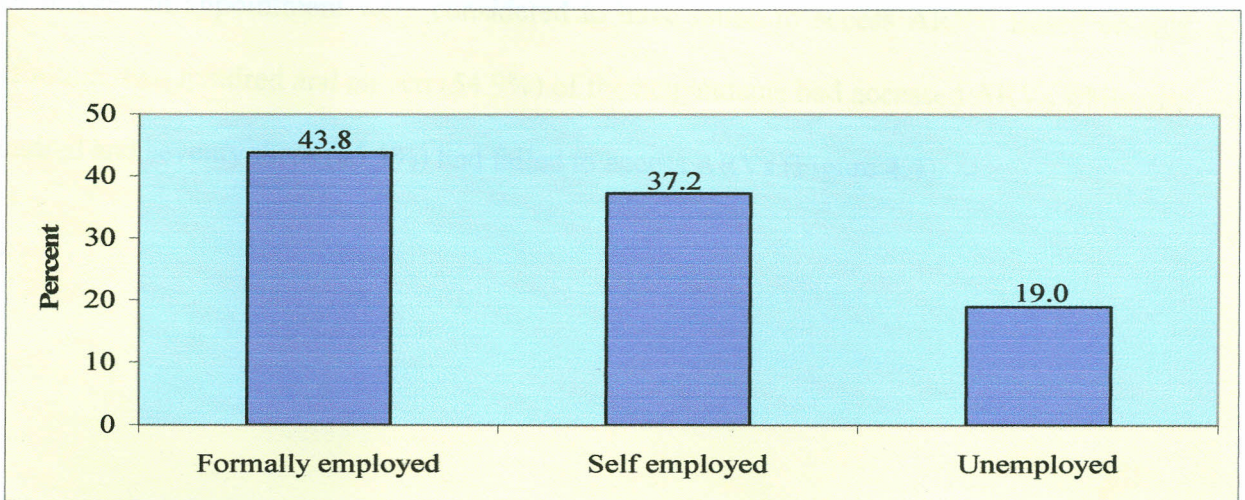


Figure 4.3 Occupation of the respondent

4.2.7 Respondent's average family monthly income

One hundred and thirty one (34.1%) of the respondents had an average monthly income less than Ksh 5,000, one hundred and twenty three (32.0%) between Ksh 5,001-10,000, sixty two (16.1%) between Ksh 10,001 – 15,000, sixty two (16.1%) over Ksh 15,000 (Table 4.3).

Table 4.3 Respondent's average family monthly income

Average monthly income (Ksh)	Frequency	Proportion (%)
Less than 5,000	131	34.1
Between 5001-10,000	123	32.0
Between 10,001-15,000	62	16.2
Over 15,000	62	16.2
Others	6	1.5
Total	384	100

4.3 Proportion of clients accessing ARVs

4.3.1 Access to ARVs

The study aimed at establishing the factors that hinder access to ARVs. Clients were asked whether they had ever missed an appointment to collect their doses of ARVs. The clients who had missed an appointment were considered to have failed to access ARVs. Based on this definition, two hundred and eleven (54.9%) of the respondents had accessed ARVs while one hundred and seventy three (45.1%) had failed to access ARVs (Figure 4.4).

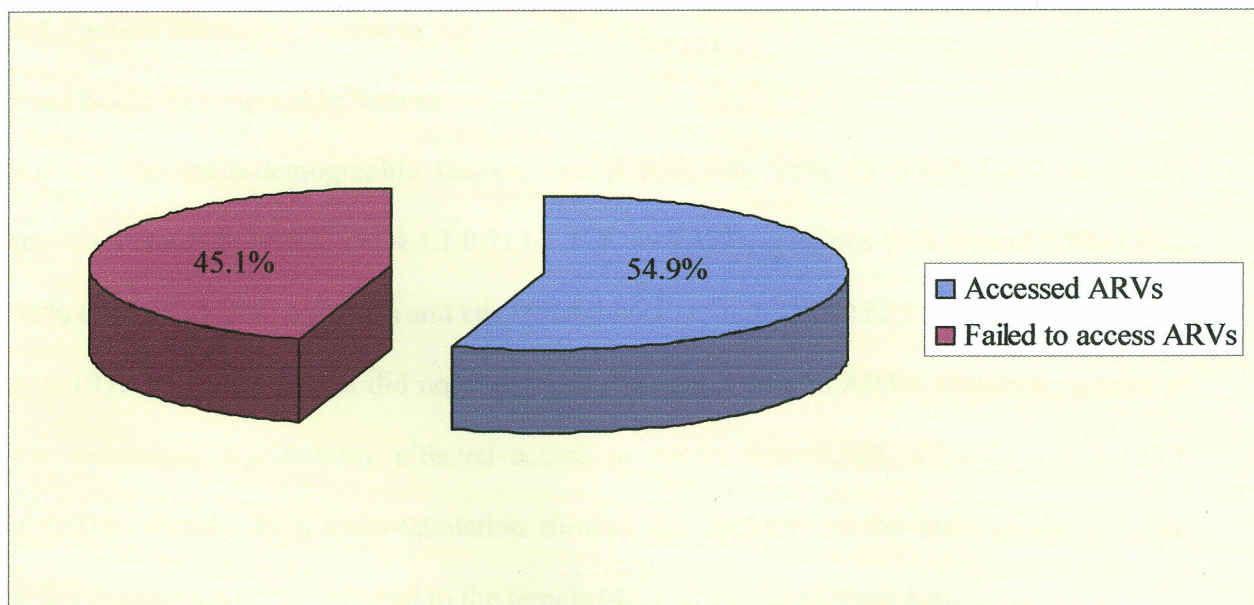


Figure 4.4 Proportion accessing ARVs

4.3.2 Reasons for failing to access ARVs

Among the respondents who failed to access ARVs, thirteen (32.4%) of them experienced distance and transport problems, fifteen (8.7%) experienced stigma, fifty four (31.2%) did not remember the appointment date, sixteen (9.2%) were very sick, eleven (6.4%) had travelled out of Nairobi and seventeen (9.8%) forgot to take medication due to alcoholism (Table 4.4).

Table 4.4 Reasons for not accessing ARVs

Reasons	Frequency	Proportion (%)
Distance and transport problems	56	32.4
Stigma	15	8.7
Forgot appointment date	54	31.2
Very sick	16	9.2
Had travelled out of Nairobi	11	6.4
Forgot to take medication due to alcoholism	17	9.8
Others	4	2.3
Total	173	100

4.4 Factors hindering access to ARVs

4.4.1 Socio-demographic factors

Among the socio-demographic factors, age (OR=0.986, 95% CI 0.965-1.007, $p=0.184$), marital status (OR=0.897, 95% CI 0.713-1.128, $p=0.352$), religious background (OR=1.062, 95% CI 0.869-1.298, $p=0.557$) and educational background (OR=0.625, 95% CI 0.307-1.272, $p=0.195$) of the respondent did not significantly affect access to ARVs. However, gender of the respondent significantly affected access to ARVs (OR=1.582, 95% CI 1.053-2.375, $p=0.028$). Results from cross-tabulation showed that majority of the male gender (51.5%) failed to access ARVs compared to the female (40.1%) gender (Figure 4.5).

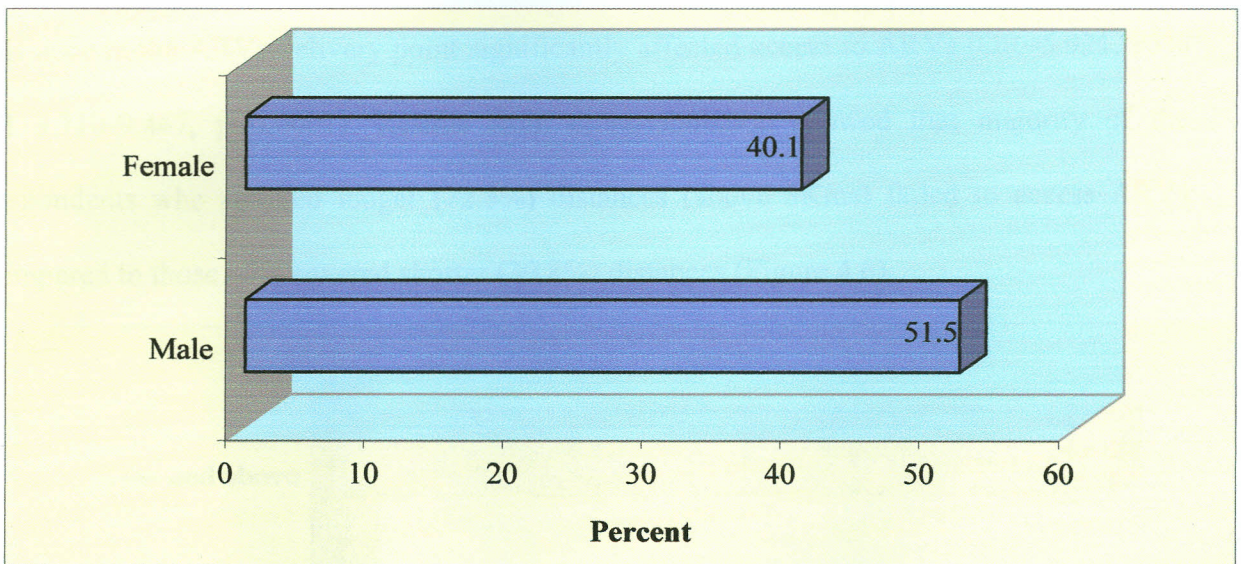


Figure 4.5 Correlation between failure to access ARVs and gender

4.4.2 Socio-economic factors

Among the socio-economic factors, occupation (OR=1.008, 95% CI 0.604-1.682, $p=0.977$), and the family's average monthly income (OR=0.1189, 95% CI 0.773-1.828, $p=0.432$) did not significantly affect access to ARVs.

4.4.3 Distance to the ARVs delivery point

One hundred and thirty (33.9%) of the respondents were less than 1 Km from the ARVs delivery point, one hundred and twenty three (32.0%) were 1-3 Km away, sixty (15.6%) were 3-5 Km away while seventy one (18.5%) were over 5 Km away from the ARVs delivery point (Table 4.5).

Table 4.5 Distance to the ARVs delivery point

Distance (Kms)	Frequency	Proportion (%)
Less than 1	130	33.9
Between 1-3	123	32.0
Between 3-5	60	15.6
Over 5	71	18.5
Total	384	100.0

Distance to the ARVs delivery point significantly affected access to ARVs (OR=5.921, 95% CI 3.710-9.447, $p=0.0001$). Results from cross-tabulation showed that majority of the respondents who covered longer (72.5%) distances (above 3Kms) failed to access ARVs compared to those who covered shorter (30.8%) distances (Figure 4.6).

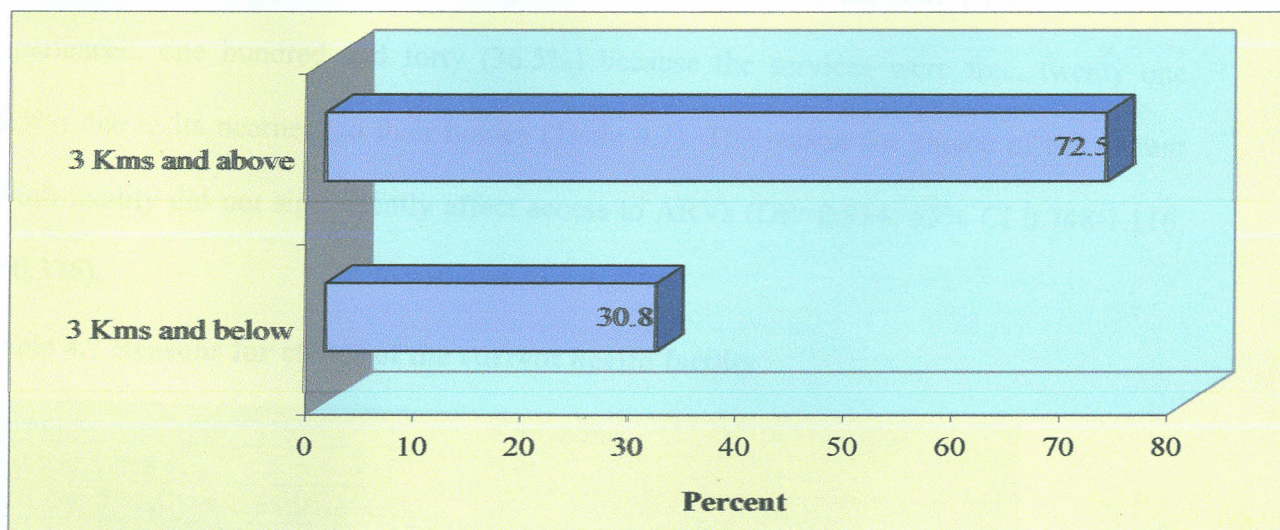


Figure 4.6 Correlation between access to ARVs and distance to the ARVs delivery point

4.4.4 Status of ARV services for the time of stay in Nairobi

Two hundred and eighty (72.9%) of the respondents were of the view that ARV services had improved (those that had lived in Nairobi for at least 6 months), twenty six (6.8%) thought that the services had stagnated, eight (2.1%) thought that the services had worsened while seventy (18.2%) had no idea (Table 4.6). Perception to the status for ARV services for the time of stay in Nairobi (at least 6 months) did not significantly affect access to ARVs (OR=0.986, 95% CI 0.965-1.007, p=0.184).

Table 4.6 Status for ARV services for the time of stay in Nairobi

Status of ARV services	Frequency	Proportion (%)
Improved	280	72.9
Stagnated	26	6.8
Worsened	8	2.1
Don't know	70	18.2
Total	384	100

4.4.5 Reasons for choice of the current health facility

One hundred and fifty nine (41.4%) of the respondents preferred the choice of the current health facility due to good services, sixty three (16.4%) because the staff were friendly and experienced, one hundred and forty (36.5%) because the services were free, twenty one (5.5%) due to its nearness to their homes (Table 4.7). The reason for choice of the current health facility did not significantly affect access to ARVs (OR=0.914, 95% CI 0.748-1.116, p=0.376).

Table 4.7 Reasons for choice of the current health facility

Reasons	Frequency	Proportion (%)
Good services	159	41.4
Staff are friendly and experienced	63	16.4
Services are offered free	140	36.5
It's near my home	21	5.5
Others	1	0.3
Total	384	100

4.4.6 Reason for disliking the choice of the current facility

Forty three (11.2%) of the respondents disliked the choice of the current facility due to poor services, sixty (15.6%) due to unfriendly and inexperienced staff, twenty seven (7.0%) due to expensive services, one hundred and eighteen (30.7%) because the facility was far from home, one hundred and thirty (33.9%) due to long waiting time and six (1.6%) due to other reasons (Table 4.8).

Table 4.8 Reasons for disliking the choice of the current facility

Reasons	Frequency	Proportion (%)
Poor services	43	11.2
Unfriendly and in-experienced staff	60	15.6
Expensive services	27	7.0
Far from home	118	30.7
Long waiting time	130	33.9
Others	6	1.6
Total	384	100

4.4.7 Belief that some illnesses cannot be treated in the facility

One hundred and sixty six (43.2%) of the respondents believed that some illnesses could not be treated in the facility while two hundred and eighteen (56.8%) believed that all illnesses could be treated in the facility (Figure 4.7). It was observed that beliefs did not significantly affect access to ARVs (OR=0.673, 95% CI 0.448-1.012, p=0.057).

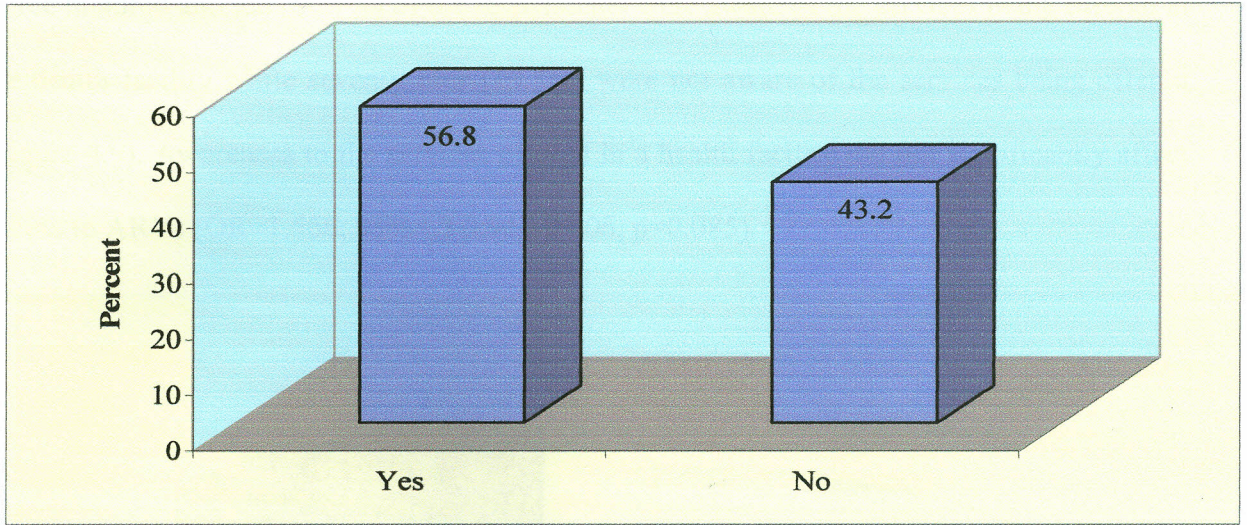


Figure 4.7 Beliefs by the respondent

4.4.8 Place where untreatable illnesses can be treated

Twenty one (12.7%) of the respondents thought that the illnesses could be treated in church through prayers, fifty two (31.3%) thought that local healers could treat the illnesses, forty one (24.7%) thought that none could treat the illnesses while fifty two (31.3%) thought that these illnesses could be treated in other hospitals (Figure 4.8).

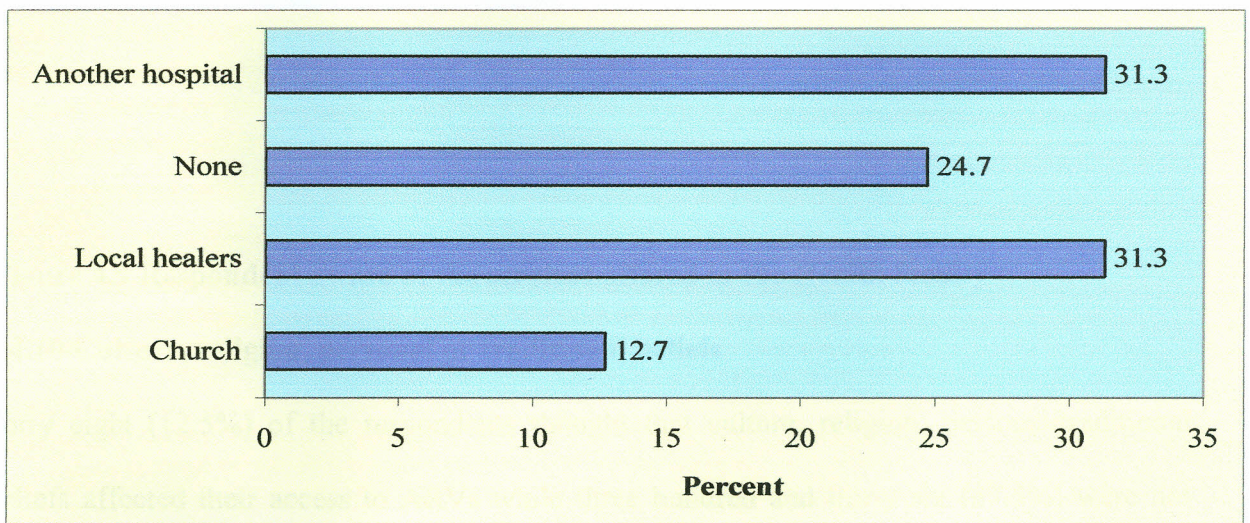


Figure 4.8 Alternative treatment options

4.4.9 Respondent aware of the services offered in the Health facility

Three hundred and ten (80.7%) of the respondents were aware of the services being offered at the health facility while seventy four (19.3%) were not aware of the services being offered (Figure 4.9). Awareness to the services offered in a health facility did not significantly affect access to ARVs (OR=1.566, 95% CI 0.941-2.606, p=0.085).

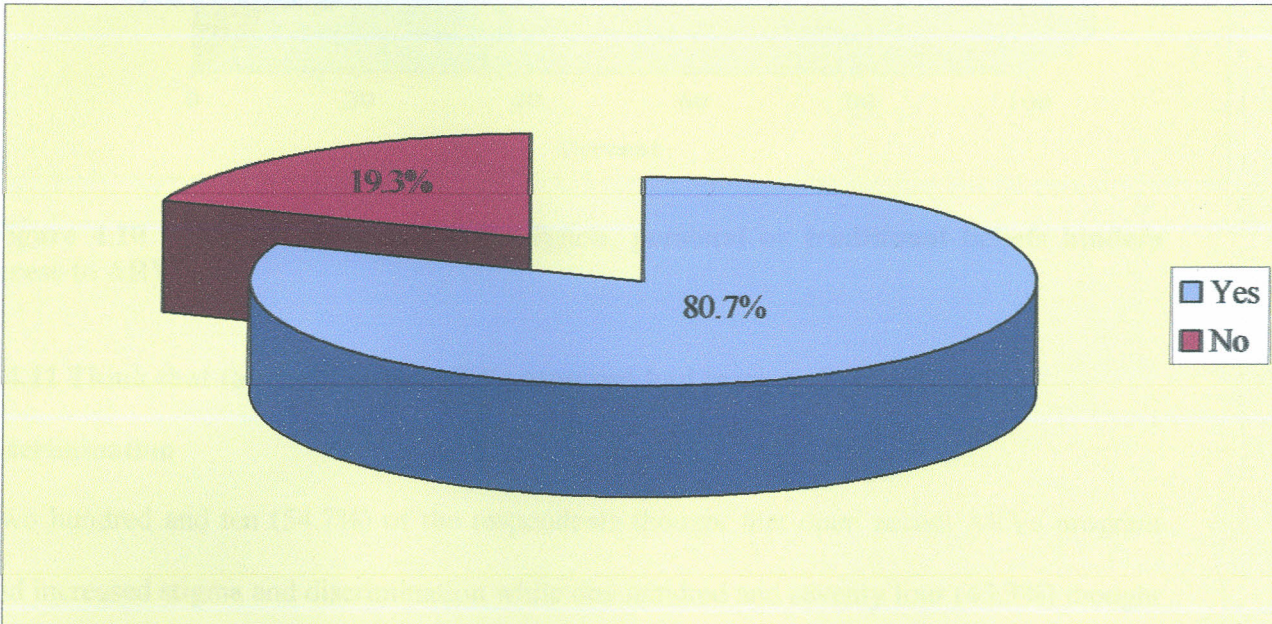


Figure 4.9 Respondent aware of the services offered in the Health facility

4.4.10 Culture, religion, personal or traditional beliefs

Forty eight (12.5%) of the respondents thought that culture, religion, personal/traditional beliefs affected their access to ARVs while three hundred and thirty six (87.5%) were not affected by the beliefs (Figure 4.10). Culture, religion, personal/traditional beliefs did not significantly affect access to ARVs (OR=1.062, 95% CI 0.577-1.954, p=0.846).

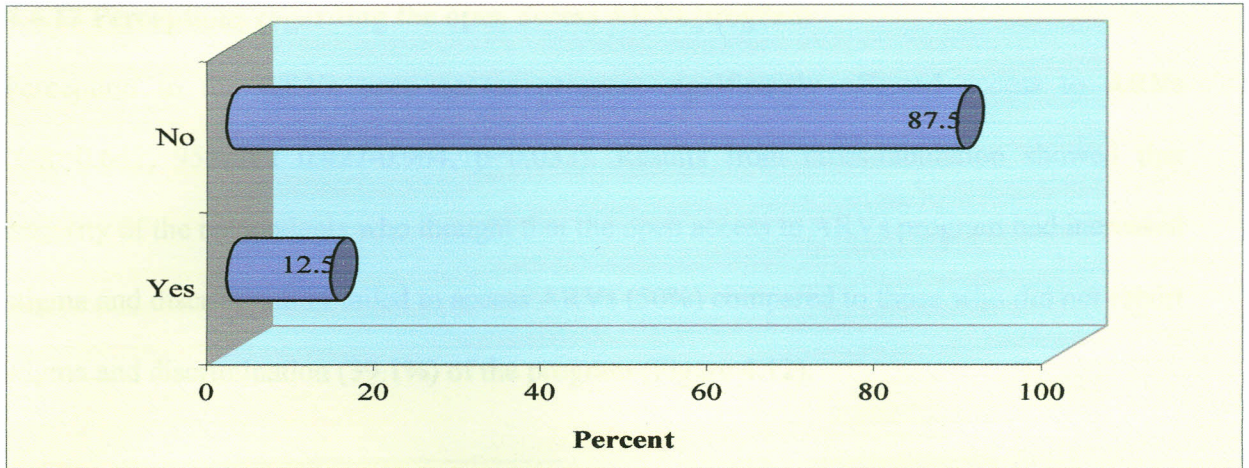


Figure 4.10 Perception that culture, religion, personal or traditional beliefs hinders access to ARVs

4.4.11 Think that the open access ARVs program had increased stigma and discrimination

Two hundred and ten (54.7%) of the respondents thought that open access ARVs program had increased stigma and discrimination while one hundred and seventy four (45.3%) thought that open access ARVs program had not increased stigma and discrimination (Figure 4.11).

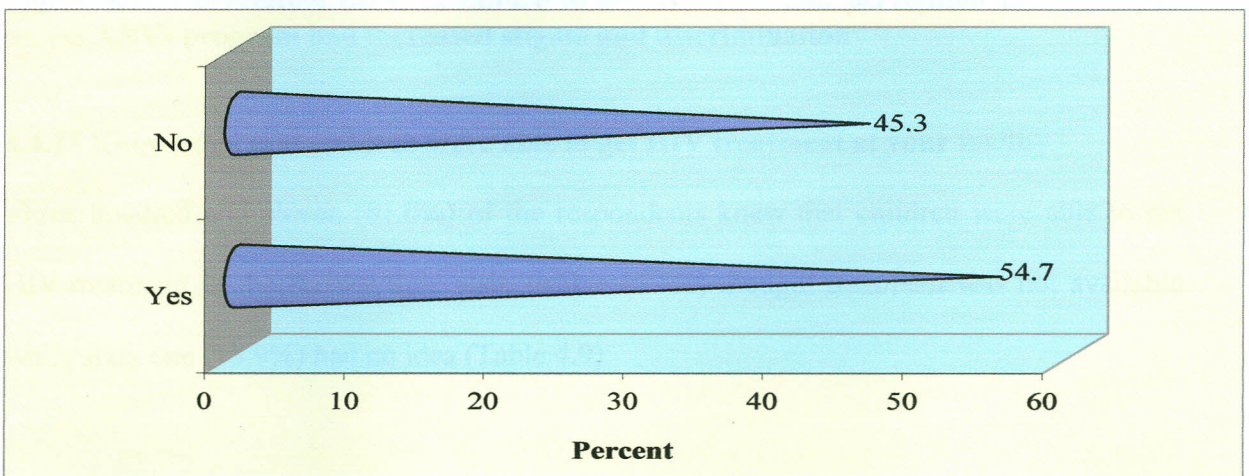


Figure 4.11 Perceptions that the open access ARVs program had increased stigma and discrimination

4.4.12 Perceptions regarding the open access ARVs program

Perception to the ARVs open access program significantly affected access to ARVs (OR=0.642, 95% CI 0.427-0.964, p=0.033). Results from cross-tabulation showed that majority of the respondents who thought that the open access to ARVs program had increased stigma and discrimination failed to access ARVs (50%) compared to those who did not report stigma and discrimination (39.1%) of the program (Figure 4.12).

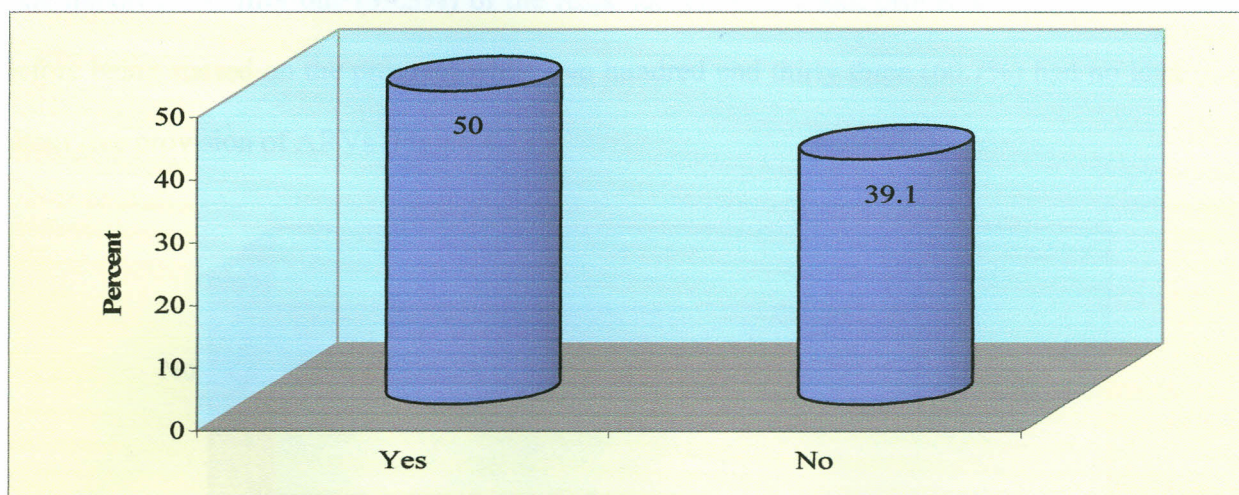


Figure 4.12 Correlation between failure to access ARVs and perception that the open access ARVs program had increased stigma and discrimination

4.4.13 Knowledge that children were able to get HIV treatment at your facility

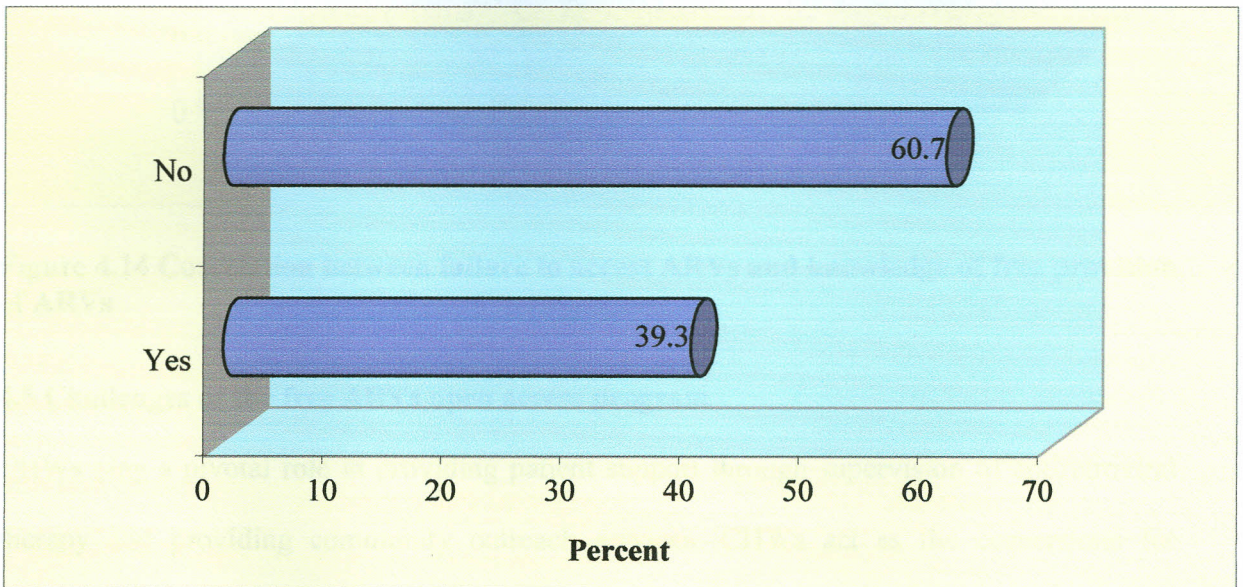
Three hundred and eleven (81.0%) of the respondents knew that children were able to get HIV treatment in the facility they visit, twelve (3.1%) thought treatment was not available while sixty one (15.9%) had no idea (Table 4.9).

Table 4.9 Knowledge of HIV treatment for children at the facility

Treatment available	Frequency	Proportion (%)
Yes	311	81.0
No	12	3.1
Don't know	61	15.9
Total	384	100

4.4.14 Respondent knows about the free provision of ARVs before enrollment into the program

One hundred and fifty one (39.3%) of the respondents knew about provision of free ARVs before being started on the program while two hundred and thirty three (60.7%) had no idea about free provision of ARVs (Figure 4.13).

**Figure 4.13 Knowledge of free provision of ARVs**

Knowledge about free provision of ARVs before being started on the program significantly affected access to ARVs (OR=0.590, 95% CI 0.390-0.891, p=0.012). Results from cross-tabulation showed that majority of the respondents who had no prior knowledge to the free

ARVs provision program failed to access ARVs (53%) compared to those who had prior knowledge (39.9%) of the program (Figure 4.14).

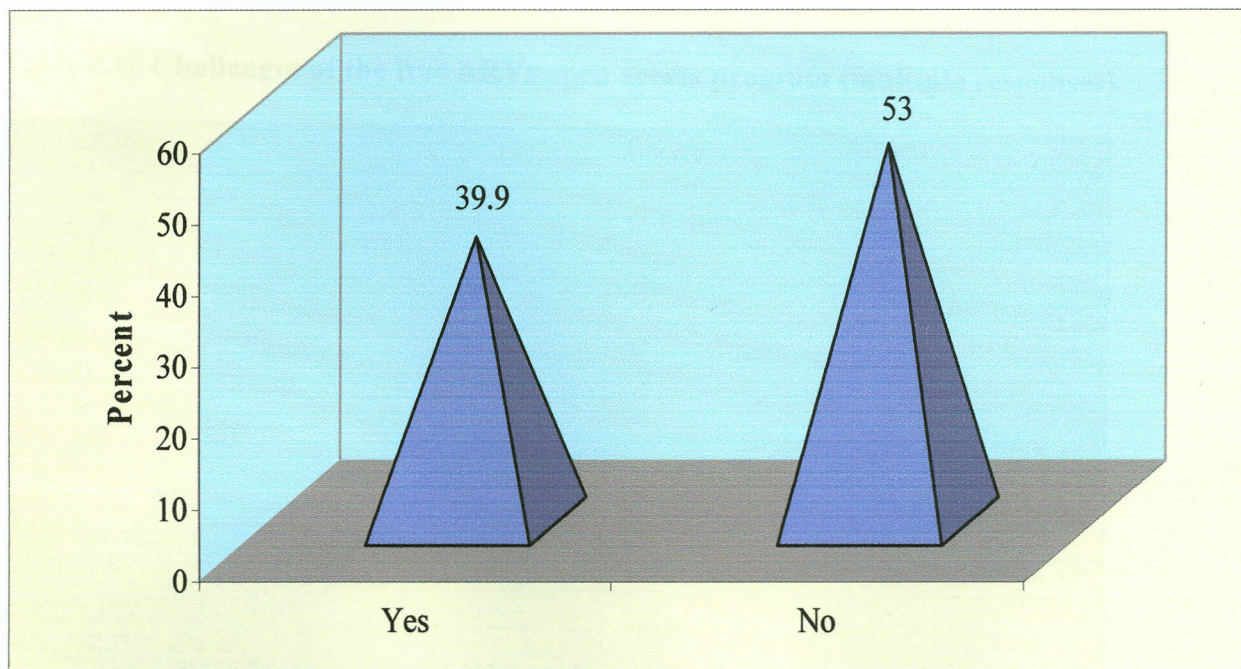


Figure 4.14 Correlation between failure to access ARVs and knowledge of free provision of ARVs

4.5 Challenges of the free ARVs open access program

CHWs play a pivotal role in providing patient support through supervision of antiretroviral therapy and providing community outreach services. CHWs act as the cornerstone for integrating HIV and primary healthcare and provide the very important linkage between the individual patient in the community and the health centre. Due to the close association of CHWs with the HIV/AIDS patients, they were considered the right people to provide information on the challenges with the free ARVs open access program. A random sample of 30 community health workers (CHWs) revealed several challenges affecting the ARVs open access program. As shown in Table 4.10, the common challenges experience were stigma

(76.7%), poor drug adherence (60%), lack of funds (56.7%), staff shortage (53.3%), lack of drugs to treat opportunistic diseases (46.7%), distance (43.3%), lack of transport (43.3%), cultural beliefs (36.7%), illiteracy among patients (36.7%), patient migration (30%), lack of proper nutrition (26.7%), long waiting time (23.3%) and transfer of counsellors.

Table 4.10 Challenges of the free ARVs open access program (multiple responses)

Challenges	Frequency (N=30)	Proportion (%)
Distance	13	43.3
Lack of transport	13	43.3
Stigma	23	76.7
Poor drug adherence	18	60.0
Lack of funds	17	56.7
Staff shortage	16	53.3
Lack of drugs to treat opportunistic infections	14	46.7
Cultural beliefs	11	36.7
Illiteracy among patients	11	36.7
Patient migration	9	30.0
Lack of proper nutrition	8	26.7
Long waiting time	7	23.3
Transfer of counsellors	6	20.0

4.6 Discussion

4.6.1 Proportion of respondents accessing ARVs

According to this study, accessibility was determined through the missing of appointments in the various ARVs delivery points. Hence according to the study findings, 45.1% of the respondents were not able to access ARV services as required. This proportion of respondents raises very serious questions regarding adherence of ARVs drug medication.

4.6.2 Factors hindering access to ARVs

Several factors were evident that could be used to explain and address the problem of low access to ARVs.

4.6.2.1 Gender of the respondent

Among the socio-demographic and the socio-economic factors, gender of the respondent was the only significant risk factor influencing access to ARV services. From the study findings, the male gender was less likely to access ARV services compared to the female gender. However, this finding contradicted what other studies had concluded regarding to gender disparity in the access of ARVs (Anderson and Mitchel, 2000; Hsu *et.al*, 2001). According to the WHO (2004), women are chronically disadvantaged in their access to cash and productive resources. Insufficient funds or lack of control over household expenditures frequently prevent women from accessing ART. An international conference on AIDS in Bangkok, Thailand cited low income of women and presumed dependence as a factor making spouses antiretroviral therapy among African women difficult (Kwalombota and Shumba, 2004). Women strive to stay healthy in order to be able to continue to care for their children and family. In contrast, men are generally less likely to want to be open about their status, less

able to share their concerns or anxieties and therefore less likely to access ARVs. Hence new innovative strategies should be undertaken to address gender disparity in the access of antiretroviral therapy in order to encourage more males to enroll for the service.

4.6.2.2 Distance to the ARVs delivery point

The study findings showed that distance was a significant risk factor in influencing access to ARV services. Respondents who covered a longer distance to the ARVs delivery points were less likely to access ARV services compared to respondents who covered a shorter distance to these delivery points. According to this finding, physical access to the ARVs delivery points is a major hindrance towards accessing ARV services among HIV patients. Since many of the HIV-positive patients are so weak to walk over long distances, they ended up failing to access ARVs. Hence measures should be put in place to avail ARVs delivery systems that are close to the people. Probably, this observation made the respondents to propose faith based organizations, community based organizations, non-governmental organizations and dispensaries as the alternative ARVs delivery systems that can bring these services closer to them. A study in Rakai, Uganda has established distance to the ART centres and lack of transportation as the major obstacles to ART access (Kunihira *et al.*, 2010). In the developing countries, the most frequently cited barrier at the health system level was long distance from home to the health facility (Posse *et al.*, 2008). Place matters, but spatial accessibility is only one factor to be overcome in ensuring equitable access to health services. It has been shown that even when services are available at a near distance, factors such as temporal accessibility, disease perception, stigmatization, and outright discrimination heavily influence “effective demand” (Mashamba and Robson, 2002).

4.6.2.3 Perception to the free open access ARVs program

The findings showed that perception towards the free open access to ARVs program was a risk factor to accessing ARVs. Respondents who thought that the open access to ARVs program had increased stigma and discrimination were less likely to access ARVs compared to those who had perceived the program not to have increased stigma and discrimination. As indicated by the key informants (CHWs), they cited stigma as the greatest challenge to the free open access ARVs program. Social barriers such as stigma and discrimination have been shown to present great challenges to promoting successful ART in Rakai, Uganda (Kunihira *et al.*, 2010). The delivery of effective ARV treatment can be imagined as the most powerful instrument currently available to combat stigma and discrimination. It enables people with HIV and their families to re-enter the mainstream of social and economic activities and relations. Therefore the open access program should focus on educating the patients on the benefits of treatment as well adopting a more friendly approach in terms of service delivery.

4.6.2.4 Knowledge towards the free provision of ARVs

The study findings indicated that knowledge towards the free provision of ARVs was a risk factor to accessing ARVs. Respondents who had no prior knowledge that the ARVs were being provided free before being started on the program were less likely to access ARVs compared to those who had prior knowledge about free ARVs provision. This was an indication of low levels of awareness about the free provision of ARVs, drug adherence and HIV/AIDS prevention strategies in general. A study in Malawi indicated access to information as one of the key issues affecting equity (Ntata, 2007). In the developing countries, the most frequently cited barrier at the population level was lack of information

about antiretroviral therapy and stigma (Posse *et al*, 2008). Promoting sound information about the availability and benefits of ARV treatment will stimulate demand for treatment and help to sustain treatment adherence (WHO, 2004). Hence HIV/AIDS campaigns should be inclusive with the messages of free ARVs provision and the importance of adherence to medication.

4.6.3 Challenges of the free ARVs open access program

Several challenges facing the open access program for ARVs were outlined by community health workers during key informant interviews. Distance and transport problems were one of the major factors that were mentioned as a challenge to the free open access program. It was revealed that majority of the respondents were poor and therefore could not afford money for transport. Stigma also featured prominently as a hindrance to the open ARVs access program. This observation points out that community stigma towards HIV patients was still a challenge.

Staff shortages was another constraint that led to long waiting time among the HIV-patients. A study in Malawi cited staff shortages and inadequacy of effective community support groups as some of the key issues affecting equity in the access of ARVs (Ntata, 2007). A study in Uganda has established shortage of trained medical staff as a major obstacle to ART access (Kunihira *et al.*, 2010). Hence more staff should be employed to cope up with the large number of patients. Transfer of staff like counsellors was also a challenge in that most patients felt as if their privacy was being compromised in a way. They disliked the idea of starting their histories all over again to a new person.

Illiteracy was another hindrance, such that information and communication was compromised between the care givers and the patients. This was evident from the fact that majority of the patients missed appointments after forgetting the dates. Adherence to medication was also a problem to the open access program whereby majority of the patients failed to adhere due to lack of proper communication, alcoholism or stigma. Cultural beliefs was also a constraint in that majority of the patients were unable to adhere to medication due to some negative beliefs. According to an international conference on AIDS in Bangkok (Khonyongwa, 2004), Thailand tradition makes access to antiretroviral therapy among African women difficult. Hence intensive HIV/AIDS awareness campaigns should be geared up in order to address these problems.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study aimed at determining access to anti-retroviral drugs in Nairobi's Kibera slums. This chapter explores the conclusions, recommendations and suggestion for further studies.

5.2 Summary

According to the study findings, 54.9% of the respondents accessed ARVs while 45.1% failed to access ARVs. Several factors that hinder access to ARVs were identified. These included the gender of the respondent, the distance to the ARVs delivery points, attitude towards the open ARVs access program in terms of stigma and discrimination and the respondents' prior knowledge of the free provision of ARVs before being enrolled into the program. Several challenges to the open access ARVs program were highlighted in the study by key informants (CHWs). They included distance and transport difficulties, stigma, lack of funds, staff shortages, cultural beliefs and illiteracy among patients, patient migration, lack of proper nutrition, long waiting time and transfer of counsellors.

5.3 Conclusion

The findings revealed eminent factors and challenges affecting access to ARVs by HIV/AIDS patients in Kibera slum. Gender disparity, physical accessibility, knowledge and attitude towards the open ARVs access program the major limiting factors to accessing ARVs. Given these factors and challenges, it's therefore evident that access to ARV services in Kibera slum was not independent of any factors and/ or challenges.

5.3 Recommendations

- The Ministry of Public Health should devolve the ARVs delivery points to the health centres in the community to reduce the limitation of physical access to ARVs
- The Ministry of Public Health should educate the public about the free provision of ARVs to increase their awareness towards these services.
- The Ministry of Public Health should review the free ARVs open access program to make it more patient friendly thereby reducing stigma

5.4 Recommendations for further research

- Studies should be conducted to address the issues of stigma related to the open access ARVs program.
- Studies should be conducted to improve the existing ARVs delivery systems that are client friendly and which are easily accessible e.g. the faith based organizations (FBOs) and the community based organizations (CBOs).

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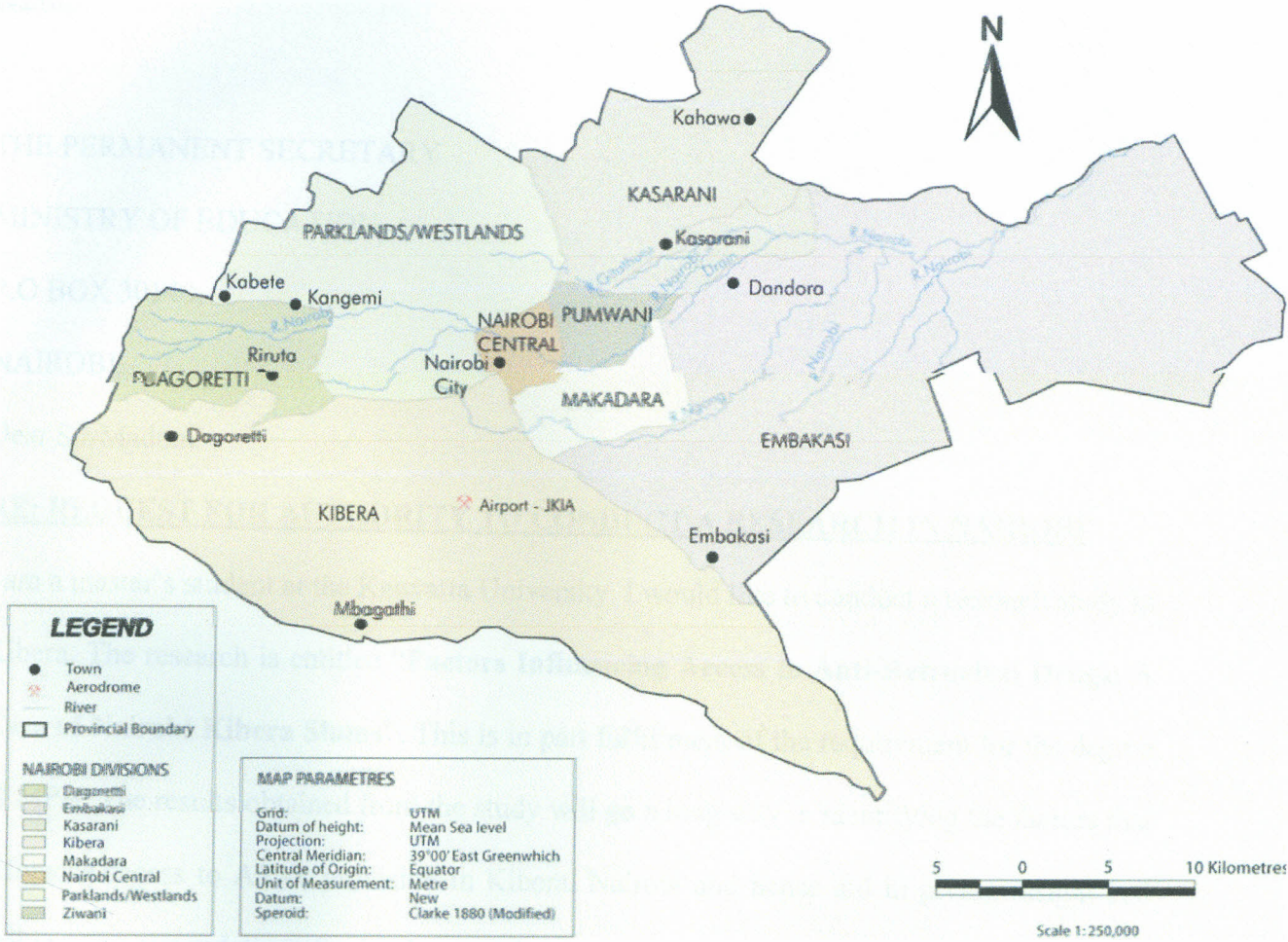
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7.0 APPENDICES

7.1 Map of Nairobi showing Langata division and Kibera location



7.2 Authority letter

Anne Oluoch Achieng

P. O. Box 31023

Nairobi

THE PERMANENT SECRETARY

MINISTRY OF EDUCATION,

P.O BOX 30140,

NAIROBI.

Dear Sir/Madam,

RE: REQUEST FOR AUTHORITY TO CONDUCT A RESEARCH IN NAIROBI

I am a master's student at the Kenyatta University. I would like to conduct a research study in Kibera. The research is entitled "**Factors Influencing Access to Anti-Retroviral Drugs: A Case of Nairobi Kibera Slums**". This is in part fulfillment of the requirement for the degree of MPH. The results obtained from the study will go a long way in identifying the factors that influence access to ARVs provision in Kibera, Nairobi and hence aid in giving insight and making recommendations for implementation and success of the program. The findings will be communicated to your office and other relevant ones on completion of the study. Thank you.

Yours faithfully,

Anne Oluoch Achieng

CC. *Wahneema Lubiano*

Ministry of Health,

Provincial Commissioner, Nairobi Province.

District Commissioner, Dagoretti.

The Chief, Kibera Location.

I am conducting this study for the purpose of assessing the impact of ARV treatment in Kibera slums. The study is intended to improve the health of the people living in the slums. Your participation in the study is very important. The study will be conducted with high confidentiality and you will not be coerced or intimidated to participate. You will be asked to answer all questions honestly to the best of your knowledge.

.....
 I have read the nature of the study and do give my consent to participate in the study.

Date:

7.3 Consent Form

TITLE: Factors Influencing Access to Anti-Retroviral Drugs: A Case of Nairobi Kibera Slums

RESEARCHER: Anne Oluoch

COLLEGE OF HEALTH SCIENCES, KENYATTA UNIVERSITY

I am conducting this study for the purpose of establishing the factors influencing access to ARV treatment in Kibera slums. The study will generate information for health care workers, planners and administrators in health. Secondly the study aims to offer recommendations on improvement of ARVs access. This is intended to contribute towards improved quality of care for the residents as well. Your participation in the study will be appreciated and the information offered will be handled with high confidentiality. If you decline to participate in the study you will not be coerced or intimidated to do so under any circumstances. Kindly answer all questions honestly and to the best of your knowledge.

Ihave read/ have been explained to and have understood the nature of the study and do give an informed and voluntary consent for participation in the study.

Sign

Date.....

7.4 Interview Schedule

Serial no

Date.....

Health Delivery Point

INSTRUCTIONS Please tick inside the brackets, or write inside the dotted/blank spaces where applicable. For .../... cycle as appropriate.

PART A: DEMOGRAPHIC DATA

1.1 Age of the respondentyears.

1.2 Gender of respondent

a) Male ()

b) Female ()

1.3 Relationship to child (If on behalf of child)?

a) Father ()

b) Mother ()

c) Guardian ()

d) Relative (specify) ()

e) Others (specify).....

1.4 Marital status?

a) Single ()

b) Married ()

c) Widowed ()

d) Separated ()

e) Others specify

1.5 Religion?

a) Catholic ()

b) Islam ()

c) Protestant ()

d) Others specify

1.6 Occupation?

- a) Employed ()
- b) Self employed ()
- c) House wife ()
- d) Others specify

1.7 Spouse's Occupation?

- a) Employed ()
- b) Self employed ()
- c) Housewife ()
- d) Others Specify

1.8 Level of education?

- a) Primary ()
- b) Secondary ()
- c) College ()
- d) University ()
- e) Others Specify

1.9 Spouses education level

- a) Primary ()
- b) Secondary ()
- c) College ()
- d) University ()
- e) Others Specify.....

PART B:

Factors Influencing Access to ARVs

2.1 Have you ever failed to come for your ARV medication?

- a) Yes
- b) No

2.2. How far is the nearest ARV delivery point from your home?

- a) Less than 1 km ()
- b) Between 1-3 km ()

2.8 How much of your income above do you spend on:

≈% Expenditure	<10 %	10- 20%	30%	40%	50%	Over 50%	none	Not sure
a) Food								
b) Shelter/Rent								
c) Cost of treatment								
d) Education								
e) Transport								
f) Entertainment								
g) Savings								
f) others								

2.9 What do you like most in this health facility?

- a) Good services ()
- b) Staff are friendly and experienced ()
- c) Services are free ()
- d) It is near my home ()
- e) Others (specify).....

2.10 What is it you like least about this facility?

- a) Poor services ()
- b) Unfriendly and inexperienced staff ()
- c) Expensive services ()
- d) It is far from my home ()
- e) Others (specify).....

2.11 Are there some illnesses which you believe cannot be treated in the hospital?

a) Yes ()

b) No ()

c) Explain your answer

.....

.....

.....

If yes above, where would they be treated?

a) Church ()

b) Local healers ()

c) None ()

d) Others (specify).....

2.11 Have you or any of your family members fallen sick in the last four weeks?

a) Yes ()

b) No ()

If Yes (2.12) above, which illness?

Name of the illness	Person in the family	Duration in days	What was done
1			
2			
3			
4			
5			

2.13 Do you know the types of services available in this facility?

a) Yes ()

b) No ()

2.14 Does your culture, religion, personal/traditional beliefs influence your choice of seeking ARVs services?

a) Yes ()

b) No ()

c) If (Yes) above, explain.....
.....

2.15 What are the most appropriate local health systems to deliver ARVs?

.....
.....

2.16 Do you think the open access to ARVs program has increased stigma and discrimination?

a) Yes

b) No

2.17 Explain your answer above:

.....
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2.18 Are children able to get HIV treatment at your facility?

2.19 Did you know about the free provision of ARVs before you were started on the program?

a) Yes

b) No

7.5 Key Informant Interview Guide

Serial No

Date.....

Health Delivery point

QUESTIONS

1. Do you think many HIV infected persons eligible for ARVs from your area benefit from the free access program?

[1] Yes

[2] No

2. What do think may hinder this program?.....

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3. List 5 challenges you have encountered in the administration of this program

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4. What are your recommendations for the ultimate success of the program?

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THE END-*****-THANK YOU

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