FACTORS DETERMINING ACCESS AND UTILIZATION OF ANTIRETROVIRAL THERAPY STRATEGY BY PEOPLE LIVING WITH HIV AND AIDS IN THIKA DISTRICT, CENTRAL PROVINCE, KENYA

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A thesis submitted in partial fulfillment of the requirements for the award of the degree of master of Public Health in the School of Health Sciences of Kenyatta University

June, 2008

DECLARATION

Declaration by the candidate

"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 parents, wife Annet, sons Kelvin, Elton, Adday and Jeremy.

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ABBREVIATIONS AND ACRONYMS

AIDS	-	Acquired Immuno-deficiency Syndrome
ART	-	Anti-retroviral Therapy
CDC	-	Centre for Disease Control
DNA	-	Deoxyribonucleic Acid
GDP	-	Gross Domestic Product
G O K	-	Government of Kenya
HAART	-	Highly Active Antiretroviral Therapy
HIV	-	Human Immuno-deficiency Virus
KDHS	-	Kenya Demographic and Health Survey
MDGs	-	Millennium Development Goals
M O H	-	Ministry of Health
NACC	-	National AIDS Control Council
NNRTI	-	Non-Nucleoside Reverse Transcriptase Inhibitors
NRTIs	-	Nucleoside analogue Reverse Transcriptase Inhibitors
PLWHA	-	People Living With HIV and AIDS
RNA	-	Ribonucleic Acid
SPSS	-	Statistical Programme for Social Sciences
UNAIDS	-	Joint United Nations Program on HIV and AIDS
W H O	-	World Health Organisation

Definition of terms

Antiretroviral drugs – drugs that reverse HIV and AIDs progression.

Accessibility – an opportunity to use a resource

Balanced diet – a meal consisting of proteins, carbohydrates and vitamins

Counselling - the act of preparing one to cope with a situation

Environment – surrounding atmosphere

Healthy living – behaviour that promotes health

Housing – shelter

Millennium Development Goals – universal development targets set up by United Nations to be achieved by its members by 2015

Personal hygiene – practise of keeping self and environment clean

Sample – a representative number

Sanitation – cleanliness

Strategy – plan devised to achieve a purpose

Stress – body's reaction to demand made on it

Therapy – treatment

Utilisation – ability to use a resource

TABLE OF CONTENTS

CONTENTS **PAGE**

LIST OF TABLES

LIST OF FIGURES

Figure **Page**

ABSTRACT

HIV and AIDS is the most devastating epidemic of 21st Century; most countries especially in Sub-Saharan Africa are not coping with the epidemic. Current estimates put the figure of people infected with HIV and AIDS at about 45 million worldwide. A third of these cases occur in Sub-Saharan Africa. To deal with this ever-increasing problem the antiretroviral therapy strategy (ARV) has been introduced as a control to the increasing rates of morbidity and mortality. The major components of this strategy include ARV drug use, a balanced diet, healthy living and clean environmental sanitation. Access to utilization has however remained a challenge although very little data is available on the accessibility of ARV strategy in many Kenyan Districts. This study therefore aimed at providing information on the factors influencing accessibility and utilization of this strategy in Thika District. It was a cross-sectional study targeting about 1000 people living with HIV and AIDS and on antiretroviral strategy. A total of 390 respondents above 18 years of age were interviewed and data entered in excel for processing and management. Statistical analysis was performed using SPSS software (version 11.5). Chi-Square was used to test the relationship between independent and dependent variables with the help of cross-tabulations. The results showed that the main factors influencing accessibility included income levels, aspects of healthy living such as balanced diet, water quality and personal hygiene and access to ARV drugs and professional counseling. Of all the respondents interviewed, 84% had an income of less than Kshs. 10,000 while 57% had no regular income. The results showed that 42% of the respondents could not afford at least three balanced meals per day. There was significant association between income and major aspects of healthy living such as housing (χ^2 = 46.597; df = 2; $p<0.05$) and dietary intake (χ^2 = 28.381; df = 3; $p<0.05$). Significant statistical association was also observed between respondents' levels of education and

aspects of personal hygiene ($\chi^2 = 21.868$; df = 3; $p<0.05$).It is therefore concluded that most respondents were unable to access and therefore could not utilize the strategy. It is therefore recommended that the Government of Kenya economically empower PLWHA on antiretroviral therapy strategy so that they can easily access and afford the therapy. It should also develop and implement national policy providing for ART drugs from lowest level facility such as the dispensary and intensify health promotion campaigns. This will not only improve the uptake of this strategy but also enable Kenya as a country to cope with HIV and AIDS and other related illnesses which is one of the millennium development goals.

CHAPTER 1: INTRODUCTION

1.1 Background

The Human Immuno-Deficiency Virus (HIV) is a Ribonucleic acid (RNA) retrovirus existing in two forms: HIV-1, which is the commonest form of infections and HIV-2, which is confined to certain parts of West Africa. Infection with HIV-1 results in a progressive CD4 T cell decline. CD4 T Count determines the rate of immuno-deficiency and subsequent development of HIV related opportunistic infections. Pallela (1998) found that destruction of CD4 T Cell is due mainly to active viral replication.

HIV and AIDS is a long-term illness. WHO (2005) revealed that using the average time taken for development of AIDS following HIV infection, people can be put in three broad categories. The first one is the rapid developer who develops AIDS within five years following infection. The second is the average developer who develops AIDS within approximately ten years after infection. The third being the slow developers who remain asymptomatic for over 10 years without a significant decline in CD4 T cell count.

Some opportunistic infections include tuberculosis, oral candidiasis, herpes zoster, recurrent abcesses and kaposi's sarcoma. Others include cryptococcal *Meningitis, Pneumocystis carinii, Microsporidia sp., Plasmodium falciparum* and *Cryptosporiodia sp.* HIV progressively damages the immune system, which can make

a person susceptible to a wide range of opportunistic infections leading to conditions such as weight loss, fever and diarrhoea.

When one is already suffering from an illness such as HIV and AIDS, diet determines the state of well being. Dietary factors such as malnutrition, hunger, improper diets and excess food intake contribute largely to the health of human beings (Caliendo, 1981).

Environment also plays a major role in determining health. Wilner (1978), asserts that in all populations, environmental ecology concerns entire complex of interrelationships between the living and non-living domains. The environment includes such factors as air quality, water quality, sewerage and solid waste disposal and radiation. People living with HIV and AIDS need clean residential environment. It includes both physical structures that provide shelter. Neighbouring environments will greatly determine contracting communicable diseases such as TB and Cholera. Gordon (1984) found that, one of the major factors affecting healthy living is stress, particularly that caused by a change in ones life condition such as personal injury or illness. HIV and AIDS is therefore a very stressing condition, which needs psychological counselling.

Sustainable health care involves people paying a share for their medical cost. Prescott (1998) carried out studies in over 1,000 households in USA and found that the relationship between individual incomes and healthcare for People living with HIV and AIDS is that individual responsibility is the corner stone of health care

philosophy. Nicoli (2005) found that in over 90% of developing countries, income distribution has direct effect on affordability of anti retroviral therapy.

There is emerging evidence that the anti-retroviral strategy is effective. Janine (1998) studying antiretroviral drugs in USA found that although the primary goal of anti-retroviral therapy for human immuno-deficiency virus (HIV) infection is suppression of viral replication, the optimal way of achieving this goal is to initiate a combination of therapy with two or more anti-retroviral agents. Pallela (1998) reviewed the effectiveness of anti-retroviral therapy and reported that there is sufficient evidence that it reduces viral load in plasma to undetectable levels. HIV symptoms may disappear. The incidence of opportunistic infections is reduced and the quality of life improves.

The mainstay of managing HIV and AIDS epidemic is prevention and advocacy for behaviour change. However, Kenya hospitals continue to offer care to many patients who occupy beds for long with recurrent complications. Currently drugs for opportunistic infections are provided in public hospitals including anti-TB drugs. With advancing technology, new more effective anti-retroviral drugs regimens have become available and now form part of total continuum of care for People living with HIV and AIDS.

1.2 Problem Statement and Justification

HIV and AIDS in Kenya is a national disaster and a public health emergency. HIV prevalence among adults rose from 5.3% in 1990 to over 13% in 1999, with 80-90% of the infection occurring among people aged 15-49 years. The National Aids Control

Council (NACC) estimated that about 1.5 million infected people were detected in Kenya in early 1980's (MOH, GOK, 2001). Estimates by the Kenya Demographic and Health Survey (KDHS 2003) indicated that over 7% of Kenyan adults were infected with HIV in 2003. HIV prevalence in women aged 15-49 is nearly 9%, while for men of 15-54 years, is under 5% (CBS, MOH, 2003). According to MOH, KDHS (2003) the prevalence by province of age bracket 15-49 was 9.9% for Nairobi, 4.9% for Central, 5.8% for Coast, 4% for Eastern, 15.1% for Nyanza, 5.3% for Rift Valley, 4.9% for Western and 0% for North Eastern. The prevalence rate for Thika District was 8%.

Records from Ministry of Health show that of the 2.1 million Kenyans with HIV and AIDS, less than 40,000 are on antiretroviral therapy. While there are over 56,000 people living with HIV and AIDS in Thika District, records from Thika District Hospital indicate that less than 1,000 are on antiretroviral therapy. These figures therefore clearly point that antiretroviral therapy affordability and utilization is a problem in Thika and Kenya in general. However, little research has been done to assess factors that influence access and utilization of antiretroviral therapy (ART) in Thika District. This study aimed at investigating these factors with a view of finding whether they determine access and utilization of this strategy.

1.3 Study purpose

The main purpose of this study was to investigate main factors influencing access and utilisation of antiretroviral therapy strategy by people living with HIV and AIDS in Thika District, Central Province of Kenya with a view of coming up with possible recommendations that could be employed to improve ART uptake.

1.4 Research Questions

The study aimed at answering the following questions:

i. Which factors determine accessibility of antiretroviral therapy?

ii. Which factors determine the utilization of antiretroviral therapy?

1.5 Null Hypothesis

For the purposes of this study, it is hypothesized that the utilization of antiretroviral therapy strategy by people living with HIV and AIDS in Thika district has no relationship with income levels and healthy living.

1.6 Objectives

1.6.1 General Objective

To determine the factors influencing access and utilization of antiretroviral therapy strategy by people living with HIV and AIDS.

1.6.2 Specific Objectives

i. To investigate if levels and regularity of income determines access and utilization of antiretroviral therapy strategy by people living with HIV and AIDS in Thika district.

ii. To assess if healthy living determines access and utilization of antiretroviral therapy strategy by people living with HIV and AIDS in Thika district.

iii. To explore if access to antiretroviral drugs determines utilization of antiretroviral therapy strategy by people living with HIV and AIDS in Thika district.

1.7 Significance

The results of this study could be used to come up with ways of improving access and utilisation of antiretroviral therapy strategy which has already been identified as one of the means of combating HIV and AIDS pandemic. The outcome shall not only help people living with HIV and AIDS in Thika but also in the whole of Kenya and other parts of the world. It will also help agencies that are dealing with the eradication of the pandemic to come up with policies that can improve the accessibility and utilisation of this strategy.

1.8 Delimitations and Limitations

1.8.1 Delimitations

i. The study subjects were very cooperative.

ii. The supervisors were very supportive and gave guidance at all stages of the study.

1.8.2 Limitations

i. Due to financial and time constraints people living with HIV and AIDS and not on ART strategy who would have provided a good control were not included in the study.

ii. Due to stigmatisation of HIV and AIDS some respondents did not give full information in some areas that mainly touched on their private lives.

iii. Some respondents were in a hurry and sickly and therefore could not respond to questions adequately.

1.9 Conceptual Framework

The following conceptual framework gives an overview of this study (Fig. 1.1).

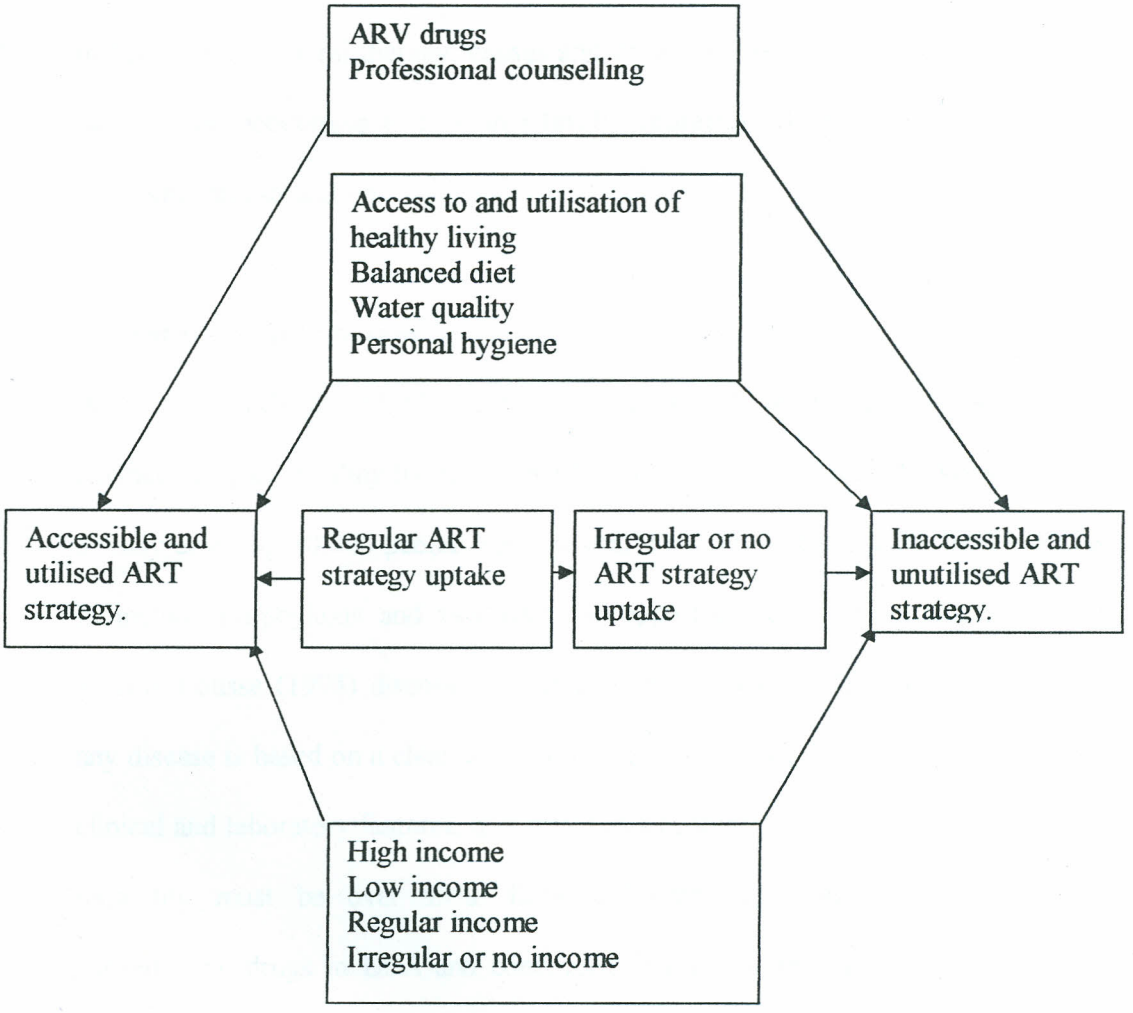

Figure 1.1: Conceptualised view of independent and dependent variables that are related to the study.

CHAPTER 2: LITERATURE REVIEW

2.1 Literature review coverage

Major themes that were critical to this study and whose literature was reviewed included antiretroviral therapy, causes and presentations of HIV and AIDs, balanced diet, health, economics and income levels, antiretroviral drugs, healthy living and environmental sanitation.

2.2 Antiretroviral Therapy

Anti-retroviral therapy (ART) refers to the administration of drugs, consumption of a balanced diet and healthy living by people living with HIV and AIDs. WHO (2005) in a study covering 10,000 people reported that comprehensive care for PLWHA needs to include prophylaxis and treatment for opportunistic infections. Jacqueline and Marriet-Lousse (1995) discovered that correct diagnosis and adequate treatment of any disease is based on a clear definition of diagnostic criteria, recognition of various clinical and laboratory features, and awareness of their prognostic significance whose reliability must be over 95%. Emil and Danniela (2003) studied uptake of antiretroviral drugs in USA and concluded that sub-optimal exposure to them may cause resistance. There could also be loss of future treatment options if anti-retroviral drugs are not taken correctly with respect to meals and sticking to proper drug regime.

The anti-retroviral therapy strategy is a programme whose primary objective is to slow down HIV and AIDS progression and improve the quality of life of the suffering individual. WHO (2005) reported that ART has made a dramatic impact on the quality of life of PLWHA by decreasing the associated morbidity and mortality by nearly

65%. ART should be part of a program aimed at comprehensive care and support, combined with at least three drugs from Nucleoside Analogue Reverse Transcriptase Inhibitors (NRTIS), Non Nucleoside Transcriptase Inhibitors (NNRTIS) and Protease Inhibitors (PIS) and a well balanced diet.

The tools to achieve the goals of the therapy are, maximum adherence to antiretroviral regimen (>95%), rational sequencing of the drugs and preserving future treatment options. According to MOH, GOK (2002) guidelines on antiretroviral therapy, the primary goals are, maximum and durable suppression of viral load, restoration and/or preservation of immunologic function, improvement of quality of life, reduction of HIV related morbidity and mortality. Andrew and Stephen (1985) working in USA, examined over 100 programs in the health sector and concluded that the effectiveness of a policy programme is normally the degree to which its objectives have been achieved.

There is no information base and infrastructure to manage HIV and AIDS treatment and its impact in Kenya. Bailey (2005) found that in over 90% of all countries in the world, there are no mechanisms to recognize effective practice of antiretroviral therapy strategy. It is against this background that this study seeks to assess factors influencing utilization and access of antiretroviral therapy strategy in Thika District.

2.3 Causes and Presentation of HIV and AIDS

The Human Immuno-deficiency Virus (HIV) is an RNA retrovirus. The origin of the virus remains unknown and has no known cure. The virus leads to Acquired Immune Deficiency Syndrome. Gornacchia and Barret (1993) carried out investigations on a person's CD4T cell count, which are the cornerstone of the human immune system and concluded that HIV and AIDS infection leads to drops below 200 per cubic micro-litter of blood while in healthy people it ranges between 800 – 1200.

According to Makokha *et al.* (2003), the initial stage of the disease is a brief illness that typically includes fever, sore throat, skin rash, swollen lymph glands, headache and malaise. This phase, termed as acute HIV syndrome usually lasts 1-2 weeks and is followed by a prolonged symptom-free period. Eventually most AIDS patients become thin, easily fatigued and prone to diarrhoea, swollen lymph glands and multiple infections.

HIV infection is transmitted through sexual contact, inoculation with infected blood/blood products, use of contaminated needles and other instruments and vertical transmission from mother to child. An infected person is normally attacked by opportunistic infections due to weakening of immune status. Opportunistic infections can be avoided by taking care of one's hygiene, using and drinking clean water, having a well balanced diet and taking preventive medicines prescribed by the physicians.

Remarkable progress has been made in combating HIV and AIDS through improved quality and management of HIV infected individuals. Sanjay (2001) studied

management of HIV and AIDS in India and reported that since AIDS was first described nearly 20 years ago, remarkable progress has been made in its management. During the first decade of the epidemic, this improvement occurred because of better understanding of the disease processes, better therapy for acute and chronic complications and the introduction of chemoprophylaxis for some of the opportunistic infections. The second decade of the HIV epidemic can well be described as the "Era of highly active anti-retroviral therapy (HAART).

Management of HIV infected individuals incorporates the following four components; management and prevention of opportunistic infections, anti-retroviral therapy, proper nutrition and counselling and psychosocial support. Opportunistic infections and malignancies are the cardinal manifestation of HIV disease, occurring secondary to immune suppression. Anti-retroviral therapy (ART) is an important management component of clinical HIV disease. According to Chakaya *et al.* (2003) Anti-retroviral therapy has had a significant impact on the mortality and morbidity profiles of people living with HIV and AIDS worldwide.

2.4 Balanced Diet

An ideal diet consists of proteins, carbohydrates, minerals and vitamins. Lynda and Penelope (2002) maintains that a balanced diet should include protein for growth and repair, carbohydrates which are the main source of energy, vitamins and minerals for good health and growth, fats for energy and other body functions, dietary fibre and water. Sources from The Johns Hopkins Hospital (1973) indicated that the approximate composition of a standard diet should also include micronutrients such as calcium, iron, phosphorus, potassium and sodium (Table3.1). The university

recommended at least three meals a day consisting of a breakfast, noon meal and an evening meal.

Table 2.1: Composition of a standard diet (John Hopkins University 1973)

Kilojoules	10480
Calories	2505
Protein	95gm
Fat	105gm
Carbohydrates	295gm
Calcium	1000mg
Iron	14mg
Phosphorus	1600mg
Potassium	3500mg
Sodium	5000mg

WHO (2005) in a study of nutritional status of people living with HIV and AIDS noted that a balanced diet that provides the full range of essential micronutrients is important to the health of people infected with HIV. It helps boost the immune system, boost energy levels and maintain body weight and general well being. Optimal antiretroviral therapy requires clean drinking water and a balanced diet rich in energy, protein and micronutrients. Secure good nutrition and clean water may make ART easier to take and helps to ensure that treatment works effectively. Tony and Brues (2004) observed that in about 80% of the respondents diet and nutritional status of individuals greatly influenced success of ART. They concluded that proper

nutrition helps strengthen immune system and manage opportunistic infections. It optimizes response to medical treatment and helps in slowing progression of disease. They also noted that individuals infected with HIV Source: John Hopkins University AIDS have special nutrition needs and they require increased energy and adequate food consumption.

People who do not have enough nutritious food are vulnerable to diseases and infections. Rohatgi (1979) found out that about 800 million people are malnourished in developing countries and are inclined to a state of morbidity. They have been trapped in absolute poverty, characterized by malnutrition and disease. People living with HIV and ADS are biologically more vulnerable to opportunistic infections when they are malnourished. Nicoli (2005) surveyed 5,000 homesteads on nutritional status and recommended that asymptomatic PLWHA increase energy intake by 10% over the requirement of healthy, non-HIV infected persons of the same age and physical activity level. Tony and Brues (2004) argue that over 90% of people living with HIV and AIDS lack access to good nutrition which poses additional challenges to the success of anti-retroviral therapy. They recommend that patients be encouraged to select a nutritionally adequate diet.

2.5 Health Economics and Income Levels

Resource mobilization by governments and individuals are critical to success of health care systems. Witter *et al.* (2000) while studying health economics in 15 developing countries reported that the underlying problem is that people have almost infinite needs for health, food and shelter but have finite (limited) resources. People living with HIV and AIDS are generally a sick lot. They are most likely to be

unproductive. This therefore means that they don't have enough resources to take care of their health needs. Poverty at the household level often leads to poor diet, poor housing and unsanitary conditions. As mentioned earlier all these are very important components of anti-retroviral therapy. Martin (1984) while examining expenditures on health found that there is rising expenditure of over 10% on healthcare due to technical innovation and emerging health challenges. Donald and Pennifer (1993) reported that resources allocated to health by 90% of individuals depend on personal characteristics, social economic status and cost of intervention.

People living with HIV and AIDS are economically vulnerable. Joseph (1986) working in the U.S.A. found that income levels, poverty and indebtedness determine accessibility, quality of life and particularly on health and hygienic conditions in over 75% of cases studied. Nicoli (2005) carried out research on anti-retroviral therapy strategy in 84 developed countries and reported that economic factors account for over 50% of its success. Economic factors are thus very important in understanding the global distribution of people on anti-retroviral therapy.

Different countries have adopted different health care systems. For example, in USA there is private insurance system and state-ran insurance for low-income groups. In Britain, funding of National Health Services is from general taxation. In Kenya, the government through taxation subsidizes it. However, there are user charges in public hospitals and private insurance for those economically endowed.

The health sectors of many nations depend on the government policy. Appleby (1992) while studying health polices in developed world found that by and large, most of the

population (87%) meets the cost of their health care. Since most of Kenyan population meets the cost of their health care, people living with HIV and AIDS meet the cost of antiretroviral drugs, balanced diet and healthy living. WHO (2003) argues that financial ability and sustainability is one of the major challenges in providing treatment, which is essential to alleviate suffering and to mitigate the devastating impact of the HIV and AIDS epidemic. UNAIDS (2005) found that while the prices of ARVs have plummeted by 50%, their cost remains an obstacle to access in the developing world.

People living with HIV and AIDS have special nutritional needs. WHO (2005) in a survey to determine relationship between nutrition and opportunistic infections in people with HIV and AIDS, concluded that in 80% of all cases studied, those with hunger and/or nutritional defects are more likely to fall ill with opportunistic infections and less likely to be able to recover from them. In addition, people who are sick with HIV related illnesses are also less able to work normally, to have income or to produce food, which can lead to nutritional deficits.

The economy of any country dictates the health seeking behaviour of its citizens. MOH, GOK (2005) concluded that the Kenyan economy has experienced a downward trend of its gross domestic production (GDP) growth rate from 2.4% in 1997 to a low of negative 1.2% per annum in 2002. During the year 2004, it grew by 4 %. Unemployment stood at over 2 million or 14.6% of the labour force with the youth representing about 5% of the total. According to recently conducted survey by the Ministry of Health on household expenditure and utilization, half of Kenya's population is too poor to seek medical attention.

The number of people living below the poverty line in Kenya has been steadily increasing. Estimates indicate that the levels rose from 48% of the population (11million) to 56% (17million) in 1997 (Kenya National Health Accounts, 2005). Kariuki (2004) studied the poor populations in Kenya and found that 75% of the poor live in rural areas while majority of the urban poor live in the slums and peri-urban settlements. Unemployment is high in Kenya and poverty levels stand at 43% with approximately 2.5million people living with HIV and AIDS.

Most individuals take time to seek medical attention or even fail due to lack of resources. Moses *et al.* (2002) studied health seeking behaviour of people in Nairobi and Nakuru and reported that economically marginalized people wait for two weeks to seek treatment due to lack of financial resources. Joanna *et al.* (2002) asserts that there is need to carry out a needs assessment in order to allocate enough resources for individual health care. Anne and Kenneth (1993) carried out research on user fee charges in Rwanda and reported that although a majority (67%) of the population were willing to pay for low cost health care, they lacked capacity.

2.6 Antiretroviral Drugs

New anti-retroviral drugs and treatment strategies namely Non-nucleoside reverse transcriptase inhibitors (NNRTIs), Nucleoside analogue reverse transcriptase inhibitors (NRTIs) and protease inhibitors (PIs) have been discovered. Sanjay (2001) in a survey covering over 200 health institutions in 40 states in India found that if the three drugs combination is used correctly they could substantially benefit HIV infected persons. He further concluded that understanding of HIV disease has improved and the numbers of available beneficial therapies have increased by 10%.

He revealed that clinical care of patients has become much more complex and a variety of combinations of antiretroviral agents have been evaluated. Janine (1998) concluded that the specific combination selected must account for the patient's prior history of antiretroviral use, including current treatment failure or sub-optimal therapy and for the side effects and drug interactions that occur with these agents. In addition, patients may have a preference for one of a number of equivalent regimens based on their own knowledge and beliefs about these medications.

Highly active anti-retroviral therapy (HAART) is the cornerstone of anti-retroviral therapy strategy. MOH, GOK (2002) in it's guidelines on anti-retroviral drug therapy in Kenya, describe it as the gold standard of ART which is a combination of 3 or more anti-retroviral drugs in the treatment of HIV infection. The drugs fall in 3 different classes and work at different sites on the HIV virus. Nucleoside analogue reverse transcriptase inhibitors (NRTIs) is the first effective class and acts by inco-orporating themselves into the DNA of the virus thereby stopping the building process and the resulting DNA is incomplete. Non-nucleoside reverse transcriptase inhibitors (NNRTIs), is the second class and stops HIV production and bonding therefore preventing conversion of RNA to DNA. The last class is protease inhibitors (PIs), which normally works at the last stage of virus reproduction cycle and prevent HIV from being successfully assembled and released to the infected cell.

The side effects of any therapy determine its success or failure. Emil and Daniela (2003) studied the side effects of HAART on 5000 people living with HIV and AIDS and reported that the side effects included nausea, vomiting, diarrhoea, anorexia and

fever. However only about 10% of the study subjects reported adverse side effects that led to the withdrawal of the therapy.

2.7 Side effects of HAART

Pallela (1998), while studying ART strategy uptake among HIV and AIDS patients in USA reported that some of the side effects of this strategy include lack of appetite, serious withdrawal effects, loss of hair and temperamental changes.

2.8 Healthy Living

Healthy living is defined as a positive state of being, consisting of several components which include mental, emotional, social, occupational and spiritual health. Selye (1977) in a cross-sectional study on healthy living behaviour in London found that over 90% of the population suffer from illness related to these conditions. These factors lead to stress, a condition defined as non-specific response of the body to any demand made on it. People living with HIV and AIDS are likely to suffer from stress. There is need for counselling to cope with it.

Healthy living forms an important component of antiretroviral therapy strategy. Justus (1994) studied the healthy living habits in Britain and concluded that an individual requires a sound scientific but not over detailed background of human anatomy, physiology and hygiene to be healthy and that 50% of the respondents required simple determination to take sensible actions and precautions in health matters. He recommended that individuals should avoid unhealthy habits such as drinking alcohol and smoking since it might dispose them to infections such as

tuberculosis and cancer. They should have regular exercises for physical fitness and counselling to cope with stress.

Stress is one of the major determinants of healthy living. Brues and Richardson (1994) studied the acquisition of skills useful in coping with stress and found the main ones to be: understanding one self and learning general mental health skills. Also important included skills for dealing with personal needs and challenges, actively identifying and pursuing personal course and purpose in life and engaging in positive, repeated, varied, empowering and new life experiences.

2.9 Environmental Sanitation

Environmental sanitation is described as all conditions that affect health. John (1995) identified these conditions as food handling, atmospheric pollution, and disposal management of excreta, sullage, solid waste and drainage. These factors easily predispose people to diseases such as tuberculosis, cholera and malaria. John (1995) recommended that people need to stay in safe environments with proper sanitation. Housing and shelter form an important aspect of this environment. Joseph (1986) found that over 80% of rural people in the whole world live in very poor and overcrowded conditions and that millions are affected by many diseases closely associated with man's habitat. Belkhadir (1990) while investigating development of rural sanitation in Morrocco established that over 80% of rural households lacked basic sanitation facilities such as toilets and bathrooms.

CHAPTER 3: MATERIALS AND METHODS

3.1 Research design

The research design was a descriptive cross sectional study.

3.2 Variables

3.2.1 Independent variables

i. Healthy living which included housing, dietary intake, water quality and personal hygiene

ii. Antiretroviral drugs

iii. Professional Counselling

3.2.2 Dependent Variables

i. Accessible and well utilised antiretroviral therapy strategy

ii. Inaccessible and unutilised antiretroviral therapy strategy

3.3 Location of study

Thika District lies between latitudes 3^0 45 and 1^0 45 South and longitudes 36^0 35 and 37^0 25 East in Central Province of Kenya (Fig.3.1). It has an area of 19,602km^2, borders the capital city, Nairobi to the South, Maragwa District to the North and Machakos District to the East. Thika District is divided into six administrative divisions with Ruiru being the largest and Gatundu South being the smallest.

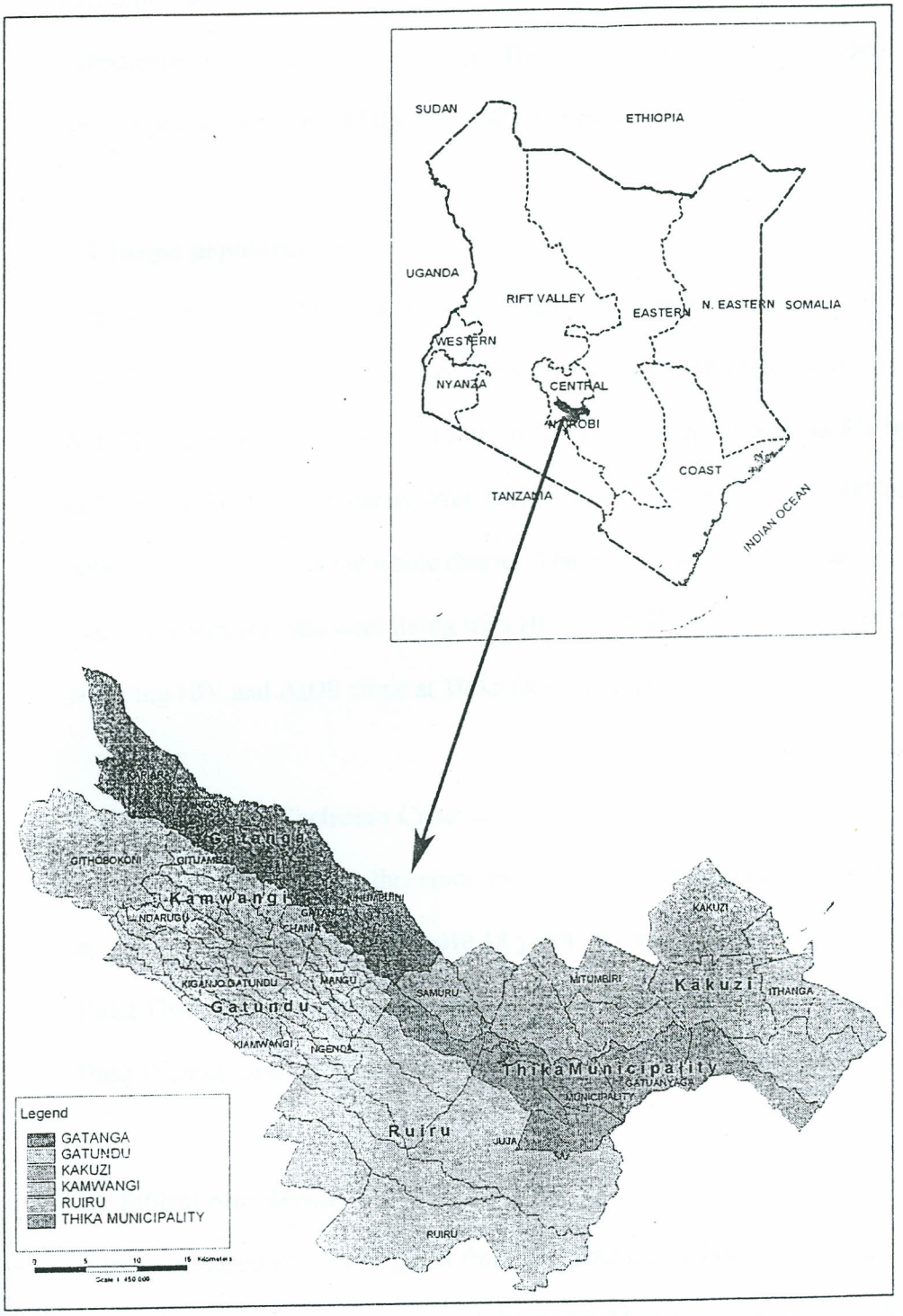

Figure 3.1: Location of Thika District in Kenya (Survey of Kenya 2005)

The district is divided into two climatic regions; the upper region receiving about 1960 mm of rainfall and the lower region receiving an average of 400 mm. The main economic activities include farming, mainly coffee growing, tea, livestock and subsistence crops like maize and beans. The area was chosen because it has one of the highest prevalence rates of HIV and AIDs in Kenya.

3.4 Target population

The population of Thika has grown steadily from about 645,713 in 1999 to over 901,664 in 2005 (GOK, 1999). Government sources indicate that the district had HIV and AIDS prevalence of 34% in 1989. It has since dropped to about 8% by the year (KDHS 2003). This represents over 60,000 cases with less than 1,000 of them on antiretroviral therapy in the whole district. The study used 390 respondents, both adult males and females who were living with HIV and AIDS, on antiretroviral therapy and attending HIV and AIDS clinic at Thika District Hospital.

3.5 Inclusion and Exclusion Criteria

The people considered for this study included only those living with HIV and AIDS on antiretroviral therapy, aged above 18 years, attending HIV and AIDS STI clinic at Thika District Hospital between October and December 2005 and having lived in Thika District for over 5 years.

3.6 Ethical considerations

A letter of introduction was given from the Graduate School of Kenyatta University. Research authorization was granted from the Ministry of Education, Science and Technology (appendix 2). Clearance was given by Medical Officer of Health, Thika

p = Proportion of the target population estimated to have particular Characteristics.

q = I – P

d = Degree of accuracy = 0.05

D = Design effect = 1

The calculation

$$N = \frac{(1.96)^2 \times 0.5 \times 0.5 \times 1}{0.0025} = 384$$

Since the target population of people living with HIV and AIDS and on ART was less than 10,000, I assumed an estimate target population of 1,000.

nf =n/(1+n/N), where; nf = desired sample size when target population is less than 10,000

n=sample size when target population is more than 10,000

N= an estimate target population of 1,000

Calculation=384/ (1+384/1000) =277

But for the purpose of this study, 390 respondents were recruited to cater for bias and also improve 'P' values and hence better results.

3.5.2 Sampling techniques

Convenience sampling design was used whereby participants came from people living with HIV and AIDs and on antiretroviral therapy strategy who were attending HIV and AIDs clinic at Thika District Hospital between October and December 2005. This method was chosen because it was easy to get the respondents as they attended the clinic for the purposes of the study.

3.6 Construction of research instruments

Both open-ended and closed-ended questionnaires were used. The open – ended ones were used where the informants were not limited to any specific answer. Closed-ended ones were used where the informants were limited to only answers given by the researcher. The questionnaires were designed in such a way that they would capture information on demography and the main variables under study which included healthy living, access to antiretroviral drugs and income levels. The researcher ensured that the questions were simple and clear. They were also neither offensive nor embarrassing.

3.7 Pilot study

Pilot study was carried out in Maragua District Hospital HIV and STI clinic. The centre was selected because it has similar characteristics in terms of population and location within Kenya. 10% of the questionnaires were pre-tested which represented about 40 informants.

3.8 Validity

The main levels of measurement used in this study were interval and ratio scales. To establish the correctness of the measures in terms of concepts which were being studied, the researcher ensured that information in 36 out of 40 pre-tested was correct. This represented the validity rate of 90%.

3.9 Reliability

Reliability of research instruments is normally measured in terms of how frequent the similar responses are recorded. In the pilot study, answers in 37 out of 40 questionnaires were similar giving a reliability rate of 93%. Since validity was also high, the reliability was deemed to be high.

3.10 Data Collection technique

The researcher and research assistant held face to face interviews with each informant at a time. All answers were recorded in the questionnaires which were numbered (Appendix 1). It included information on demographic data, knowledge and utilization of antiretroviral drugs and balanced diet, average and source of incomes, their source and practices that promote healthy living.

3.11 Data Analysis

Data collected was analyzed using the Statistical Programme for Social Scientists (SPSS) version 11.5 software. Descriptive statistics were used to analyse demographic profiles of the respondents. Chi-Square statistics with the help of cross-tabulations were used to determine association between variables under study such as income, use of ARV drugs and balanced diet. They were also used to test variables that best predicted effective use of antiretroviral therapy strategy. The levels of significance were set at $P < 0.05$ (significant), $P < 0.01$ (highly significant) and $P < 0.001$ (very highly significant).

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3.13 Data Analysis

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CHAPTER 4: RESULTS

4.1 Demographic characteristics.

4.1.1 Age Distribution.

Studies of the population's demographic characteristics involved one to one interviews of a sample of 390 respondents with HIV and AIDs and on antiretroviral therapy strategy, aged 18 years and above. Young people of ages 26-33 years dominated, constituting about 36%, followed by ages 34-41 years (34%) and 42-49 years (14%). Ages 18 – 25 years were about 10% with only a very small proportion of about 6% being 50 years and above (Fig. 4.1). The observation showed that majority of those infected with HIV and AIDs visiting Thika District Hospital and on antiretroviral therapy were young people, suggesting that young people are at a greater risk of infection.

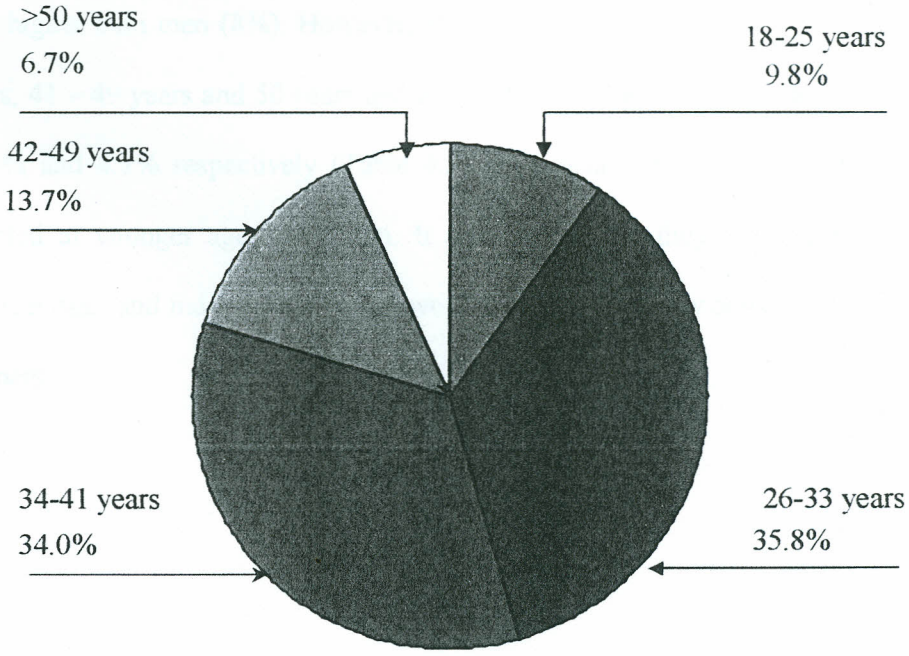

Figure 4.1: Age distribution of people living with HIV and AIDs and on antiretroviral therapy visiting Thika district hospital from October to December 2005.

4.1.2 Sex of the respondents

Of the 390 respondents, females constituted 55% and males 45%, suggesting a higher ratio of women living with HIV and AIDs and also on antiretroviral therapy (Table 4.1).

Table 4.1: Sex profiles.

Sex	Frequency (n)	Proportion (%)
Male	175	44.9
Female	215	55.1
Total	390	100

The number of women in the more vulnerable age group of 18 – 25 years (13.5%) was higher than men (8%). However, in older age classes of 26 – 33 years, 34 – 41 years, 41 – 49 years and 50 years and above, the number of women decline to 34.4%, 13.0% and 4.7% respectively (Table 4.2). This observation shows that women get infected at younger ages than men. It also shows that they are sexually active at younger ages and indicates that older women are less sexually active and stick to their partners.

Table 4.2: Sex distribution for respondents attending STI and HIV clinic and on ART

Age (years)	Sex				Total	
	Male		Female			
	Frequency (n)	Proportion (%)	Frequency (n)	Proportion (%)	(n)	(%)
18 – 25	14	8.0	29	13.5	43	11
26 –33	65	37.1	74	34.4	139	35.6
34 – 41	57	32.6	74	34.4	131	33.6
42 – 49	23	13.2	28	13.0	51	13.1
Over 50	16	9.1	10	4.7	26	6.7
Total	175	100	215	100	390	100

4.1.3 Marital Status

A high number of those interviewed (50%) were actually married, those who were single constituted about 32%, followed by widows (13%) and widowers were only 5% (Fig 4.2). However, in all groups those who were 50 years and above were relatively fewer compared to other age groups with singles being 1.6%, married 6.3%, widows 8% apart from the widowers who constituted 40% (Table 4.3), suggesting that majority are widowers because their partners have died of AIDS. An interesting observation made in regard to the marital status was that among the more vulnerable age groups of 26 - 33 years and 34 – 41 years, a high proportion of 32.7% and 39.9% were also married (Table 4.3), suggesting that most people may be marrying while already infected or continue with promiscuous life styles even after marriage.

Figure 4.2: Marital Status of patients with HIV and AIDs and on antiretroviral therapy visiting HIV and STI clinic at Thika District Hospital.

Table 4.3: Marital status of all the respondents visiting HIV and STI clinic at Thika District Hospital distributed according to their ages.

Age (years)	Status								Total	
	Single		Married		Widow		Widower			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
18 – 25	31	24.8	8	4.5	4	7.5	0	0	43	11.0
26 – 33	58	46.4	63	32.7	14	26.4	4	20.0	139	35.6
34 –41	30	24	77	39.9	21	39.8	3	15	131	33.9
42 – 49	4	3.2	32	16.6	10	18.8	5	25.0	51	13.1
Over 50	2	1.6	12	6.3	4	7.5	8	40.0	26	6.4
Total	125	100	192	100	53	100	20	100	390	100

4.1.4 Education levels

Of the 390 respondents interviewed, 55% had attained secondary education. A similar large number (38%) had attained primary level education and only a very small proportion of 4% had no formal education. A small proportion of 3% had actually attained tertiary education (Fig 4.3). These observations suggest that education is not the main drawback towards HIV and AIDs control. The low proportion of tertiary graduates infected with HIV and AIDs and on antiretroviral therapy strategy is not surprising as this is comparable to the overall population segment of tertiary graduates.

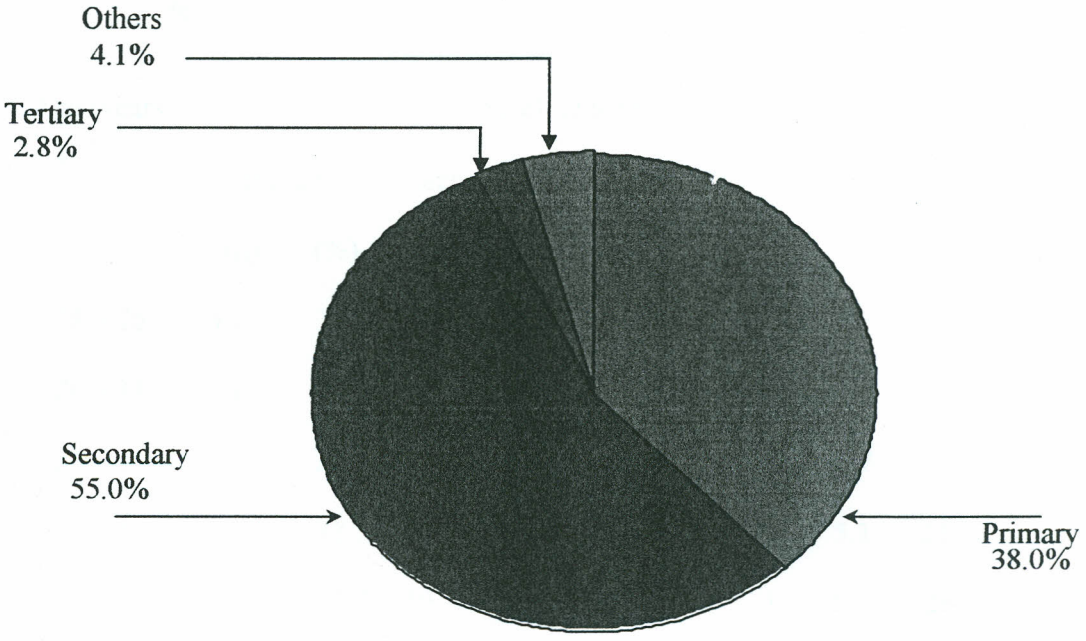

Figure 4.3: Academic qualifications of the study subjects attending STI and HIV clinic at Thika district hospital between October and December 2005.

A unique observation was that none of the respondents in ages 18 – 25 years had attained tertiary education although this is the age that most people are expected to finish their tertiary education, suggesting that most people at this age group are dropping out of school due to HIV and AIDs. However, age 26 – 33 years had a proportion of 60%, age 34 – 41 years had 30% while ages 42 – 49 years had 10% having attained high education. (Table 4.4).

Table 4.4: Distribution of education levels of all respondents visiting HIV and STI clinic at Thika District Hospital distributed according to the respondents' age.

Age (years)	Levels of education								Total	
	Primary		Secondary		Tertiary		Others			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
18 – 25	19	12.9	20	9.3	0	0.0	4	21.1	43	11.3
26 – 33	48	32.7	79	36.9	6	60.0	6	31.6	139	35.6
34 – 41	39	26.5	82	38.3	3	30.0	7	36.7	131	33.6
42 – 49	26	17.7	23	10.7	1	10.0	1	5.3	51	13.0
50 ≥	15	10.2	10	4.8	0	0.0	1	5.3	26	6.5
Total	147	100	214	100	10	100	19	100	390	100

4.1.5 Occupation

A large proportion of about 40% of the population sampled were not engaged in any specific employment, civil servants constituted about 20%, farmers were about 15%, and businessmen were about 11% while teachers constituted about 14% (Fig 4.4). These findings illustrate that most of the respondents were not engaged in any formal employment and that they may not have been engaged in productive economic activities. This observation may suggest that these people may have been idle and was more likely to contract HIV and AIDs than people in formal occupations that kept them busy.

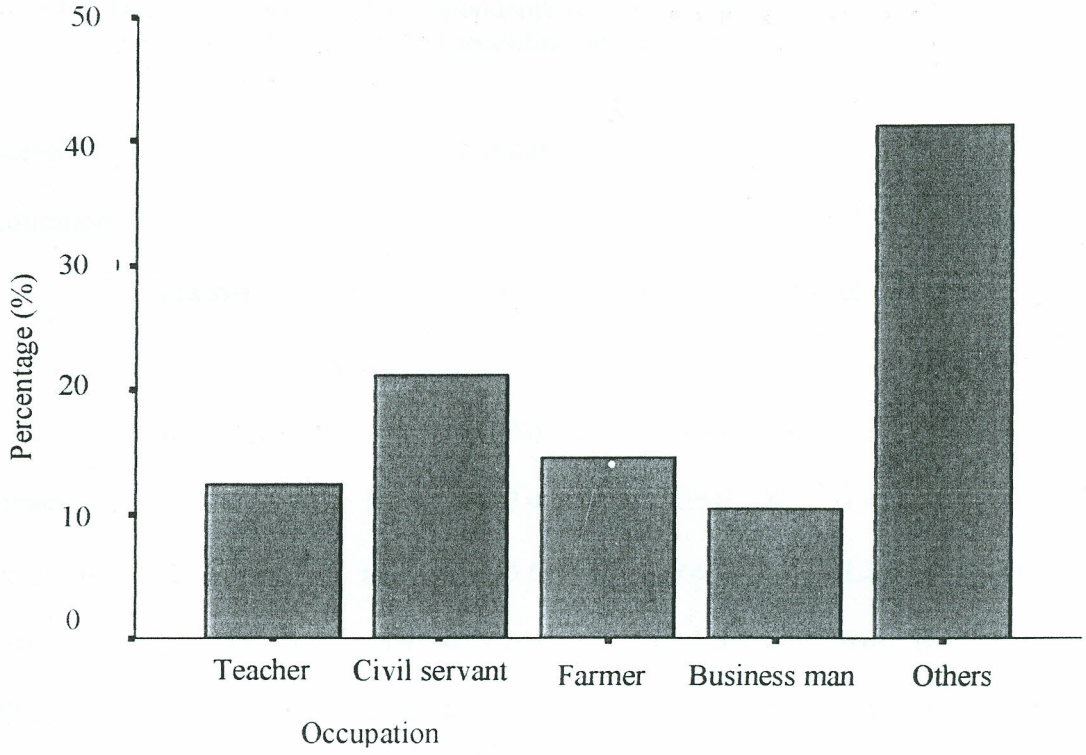

Figure 4.4: Occupation distribution among respondents showing their economic activities between October and December 2005.

In regard to occupations of the respondents, it was observed that most people who had formal employment such as teachers and civil servants had attained secondary education while those who had no formal jobs were primary graduates. However, it was also noted that primary graduates constituted the highest number of respondents with no specified jobs (54%) followed by secondary graduates (42%) with 'others' constituting 4% (Table 4.5). There was significant association between the levels of education of the respondents and their occupational status (χ^2 = 73.160; df = 12; $p<0.05$), suggesting that people with post secondary education were more likely to have permanent employment and therefore being able to have better income hence afford antiretroviral strategy.

Table 4.5: Occupation status of the respondents visiting HIV and STI clinic at Thika District Hospital distributed according education attained.

Level of Education	Occupation										Total	
	Teacher		Civil Servant		Farmer		Businessmen		Others			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Primary	20	31.3	9	11.4	27	47.4	11	25.6	80	54.4	147	37.6
Secondary	42	65.6	54	68.3	26	45.6	30	69.8	62	42.2	214	54.9
Tertiary	2	3.1	7	8.9	0	0.0	1	2.3	0	0.0	10	2.6
Others	0	0.0	9	11.4	4	7.0	1	2.3	5	3.4	19	4.9
Total	64	100	79	100	57	100	43	100	147	100	390	100

4.2 Income Levels and its Regularity.

4.2.1 Income levels.

Of the total respondents sampled (n=390), about 84% earned less than Kshs 10,000 per month with only 16% having an income of more than Kshs. 10,000 per month (Table 4.6), meaning that most of the people with HIV and AIDs and on antiretroviral therapy strategy were low income earners, implying that they could not afford the three components of antiretroviral therapy strategy.

Table 4.6: Income distribution among respondents attending HIV and STI clinic at Thika District Hospital from October to December 2005.

Monthly Income (Kshs.)	Frequency (n)	Proportion (%)
<10,000	326	83.5
>10,000	64	16.5
Total	390	100.0

An interesting observation made was that most females (95%) earned less than Kshs10,000 while most of their male counterparts (70%) earned more than KShs10,000 (Table 4.7). This suggests that women were poorer than men, meaning that they lacked resources necessary for access and utilisation of antiretroviral therapy strategy. Of special concern were the disparities in income amongst various occupations. Most teachers (68%) and civil servants (71%) had an income of more than KShs10,000 per month while only 9% of farmers, 13% of businessmen and 6% others earned the same amount per month. Most farmers (91%), businessmen (87%) and others (84%) got less than Kshs. 10,000 while only 32% among teachers and 29% of civil servants had less than the same amount per month (Table 4.8). There was significant association between respondents' occupations and their income levels (χ^2=77.398; df = 4; $p<0.05$), suggesting that participants occupation influenced the amount of their income. It also means that those people who were salaried such as teachers and civil servants had better incomes implying that they are more likely to afford the antiretroviral strategy.

Table 4.7: Income distribution of the respondents attending HIV and STI clinic at Thika District Hospital according to their sex.

Income (Kshs)	Sex				Total	
	Male		Female			
	(n)	(%)	(n)	(%)	(n)	(%)
< 10,000	122	69.7	204	94.9	326	83.6
> 10,000	53	30.3	11	5.1	64	16.4
Total	175	100	215	100	390	100

Table 4.8: Distribution of income levels among various occupations of the respondents attending HIV and STI clinic at Thika District Hospital between October and December 2005.

Income (Kshs.)	Occupation										Total	
	Teacher		Civil Servants		Farmer		Businessmen		Others			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
<10,000	17	32.1	26	28.9	58	90.6	47	87.0	121	93.8	326	83.6
>10,000	36	67.9	64	71.1	6	9.4	7	13.0	8	6.2	64	16.4
Total	53	100	90	100	64	100	54	100	129	100	390	100

With reference to education levels, 84%, 90%, 0% and 47% of primary, secondary, tertiary graduates and 'others' had an income of less than Kshs10,000 per month respectively while 16%, 10%, 100% and 53% of primary, secondary, tertiary graduates and 'others' respectively had more than Kshs10,000 per month (Table 4.9).

There was significant association (χ^2 = 56.665;df = 3; p<0.005) between income levels and education achievements of the participants The trend showed that people with high education level such as tertiary graduates had more income than 'others' suggesting that they are more likely to afford antiretroviral strategy.

Table 4.9: Income distribution among respondents attending HIV and STI clinic at Thika District Hospital between October and December 2005 according to their education levels.

Income(Kshs)	Occupation								Total	
	Primary		Secondary		Tertiary		Others			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
<10,000	124	84.4	193	90.1	0	0	9	47.4	326	83.6
>10,000	23	15.6	21	9.9	10	100	10	52.6	64	16.4
Total	147	100	214	100	10	100	19	100	390	100

4.2.2 Regularity of Income.

Of major concern was the high proportion of the respondents who had no regular income (57%) with only about 43% having regular and guaranteed income (Fig 4.5) meaning that most people could not afford nor sustain the antiretroviral therapy strategy.

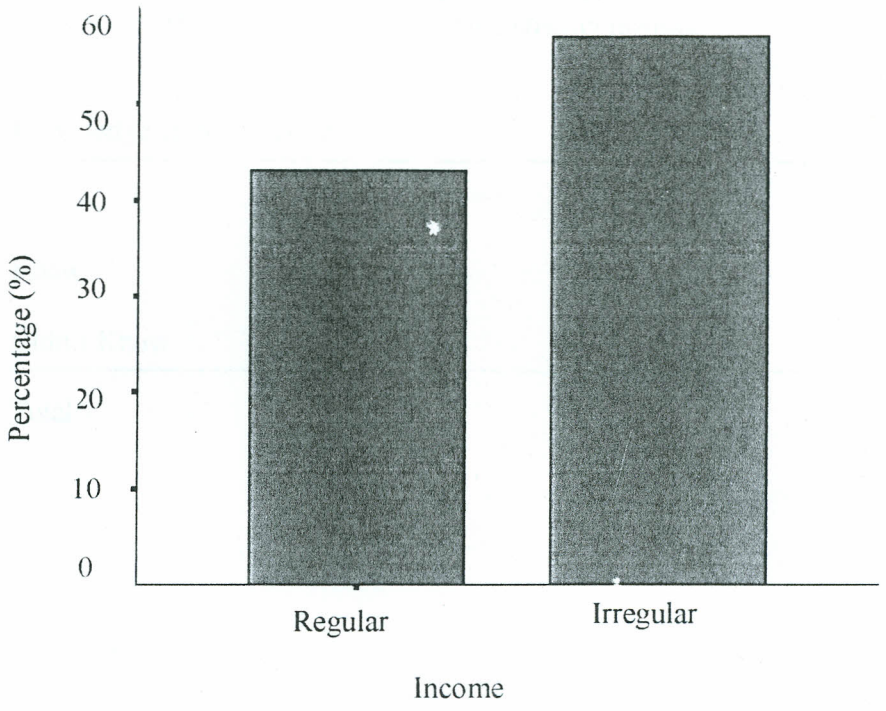

Figure 4.5: Regularity of income for respondents attending HIV and STI clinic at Thika District Hospital between October and December 2005.

4.3 Healthy Living.

4.3.1 Dietary Intake.

Although a large proportion (88%) of the respondents knew the advantages of a balanced diet with only 12% a significant large proportion could not afford at least three lacking the information (Table 4.10). Despite this finding, a significant large proportion of 42% afforded only 2 meals, 11% only one while only 5% afforded 4 and 42% three meals (Figure 4.6). This suggests that the majority of the population was unable to feed on the mandatory and ideal three balanced meals (Fig. 4.6) which is a major element of the antiretroviral therapy strategy.

Table 4.10: Knowledge on advantages of a balanced diet by respondents attending HIV and STI clinic at Thika District hospital.

Knowledge on balanced diet	Proportion (n)	Percent (%)
Knew	343	88
Didn't Know	47	12
Total	390	100

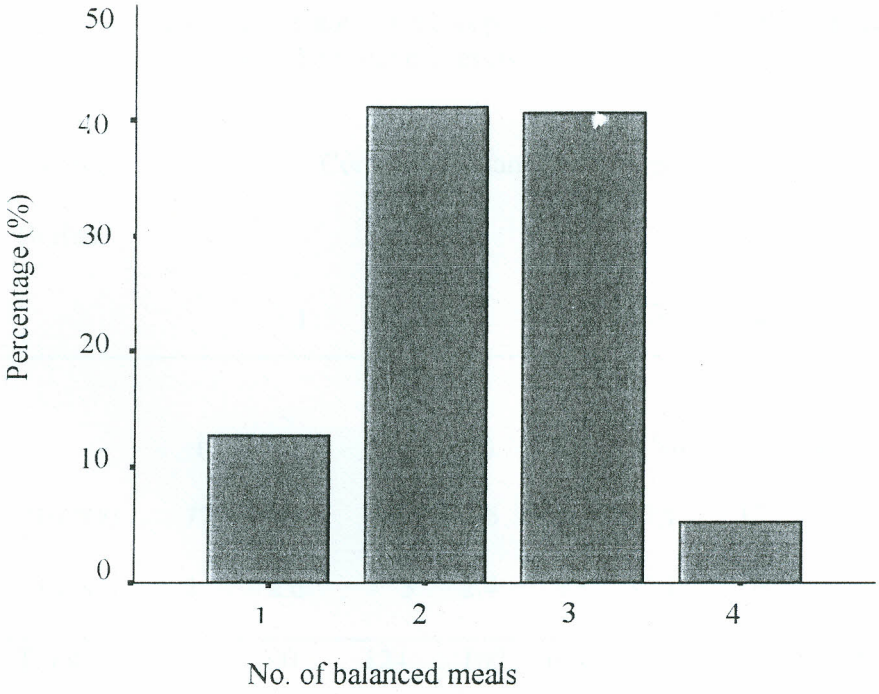

Figure 4.6: The number of balanced meals taken by respondents attending HIV and STI clinic at Thika District Hospital between October and December 2005.

It was observed that a large proportion (97%) of respondents who had only one balanced meal per day, had an average income of less than Kshs.10,000 while only 3% earned more than Kshs10,000. Of the total respondents who had two balanced

meals per day, 98% earned less than Kshs10, 000 per month with the remaining 2% earning more. However, a sizable proportion of about 33% of those who had three balanced meals per day earned more than Kshs10, 000 per month with those earning less than Kshs10, 000 constituting 67% (Table 4.11). Significant statistical association was observed between the average income per month and the number of balanced meals taken by the respondents per day (χ^2 = 28.381; df = 3; $p<0.05$).This trend implies that the higher the income of the respondents, the higher the frequency of balanced meals taken per day.

Table 4.11: Number of balanced meals per day consumed by the respondents in relation to their income levels.

Income (Kshs)	Consumed balanced meals per day								Total	
	1		2		3		4			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
<10,000	77	97.4	121	97.6	111	67.1	17	73.9	326	83.6
>10,000	2	2.6	3	2.4	53	32.1	6	26.1	64	16.4
Total	79	100	124	100	164	100	13	100	390	100

4.3.2 Water used at household level

A large proportion of respondents (67%), did not treat their domestic water before drinking or other usage with only 33% taking the precaution (Fig. 4.7), suggesting that majority were at risk of contracting waterborne diseases such as cholera, dysentery and diarrhoea all of which are opportunistic infections.

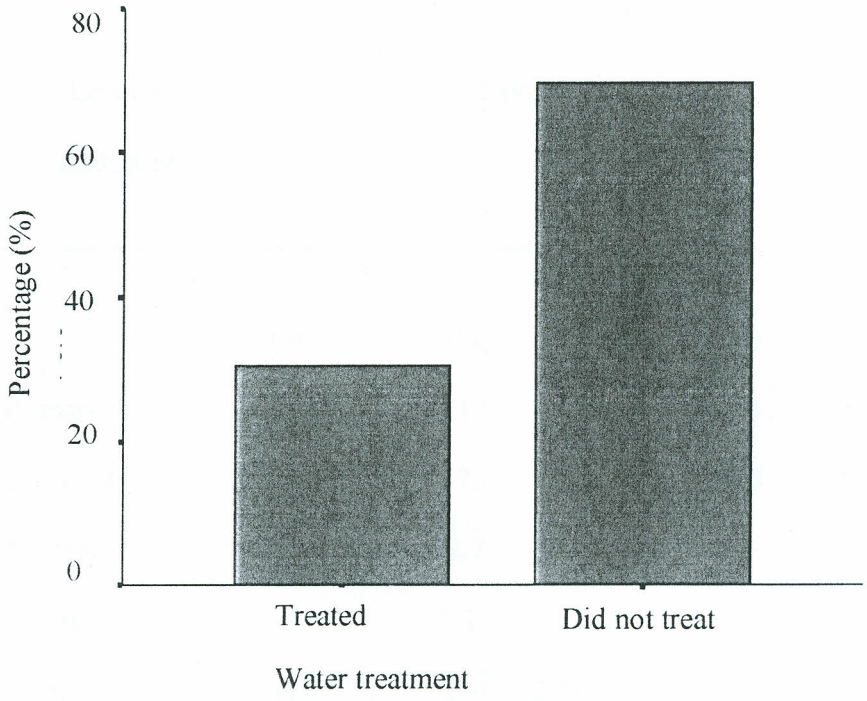

Figure 4.7: Responses on water treatment.

Of special interest, was the significant statistical association between education levels of the respondents and treatment of domestic water (χ^2=21.868; df =3; p< 0.05). Most of the respondents who did not treat their domestic water were secondary graduates (54%), followed by primary ones (40%), 'others' constituted about 4% while tertiary graduates constituted only 2% (Table 4.12) implying that education was a factor in determining whether respondents treated their domestic water.

Table 4.12: Interview responses on water treatment in relation to education by patients attending HIV and STI clinic at Thika District Hospital between October and December 2005.

Level of Education	Response				Total	
	Yes		No			
	(n)	(%)	(n)	(%)	(n)	(%)
Primary	35	31.5	112	40.1	147	37.6
Secondary	64	57.7	150	53.8	214	54.9
Tertiary	3	2.7	7	2.4	10	2.6
'Others'	9	8.1	10	3.5	19	4.9
Total	111	100	279	100	390	100

4.3.3 Personal hygiene

A large proportion of the population sampled (92%) knew that observing personal hygiene was beneficial to their health while a very small proportion of about 8% lacked the information (Fig.4.8).Similarly, a large proportion (66%) actually practised basic personal hygiene habits such as washing hands after visiting toilets with only about 34% not practising (Table 4.13). However, it was observed that most of the respondents who never practised basic hygiene habits were primary school graduates who constituted about 64%, followed by those who had secondary education (31%), others were only about 5% while none was a tertiary graduate (Table 4.14). This implied that people with low education levels never observed personal hygiene probably due to lack of knowledge on its benefit, suggesting health education campaigns targeting this group. Significant statistical association was observed

between education levels and behaviour on personal hygiene (χ^2 = 65.096; df = 3; $p<0.05$).

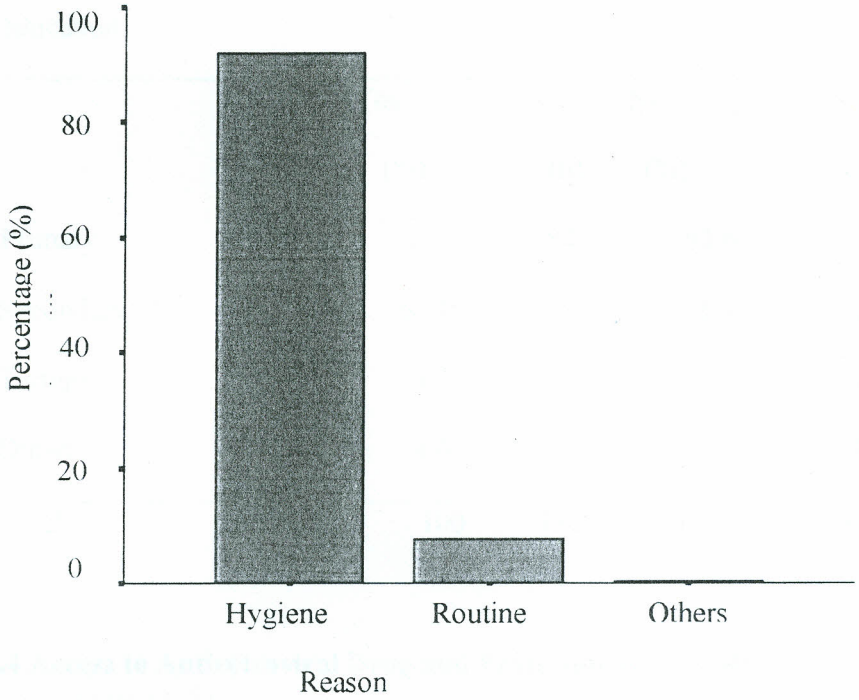

Figure 4.8: Reasons given by the respondents visiting HIV and STI clinic at Thika District Hospital on why they washed their hands after visiting the toilet.

Table 4.13: Practice of basic personal hygiene by respondents

Personal Hygiene	Proportion (n)	Percent (%)
Practised	258	66
Not Practised	132	34
Total	390	100

Table 4.14: Practice on basic personal hygiene by patients visiting HIV and STI clinic at Thika District Hospital between October and December 2005 according to their levels of education.

Level of education	Practice on personal hygiene				Total	
	Yes		No			
	(n)	(%)	(n)	(%)	(n)	(%)
Primary	63	24.4	84	63.6	147	37.6
Secondary	173	67.1	41	31.1	214	54.9
Tertiary	10	3.9	0	0	10	2.6
Others	12	4.6	7	5.3	19	4.9
Total	258	100	132	100	390	100

4.4 Access to Antiretroviral Drug and Professional counselling

4.4.1 Access to drugs

A large proportion (94%) of the population sampled identified public hospitals as their source of drugs, 'others' constituted only 5% and a very small proportion of about 1% bought from private pharmacies (Fig.4.9). However, it was discovered that a large proportion (91%) of the respondents sometimes failed to travel to the District hospital for the drugs with only 9% being able to do so regularly (Table 4.15). This implied that most of the respondents did not adhere to the prescribed drug regiment which is vital for successful antiretroviral therapy. It was also evident that most (41%) respondents were travelling for between 31 - 40 kilometres two way to collect the drugs from the District Hospital with 29% travelling for 41 - 50 kilometres while 10% travelled for 21 - 30 kilometres 9% for 11 – 20 kilometres, 7% for 1 – 10 kilometres while about 4% did over 50 kilometres (Table 4.16) However, most (99%)

of the respondents who never collected the drugs at any one time (n=354) cited lack of money for fare as the reason with a negligible 1% saying it was due to other commitments (Table 4.17), suggesting that economic status of the respondents was a major contributing factor in as far as access to drugs was concerned.

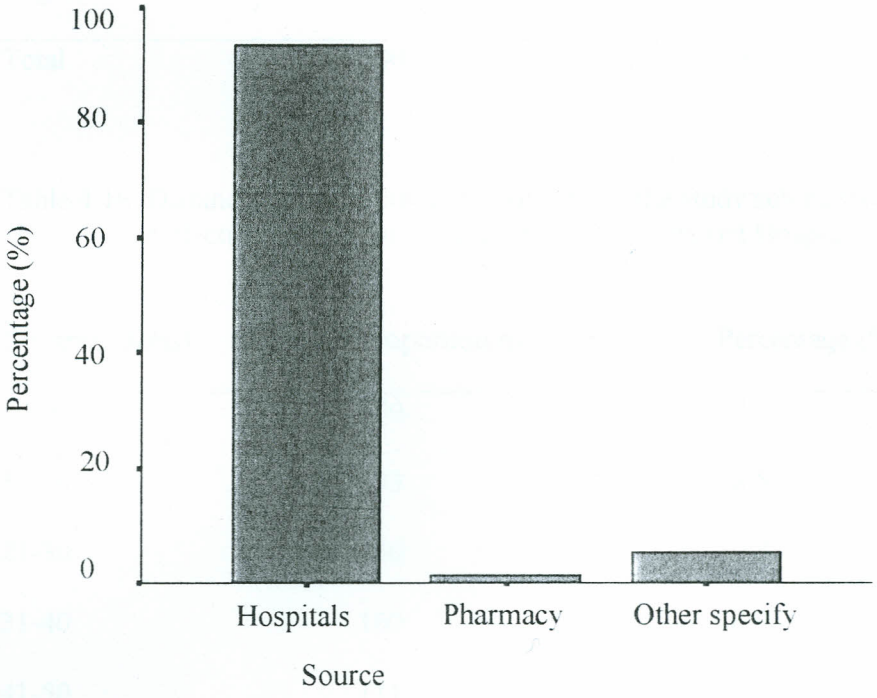

Figure 4.9: Source of antiretroviral drugs for patients who were attending HIV and STI clinic at Thika District Hospital between October and December 2005.

Table 4.15: Responses given by the respondents on whether or not they regularly accessed antiretroviral drugs from the District Hospital.

Access to drugs	Frequency (n)	Proportion (%)
Irregular	354	91
Regular	36	9
Total	390	100

Table 4.16: Distances to and from home covered by the study subjects while collecting antiretroviral drugs from Thika District Hospital.

Distance (Kms)	Proportion(n)	Percentage (%)
1-10	30	7.7
11-20	33	8.5
21-30	40	10.3
31-40	160	40.9
41-50	111	28.5
> 50	16	4.1
Total	390	100

Table 4.17: Reasons advanced by the study subjects as to why they failed to collect antiretroviral drugs from Thika District Hospital.

Reason	Proportion (n)	Percentage (%)
Lack of money for fare	385	98.6
Too much work	1	0.3
Other commitments	4	1.1
Total	390	100

4.4.2 Access to professional counselling

About 61% of those interviewed could not access professional counselling while 39% were able to access the service (Fig. 4.10). It was also observed that majority (60%) of those who could not access it (n=236) was due to lack of information on health benefits of this service while about 40% cited non-availability (Table 4.18), suggesting that most of the respondents did not access and actually did not utilise this service which is critical especially in control of stress in HIV and ADS patients.

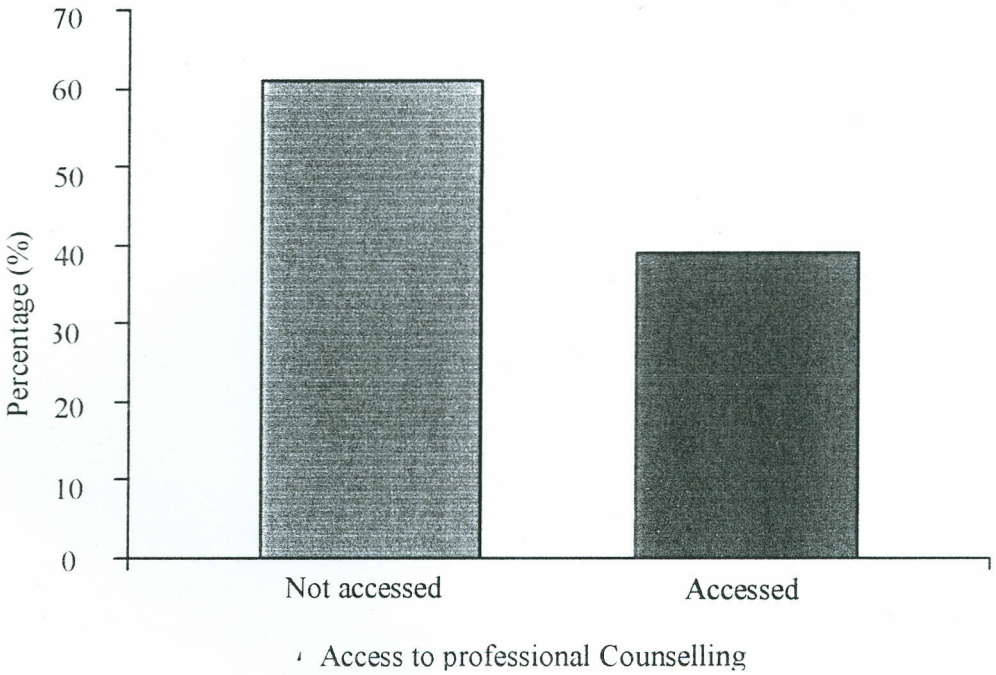

Figure 4.10: Regularity on accessibility of professional counselling by patients attending HIV and STI clinic at Thika District Hospital between October to December 2005.

Table 4.18: Reasons given by patients visiting HIV and STI clinic at Thika District Hospital between October and December 2005 on why they could not access professional counselling.

Reason	Frequency(n)	Proportion (%)
Non-availability	94	40
Lack of information	142	60
Total	236	100

CHAPTER 5: DISCUSSION

5.1 Demographic characterisation

5.1.1 Distribution of respondents by age

The dominant age group among the respondents ranged from 18-49 years. This shows that HIV and AIDS is affecting the most productive segment in the society. Similar findings have been reported in all the provinces of Kenya by the MOH (2003) who studied household expenditures on health. While investigating costs and consequences of HIV and AIDS treatment in India, Mead *et al.* (2004) indicated that the reasons for this trend are because young people are highly sexually active and more interested on their health status compared to old people.

5.1.2 Distribution of the respondent by sex

The findings of this study indicated that the females were more than males. This means that more women than men are infected with HIV and AIDS and are more likely to seek for medical attention than men. It also implies that females are more interested in knowing their health status than males. The results agree with studies done by the Government of Kenya (2003) in its survey on demography and health in some selected Districts .Identical findings were reported by Oyore (2003) in his study of HIV and AIDS voluntary counselling and testing services in Nairobi province of Kenya. This implies that men are economically well endowed than women, thereby putting the later in a vulnerable position in as far as accessing and utilizing antiretroviral therapy is concerned. These results are in agreement with the findings of WHO, UNAIDS (1988) while investigating AIDS strategy options in Corte D,voire where over 70% of women respondents were low income earners.

5.1.3 Distribution by marital status

A half (50%) of the sampled population were actually married, a finding which implies that the families affected have an added burden of paying for the antiretroviral therapy strategy on top of other responsibilities such as food and school fees. They also seek medical attention so as to survive longer and take care of the family as opposed to the other categories who may adopt a 'don't care' attitude. These results agree with the findings of research done by Institute of Medicine (2005) on antiretroviral scale up in resource constrained settings in U.S.A. where over 65% of those interviewed were actually married.

5.1.4 Levels of education

Secondary school graduates were dominant (55%) among the respondents while those with tertiary education were least (2.8%).This shows that only a small segment of the total population has studied up to the tertiary level. It also indicate that most of the sampled population have formal education and therefore education may not be a drawback to control of HIV and AIDS but due to other factors such negative attitude and lack of resources for treatment. Similar findings were reported by Gatimu (2005) in her study of factors influencing the use of antiretroviral drugs in the prevention of mother to child transmission of HIV and AIDS in Nairobi, Kenya. Mando (2005) in her studies on perceptions on HIV and AIDS by primary school pupils in Thika Municipality, Thika District, explained that this trend is due to rising levels of literacy among Kenyans.

5.1.5 Distribution by occupation

Findings from this study indicate that occupation tended to influence income levels. For example, the highest number of respondents (112), 28.7% in high-income group was civil servants. This is because their salaries are regular and guaranteed every month. On the contrary, 'others' who are mainly self-employed form the bulk (119), 30.5% of the low-income earners. Most of the population of Thika district comes from rural areas where there no salaried jobs. This implies that they did not have regular income and were most likely unable to afford and to access ARV drugs and aspects of healthy living. Similar findings were reported by Joseph (2001) in his studies among outpatients in Florida, U.S.A on general health issues related to HIV and AIDS and antiretroviral therapy.

5.2 Income Levels and its regularity

5.2.1 Income levels

For the purposes of analysis, the income levels were divided into two strata. Those whose income was below Kshs. 10,000 per month were classified, as low-income earners while those whose income was above Kshs. 10,000 were perceived to be high-income earners. Majority (83.5%) of all respondents interviewed were in low income group. This is further confirmed by the response in a question on this aspect whereby 352 (91%) of all the study subjects said they could not access and therefore utilize the three components due to lack of money. Results agree well with those of a study done by WHO (2003) on perspectives and practice in antiretroviral therapy treatment in selected Districts of Uganda where over 75% of the respondents were low income earners and cited high poverty levels as the major reason.

5.2.2 Regularity of income

About 57% of all the respondents had no regular income while only about 43% had regular income. All the three components of antiretroviral therapy are accessed at a cost. The access and utilization should be sustained and continuous for it to be effective. Irregular income means that most of these people are unable to sustain the supply of drugs, balanced diet and healthy living. Utilization is therefore hindered. Similar findings were reported by MOH (2001) in its study on household health expenditure and utilization where over 90% of all households involved had no regular income and cited high unemployment levels as the main cause.

5.3 Healthy living

5.3.1 Dietary Intake

Balanced diet is a major component of antiretroviral therapy. It is often argued that a well balanced diet forms 50% of any treatment regime. The result of this study indicate that majority of the respondents had knowledge of a balanced diet. They could also identify the three major ingredients of the same namely: proteins, vitamins and carbohydrates. However, a majority did not have more than two meals a day. These meals were also not well balanced. The reason given by most (97.1%) of them was lack of money. This affected access and utilization of a balanced diet which forms a critical component of antiretroviral therapy. These findings are at par with those of Tony and Brues (2004) in their study of the effect of food and nutrition on antiretroviral therapy in U.S.A in which over 70% of all participants could not afford a well balanced diet. The amount of money put on any undertaking will most likely determine the quality of the outcome. In this case, majority (62.8%) of all the respondents spent only Kshs. 2,000 per month on balanced diet while compared to

0.9% who spent more than Kshs.10,000. This means that most of them were not likely to afford quality and well balanced diet. WHO (2005) reported similar findings in its study on nutrition and food supplements in developing countries.

5.3.2 Water consumption at household level

Quality of domestic water is a major determinant of healthy living. In this study, the quality of water was measured in terms of whether it was treated or not. Majority, (67.9%) did not treat their domestic water at all. Most probably they did not have money to purchase the necessary disinfectants such as chlorine due to their low-income levels. This implies that majority did not have access to safe, clean drinking water and therefore at risk of contracting water borne diseases such as Cholera and Typhoid thereby further complicating their conditions .Access and utilization of this vital antiretroviral therapy strategy component was not guaranteed. Identical findings were reported by WHO (1982) in Dakar City, Senegal in its study on the benefit to health of safe and adequate drinking water where over 90% of all respondents interviewed could not access safe drinking water.

5.3.3 Personal Hygiene

Majority of those in high-income group used modern flash toilets. Overall majority of respondents used traditional pit latrines. Given that most of them are rural folks, it is assumed that these toilets are not well maintained. The most possible reason is that they could not afford better ones due to their economic inability. This predisposes them to communicable diseases such as diarrhoea. It further complicates their condition. It was further observed that basic personal hygiene habits such as washing hands after visiting toilets were observed more by high-income earners than low-

income earners. This was due to the high level of education and information on healthy living. These findings are in conformity with those of Samanta (1993) in his study of demonstration latrines in Mansehra District of Pakistan. Similar findings were also reported by Belkahadir (1990) in his studies on development of rural sanitation in Morrocco.

5.4 Access to drugs and professional counselling

5.4.1 Access to drugs

There was no significant association between source of drugs and income levels. Most of the respondents got their antiretroviral drugs from Thika District Hospital which is the local referral hospital. Only Government District, Provincial and National referral hospitals were allowed to stock and dispense the drugs. While mission hospitals were allowed limited stocks and controlled dispensing, none had the stocks in Thika District. Given this arrangement, it therefore follows naturally that both low and high income groups had no much choice to make on where to source for the drugs. Majority (40.9%) travelled between 31 and 40 kilometres (one way) from their homes to the source of drugs. This is a long journey and since the road networks in rural areas are poor, it is time consuming and tiresome. These factors combined, may contribute to the inability and unwillingness to go for the drugs and thereby negatively affecting there utilization. Distance between a health facility and health care seeking behaviour have been proved to be very much associated (KDHS 2003). These findings agree with those reported by GOK (2003) in a survey on household health expenditure where over 75% of respondents travelled over 100 kilometres on average for health care.

The average cost of drugs per month was Kshs.500 for most of the respondents. Again, this was due to the Government policy that the drugs be availed to the patients at a uniform rate of Kshs. 500. Some of the respondents had the drugs for less than Kshs. 500. This was made possible by the Government policy on waivers for user fees where patients cannot afford. Given that most of the respondents were in low-income group and had other expenditures to make such as food, it is most likely that these drugs could not be prioritized. Having been relegated to second position, their utilization is negatively affected. The findings are in agreement with those of studies done by Chris *et al.* (1991) while investigating health and social mobility among young adults in London where about 67% of the respondents said that health care does not come first in their priority of needs.

Most of the respondents paid between Kshs61 and Kshs80 (one way). By all means this is a large amount of money compared to the respondent's low incomes as reported earlier in this study. It was clearly pointed out that a massive (91%) of all the respondents failed to travel for the drugs at one time or the other. 98% of these said it was due to lack of money for fare even if they were to be waived. The most obvious reason is their low income thereby limiting their access and utilization. These findings are supported by those of a study done by Moses *et al.* (2002) on response of sexually transmitted infections on treatment and prevention in Nairobi and Nakuru in which they reported that economically marginalized people wait for more than two weeks to seek treatment due to lack of financial resources.

5.4.2 Access to professional counselling

Counselling forms an important part of antiretroviral therapy. This is because HIV and AIDS is a traumatizing condition. The patient therefore needs professional counselling to prepare them to live with the disease. A majority 60% said they could not access it because it is offered mainly in private institutions. Most of those who could access it complained of exorbitant charges averaging about kshs. 2,500 per session. This is therefore a hindrance to utilization of this important aspect of antiretroviral therapy. These results agree with those of Grace (2004) in her study of how health budgets affect the health seeking behaviour among slum dwellers of Mukuru Fuata Nyayo, Makadara Division of Nairobi where she established that over 50% of those interviewed could not access rehabilitative health services such as professional counselling.

In summary, results of this study support WHO (2005) literature which suggests that people living with HIV and AIDS and on antiretroviral therapy should be helped to access and utilize it by way of using the available infrastructure at grass root level, resources be sought and health service provision be strengthened.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of the findings

The study problem had been identified as the low uptake of ARV strategy by people living with HIV and AIDs in Thika district. At the time of the study, only about 1,000 people out of a possible 60,000 were on this strategy. The study explored factors influencing access and utilisation of antiretroviral therapy strategy among people living with HIV and AIDs in Thika District, Central province of Kenya with a view of coming up with recommendations to improve access and utilisation of the strategy. It was established that most of the respondents were unable to access and therefore unable to utilise the strategy.

6.2 Conclusions

i. Most of the respondents were low income earners and didn't have regular income.

ii. Most respondents couldn't access antiretroviral drugs due to lack of fares and long distances between their homes and the District hospital.

iii. A large proportion of the sampled population was unable to afford a balanced diet due to high poverty levels.

iv. Most people could not access major elements of healthy living due to lack of financial recourses.

6.3 Recommendations

i. All stakeholders in the country should come up with strategies to economically empower PLWHA and on antiretroviral therapy so that they can

afford and utilize its three basic components. For example formation of self-help groups.

ii. The government should come up with an elaborate programme of providing free food supplements to those people so that their nutritional requirements are met.

iii. The government should decentralize stocking and prescription of antiretroviral drugs from the District Referral Hospitals to Health Centres and dispensaries for easy access by people in rural areas.

iv. Since this strategy involves several government ministries such as Health, Agriculture, Culture and social services, an inter-sectoral steering committee should be formed to formulate policy with clear goals and objectives on anti-retroviral strategy and oversee its implementation.

6.3.1 Suggestions for further research

i. This study did not involve people living with HIV and AIDS and on antiretroviral therapy with special needs such as the blind and deaf. A study can be carried out for comparison with this one.

ii. Similar studies can be carried out in other districts in Kenya to determine effect.

iii. Research for reliable sources of financing of services and medicine for antiretroviral therapy.

iv. A similar study on people living with HIV and AIDs and not on ART strategy could be carried out.

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APPENDIX 1
QUESTIONNAIRE FOR PLWHA AND ON ART STRATEGY

Questionnaire No. _____ Date of interview_____

CODE _____

For supervisor

Are all questions filled? _____

Are the respondents reasonable? _____

Is the questionnaire ready for keying? _____

A. DEMOGRAPHIC INFORMATION

1) For how long have you lived in Thika District?

   1 = <5years 2 = > 5 years

2) How old are you?_____

3) Sex of respondent

   1 = Male 2 = Female

4) What is your marital status? _____

   1 = Single 2 = Married 3 = Widowed

5) What is your highest level of education? _____

   1 = Primary 2 = Secondary 3 = Tertiary 4 = Others

6) What is your religion?_____

   1 = Christian 2 = Muslim 3 = Other specify _____

7) Type of housing _____

   1 = Permanent 2 = Semi permanent 3 = Temporary

8) (a) What is your occupation? _____

   1 = None 2 = professional 3 = Skilled worker 4 = Unskilled

   (b) How much do you earn per month? _____

1 = <10,000/= 2 = > 10,000/=

(c) Is your income regular?

1 = Yes 2 = No

(d) How much do you spend on food per month on average? _____

1 = 2,000 2 = 4,000 3 = 6,000 4 = 8,000 5 = 10,000 and above

B. ARV DRUGS

9) (a) When did you learn about ARV drugs? _____

1 = 6months ago 2 = 1 year 3 = 1 ½ years 4 = 2years 5 = 2years and above

(b) What is your source of ARV drugs? _____

1 = Hospital 2 =Pharmacy 3 = Other specify _____

(c) What is the average cost of ARV drugs per month? _____

1 = <500/= 2 = 500/= 3 = 1,000/= 4 = 1,500/=

(d) Do you take the drugs as prescribed by your physician? _____

1 = Yes 2 = No

If no, what is the reason? _____

1 = Lack of money 2 = Non availability 3 = Side effects 4= Others

(e) Do you think they benefit you? _____

1 = Yes 2 = No

Give reasons for either answer _____

1 = Infection decrease 2 = Quality of life improves 3 = No idea

(f) Do the drugs have any side effects?_____

1 = Yes 2 = No

If yes what are some of the side effects? _____

1 = Anorexia 2 = Vomiting 3 = Diarrhoea 4 = All of them

C. SANITATION AND HEALTH

10) What is your main source of water for domestic use? _____

(a) 1 = rain 2 = borehole 3 = river 4 = tap 5 = other specify

(b) How far is your home from the water source? _____

1 = <500m 2 = 500m – 1km 3 = 1-2km 4 = >2km

(c) Do you treat your domestic water? _____

1 = Yes 2 = No

11) (a) What type of toilet does your household use? _____

1 = Flush toilet 2 = Traditional pit latrine 3 = ventilated improved latrine

4 = Bush or field 5 = other

(b) Do you wash your hands after visiting latrine/toilet?

1 = Yes 2 = No

If yes, why _____

1 = Hygiene 2 = Routine 3 = Others

(c) When did you get sick?

1 = < 5years ago 2 = >5years ago.

(d) Do you smoke?

1= Yes 2 = No

If yes, why? _____

1= Prestige 2 = Peer Pressure 3 = Stress 4 = Others

(e) Do you take alcohol?

1 = Yes 2 = No

If yes, why? _____

1= Prestige 2 = Peer Pressure 3 = Stress 4 = Others

D. KNOWLEDGE, ACCESSIBILITY AND UTILIZATION OF BALANCED DIET

12) (a) Have you heard of the term "balanced diet"?

1 = Yes 2 = No

(b) If yes; what are your beliefs concerning balanced diet? _____

Which foods can you place in the following categories?

Proteins	Vitamins	Fruits	Carbohydrates

13) (a) How many meals do you have in a day? _____

1 = 1 2 = 2 3 = 3 4 = 4

(b) If less than 2, why? _____

(c) Is your diet balanced? _____

1 = Yes 2 = No 3 = No idea

Knowledge on opportunistic infections.

14) (a) Do you know what opportunistic infections are? _____

1 = Yes 2 = No

(b) If yes; list five of them

1) _____

2) _____

3) _____

4) _____

5) _____

15) How often do you get these opportunistic infections? _____

1 = after 1 month 2 = 3 months 3 = after 6 months

4 = 9 months and above

16) What do you think is the source of these infections? _____

1 = HIV status 2 = Curse 3 = Normal illness 4 = Witchcraft

5 = Others

E. INFORMATION ON ACCESSIBILITY AND UTILIZATION OF ARV DRUGS

17. What is the distance between your home and the District Hospital where you collect ARV drugs?_____

1 = 1-10kms 2 = 11-20kms 3 = 21- 30kms 4 = 31 = 40kms

5 = 41 – 50kms 6 = Beyond 51kms

18. How much do you pay for fare to and from home?_____

1 = 10 – 20Shillings 2 = 21 – 40Shillings 3 = 41 – 60Shillings

4 = 61 – 80Shillings 5 = 81 – 100Shillings

6 = 101Shillings and above

19. Do you fail to travel to collect the drugs from the clinic at any one time?_____

1 = Yes 2 = No

20. If no, what is the reason?_____

1 = Lack of money for fare

2 = Too much work at home

3 = other commitments

21. Do you know that the major components of an effective antiretroviral therapy are a well balanced diet, ARV drugs and healthy living all of which must be regular?_____

    1 = Yes 2 = No

22. If yes, are you able to access and afford them?_____

    1 = Yes 2 = No

23. If answer to the above is 'No' what are the reasons? _____

    1 = Lack of money

    2 = Lack of information

    3 = Unavailability

    4 = Lack of accessibility

    5 = Others.

24. HIV/AIDS is a Condition that needs regular professional counseling

    Do you have access to it?

    1 = YES 2 = NO

25. If the answer to the above question is "NO", what are the reasons?

    1 = Non-availability of the service.

    2 = Lack of Information on the service.

26. If the answer is "Yes", is there any cost involved?

    1 = Yes

    2 = No

27. If there is any cost involved, what is the average per month?

    1 = Ksh500 – Kshs1000

    2 = Kshs1001 – Kshs1500

    3 = Kshs1501 – Kshs2000

4 = Kshs2001 – Kshs2500

5 = Over Kshs2500

APPENDIX 2

MINISTRY OF EDUCATION, SCIENCE & TECHNOLOGY

Telegrams: EDUCATION", Nairobi

Fax No.
Telephone: 318581
When replying please quote

REPUBLIC OF KENYA

JOGOO HOUSE
HARAMBEE AVENUE
P. O. Box 30040
NAIROBI
KENYA

MOEST 13/001/35C 446/2

30th August, 2005

Kenneth Kibaara Rucha
Kenyatta University
P.O. BOX 43844
NAIROBI

Dear Sir

RE: RESEARCH AUTHORIZATION

Please refer to your application for authority to carry out research on "Effect of income levels on utilization of Anti-retroviral therapy strategy on people living with HIV/AIDS". I am pleased to inform you that you have been authorized to carry out research in Thika District for a period ending 30th January, 2006.

You are advised to report to the District Commissioner and the District Education Officer Thika District before embarking on your research project .
Upon completion of your research project, you are expected to submit two copies of your research report to this Office.

Yours faithfully

B. O. ADEWA
FOR: PERMANENT SECRETARY

Cc
The District Commissioner
Thika District

The District Education Officer
Thika District

APPENDIX 3

MINISTRY OF HEALTH

phone Thika, (0151 - 21621/2 Fax: 21778

Correspondence Should be addressed
he MOH
en replying please quote

No. .....
And date/

THIKA DISTRICT HOSPITA
P.O. Box 227
THIKA.

Date .....

26/8/2005

RE: TO WHOM IT MAY CONCERN

KENNETH K. RUCHA

This is to authorize you to carry out research in our STI/HIV clinic. You are advised to observe all ethical issues while conducting your study. The permission will cover the period between September 2005 to January 2006.

DR. M. W. KARIUKI
D.M.O.H

THIKA.