VOLUNTARY COUNSELING AND TESTING IN HIV INFECTION:

EVALUATION OF INDIVIDUAL RISK PERCEPTION IN NAIROBI.

A THESIS SUBMITTED AS PART FULFILMENT FOR THE AWARD OF THE DEGREE OF MASTERS IN PUBLIC HEALTH OF THE UNIVERSITY OF NAIROBI.

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H57 / 7737 / 97

DECLARATION

I, Dr Anne G. Mungai declare that this thesis is my original work and has not been presented to any other University or Institution for purpose of obtaining a degree.

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DEDICATION

This thesis is dedicated to my parents John Njoroge and Mary Wambui, thank you for giving me basic education that has paved way for this achievement. To my husband Peter Mwathi and children Karen, Benson, Fredrick and Naomi, thank you for your support and tolerance during the course.

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LIST OF ABBREVIATIONS

AIC	AIDS Information Centre
AIDS	Acquired Immune Deficiency Syndrome
ARV/ART	Anti-retroviral therapy
AZT	Azidothymidine (Zidovudine)
CDC	Centres for Disease Control
CHW	Community Health Worker
FHI	Family Health International
HIV	Human Immunodeficiency Virus
HIV-1	Human Immunodeficiency Virus Type 1
HIV-2	Human Immunodeficiency Virus Type 2
KEMRI	Kenya Medical Research Institute
KICOSHEP	Kibera Community Self Help Programme
KNH	Kenyatta National Hospital
NACC	National AIDS Control Council
NASCOP	National AIDS/STD Control Program
NCC	Nairobi City Council
NGO	Non-Governmental Organization

PCP	Pneumocystis Carini Pneumonia
PTB	Pulmonary Tuberculosis
RNA	Ribonucleic acid
STD/STI	Sexually Transmitted Diseases/Infections
UNAIDS	United Nations Program on HIV/AIDS
VCT	Voluntary Counselling and Testing
WHO	World Health Organization
S/P	Steady Partner
N/S/P	Non-Steady Partner
WOFAK	Women Fighting AIDS in Kenya

ABSTRACT

This cross-sectional study was designed to evaluate perception of individual's risk of getting HIV infection and risky sexual behaviours among Voluntary Counselling and Testing (VCT) clients relative to their motives for seeking VCT services and their HIV sero-status.

The impact of HIV epidemic continues to be felt in developing countries. In Kenya like many other countries, this affects mainly the 15-49 year age group, which is the most sexually active and economically productive group. This results in reduction in size and experience of the labour force and increases health care expenditure.

The way forward in prevention of HIV transmission is setting realistic priorities that ensure behaviour change among those with the most risky behaviour among others. These interventions include Voluntary Counselling and Testing (VCT), promoting abstinence before marriage and faithfulness to one un-infected partner after marriage. Others include strengthening such programs like control of sexually transmitted diseases (STDs), promoting reduction of sex partners and the correct and consistent use of condoms.

Human behaviour change depends on weighing between perceived risks and benefits of certain behaviour against those of an alternative behaviour. Individual risk perceptions are deeply rooted in a person and are influenced not only by the level of knowledge but also the socio-cultural norms of the individual. VCT services provide information on HIV infection, a motivation based behaviour change, thorough client's risk evaluation and the formulation of a client's specific behaviour change plan.

This study was specifically designed to establish the reasons for seeking VCT services, the individual risk perception of getting HIV infection and evaluate the client's risky sexual behaviour associated with HIV infection. The relationships between the above factors and HIV sero-status of respondents were investigated through a cross-sectional descriptive study.

A total of 301 clients attending the Kenyatta National Hospital (KNH), Mugumo-ini and Sokoni VCT centres were recruited for the study.

The results showed that 244 (81.1%) of the respondents had been involved in sex in the preceding six months and 57 (18.9%) had been in sexual abstinence for over six months. The main reasons for the respondents seeking VCT services were, planning the future (56.8%), client's past sexual risky behaviour (23.9%), worry and curiosity of self-status (20.3%), planning to get married (11.3%) worried about partner's behaviour (10.6%) among other reasons. Statistically significant associations were established between risk evaluation and some reasons of seeking VCT services such as, client's past sexual risky behaviour, worry and curiosity about self status and plan to get married with P values of 0, 0 and 0.04 respectively.

Individual risk perception showed a significant association with HIV sero-status of respondents who were sexually active in the last six months (P value = 0.0288).

Using 17.5 mean score as the cut-off, 150 (61.5%) were scored low risk and 94 (38.5%) were scored high-risk category. Among those scored high risk, 24 (25.5%) were HIV positive and 20 (13.3%) of those scored low risk were HIV positive. However, no statistically significant relationship was established between sexual risk evaluation and HIV sero-status of the respondents.

Individual risk perception of acquiring HIV infection was low (24%) and men were more likely to perceive themselves at high risk of HIV infection than women. Socio- demographic characteristics such as occupation and education level proved to be related to individual risk perception of HIV infection.

Therefore, the government through collaboration of the National AIDS Control Council (NACC) and other stakeholders needs to support and sustain the on going awareness campaign so as to change attitude and improve on individual risk perception of risk of HIV

infection since has been shown to be very low. Laws that enhance and protect the rights of women to empower them to make decisions on HIV testing without fear need to be enacted.

CHAPTER 1: INTRODUCTION AND BACKGROUND INFORMATION

The Human Immunodeficiency Virus (HIV) is the virus that causes AIDS. Two types of HIV are currently known: HIV-1 and HIV-2. Worldwide, the predominant one is HIV-1, while HIV-2 is mainly reported in West Africa. Modes of transmission are the same and they appear to cause clinically indistinguishable AIDS though HIV-2 is not transmitted as readily as HIV-1. There are various sub-types of HIV-1 and varied distribution. Originally, sub-type B was predominant in America and Europe, sub-type E in Thailand and Australia, and sub types A, C and D were common in Africa and India. However, due to viral mutation, most strains can be found everywhere. This is a challenge to maintaining immunity and development of an effective vaccine (FHI, 1999; Mann, 1996; MOH, 2001a).

HIV infection is transmitted from an infected person to a non-infected person via exchange of infective body fluids including blood and its products, organs and tissues.

The commonest mode of transmission is sexual, accounting for over 70% of HIV infections. In Kenya, it accounts for 80% of HIV infection. The virus is passed from an infected person to the uninfected partner during heterosexual (male-female) and homosexual (male-male sex) intercourse. Although the probability of transmitting HIV in a single act of intercourse is low, a number of factors increase the risk of infection. This include the viral load of the infected partner, the presence in either partner of STDs especially those that cause genital ulceration like syphilis, chancroid or herpes, lack of male circumcision or trauma during sex (MOH, 2001a).

Transmission can also occur from exposure to infected blood, blood products or transplanted organs and tissues. This may occur as a result of transfusion of blood not screened for HIV antibodies, reuse of contaminated needles and syringes as in health care setting or intravenous drug use. Blood transfusion in Kenya accounts for 7-10% of HIV infection (MOH, 2001a).

Perinatal transmission occurs when the virus is passed on from an infected mother to her foetus or infant before, during or after birth. The risk of mother to child transmission varies from 15-40% in different countries depending on whether the mothers are given Zidovudine in pregnancy or not. In areas where HIV infected mothers breastfeed their babies, up to 15% of mother to child transmission can be attributed to breastfeeding (FHI, 1999).

In Kenya, perinatal transmission accounts for about 6-10% of HIV infection in low sero-prevalence sites and 30-40% in high sero-prevalence sites (MOH, 2001a).

It is important to note that HIV infection is not transmitted by casual person to person contact as in shaking hands, hugging, touching or casual kissing ("closed mouth kiss"). There is no evidence also that HIV infection can be transmitted through toilets, swimming pools, sharing eating and drinking utensils or insects like mosquitoes. This is demonstrated by absence of many AIDS cases in the 5-14 year age group (MOH, 2001a).

After HIV virus enters the body, it infects and starts to replicate in the person's cells. This triggers the immune system to produce antibodies specific to the HIV virus and is known as sero-conversion. The time between HIV infection and sero-conversion is called the "window period" and is usually 2-12 weeks but may last up to 6 months. During this period the person is infectious but does not test positive on common HIV antibody tests. This is followed by an asymptomatic period, characterized by a positive HIV antibody test but no apparent signs and

symptoms of illness. It may last a few months to 10 years or more. The person is infectious throughout this period (MOH, 2001a).

Subsequently, the individual suffers the HIV/AIDS related illnesses as the body's immune system progressively weakens to allow opportunistic infections and cancers. This period may last for months or years and the person is infectious throughout the period (MOH, 2001a).

1.1 Global HIV Situation

HIV/AIDS is a rapidly growing Public Health problem in Kenya and the world at large. According to UNAIDS 2001, 95% of the 40 million people infected with HIV-1 world wide live in less developed countries, 28.1 million of which are in Sub-Saharan Africa. Statistics showed that 5 million new HIV infections and 3 million deaths from HIV related illnesses occurred worldwide in the year 2001. This gives an estimate of 14 000 new HIV infections per day. Among these, 12 000 are persons aged between 15-49 years, about 50% of whom are women and about 50% of the same are aged between 15-24 years (UNAIDS, 2001).

HIV-1 is now the single largest infectious killer and AIDS is the fourth leading cause of death in the world. It is attacking the most productive part of the population in the poorest countries, thus robbing economies of scarce skills, families of breadwinners and children of parents (MOH, 2001a).

In Sub-Saharan Africa according to the 1997 UNAIDS estimates, adults HIV prevalence was highest in Zimbabwe 26%, Zambia 19%, Malawi 15%, Kenya 12% and Uganda 10% (UNAIDS, 1999).

Thus Zimbabwe has the highest sero-prevalence of HIV infection in Africa and one of the highest in the world. The National Aids Control Program (Zimbabwe) estimated prevalence at 20.3%. Approximately the same number of males and females are infected. The commonest mode of transmission is heterosexual followed by perinatal transmission (FHI, 1999).

More than 70% of AIDS cases are found in age group 20-49 years with the peak age being 20-29 years for females and 30-39 years for males. This indicates that females become infected with HIV earlier than their male counterparts. Statistics indicate that the young women aged 15-19 years are five times more likely to be infected with HIV than men of the same age group (FHI, 1999).

Similar picture was observed in Uganda where HIV prevalence increased rapidly and by the late 1980's, Uganda appeared to have highest rates in Africa and in the world (UNAIDS, 1999).

This African situation is attributed to poverty, the high prevalence of STDs, cultural and sexual practices and beliefs; leading to rapid spread of HIV infection.

According to World Bank report, in other hard-hit countries such as Cote d'Ivore and Zimbabwe, life expectancy is 10-20 years shorter than it would have been without HIV/AIDS epidemic (MOH, 2001a; World Bank, 1999).

1.2 Kenyan HIV Situation

National AIDS/STD Control Program (NASCOP) estimated that the adult HIV prevalence in Kenya rose from 3.1% in 1990 to 13.5% in June 2000 with over 2.2 million cases of HIV infection. In Nairobi the HIV prevalence rate has been estimated to be 16% (MOH, 2001a).

The Kenyan situation is similar to that of other African countries with age group 15-49 years being most affected accounting for 80% of HIV infection in the country. Of the remainder, 10% occurs in children below 5years. There are more women with AIDS in the age group 20-29 years compared to men while the men are predominant in the age group 30-39 years. Assuming an average incubation period of 9-10 years, this indicates that most infections occur in teenage and early 20's (MOH, 2001a).

The Kenya Demographic and Health Survey of 1998 reported that the median age at first intercourse is 17 years for females and 16 years for males. The median age at first marriage was reported at 20 years for women and 25 years for men (KDHS 1998; MOH, 2001a).

In general, according to NASCOP, women are more than twice as likely to be infected than men of the same age. For adolescent girls, the increased transmission is due to various factors including an underdeveloped reproductive health system, trauma associated with first intercourse or rape as the case may be. Other factors include STIs that cause erosions on the cervix and vaginal cavity, use of hormonal contraceptives or pregnancy resulting in ectropion of the cervix thus exposing delicate lining to trauma during sexual activity. Poverty encourages them to have sex with older well-to-do partners who are over-size to them hence higher traumatic risk (MOH, 2001a).

On the other hand, men are several times more capable of transmitting the HIV infection than women. This is because during intercourse, much more ejaculate material is deposited in the

woman (or male recipient in homosexuals) and takes longer time to clear from the vaginal cavity hence prolonged exposure. Variations in the prevalence of HIV infection in different parts of Kenya depend on many factors including population density, increased movement of people due to trading and migration routes, cultural beliefs and practices such as wife inheritance and non-practice of circumcision (MOH, 2001a).

1.3 Impact of HIV/AIDS infection in Kenya.

The impact of HIV/AIDS epidemic in Kenya has been felt at family, community and national levels.

There has been an increase in annual deaths of young adults in age group 15-49 years by about three times those who would have died without the AIDS epidemic (MOH, 2001a).

AIDS orphans have also increased from approximately 20 000 in 1990 to 800 000 in 2000. The population growth rate has gone down. The total Kenyan population by 1999 census was 28.7 million, which was over 1.2 million less the projected population if there was no HIV/AIDS (MOH, 2001a).

The infant and childhood mortality rates have increased with the HIV epidemic. Currently, IMR and CMR are 74 and 112 respectively and are projected to about 60 and 120 per 1000 live births by the year 2005 due to HIV infection. This is because one-third of those babies infected by their mothers during the perinatal period die at infancy while another one-third die in their second or third year. This mortality is influenced by the morbidity associated with HIV infection among those aged below 5 years. This is made worse by the death of parents at childbearing age due to HIV/AIDS (MOH, 2001a).

There has been an increase in hospital bed utilization by AIDS patients from approximately 15% in 1992 to about 51% in 2000 (MOH, 2001a).

The incidence and prevalence of Tuberculosis has also markedly increased with the HIV epidemic. A study done in 1990 showed that in the absence of HIV, the incidence of Tuberculosis would be limited to about 0.2% of the population leading to 40-60 thousand new cases each year. With AIDS, assuming 8% of those with HIV infection and latent Tuberculosis develop active disease per year, then additional 120 thousand new Tuberculosis cases would be attributed to HIV infection by 2005. A study in Kenyatta National Hospital showed that the proportion of TB cases among all patients admitted doubled from 8% to 16% between1988/89 and 1997. In HIV infected patients the proportion that also had active TB infection rose from 18% to 27% over the same period (Harries, 1990).

Now being a chronic illness, the cost of treating a single HIV patient in the poorest African countries in 1995 was estimated to be more than the annual cost of educating ten primary school pupils (World Bank, 1999).

AIDS has had a major impact on the economy as it has caused reduction in the size and experience of the labour force and increased health care expenditure. It has raised the costs of labour and reduced savings and investments. This is because it has struck the economically productive age group. It is a chronic infection and essentially 100% fatal (MOH, 2001a).

CHAPTER 2: LITERATURE REVIEW

"Knowledge is power"

2.1 Global Response to HIV/AIDS infection.

The HIV/AIDS has affected all spheres of life globally. This has led to three major levels of response to the epidemic at global, national, community and individual levels. These evolutions are in different stages in various nations, communities and individuals to date.

Level of Secrecy and denial. These were the initial reactions after AIDS was diagnosed and theories of its origin were postulated. Surveys in many parts of Africa showed people believed that AIDS did not exist in their countries and that it was a disease that only affected foreigners. Others believed that since they had not seen an AIDS patient, it did not exist. Still others thought that AIDS was a threat created by doctors and church leaders to stop immorality. In Kenya, some people in North Eastern and Coast provinces believe HIV/AIDS is a disease of Christians, upcountry communities Europeans and not for Somalis and Muslims. In all these forms of denial, the individual is not motivated to take action towards solving the problem.

Level of Fear and panic. This occurred perhaps after people had seen or heard of someone dying of AIDS. They feared they would be the next to be affected. Fear and panic makes people believe that there are modes of transmission such as social contact and vectors like mosquitoes. In hospitals, these patients were isolated and many who died were buried in polythene bags. Others thought they are bewitched and this caused ill feelings and suspicion among people.

Level of Rational response. With education and information about AIDS especially the modes of transmission, a lot of fears of getting infected through social contact at home, workplace and schools are over. The stigma associated with AIDS is less and people can get support and care from family members. National AIDS control programmes were formed and there is global co-operation in the fight against AIDS (Menya, 1998).

Strategies of preventing the HIV transmission are mainly directed to limiting transmission through heterosexual contact. These interventions include Voluntary Counselling and Testing (VCT), promoting abstinence before marriage and faithfulness to one un-infected partner after marriage. Others include strengthening programs for the control of STDs, promoting reduction of numbers of sexual partners, encouraging delay in the onset of sexual activity among adolescents and promoting correct use and consistent availability of condoms (MOH, 2001a).

Prevention of HIV transmission in developing countries requires setting realistic priorities to improve the performance of the National AIDS control programmes. These among others include ensuring behaviour change among those with the riskiest behaviour and universal access to treatment of opportunistic infections, inexpensive treatment in palliative care and affordable treatment of sexually transmitted diseases (STI) (Martha, 2000).

The distribution of high-risk behaviour is different in different countries and each country should systematically map out areas and populations at greatest risk of HIV and focus prevention resources to the first.

In Thailand, after an intensive national campaign to increase condom use in commercial sex, the condom use rate in brothel-based sex workers reached over 90%, STDs cases declined and HIV prevalence among army personnel dropped and among pregnant women by more

than half (Phoolcharoen 1998, Rojanapithayakorn 1996). Overall behavioural changes in Thailand, have reduced the number of new HIV infection cases each year from approximately 143 000 in 1991 to 29 000 in 2000. Adult HIV prevalence is now estimated to be 1.9% (UNAIDS, 2001).

Similar data for Kenya is not available but there are suggestions made in a study of reducing HIV transmission in developing countries. Intervention priorities towards commercial sex workers were based on the following criteria. It was found that ensuring condom use by one core group member with 100 sex partners per year is more than 100 times as efficient as ensuring condom use by someone with one partner. In this case the efficiency ratio is the number of individuals that an intervention needs to affect to prevent one infection. The feasibility of success of the intervention is also important to consider. For instance, it is usually more feasible to make sexual contact of commercial sex workers safer than it is to avert the contacts in the first place. Lastly is the cost effectiveness of Peer-mediated programs. In areas with high HIV prevalence, female sex workers rapidly acquire HIV infection and infect their male clients who then infect their female sex partners who then infect their children. Peer-mediated prevention programs that have consistently achieved sustained high level condom use also reduce the risk of acquiring HIV and STIs thereby preventing further HIV transmission (Jha, 2001).

Senegal's HIV prevention program has been extensive and effective leading to one of the lowest rates of infection in Sub-Saharan Africa by changing behaviour of many of its citizens. Total HIV prevalence among adults in Senegal is estimated at about 1.8% (UNAIDS, 2001).

This was achieved with well-collaborated inter-sectoral efforts at all levels. At national level, Politicians, Religious organizations, NGOs and women groups were quick to move against the epidemic, once the first cases were reported in the 1980's.

HIV prevention was included when sex education was introduced in schools. Voluntary counselling and testing services on HIV prevention were made available. Also, various risk reduction programmes were established especially those that supported sex workers to persuade their clients to use condoms. Management of STIs was integrated as a priority in the primary health services (UNAIDS, 2001).

2.2 Benefits of early diagnosis of HIV infection

When HIV was identified in 1983 and sero-diagnostic tools introduced in 1984, there was considerable debate on the value of HIV testing. With no specific treatment available and the discriminatory impact of the diagnosis of HIV infection, it was difficult to persuade individuals at risk of the benefits of HIV testing. In the late 1980's, there were enormous advances in the knowledge of the natural history of the HIV infection and evolution of the immuno-deficiency it causes. There are compelling arguments now for the provision of HIV VCT services in Sub-Saharan Africa (Graeme, 1993).

The efficacy of Anti-Retro-Viral (ARV) drugs and chemoprophylaxis of opportunistic infections is now more apparent. Therefore, the advantages of early diagnosis are getting clearer. To the patients diagnosed early, treatment with Anti-Retro-Viral (ARV) drugs like Zidovudine (AZT) among others prolongs the asymptomatic period of the disease and delays progression as in any other chronic disease (Fischl, 1987).

Prophylaxis against opportunistic infections like Pneumocystis carini pneumonia (PCP) and cerebral Toxoplasmosis and early treatment of tuberculosis are important. The mortality rate among patients presenting with opportunistic infections, whose HIV status was unknown at presentation, was shown to be five times higher than in those whose HIV status was known (Clezy, 1992).

The individual has a right to know their infection status to protect themselves and others from infection and so they can plan their future.

Early diagnosis also means early patient education, which is in itself important in combating the disease. Understanding of the disease process helps the patient deal with the impact of HIV infection on their work, relationships, diet and fitness. Thus, patients are able to monitor their own health and report early for treatment of opportunistic infection, drug side effects or disease progression to their doctors. Knowledge enables the patient to prevent disease transmission and helps to provide vital contact tracing. This helps those who are sero-positive to live positively and join various support groups. (Graeme, 1993).

To the community at large, early diagnosis helps in documentation of the changes in the epidemiology of the disease and thus modes of HIV control. The provision of services (education, counselling, needle/syringe exchange programs, distribution of condoms) help patients modify high risk practices and improve contact tracing. This helps contain the epidemic and spares the community the high human and financial costs that have been seen in many countries where the government and community response has not been intensive (Graeme, 1993; Grinstead, 2000).

Early diagnosis is also beneficial to doctors, clinical researchers and health-care providers. It provides the best chance to positively influence the course of the disease. This occurs during various drug trials. Early diagnosis of HIV infection is significant while providing other services like family planning services, prophylaxis accidental rape and prevention of mother-to-child-transmission during ante-natal follow-up. (Graeme, 1993).

Currently there is no cure for HIV. Despite the very early initiation of prophylactic treatment in accidental inoculation, initiation of Antiretroviral Therapy in asymptomatic HIV infection is controversial and the optimal time is not known. The doctors should weigh the risks and benefits of early and delayed therapy and discuss with the patient before initiating therapy. (MOH, 2001c)

2.3 Human sexual behaviour

The risk factors that influence HIV transmission include having multiple sex partners, failure to use condoms, presence of STDs, early age of sexual initiation and having sex under external influence of drugs, rape, alcohol and/or for commercial purposes (Menya, 1998; MOH, 2001a).

The extensive HIV/AIDS education campaigns have contributed to increased awareness of the pandemic without commensurate behaviour change. In addition, the impact of HIV/AIDS generally and its socio-economic consequences have strained many nations' resources. This has caused many people to constantly live in fear, worries, anxiety and depression. Such a stressful situation calls for an effective tool for behaviour change as well as the launching of a caring, coping and supportive system within our health care facilities (FHI, 1999).

2.4 Behavioural intervention models

Various models that have been developed to explain determinants of human behaviour change include the Health Belief Model, the Social Cognitive Theory, the theory of Reasoned Action and the Stages of Change Theory. All these models have in common the theory that perceived risks and benefits of behaviour change predict the likelihood of behaviour change and can guide the approach to behavioural interventions. (Bandura, 1996; Fishbein, 1999).

The AIDS Risk Reduction Model integrates these concepts into a framework of providing information, motivation and behavioural skills specific to AIDS risk reduction. (Catania, 1990; Fisher, 1992) With this model, counsellors help clients identify sexual behaviours that put them at risk of acquiring HIV infection, formulate plan to change these behaviour and take action to realize these plans.

2.5 Voluntary Counselling and Testing (VCT)

Voluntary counselling and testing in control of HIV transmission is by definition a confidential dialogue between a person (voluntarily seeking the service) and care-giver (HIV VCT trained counsellor) (FHI, 1999). The aim is to provide the client with information to enable him/her make an informed choice concerning HIV testing. The information must be sensitive to the person's needs and culture, including the evaluation of personal risk of HIV transmission, the facilitation of preventive behaviour and evaluation of coping mechanisms when the client is confronted with a positive report. It aims at breaking the silence and de-stigmatising HIV infection. This must be voluntary, confidential with emphasis on available help such as appropriate behaviour adaptation to reduce further transmission (FHI, 1999; MOH, 2001a; UNAIDS, 1999).

During VCT issues concerning fear and worries about HIV/AIDS are addressed. Therefore, VCT has become an increasingly important strategy for reduction of HIV transmission and control. In view of this, the Ministry of Health launched the National Guidelines for VCT in December 2001(MOH, 2001b).

This service involves the individual voluntarily coming forward to a VCT site or centre and getting to know his/her sero-status. Thus one should not be forced to have a mandatory testing nor should one necessarily be taking HIV testing at a VCT site as a pre-condition to employment, travel, education or diagnostic purposes. The counsellor should clarify that that the HIV test is not for any of these purposes.

This forms the basis of the client-centred approach now in use in most VCT sites since every client has his/her own reasons of coming to the site and different risk exposures (MOH, 2001b).

During counselling, the counsellor assesses individual client's fears, needs, and risky sexual behaviours and prepares the client for HIV testing psychologically at pre-test counselling. The client also learns basic facts about HIV infection and AIDS, the different modes of transmission of HIV infection, the course of the disease including the window period and prevention of HIV infection. The reason(s) why the client is requesting for VCT services are discussed as they form the basis for personal risk assessment and risk reduction planning. Pre-test counselling also prepares the client to accept the results of the test whether positive or negative. He/she then gives informed consent to HIV testing (MOH, 2001b).

Client's acceptance to receive the HIV results is the next most important step that clears way for Post-test counselling.

Post-test counselling helps the client adopt various risk reduction or elimination methods. Positive living is encouraged to those who are HIV positive and where appropriate, they are referred for other services such as screening for Tuberculosis and/or treatment of opportunistic infections. Partner notification, result disclosure, marriage, post-test clubs and follow up counselling are also planned. This helps the client adopt appropriate behaviour change like practicing safer sex and use of condoms. The client is also counselled on family planning (MOH, 2001b).

If the client is HIV negative, the window period is discussed and possible repeat test planned for after three months depending on the client's personal risk as assessed during pre-test counselling. The emphasis is risk elimination and risk reduction methods to help them remain negative thereafter hence reduced transmission. Follow up counselling is planned for all. They are all referred to the Post-test Club where they discuss and share ideas. This is very helpful especially to HIV positive clients as they learn to cope with their status (MOH, 2001b).

In urban East Africa, HIV-1 VCT was found to be highly cost-effective but slightly less than interventions such as improvement of sexually transmitted diseases (STDs) services and universal provision of Nevirapine to pregnant women in high prevalence settings. With the targeting of VCT to populations with high HIV-1 prevalence and couples, the cost effectiveness of VCT was improved significantly (Michael, 2000).

2.6 Reasons of seeking VCT services

The reasons for seeking VCT services have evolved over the years and also have a major impact on reducing transmission of HIV infection. This change over the time was

demonstrated among the Zambian public. In the initial years, clients sought VCT services because they were sick. These days however, more and more healthy young people are requesting tests for other reasons. These include those planning to get married, to have children or to engage in unprotected sex after being in an intimate relationship for some time. Most couples suspect one or both partners are infected with HIV. In this case, the married person comes for VCT as an individual. Suspicion of infidelity is common in women: they believe their husbands have other sexual partners and want to protect themselves. Clients also come for testing when they have had an extramarital affair and want to avoid passing infection to their partner. Others come for testing when they suspect HIV infection in the family and want to protect themselves or improve their quality of life in case they are already infected (Chama, 2000).

2.7 Impact of HIV VCT Programs

The Voluntary Counselling and Testing (VCT) programs have increased the adoption of safe sexual behaviour and the use of care and support services among adults (Chakholoma, 1999; MacQuarrie, 2000; PCH, 2001). These studies showed that most adults seeking VCT services intend to practice safer sex, such as abstaining from sexual intercourse, practicing monogamy, using condoms or reducing the number of sex partners.

In Uganda, for example, there is a countrywide system of low-cost HIV-1 VCT provision with centres that provide support after HIV-1 testing. Due to this, Uganda is one of the African countries where prevalence has stabilized (Marum, 1994; Mugerwa, 1996).

In Uganda just as the Senegal case, various measures taken, tremendously reduced the HIV rates among pregnant women and young adults who are delaying their sexual activity than before. The prevalence of HIV infection among pregnant women aged 15-19 dropped from 22% in 1990 to 10% in 1996 at Nsambya, a hospital in Kampala. Data on behaviour change among young people showed that overall age of sexual initiation had shifted upward. The proportion of 15-year-old boys reporting that they had never had sex rose 20% to 50% between 1989 and 1995 (UNAIDS 2001). Most emphasis was on VCT services established within and outside the formal health care services (Aiimwe-oiror, 1997; Mulder, 1995; UNAIDS, 1999).

A study done in Kenya and Uganda aimed to find out the young people's experiences with and attitudes about Voluntary Counselling and Testing (VCT). It also aimed to determine how VCT services could become more youth-friendly. The findings showed that most tested youths intend to practice safer sex, such as abstaining from sexual intercourse, practicing monogamy, using condoms, or reducing the number of sexual partners. It was noted that young people who received counselling greatly appreciated the information and advice (Chakholoma, 1999; Chama, 2000; Macquarrie, 2001).

In 1992-93, Uganda's AIC evaluated its services and found the following; - Condom use among HIV positive clients had increased from 10% at pre-test counselling to 89% in six months among those with steady partners and to 100% in the same period among those with non-steady partners (UNAIDS, 1999).

The percentage of HIV positive clients reporting sex with non-steady partners declined from 6% to 0.2% (UNAIDS, 1999).

There was increased consistent condom use among the HIV negative male clients with non steady partners from 34% to 93% and with steady partners from16% to 38%. Similar behaviour change was noted among female HIV negative clients.

Abstinence rate among HIV positive clients increased from 45% to 69% in six months of testing (UNAIDS, 1999).

The experience of working with young people in Malawi also gave an indication that knowledge of ones sero-status is a strong tool for behaviour change whether positive or negative. These findings were obtained by a UNICEF project that asked young people to comment on three things they would do if they were to receive different HIV test results. They variously replied:

Positive test - eat well, practice positive living, suicide, among other reasons.

Negative test – drink beer, abstain, find HIV negative partner, encourage others to remain negative (Chakholoma, 1999).

For couples, the option is that of "zero-grazing", that is mutual monogamy puts emphasis on sex with one uninfected partner.

A randomised study in Kenya, Tanzania and Trinidad supported the efficacy of HIV-1 VCT in promoting behaviour change. It showed that men and women enrolling as individuals, who were diagnosed as infected with HIV-1, were more likely than the uninfected men and women to reduce intercourse with their sex partners at follow-up (Thomas, 2000)).

In Uganda, routine data collected from clients since 1992 showed an increase in the proportion being served as couples from 9% in 1992 to over 26% in 1997. This is believed to be a positive sign. Couples are one of the most important targets for VCT. It has also been

shown that adoption of risk reduction behaviour is often enhanced when couples test and receive prevention counselling together (UNAIDS, 1999).

In general, HIV infection rate is lower in those who come as couples than in those who come as individuals.

Among already married couples, data reveals that 18% of married couples are discordant where only one is infected and 15% of the married couples, both partners are infected (UNAIDS, 1999).

This information poses a special challenge in VCT services at the counselling of discordant couples. Rewarding results can be obtained if respects for confidentiality and the individual's right to privacy are combined with the opportunity to disclose test results to the couple in the presence of the counsellor. In another study, counsellors reported that sessions with couples were more difficult, but also more satisfactory, than individual sessions (Grinstead, 2000).

Previous research in Africa has suggested that VCT is more effective for HIV-1 risk reduction when both partners participate, share their test results, and formulate risk-reduction plans on the bases of sero-status results. In particular, a study of VCT carried out among a cohort of Rwandan women showed that HIV-1 sero-conversion rates decreased in sero-negative women whose partners were tested, but not in sero-negative women whose partners were not tested (Allen, 1992).

A two-phased study at Muhimbili Health Information Centre (MHIC), Tanzania to investigate the attitudes, beliefs and experiences related to HIV testing among VCT clients. In the first phase, qualitative data from women, men and couples who were clients at MHIC and in the second phase, 340 women at the MHIC were enrolled. Nearly a third of the

respondents were HIV-positive, almost half were married, and 50% were between the ages of 18 and 29 years and with less than 7 years of education. Overall, results found out that many women lack autonomy to make decisions about HIV testing. In general men make the decision to test on their own. An increase in the rates of HIV-positive women disclosing their status with their partners was observed, but it was still significantly less than for HIV-negative women. Partner violence is a serious problem among many female voluntary counselling and testing clients, though a small portion of women who disclosed their sero-status to partners reported a negative reaction. The women's HIV status is strongly associated with partner violence (Mbwambo, 2001).

2.8 History of VCT in Kenya.

VCT addresses the fundamental human right issues as "peoples right to know". It provides clients with knowledge of their HIV sero-status that enhances motivation to initiate and /or maintain risk reduction behaviour. It also improves response to keep health education practices of HIV prevention like abstinence, being faithful to one un-infected partner and consistent and correct use of condoms (MOH, 2001a; UNAIDS, 1999).

The concept of VCT was practiced in Kenya without much recognition until 1998. This occurred in certain Government hospitals, private hospitals/clinics and some community based organizations sponsored by Non-Governmental Organizations (NGO).

Most tests used to be done for diagnostic purposes at the request of the medical team but without the patient's knowledge and consent. Since no pre-test or post-test counselling was done, this had no impact on behaviour change of the individual and further HIV transmission.

By 1999, a joint study by Population Council and Family Health International showed there were over 52 centres in Nairobi offering various counselling, HIV testing, care and support services. The sites differ in their services and target population. Some are Community Home Based Care (CHBC) sites, follow-up sites, out-reach sites, referral sites or "walk-in" sites for VCT services while others offer either counselling without testing or vice versa (PCH/FHI/KAP, 1999).

For most of those that offer VCT services, the client flow is very low. Some are hospital based, while others are either within Private clinics, Health centres and others are "stand-alone" centres.

Some offer VCT service at a fee for testing, while others are free (PCH/FHI/KAP, 1999).

In Kenya, the Kenya Demographic Health Survey of 1998 revealed that, only 15% of the Kenyans knew their HIV status and about 67% indicated they would like to take a HIV test. It was also noted that the level of HIV awareness does not have corresponding behaviour change. This and the impact of HIV/AIDS on the society and nation's resources led to launch of national guidelines for VCT in 2001 by the Ministry of Health. The aim is to make VCT services available, to target majority of the population not yet infected and identify early those who are infected for proper care services (NCPD 1999; MOH, 2001b).

2.9 Perception of risk of acquiring HIV infection.

Perception by definition is the process by which one detects and interprets information from external world by means of the sensory receptors (Hanks, 1986). This yields one's view, consciousness, feeling or awareness. Just as most people would find celibacy an impractical means of reducing sexual risk, many individuals may find changing other specific sexual

behaviours difficult or unacceptable. They feel that participation in such behaviours does not necessarily reflect lack of morals or willpower, but rather different perceptions of enjoyable and common sexual behaviour.

Various studies done have shown that despite a high knowledge of sexual risks, fear of HIV and awareness of the protective value of condoms, the young men exhibit high risk behaviour. They feel the need to conform to social prescriptions of male prowess, early sexual experience, and having more than one partner, yet their feelings about this behaviour are ambiguous and contradictory. Young men consider getting girls pregnant and having a treatable STD as marks of masculinity and boast about their sexual conquests to their peers. They blame the girls for not protecting themselves against pregnancy and girls' parents for not advising them. Married men assume that young girls are not infected while others believe that having sex with virgins cures their own HIV infection. These result in further HIV transmission. The perception of their personal risk of getting HIV infection is low (Bauni, 2000; Cok, 2001; Nzioka, 2001).

In Central African Republic, a study where about 92% of participants had heard of AIDS and knew it is incurable showed that many women and men perceived that they had no risk of acquiring AIDS. Women were more likely than men to consider that they were at high risk of AIDS (12.4% vs. 5.6%). 28% of women and 11.2% of men had not changed their sexual behaviour in light of AIDS. Men were more likely than women to begin using condoms (16.9% vs. 4.1%). 55.4% of both men and women became faithful to their partner (Nguelebe, 1995).

Similar findings were obtained among adolescents aged between 15-17 years in Russia in 1995. Overall, 39% of students were sexually experienced, and these young people had had, on average, 3.4 sexual partners. Only 29% of sexually experienced students said they

consistently used condoms, and 29% said they never did. Unprotected vaginal intercourse was the predominant and preferred sexual practice; it also was the practice that most often occurred with students' last sexual partner. In all, 28% of students defined "safer sex" as condom use. Many young people believed that AIDS is a threat only to members of particular "risk groups"; relatively few believed that they could get AIDS (17%) or said that AIDS information had influenced their sexual behaviour (29% of those who were sexually experienced). Females were more likely than males to prefer having an exclusive partner, and males were more likely to prefer having casual partners (Amirkhanian, 2001).

In Harare, Zimbabwe, perceptions of personal and general risk of HIV infection were assessed among 152 people. Results revealed that 3% had not considered changing behaviour, 34% felt they did not need to change behaviour, 40% had already changed, and 23% were seriously considering change. Some thought that their friends had changed behaviour. Further, 36% felt they were in no personal risk, 30% felt at very low risk, and 24% felt at high risk. Estimates of general risk were much higher than estimates of personal risk, with official statistics bearing little personal relevance (Pitts, 1991).

According to the 1998 Kenya Demographic Health Survey, information about personal knowledge and risky behaviour from 7881 women between the ages of 15-49 and 3407 men between ages 20 and 55 showed that knowledge of AIDS virus and its sexual mode of transmission was 99% for both men and women. About 40% knew of at least two methods of preventing transmission. Risky sexual behaviour was reported by a significant number of men and women. Of married women, 16% reported having extramarital sexual partners. Among the single men and women, 60% and 40% respectively were sexually active. Half of the sexually active single men and 14% of the women had more than one partner in the last one year. One-third of women and two-thirds of men perceived themselves at risk of

becoming infected with HIV virus as women thought their partner had other sex partners and men cited having multiple sex partners (NCPD 1999; MOH, 2001a).

CHAPTER 3: PROBLEM STATEMENT AND RESEARCH QUESTIONS

The knowledge of HIV sero-status is beneficial to those who test either positive or negative in prevention of HIV transmission. Those testing sero-positive adapt or change their behaviour patterns in order to protect themselves from re-infection, and they seek medical advice promptly at the onset of AIDS related illnesses and opportunistic infection. Counselling motivates them to protect others hence prevent the spread of HIV infection. The sero-negative clients adopt or change behaviour that helps them maintain their sero-negative status (MOH, 2001a; UNAIDS, 1999).

Behaviour change has not been achieved despite the high awareness levels of HIV/AIDS that stand at over 95% (MOH, 2001a).

The VCT services have been shown to contribute to the driving force for positive behaviour change in HIV infection control in other countries like Uganda and Senegal (UNAIDS 2001). In Kenya this is one of the HIV Control strategies implemented recently (MOH, 2001a; MOH, 2001b).

Voluntary counselling and testing plays four major roles in prevention and control of HIV transmission: -

- Positive behaviour change using clients risk assessment and risk reduction planning enhances prevention of HIV transmission.
- Care through psychological support helps clients cope, plan their future and live positively even when sero-positive.
- Helps people improve their health seeking behaviour.

- Encouraging people to come for HIV testing de-stigmatises the HIV/AIDS infection (FHI, 1999).

The risk factors that influence HIV transmission include having multiple sex partners, failure to use condoms, presence of STDs, early age of sexual initiation and having sex under external influence of drugs, rape, alcohol or for commercial purposes (Menya, 1998; MOH, 2001a).

However, many studies done in Kenya and elsewhere mainly have demonstrated that knowledge of risk factors associated with HIV infection has no corresponding influence on behaviour change nor individual's perception of risk of getting HIV infection (Bauni, 2000; Harding, 1999; Reisen, 1999).

A study in Uganda, using data from the 1995 Demographic Health Survey showed there is an association between perception of risk of HIV infection and behavioural change in response to the AIDS epidemic in Uganda though with gender differences (HIV/AIDS, 2000). These exceptional findings are associated with VCT services that have been going on in Uganda since 1990 (UNAIDS, 1999).

The research questions therefore addressed in this study are the following: - what is the VCT client's perception of the risk of getting HIV infection? What individual reasons enhance their demand for VCT services? What are the client's risky sexual behaviours associated with HIV transmission. What is the HIV sero-status of VCT clientele in the study sites?

Does an individual's risky sexual behaviour and perception of getting HIV infection have any relationship to their sero-status?

3.1 Study Justification

The impact of HIV/AIDS epidemic has been felt at national, community and family levels.

Youths and young adults in Kenya aged between 15-49 years account for about 50% of the total Kenyan population. This is the economically productive age group and the most active sexually. The weak economy is aggravated by the high cost of managing the HIV/AIDS patients. Families are stressed at the loss of breadwinners at very early stages in life. This also contributes to high school drop out rates and further worsens the menace of street children and families. This encourages childhood prostitution that worsens the HIV transmission.

Voluntary counselling and testing services are being promoted and advocated to be provided nationwide due the impact on behaviour change as shown in various studies done in Kenya and elsewhere.

At the early stages of the VCT campaign, it is important to understand the service consumers so as to offer each one of them what suits them most.

The VCT concept is relatively new in Kenya and there is no available data on individual's risky sexual behaviour and perception of individual risk of getting HIV infection among VCT clients.

This study will provide information on who the consumers of VCT services are at the different sites and what encourages them to seek for VCT services. The individual client's risky sexual behaviours and perception of the risk of getting HIV infection are indicators of initial self-assessment, which form basis of positive behaviour change. This will help the service providers in advocacy during HIV/AIDS campaigns.

The information obtained will also give insight into other HIV prevention and control strategies.

For instance, the age at first intercourse obtained will shed light on the appropriate target group for primary HIV prevention strategies where health education should put emphasis on abstinence and /or delayed onset of sexual activity.

Thus, this information is important input in realization VCT goal of making VCT services available, to target majority of the population not yet infected and identify early those who are infected for proper care services.

3.2 Objectives

3.2.1 Broad Objective

To evaluate the perception of individual's risk of getting HIV infection and risky sexual behaviours among VCT clients and how these relate to their reasons for seeking VCT services and their HIV sero-status.

3.2.2 Specific Objectives

1. To establish the reasons for seeking VCT services among VCT clients.
2. To establish individual's perception of the risk of getting HIV infection among those seeking VCT services.
3. To evaluate the risky sexual behaviours associated with HIV infection among VCT clients.

4. To determine whether there is a relationship between individual's perception of the risk of getting HIV infection and their sero-status.

5. To determine whether there is a relationship between risky sexual behaviours associated with HIV infection and the reasons of seeking VCT services among the clients.

6. To determine whether there is a relationship between risky sexual behaviours and HIV sero-status of VCT clients.

CHAPTER 4 METHODOLOGY

4.1 Study Design

This was a descriptive cross-sectional study in Nairobi since there is no information available on the individual risk perception of HIV infection among VCT clients. The VCT clients formed a unique self-selected study population. The limitation of funds favoured the cross-sectional design.

4.2 Study Area

Nairobi has the highest number of VCT centres in Kenya. Due to limited funds available for this study and generally low levels of utilisation at most centres, three VCT centres, Sokoni, Mugumo-ini and Kenyatta National Hospital were purposefully selected for the study.

By the year 2000, Nairobi's total population was projected at 2,238,105. Out of this, 1,102,267 were aged between 15-49 years. HIV prevalence in Nairobi was estimated at 16% affecting about 174,747 people (MOH 2001a).

The Sokoni VCT site is a "stand-alone" VCT site in Kawangware, Kenyatta National Hospital VCT centre is based at the hospital and Mugumo-ini VCT site is an urban "stand-alone" site near Wilson Airport.

4.2.1 Sokoni VCT Centre

This is a VCT centre established within Kawangware shopping centre about seven kilometres from city centre along Gitanga road. It is located within a business complex – Sokoni Arcade.

The majority of the clients come from Kawangware and Riruta Satellite areas. The clients just walk in asking for VCT services.

It was established in December 2001 under the support and supervision from Liverpool VCT Project. The VCT services are provided at a fee of Kshs 50 per client.

The services offered include Pre-test counselling after which the client gives informed consent to have the HIV test done. This is followed by disclosure of the results and Post-test counselling.

Rapid test kits are used, namely the Unigold Kit and the Determine Kit. No written report or certificates are issued.

There are three HIV-VCT trained counsellors who attend to an average of five clients per day for VCT services. They also participate in awareness campaigns in the area. In such events and /or situations where one or two have gone to attend supervision meetings, the centre is left with one or two counsellors. Occasionally, it has to remain closed the whole day as they take their monthly reports to the project office.

Clients with active diseases related to HIV infection are referred to the clinician at the nearby Riruta health centre for treatment of opportunistic infections.

All clients are referred to the Post-test club that comprises of both HIV positive and negative clients. Their activities include continued counselling, peer support in behaviour change and social activities like games.

4.2.2 Mugumo-ini VCT Centre

The Mugumo-ini VCT centre is located within Mugumo-ini Chief's camp behind Wilson airport, off Lang'ata road. It is about four kilometres from city centre.

Kibera Community Self Help Programme (KICOSHEP) established the VCT centre in 1999. Other KICOSHEP sites are Kianda in Kibera, Kichinjio in Kibera and at KICOSHEP headquarters along Kabarnet lane, off Ngong road. Mugumo-ini is a "stand-alone" site since it is not within a conventional health facility. This centre receives financial assistance for the rapid kits used and for counsellors training in VCT services from Centres for Disease Control (CDC).

The site serves walk-in clients from the general population and referrals from Community Health Workers (CHWs). The CHWs visit the residents of various villages in the centre's catchment area and mobilize the community through health education to go for VCT services. The centre's catchment area includes the following villages: - City Carton and Mitumba villages near the VCT centre, Kuwinda and Kisii villages along Karen/Lang'ata road, Bangladesh village on the way to Ong'ata Rongai, Southland at Otiende area, Madaraka area of Nairobi West and South C.

Clients with illnesses that suggest opportunistic infection are referred by the CHWs to Mbagathi District Hospital for treatment. On average, ten clients are served per day.

The rapid test kits, Unigold and Determine for control are used here. Clients are supposed to pay fifty shillings but it is not mandatory. Thus, those who cannot afford get the service free.

There are two HIV-VCT trained counsellors on duty at most times. Another counsellor beside the two is available to attend to awareness campaigns and Home Based Care projects that KICOSHEP is involved in. The site does not ever close for unavailability of the counsellors.

Clients are referred to Mbagathi District Hospital for any treatment that may be necessary. Those who require certificates are referred to Kenya Medical Research Institute (KEMRI) where the HIV test is repeated and a certificate or official laboratory report given. All are referred to the Post-test club for follow-up counselling and peer support in behaviour change. The Post-test club members hold group discussions, drama, sharing, and involvement in awareness campaigns to the public and in schools.

4.2.3 Kenyatta National Hospital VCT Centre

The KNH VCT centre is situated within Kenyatta National Hospital, about three kilometres from city centre off Ngong road. VCT services were launched in April 2001 within the Patient Support Centre until August 2001 when they moved to their own offices on the second floor of the main hospital tower block.

Despite being within the national hospital, the site is a rather unique integrated service site, serving many "walk-in" clients from the general population and also seeing clients referred from the hospital clinics and wards.

The rapid test kits, Unigold and Determine are used here. The VCT trained counsellors under the supervision of a qualified Laboratory technician perform the tests.

The FHI Impact Project in conjunction with KEMRI consultants is in the process of implementing the Standard Operating Procedures for HIV testing in FHI/VCT sites. This

involves collecting specimens from every fifth client on a filter paper, packaging and sealing in polythene bags provided by FHI. A one-month collection of these blots will be delivered to KEMRI for validation testing (FHI, 2001; MOH, 2001b).

Demand for VCT service at this site has increased so much that some have to be booked for appointments days to weeks later. About 20 clients are attended to daily. Many others are referred to other VCT centres like Riruta or KICOSHEP off Kabarnet road. The centre has 3-5 trained counsellors on a daily basis. They are also involved in other activities like the post-test club, HIV/AIDS education at various work places and awareness campaigns.

The VCT services offered are currently free at the centre. Follow-up counselling and referral to different specialized clinics is available for clients at the costs generally charged in those areas of the hospital. Others are referred to the Post-test club that is run at the Patient Support Centre situated in the ground floor of the old hospital block of the hospital. This is about 100 metres from the VCT centre. Here they are involved in activities that encourage behaviour change and social support.

Others are referred to organizations offering alternative medicine that is not available in the hospital. These include WOFAK and KICOSHEP off Ngong road.

Currently, KNH VCT management in conjunction with the neighbouring VCT centres, NASCOP and various NGOs involved in the fight against HIV are in the process of developing internal and external networks as part of effective post-test services. These will enhance clients' follow-up after the initial counselling and testing session and hence VCT sustainability and efficiency.

4.3 Study Variables

4.3.1 Dependent Variables

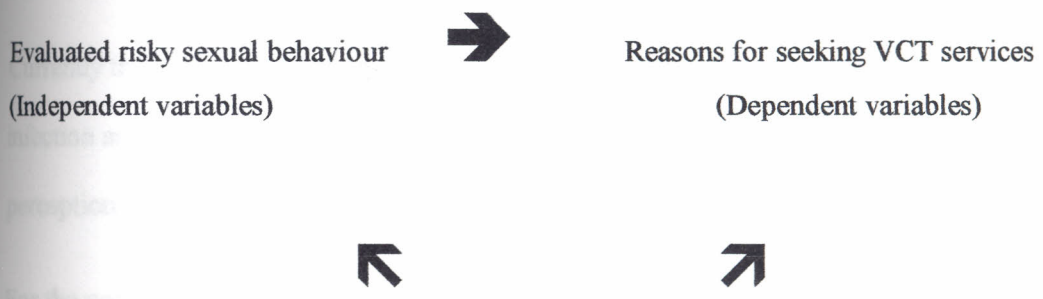
The HIV sero-status of the clients and the reasons for seeking VCT services are the dependent variables. The HIV results were obtained from the records at the end of the day for all clients who were recruited to the study on that day.

4.3.2 Independent Variables

The perception of individual's risk of getting HIV infection and the client's assessed risky sexual behaviours were the independent variables. The individual's risky sexual behaviours associated with HIV infection transmission were evaluated within the last 6 months to minimize recall bias.

Socio-demographic characteristics such as age, sex, marital status, occupation, level of education and client presentation either as couples or single were independent variables.

4.3.3 Theoretical Model



4.4 Study Population

All those aged 18 years and above who came for VCT services at the three selected sites during the 4 weeks period of data collection constituted the study population. Those client's aged 15-18 and were sexually active qualified for the study as "mature minors".

Thus, the study population was comprised of a self-selected group of people from Nairobi province.

4.5 Sampling Procedures

4.5.1 Sample Size Estimation

Currently there is no available data from previous studies done on the prevalence of HIV infection among VCT clients in Nairobi. Also there is no available data on the level of perception of individual risk of getting HIV infection among VCT clients.

For the purpose of this cross-sectional study, it was assumed that the prevalence of HIV among the VCT clients approximates 16% estimated HIV prevalence in Nairobi province (MOH 2001a).

The sample size is then estimated using the formula below: -

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

(Lwanga, 1991)

where

n -the sample size

p -the proportion of VCT clients who are HIV positive

q - the proportion of VCT clients who are HIV negative

d -the degree of precision in this case taken to be 5%

Z -the Z-value for 95% confidence interval, where the level of significance is 5%

Thus,

$$n = \frac{1.96^2 \times 0.16 \times 0.84}{(0.05)^2}$$

$$= 206.5$$

Thus, the minimum sample was 206.

There was no sampling from the general population since the study was to address only those seeking VCT services. The KNH, Mugumo-ini and Sokoni VCT sites handled about 20, 10 and 5 clients respectively per day. Most of these were "walk-in" clients while others were referred from the hospital but only walk-in VCT clients were considered.

In consideration of the low turn out of HIV VCT clients in some VCT centres, this sample size is distributed proportionally to the three centres, KNH, Mugumo-ini, and Sokoni in the ratio of 3:2:1 respectively. This study targeted 250 clients. By the end of 4 weeks, data collection achieved a sample size of 301 clients with KNH VCT centre recruiting 142 clients, Mugumo-ini VCT centre 111 clients and sokoni VCT centre 48 clients.

4.5.2 Sampling Method

This was a cross-sectional study among those seeking VCT services. The study unit was any individual who satisfied the inclusion criteria as stated below:-

Taking into consideration the low turn out and the distribution of study units at the three sites, the clientele who satisfied the inclusion criteria constituted the sampling frame. Systematic

random sampling was applied with alternate clients who satisfied the inclusion criteria being recruited. The initial client was selected if a head was picked on him/her at the toss of a coin at the onset of data collection. Subsequent days' selection of clients was dependent on the previous day's last client recruited. For instance if the last client to be recruited on the previous day was also the last client to satisfy the inclusion criteria, then the second client to fulfil inclusion criteria next morning was the first to be recruited for the day, followed by alternate ones. This continued until the end of data collection period.

4.5.3 Inclusion Criteria

All those who voluntarily visited the VCT sites and gave consent to counselling and testing to determine their HIV sero-status.

That had to be their first time to request for VCT services.

One had to be 18 years and above and willing to answer to questions individually, followed by HIV testing. Any youth between 15-18 years was recruited on his/her own consent if he/she was a "mature minor". This meant one who was sexually active and thus already exposed to risk of getting HIV infection despite the age. In this case, he/she may have been married, pregnant, admitted to have been involved in risky sexual behaviour or were child sex workers. But even in such circumstances, the counsellor had the discretion to make independent assessment of the 'mature minor's ability to receive VCT services.

4.5.4 Exclusion Criteria

Those referred for HIV testing as a precondition for employment, travel, education, marriage and other diagnostic reasons that required a written report.

Those who were re-visiting for follow-up, counselling and/or testing.

Those who had been tested at another VCT site and only want a repeat test to confirm their status.

Those who sought treatment of opportunistic infections but were not ready for counselling and testing for HIV infection.

Those aged below 18 years and were not 'mature minors'. The National guidelines for VCT indicate that this age group should only be served with parental consent.

4.5.6 Minimizing Biases

All clients had the questionnaire administered individually including those presented as couples. The assumption was that among those presenting as couples, one of them could have influenced the decision of seeking VCT services. This was also facilitated by the fact that, most often the counsellor separates those presenting as couples to allow more freedom of expression individually.

The questionnaire used was pre-tested and appropriate adjustments made to ensure achievement of study objectives. To ensure high quality data collection, the Principal investigator undertook training and supervision of research assistants. Use of open-ended questions provided any additional information not covered by the closed questions.

4.6 Data Collection

Data was collected over four weeks from May 20th, 2002 to June 14th, 2002.

The objectives of the study were introduced to the client briefly by the research assistant after verification of the inclusion criteria. The client gave verbal consent to participate in the study.

The data collection techniques used were:

-Interviews guided by structured pre-tested questionnaires as well as few open-ended questions that had the responses recorded in the spaces provided were used.

-Use of available records of the clients' Rapid test results.

The study instrument was a pre-coded questionnaire. (Appendix).

Socio-demographic data collected included client's age, sex, education level, marital status and whether the client had presented for VCT alone or as a couple. The data on the reasons for seeking the VCT services and how each client learnt of the VCT site were recorded by marking against corresponding choices. Multiple responses were permitted.

Assessment of risky sexual behaviours associated with HIV transmission was done for each client.

Perception

For the purposes of this study, each client rated his/her risk of acquiring HIV infection according to individual's perception as, high-risk, low-risk or no risk. This was not based on the risk evaluated by the research assistant during the interview.

Evaluation of risk sexual behaviours

A recall period of six months was used to assess risky sexual behaviour to reduce recall bias while accommodating majority of those who should have sero-converted after the risk exposure.

Factors considered in sexual risk evaluation included age at first sexual intercourse, sex under external influence, history of STD, number of sexual partners, knowledge of HIV sero-status of steady partner and condom use for those who were sexually active in the last six months.

The Table 1 shows the score chart for sexual risk evaluation.

Table 1: Score Chart for Evaluation of Clients' Risky Sexual Behaviours

Risk		Scores		
		High risk	**Low risk**	**N/A**
		2	**1**	**0**
1) Age at first sexual intercourse		<19	>19	
Sex under external influence				
2)	Drugs/Alcohol	Yes	No	
3)	Commercial/Material gain	Yes	No	
4)	Rape (females only)	Yes	No	
5) STDs suffered in last 6 months		Yes	No	
6) Number of sex partners in last 6 months		>1	1	
7) Knowledge of HIV status of S/P		Yes	No	
8) (**If yes**)	Status	Positive	Negative	
9) Use of condoms with S/P		No	Yes	N/A
10) (**If yes**)	Frequency	Occasionally/Mostly	Always	N/A
11) Use of condoms with N/S/P		No	Yes	N/A
12) (**If yes**)	Frequency	Occasionally/Mostly	Always	N/A
13) Use of condom last time one had sex		No	Yes	
		_____	_____	
Total Score		Out of 26	Out of 13	

Sero-status of HIV infection

Data on the HIV results were derived from the records of the day and recorded as; positive, negative or inconclusive per client. Thus, the client's code used was the same as that used on the VCT records to assist during clarifications.

For ease of reference and minimal interruption of the counselling session, a copy of the National VCT form was used per client recruited. Later in the day, the information was coded as per the original questionnaire ready for entry to the computer and any clarifications done appropriately.

4.7 Data Processing and Analysis

All the data collected was checked for accuracy on daily basis before entry into the computer.

It was then entered using SPSS-PC program and later analysed. The HIV sero-prevalence was determined. Various risky sexual behaviours that predispose to HIV sexual transmission were used for risk assessment and were grouped and scored.

Following descriptive and statistical data analysis, the results for percentages were tabulated and represented diagrammatically in bar charts and pie charts. Appropriate cross-tabulations were done and statistical inferences made. Discussion and interpretation of the results was done and appropriate recommendations made.

4.8 Ethical Considerations

Each client gave verbal consent after introduction of the study by the research assistant.

Client's names were not used to ensure anonymity as a measure of confidentiality and instead code numbers were used.

Client's confidentiality was assured and maintained.

Clients had the freedom of leaving before the end of the session in case they changed their mind about HIV testing.

Clearance to carry out the study was obtained from the office of the President through the Ministry of Research and Technology, Kenyatta National Hospital Ethical and Research Committee through the office of the Deputy Director Clinical Services and Project directors at KICOSHEP and Liverpool VCT projects.

The principal investigator personally supervised the research assistants to ensure their adherence to the study protocol.

CHAPTER 5 RESULTS

A total of 301 VCT clients were interviewed over the four weeks period of data collection with KNH VCT centre having recruited 142 clients (47.2%), Mugumo-ini VCT centre 111 clients (36.9%) and Sokoni VCT centre 48 clients (15.9%).

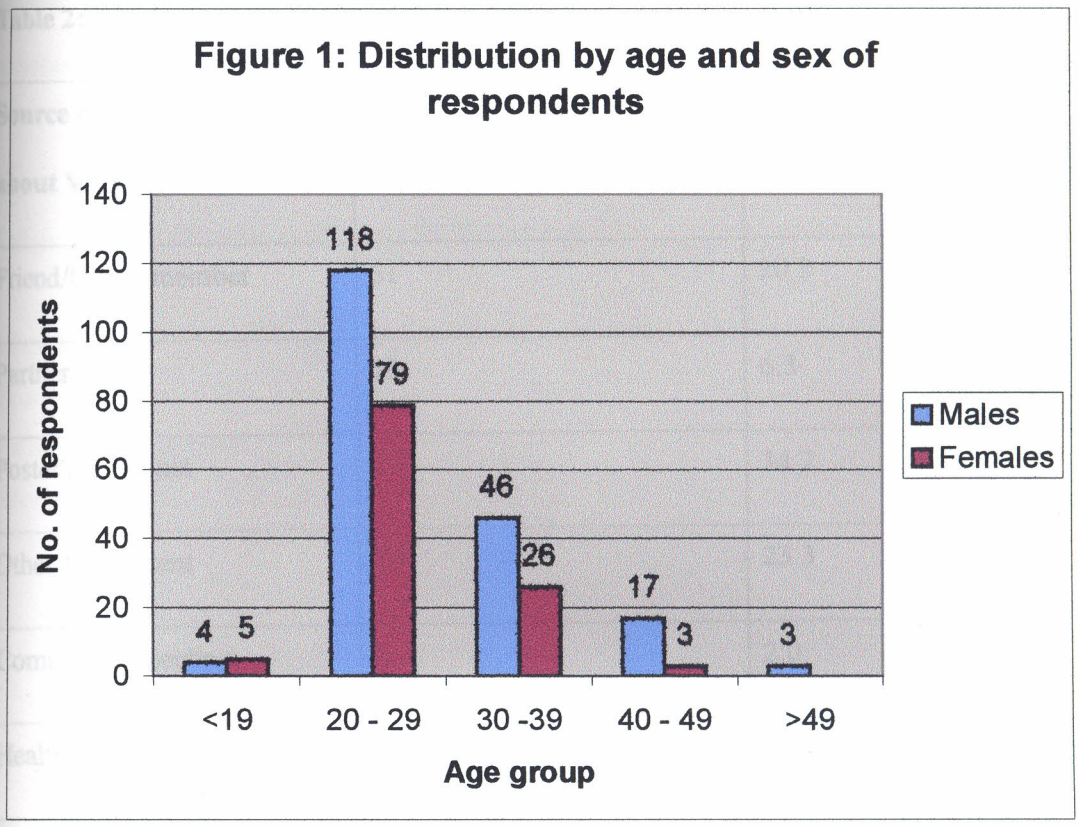
5.1 Socio-demographic characteristics of the respondents.

The clients were aged between 17 years and 60 years with a mean of 28.4 (SD = 7.28) and a median of 27 years. Males had a mean of 29.1 years (SD 7.69) and females had 27.1 years (SD = 6.38). The difference between the means of age of respondents between sexes was significant ($p = 0.023$). All the clients have had some education, 44 (14.6%) primary level, 116 (38.5%) secondary level and 141 (46.8%) tertiary level of education. Their occupations ranged from skilled 113 (37.5%), students 54 (17.9%), professional 47 (15.6%), unskilled 47 (15.6%) and none 40 (13.3%).

The marital status of respondents was as follows, 101 (33.6%) married, 169 (56.1%) single, 7 (2.3%) widowed, and 24 (8.0%) separated/divorced. Further in the analysis, those who are widowed or separated/divorced are categorized into singles when evaluating their risky sexual behaviours.

Majority of the clients 280 (93.0%) presented as individuals and only 21 (7.0%) presented as couples either pre-marital or those already married.

The age groups of respondents is as shown in the Figure 1.



Out of 301 VCT clients interviewed, there were 188 (62.5%) males and 113 (37.5%) females. There was male dominance in most of the age groups as is evident in Figure 1 above. The 20 –29 year age group had highest clientele for both males and females constituting 197 (65.4%) of all those interviewed.

5.2 Sources of information on VCT centres

Table 2: How clients learnt of the VCT centres

Source of information about VCT centre	Number of responses	%
Friend/family member	61	20.3
Partner	19	6.3
Poster / sign post	103	34.2
Other VCT client	70	23.3
Community meeting	6	2.0
Health worker	24	8.0
Radio/TV	81	26.9
Newspapers	50	16.6
Others	15	5.0
Total	**429**	**142.6**

NB: More than one response was allowed; hence the total percentage exceeds 100%. Posters / signpost was the most informative, 103 (34.2%), followed by Radio / TV, 81 (26.9%). This is as a result of the ongoing awareness campaign. Information from other VCT client 70

(23.3%) and 61 (20.3%) from friend / family member indicate that communities are shedding the stigma associated with HIV Infection and encouraging one another to go for HIV VCT services.

Other sources of information on VCT Centres

Church	7
Peer educators	6
Family Planning clinic	1
Workplace	1

5.3 Reasons of seeking VCT services

Various reasons for seeking VCT services were given by clients as shown in the Table 2.

Among the respondents, 244 (81.1%) were sexually active in the last six months while 57 (18.9%) had practiced abstinence for over six months. Their individual risk perception, reasons for seeking VCT services and HIV sero-status were analysed separately.

Table 3: Reasons of seeking VCT services

Reason	Number of responses	%
Planning the future	171	56.8
Client's past sexual risk	72	23.9
Worried about my status	61	20.3
Plan to get married	34	11.3
Worried by partners behaviour	32	10.6
Feel unwell	29	9.6
New sex partner(s)	13	4.3
Partner who's sick/died	9	3
Pregnant	7	2.3
Plan to get pregnant	5	1.7
Reunion with steady partner	5	1.7
Recent blood transfusion	4	1.3
Had sex for money/favour	2	0.7
Had a child who's sick/died	1	0.3
Shared needles	1	0.3
Others	21	7.0
Total	**467**	**155.1**

NB Total percentages exceeded 100% because clients were allowed to give more than one response. The predominant reasons were 171 (56.8%), intention to plan the future, 61 (20.3%), were worried about their sero-status and 72 (23.9%) were worried about their past sexual risky behaviour.

Other Reasons for Seeking VCT Services

Reason	Frequency
*Date rape	1
Occupational hazard (Lab Technician)	1
Partner travels a lot	1
Cut during a shave	2
Wife pregnant	2
Rape	2
Accidental human bite	1
Has been taking care of HIV patient	2
Fear of mother to child transmission, as she is pregnant	1
Had circumcision	2
Poor sexual satisfaction from partner	1
Has a dermatological problem	1
Has a sexually transmitted disease	1
Infertility	1
Stress	1
Get information on oral sex	1

* A lady was raped by her stable boyfriend of 2 years during a planned date.

Table 4: Reasons of seeking VCT services among those in abstinence

Reason	Number of responses	%
Client past sexual risk	38	66.7
Planning the future	27	47.4
Plan to get married	12	21.1
Feel unwell	4	7.0
Partner sick or dead	3	5.3
Worried by partners behaviour	3	5.3
Reunion with steady partner	2	3.5
Worried about my status	2	3.5
New sex partner(s)	1	1.8
Pregnant	1	1.8
Others	3	5.3
Total	**96**	**168.7**

NB Some clients had more than one reason of seeking VCT services and therefore the total percentage exceeded 100%

5.4 Individual risk perception of acquiring HIV infection

Table 5: Individual risk perception of HIV infection

Perception	Number of respondents	%
High risk	72	24.0
Low risk	191	63.7
No risk	37	12.3
Total	**300**	**100**

Of the clients interviewed, 228 (76%) perceived themselves as low-risk and no risk as shown in the table above. One respondent was non-committal while only 72 (24%) perceived they were at high-risk of getting HIV infection.

When asked to predict the possible outcome of HIV result they expected, only 30 (10%) mentioned a positive result. Among the others, 133 (44.2%) predicted a negative result and 138 (45.8%) could not predict.

Relationships between risk perception and socio-demographic characteristics of VCT clients.

Cross tabulation of perception of risk of HIV infection by sex showed no significant statistical difference (P = 0.836) and Chi-square = 0.356 (2 DF). There was no significant

difference in the individuals' risk perception of HIV infection between the males and females. But males had a higher chance 44 (61.1%) of perceiving their risk as high compared to females 28 (38.9%).

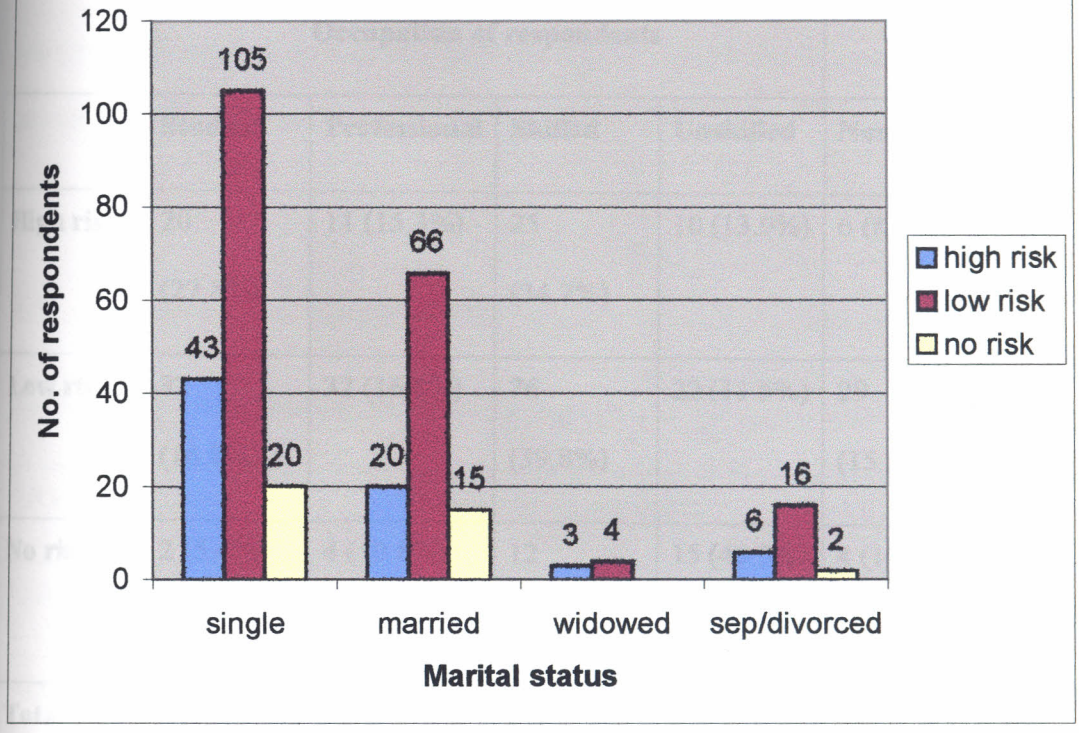
Table 6: Individual risk perception of HIV infection by level of education

	Level of Education of respondents			
Perception	**Primary ed.**	**Secondary ed.**	**Tertiary ed.**	**Total**
High risk	6 (8.3%)	29 (40.3%)	37 (51.4%)	72 (24%)
Low risk	26 (13.6%)	71 (37.2%)	94 (49.2%)	191 (63.7%)
No risk	12 (32.4%)	15 (40.5%)	10 (27.0%)	37 (12.3%)
Total	**44 (14.7%)**	**115 (38.3%)**	**141 (47.0%)**	**300 (100%)**

Chi-square = 13.896 DF = 4 P = 0.0076, significant.

Statistically significant differences in the perception of risk of infection among the three levels of education is evident (Table 5 above). Among those who perceived they had high risk of HIV infection, 6 (8.3%) had primary level, 29 (40.3%) had secondary level and 37 (51.4%) tertiary level of education.

Figure 2: Individual risk perception of HIV infection by marital status



No statistically significant difference was demonstrated in the individual risk perception of HIV infection by marital status. However, it was noted that among those who perceived that they were at high risk of HIV infection, 43 (59.7%) were single, 20 (27.8%) were married, 3 (4.2%) were widowed and 6 (8.3%) were separated/divorced as shown in Figure 3 above.

Perception of risk of infection was not statistically different among those who presented as individuals and those who came as couples. But is important to note that 69 (95.8%) who perceived they had high risk of HIV infection had presented as individuals.

Table 7: Perception of individual risk by occupation of clients

	Occupation of respondents					
	Student	**Professional**	**Skilled**	**Unskilled**	**None**	**Total**
High risk	20 (27.8%)	11 (15.3%)	25 (34.7%)	10 (13.9%)	6 (8.3%)	72 (24%)
Low risk	32 (16.8%)	32 (16.8%)	76 (39.8%)	22 (11.5%)	29 (15.2%)	191 (63.7%)
No risk	2 (5.4%)	4 (10.8%)	12 (32.4%)	15 (40.5%)	4 (10.8%)	37 (12.3%)
Total	54 (18.0%)	47 (15.7%)	113 (37.7%)	47 (15.7%)	39 (13.0%)	**300 (100%)**

Chi-square = 27.519 DF = 8 P = 0.00057, significant.

There was statistically significant difference demonstrated between individual risk perception and occupation with P-value = 0.00057 as shown in Table 6 above. Among the respondents who perceived that they were at high risk, there were 20 (27.8%) students, 11 (15.3%) professionals, 25 (34.7%) skilled labourers, 10 (13.9%) unskilled labourers and 6 (8.3%) had no particular occupation.

Those who perceived that they had low risk of HIV infection, there were 32 (16.8%) students, 32 (16.8%) professionals, 76 (39.8%) skilled labourers, 22 (11.5%) unskilled labourers and

29 (15.2%) had no specific occupational activities. Among those who perceived that they had no risk of HIV infection, there were 2 (5.4%) students, 4 (10.8%) professionals, 12 (32.4%) skilled labourers, 15 (40.5%) unskilled labourers and 4 (10.8%) had no specific occupational activities. The latter comprised of school leavers, job seekers and housewives not involved in any income generating activity at the time of interview.

5.5 HIV sero-status of respondents

Table 8: HIV sero-status of VCT clients

HIV sero-status	Number of respondents	% Prevalence
Positive	48	15.9
Negative	252	83.7
Inconclusive	1	0.3
Total	**301**	**100**

The prevalence of HIV among the VCT clients was 15.9% (Table 7). Of those who were HIV positive, 21 (43.8%) were males and 27 (56.3%) were females. There is no statistical significant difference in the HIV sero-status between males and females.

Table 9: **Individual's risk perception by HIV sero-status**

	Perception of risk of infection			
HIV result	**High risk**	**Low risk**	**No risk**	**Total**
Positive	16 (33.3%)	30 (62.5%)	2 (4.2%)	48 (16%)
Negative	56 (22.2%)	161 (63.9%)	35 (13.9%)	252 (84%)
Total	72 (24%)	191 (63.7%)	37 (12.3%)	**300 (100%)**

Chi-square = 5.18 DF = 2 P = 0.075, not significant

There was no significant difference between individuals' perception of risk of HIV infection among those who tested HIV Positive and those who were HIV negative. However 16 (33.3%) of those who tested HIV positive had perceived that they were at high risk of HIV infection, 30 (62.5%) as low risk and 2 (4.2%) with no risk of HIV infection.

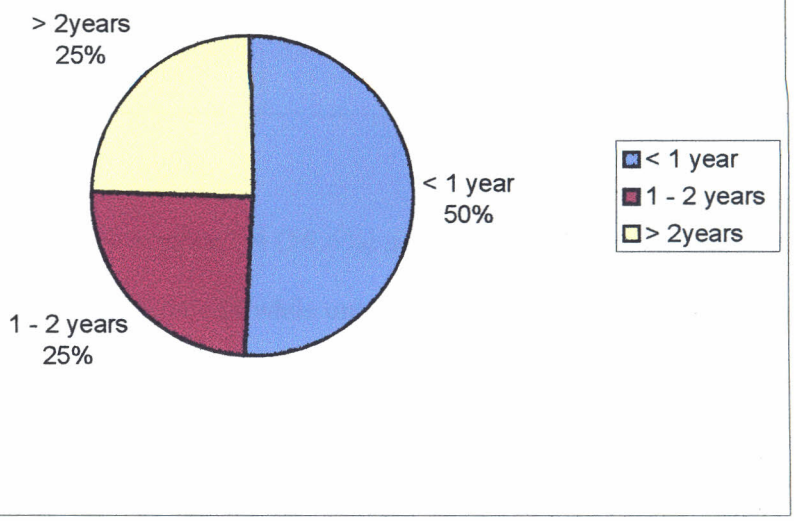
Of those who were HIV negative, risk perception of HIV infection was 56 (22.2%) high risk, 161 (63.9%) as low risk and 35 (13.9%) with no risk.

5.6 Duration of abstinence

Duration of abstinence in months ranged from 7 to 168 with a mean of 26.6 (SD = 29.085) and a median of 12. There was statistically significant difference in the average abstinence period in months between the sexes. For males, the mean was 33.1 (SD = 32.57) while

females had a mean of 11 months (SD = 4.87). The Mann-Whitney U – Wilcoxon Rank Sum W test gave a P value of 0.0006, which is significant. These were grouped as up to 1 year, 1 – 2 years and over 2 years as shown below.

Figure 3: Duration of abstinence



Those who were not sexually active in the last one year comprised 29 (50.9%), up to two years abstinence 14 (24.6%) and over two years 14 (24.6%). The 4 (7%) HIV positive clients among those in abstinence have been out of active sex for 2 years. Among them, 38 (66.7%) had cited their past risky sexual behaviour, 27 (47.4%) need to plan future as the main reasons why they came for VCT service.

5.6.1 Individual risk perception of those in abstinence

Table 10: Individual's risk perception among those in abstinence

Perception	Number of respondents	%
High risk	13	22.8
Low risk	34	59.6
No risk	10	17.6
Total	**57**	**100**

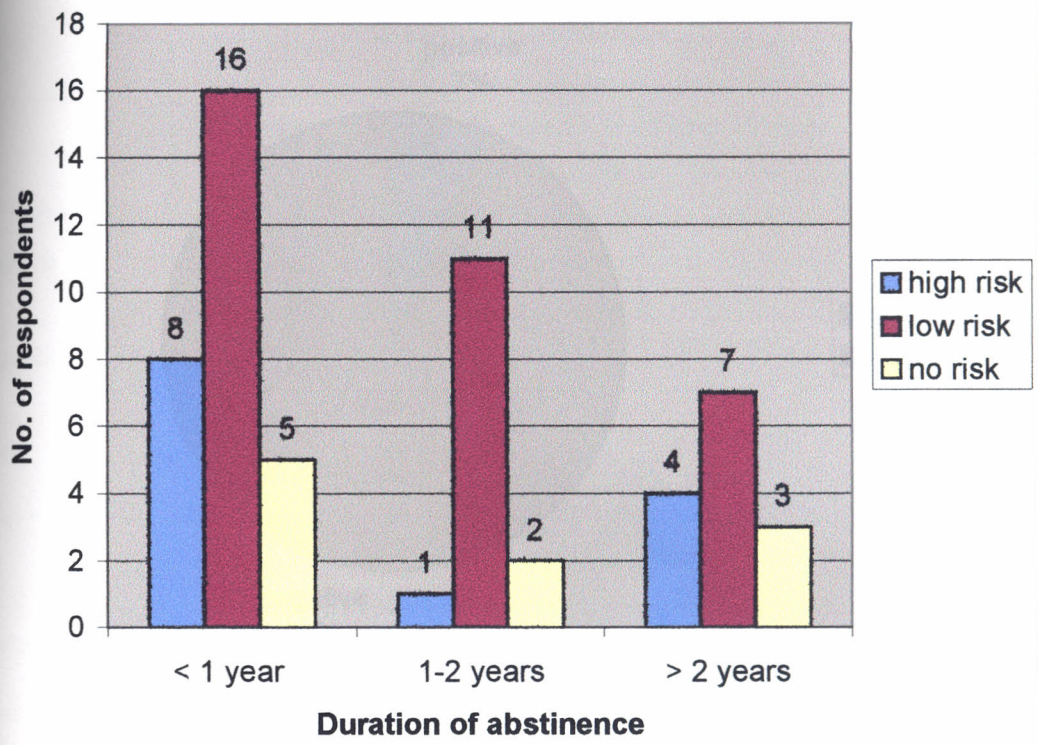
Most of those in abstinence, 34 (59.6%) perceived themselves as low-risk of HIV infection, 10 (17.6%) perceived no risk while only 13 (22.8%) perceived they were at high risk of HIV infection.

Among them, 7 (12.3%) predicted positive HIV results, 25 (43.9%) predicted a negative and a similar number was non-committal.

5.6.1 Individual risk perception of HIV infection by duration of abstinence.

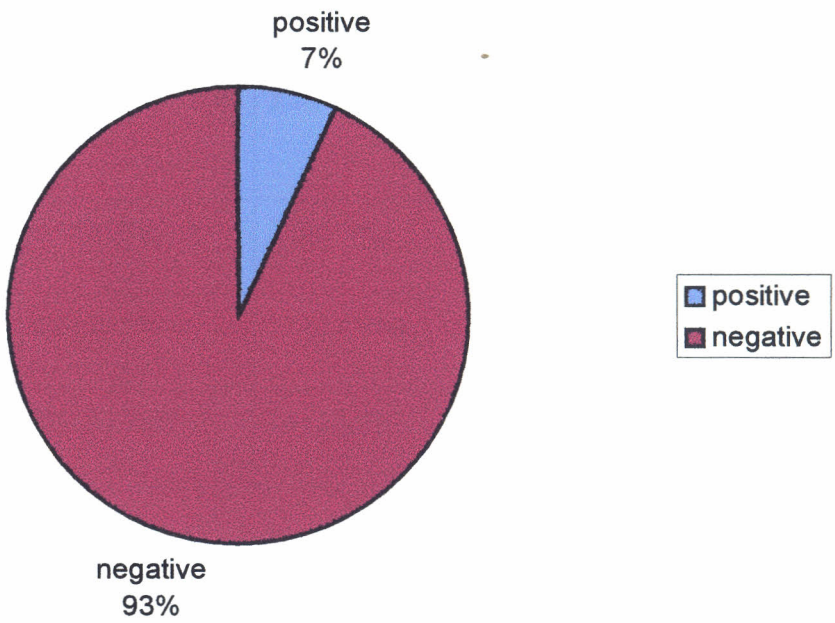
Despite no statistical significant difference between individual risk perception and duration of abstinence, those respondents with high risk perception of HIV infection, 8 (61.5%) abstinence of 7 months to 1 year, 1 (7.7%) one to two years abstinence and 4 (30.8%) over 2 years abstinence.

Figure 4: Individual risk perception by duration of abstinence



Despite these respondents having abstained for different lengths of time and having sought VCT services for various reasons such as, past sexual risky behaviour 38 (66.7%) and intention to plan the future 27 (47.4%) among other reasons it was noted that low individual risk perception predominates among those in abstinence. In general, 13 (22.8%) perceived themselves as high-risk of HIV infection, 34 (59.6%) perceived themselves as low risk while 10 (17.5%) perceived that they were not at risk of HIV infection.

Figure 5: Sero-status of those in abstinence



5.6.2 HIV sero-status of those in abstinence

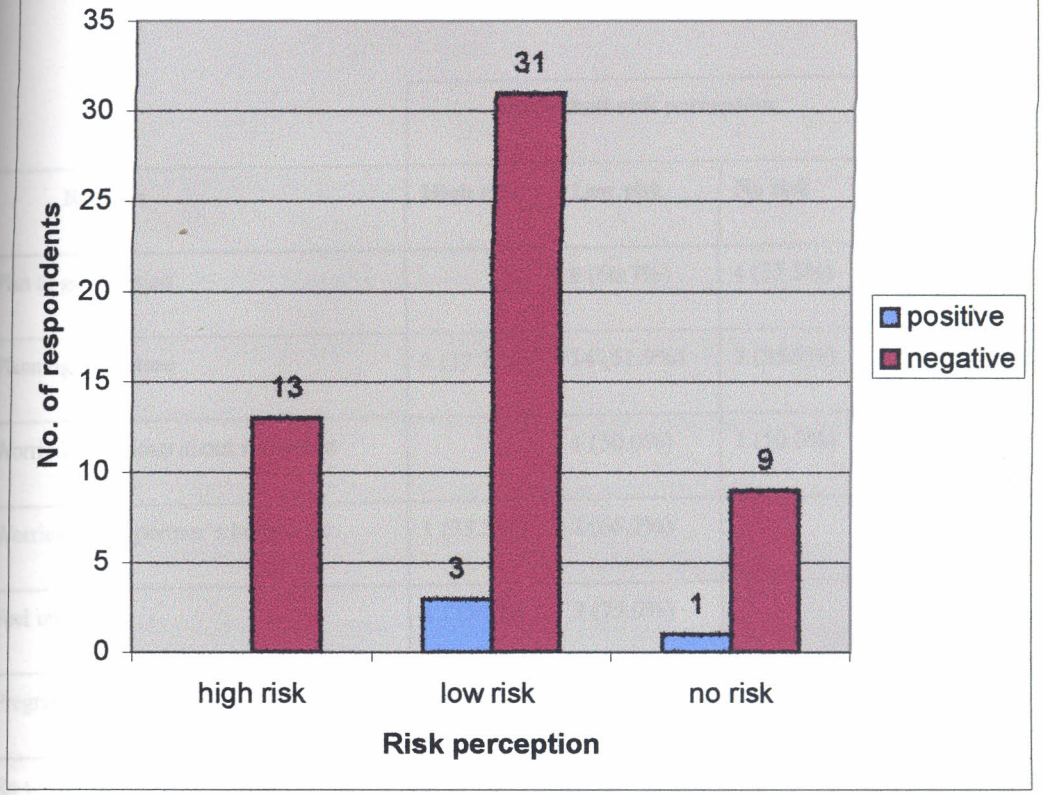
Of all those who were in abstinence, 4 (7%) were HIV positive and the rest were negative. The relationship between individual risk perception of HIV infection among those in abstinence and their sero-status is shown in the Table 11 below.

Table 11: Relationship between duration of abstinence and HIV sero-status

	Duration of abstinence			
HIV sero-status	**7 months – 1 yr**	**1 –2 years**	**Over 2 years**	**Total**
Positive	2 (50.0%)	2 (50.0%)		4 (7.0%)
Negative	*27 (50.9%)*	*12 (22.6%)*	*14 (26.4%)*	*53 (93%)*
Total	29 (50.9%)	14 (24.6%)	14 (24.6%)	**57 (100%)**

There was no statistical significant difference in the sero-status of those with varied durations of abstinence. However, it is observable that all those who were HIV positive among those in abstinence had up to two years of abstinence.

Figure 6: Risk perception by HIV sero-status of those in abstinence



The HIV positive respondents had perceived that they had low risk, 3 (75%) and 1 (25%) no risk of HIV infection. All those who perceived that they were at high risk were HIV negative.

Table 12: Individual risk perception and reasons for seeking VCT services among those in abstinence.

	Individual risk perception				
Reasons	**High risk**	**Low risk**	**No risk**	**Total**	**P**
Plan to get married		8 (66.7%)	4 (33.3%)	12 (21.1%)	
Planning the future	6 (22.2%)	14 (51.9%)	7 (25.9%)	27 (47.4%)	0.275
Worried & curious about my status		1 (50.0%)	1 (50.0%)	2 (3.5%)	
Worried about partner's behaviour	1 (33.3%)	2 (66.7%)		3 (5.3%)	
Feel unwell	1 (25.0%)	3 (75.0%)		4 (7.0%)	
Pregnant	1 (100%)			1 (1.8%)	
Re-union with steady partner	1 (50.0%)	1 (50.0%)		2 (3.5%)	
Partner who's sick/died	3 (100%)			3 (5.3%)	
Client's past sexual risk behaviour	8 (21.1%)	24 (63.2%)	6 (15.8%)	38 (66.7%)	
New sex partner(s)		1 (100%)		1 (1.8%)	
Others	2 (66.7%)	1 (33.3%)		3 (5.3%)	

There was no statistically significant relationship between individual risk perception and reasons for seeking VCT services among the respondents.

Nevertheless, it is important to note the predominant reasons for which those in abstinence sought VCT services. These were; client's past risk behaviour, 38 (66.7%), Planning the future, 27 (47.4%) and plan to get married, 12 (21.1%).

5.7 Risky Sexual Behaviour

This was evaluated by use of various parameters. Age at first sexual intercourse was 17.5 years (SD = 3.086) with a median of 18.0 years for the entire sample. The mean age at first sex varied between sexes with 18.3 years (SD = 2.93) for females and 17.1 years for males (SD = 3.099) where P value was 0.0007. All the other parameters below were only evaluated if one was sexually active in the last six months; sex under external influence, history of STD, number of sexual partners, knowledge of HIV sero-status of steady partner and condom use. These risky sexual behaviours evolve around the type of sex partner(s) that the clients had. Among the respondents, 244 (81.1%) had had sex in the last six months and 57 (18.9%) had not been sexually active. The latter group was analysed separately.

Evaluation of Risky Sexual Behaviours

This assessment was subjective and the highest obtainable score was 26 for females and 24 for males. For the purposes of this study, the mean score of 17.5 (SD = 2.67) mark was taken as the cut-off between high risk and low risk behaviour.

Table 13: Risk Evaluation Scores for those sexually active in preceding 6 months

Score (max. 26)	Number of respondents (n = 244)	%
12	4	1.6
13	4	1.6
14	14	5.7
15	29	11.9
16	39	16
17	60	24.6
18	26	10.7
19	13	5.3
20	10	4.1
21	16	6.6
22	15	6.1
23	11	4.5
24	2	0.8
25	1	0.4
Total	**244**	**100**

Therefore, considering the 17.5 cut-off score, risk evaluation is summarized as in the table below.

Table 14: Summary of Risk Evaluation by sex of respondents

	Sexual risk evaluation		
Sex	**Low risk** ***(score < 17.5)***	**High risk** ***(score > 17.5)***	**Total**
Male	81 (54.7%)	67 (45.3%)	148 (60.7%)
Female	69 (71.9%)	27 (28.1%)	96 (39.3%)
Total	**150 (61.5%)**	**94 (38.5%)**	**244 (100%)**

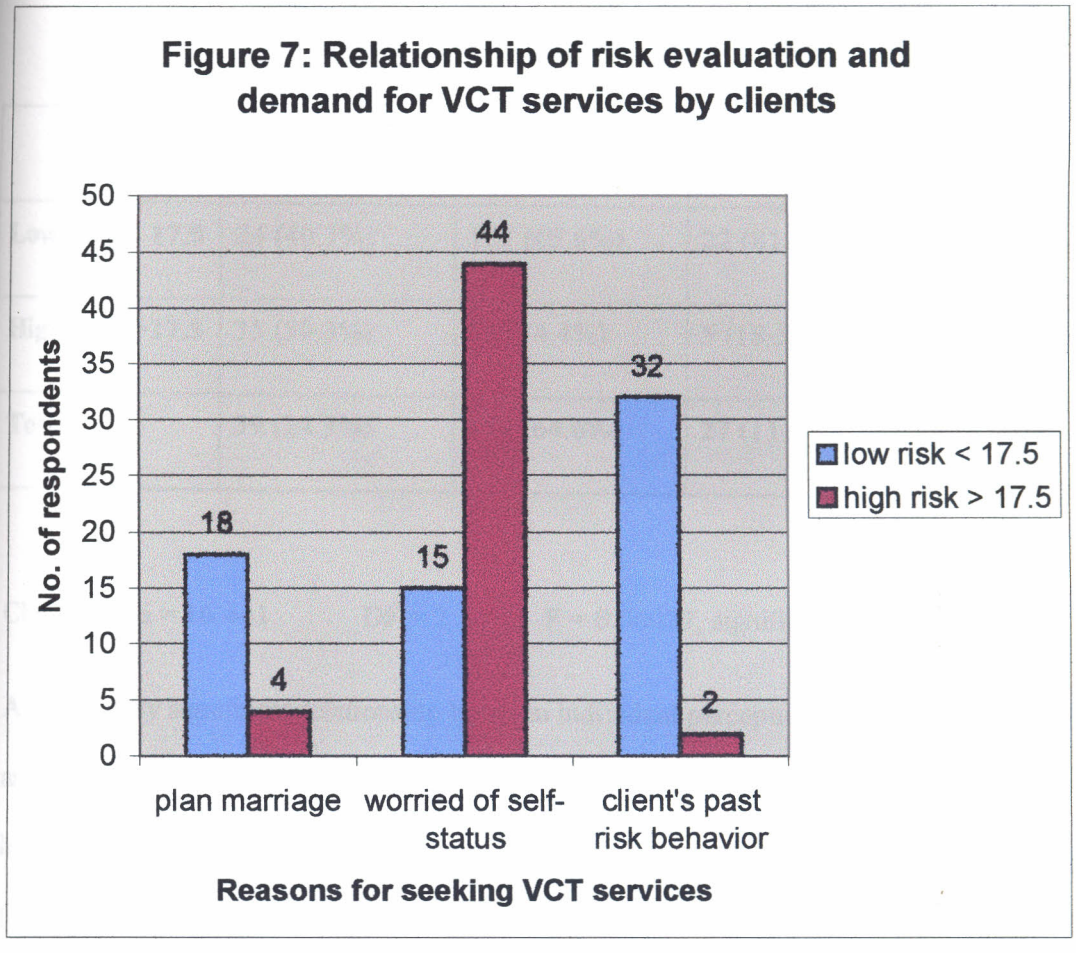
Chi – square = 7.228 DF = 1 P = 0.0072, significant.

There was statistically significant difference in the risk evaluation between male and female respondents in the study. Of the male respondents, 67 (45.3%) had high- risk score while 81 (54.7%) had low-risk score. For the females, 27 (28.1%) had high-risk score and 69 (71.9%) had low-risk score of below 17.5.

Table 15: Relationship between risk evaluation and reasons for seeking VCT services

	Sexual risk evaluation			
Reasons	**Low risk < 17.5**	**High risk > 17.5**	**P value**	**DF**
Plan to get married	18 (81.8%)	4 (18.2%)	**0.040**	**1**
Plan to get pregnant	4 (80%)	1 (20%)		
Planning the future	82 (56.9%)	62 (43.1%)	0.081	
Worried & curious about my status	15 (25.4%)	44 (74.6%)	**0.000**	**1**
Worried about partner's behaviour	19 (65.5%)	10 (34.5%)	0.634	
Feel unwell	14 (56.0%)	11 (44.0%)	0.553	
Recent blood transfusion	3 (75.0%)	1 (25%)		
Pregnant	5 (83.3%)	1 (16.7%)		
Re-union with steady partner	3 (100%)			
Child sick/died	1 (100%)			
Partner who's sick/died	4 (66.7%)	2 (33.3%)		
Exchanged sex for money/favours	1 (50.0%)	1 (50.0%)		
Shared needles	1 (100%)			
Client's past sexual risk behaviour	32 (94.1%)	2 (5.9%)	**0.000**	**1**
New sex partner(s)	5 (41.7%)	7 (58.3%)		
Others	12 (66.7%)	6 (33.3%)	0.638	

From Table 15, it was shown that there was significant statistical relationship between sexual risk evaluation and reasons for seeking VCT services such as; plan to get married, worried and curious about self-status and clients past sexual risk behaviour being the major reasons. The three are summarized in the figure below.



Those who responded positively to seeking VCT services because they planned to get married, 18 (81.8%) scored low risk and 4 (18.2%) scored high risk (P = 0.04). Among those who sought VCT services due to worry and curiosity of their own status, 15 (25.4%) scored

low risk and 44 (74.6%) scored high risk (P = 0). Those who sought services because of their past risk behaviour, 32 (94.1%) were scored low risk and 2 (5.9%) were scored high risk, (P = 0)

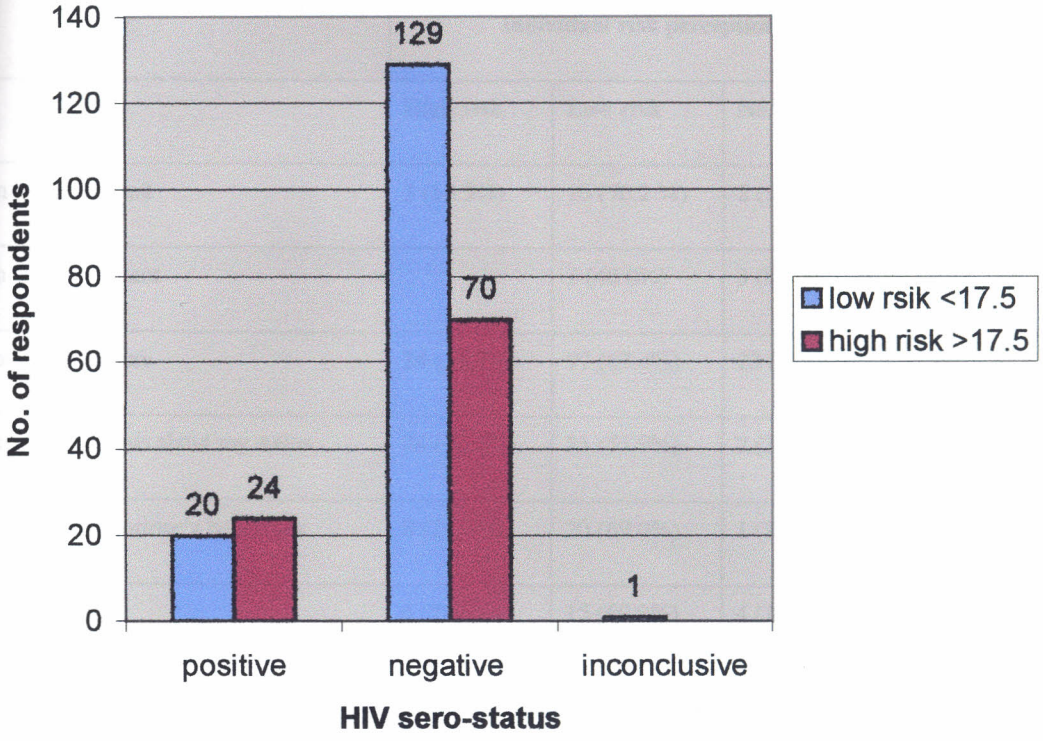
Table 16: Risk evaluation by perception of individual risk of infection

	Individual risk perception of HIV infection			
	High risk	**Low risk**	**No risk**	**Total**
Low risk < 17.5	24 (40.7%)	103 (65.6%)	22 (81.5%)	149 (61.3%)
High risk >17.5	35 (59.3%)	54 (34.4%)	5 (18.5%)	94 (38.7%)
Total	59 (24.3%)	157 (64.6%)	27 (11.1%)	**243 (100%)**

Chi – square = 16.441 DF = 2 P = 0.00027, significant.

A statistically significant relationship between individual perception of risk of HIV infection and sexual risk evaluation was established. Among those who perceived that they were at high risk, 35 (59.3%) scored high risk and 24 (40.7%) scored low risk. Those who perceived that their risk of infection was low, 102 (65.6%) scored low risk and 54 (34.4%) scored high risk. Those who perceived that they had no risk of infection, 22 (81.5%) scored low risk and 5 (18.5%) scored high risk.

Figure 8: Risk evaluation by HIV sero-status of VCT clients



Out of those scored low risk, 20 (13.3%) were HIV positive while 129 (86.0%) were HIV negative and 24 (25.5%) of those who scored high risk were HIV positive. However, no statistically significant relationship was established.

Table 17: Relationship between risk perception and reasons for seeking VCT services

	Individual risk perception				
Reasons	**High risk**	**Low risk**	**No risk**	**P value**	**DF**
Plan to get married	3 (14.3%)	16 (76.2 %)	2 (9.5%)	0.478	
Plan to get pregnant		2 (40.0%)	3 (60.0%)		
Planning the future	24 (16.7%)	97 (67.4%)	23 (16.0%)	**0.000**	**2**
Worried & curious about my status	24 (40.7%)	33 (55.9%)	2 (3.4%)	**0.001**	**2**
Worried about partner's behaviour	8 (27.6%)	20 (69.0%)	1 (3.4%)	0.371	
Feel unwell	6 (24.0%)	15 (60.0%)	4 (16.0%)	0.708	
Recent blood transfusion		3 (75.0%)	1 (25.0%)		
Pregnant	1 (16.7%)	4 (66.7%)	1 (16.7%)		
Re-union with steady partner	1 (33.3%)	2 (66.7%)			
Child sick/died		1 (100%)			
Partner who's sick/died	5 (83.3%)	1 (16.7%)			
Exchanged sex for money/favours	1 (50.0%)	1 (50.0%)			
Shared needles	1 (100%)				
Client's past sexual risk behaviour	9 (26.5%)	23 (67.6%)	2 (5.9%)	0.575	
New sex partner(s)	1 (8.3%)	8 (66.7%)	3 (25.0%)		
Others	8 (44.4%)	10 (55.6%)			

Statistically significant relationships were established between perception of risk of infection and reasons for seeking VCT services such as; planning the future and worried/curious about self-status.

Table 18: Relationship of Individual risk perception of HIV infection by sero-status

	Individual risk perception			
Sero-status	**High risk**	**Low risk**	**No risk**	**Total**
Positive	16 (27.1%)	27 (17.2%)	1 (3.7%)	44 (18.1%)
Negative	43 (72.9%)	130 (82.8%)	26 (96.3%)	199 (81.9%)
Total	59 (24.3%)	157 (64.6%)	27 (11.1%)	**243 (100%)**

Chi-square = 7.096 DF = 2 P = 0.0288, significant.

Among the respondents who perceived that they were at high risk of HIV infection, 16 (27.1%) were HIV positive and 43 (72.9%) were HIV negative (P = 0.0288). Of those who perceived that they were at low risk of HIV infection, 27 (17.2%) were HIV positive and 130 (82.8%) were HIV negative. The respondents who perceived themselves at no risk of HIV infection; 1(3.7%) was HIV positive and 26 (96.3%) were HIV negative.

CHAPTER 6: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

6.1 DISCUSSION

This study interviewed 188 (62.5%) males and 113 (37.5%) females who attended three VCT centres in Nairobi. This distribution by sex is consistent with observations in the study at Muhimbili Health Information Centre (MHIC), Tanzania that investigated the attitudes and beliefs among VCT clients. The overall results suggested that men are more likely to make decision for HIV testing than women (Mbwambo 2001).

The respondents were mainly of the age groups 20-29 years, 197 (65.4%) and 30-39 years, 72 (23.9%). This conforms to the age distribution of HIV infection in the general population where 80% of HIV infection in Kenya affects those in the age group 15-49 years (MOH 2001a). Therefore, since the core age group significant in HIV control and prevention is utilizing VCT services, the service could take the opportunity to make impact on behaviour change to achieve control and prevention of HIV transmission. This could best be monitored through regular evaluation of behaviour change among those in the post-test clubs and those on follow up counselling.

As for the sources of information on the VCT centres, the respondents cited different sources of information on VCT centres; posters and signposts 34.2%, Radio and TV 26.9%, other VCT client 23.3%, friend/family member 20.3% and newspapers 16.6% suggesting that the ongoing campaign is gaining ground in mobilizing people to go for VCT services. Among those who cited other sources of information on VCT centres, 7 (46.7%) had gotten information from the church. Of these, 1 single male and 1 separated/divorced male sought VCT services as they planned to marry. The others, 2 single males, 1 single female, 1 married

female and 1 married male sought VCT services for one or more of the following reasons: clients' present or past risky sexual behaviour and planning the future. This implies the churches' change of attitude from a blame point of view to an active role in the control of HIV transmission leading to reduction of HIV stigmatisation.

Nevertheless, to qualify this observation further, categorization of religion into various denominations/sects in future research is important since not all are against the use of condoms as a measure of controlling HIV transmission.

The HIV sero-prevalence in the study was 15.9%. Although it compares with the estimated prevalence in Nairobi province of 16%, the result is not representative of the general population due to the self-selective nature of the study population used in this study (MOH, 2001a).

6.1.1 Perception

High individual risk of HIV infection was perceived by (24%) of respondents while the rest perceived that they were at low and no risk. This compares well with a study in Harare, Zimbabwe where 24% perceived high personal risk of HIV infection among other studies. (Bauni, 2000; Cok, 2001; Nzioka, 2001; Pitts, 1991)

This study showed no significant difference in the individual risk perception between sexes, P value = 0.837, but males were more likely (61.1%) than females (38.9%) to consider themselves at high risk of HIV infection. Similar findings were obtained in a study in Central African Republic where in general, many men and women perceived that they had no risk of acquiring HIV infection, but in that study, women were more likely (12.4%) than men (5.6%) to consider that they were at high risk of HIV infection. (Nguelebe 1995)

This study showed significant relationship between individual risk perception and education level (P = 0.0076) in that among those who perceived themselves at high risk of HIV infection, (8.3%) had primary level, (40.3%) had secondary level and, (51.4%) tertiary level of education. Therefore, higher the levels of education influence the chances of high-risk perception of HIV infection.

Statistical significant difference in individual risk perception among various occupations (p = 0.00057) was demonstrated in that skilled persons and professionals comprised (50%) of those with high-risk perception of HIV infection while (27.8%) were students mainly from tertiary colleges.

There was no statistically significant relationship between individual risk perceptions and HIV sero-status for n = 301 respondents, (P value = 0.075). However, considering those who were sexually active in the last six months, there was a statistically significant association between individual risk perception and HIV sero-status (P value = 0.0288). Out of those who perceived that they were at high risk of HIV infection, (27.1%) were HIV positive while (17.2%) and (3.7%) of those who had perceived that they were at low and no risk respectively, were HIV positive.

There were (7%) HIV positive respondents among those in sexual abstinence and all had abstained for between 6 months and 2 years. Although there was no significant relationship established, it was important to note that those who were sero-positive had perceived that they were at low (75%) and (25%) no risk of HIV infection. This is possible because they had already changed behaviour.

6.1.2 Reasons for seeking VCT services

The predominant reasons for seeking VCT services were; plan future (56.8%), clients' past sexual risk behaviour (23.9%), worried about self-status (20.3%), plan to get married (11.3%), worried by partner's behaviour (10.6%) and feeling unwell among others. This compares well with the Zambian study and is in keeping with the global response to HIV infection. (Chama, 2000)

Those (7.0%) who stated other reasons for seeking VCT services cited more issues concerning HIV transmission. Others expose unmet needs among the general public who then use VCT as an entry point for care and more information. These include reasons such as dermatological problem, having a sexually transmitted disease, Infertility, Stress and getting information on oral sex.

This, as stated in the National Guidelines for VCT services, is the basis of the recommendation that VCT centres should be established and developed to deliver wholesome VCT services through well-established network (MOH, 2001b). For instance, those seeking VCT services because of stress, seeking information on oral sex or poor sexual satisfaction from partner, require different counselling and follow up approach. Those presenting with health problems would benefit through efficient internal and external referral networks depending on the VCT centre.

The main reasons for seeking VCT services among the (81.1%) sexually active respondents were; plan the future (59.0%), worried and curious about self-status (24,2%), clients' past risk behaviour (13.9%) and feeling unwell (10.2%) among other reasons.

Individual risk perception was significantly related to the following reasons of seeking VCT services; plan the future ($P = 0$) and worried and curious about self- status ($P = 0.001$).

The predominant reasons for those in abstinence were; clients' past sexual risk behaviour (66.7%) plan the future (47.4%) and plan to get married (21.2%) among other reasons stated.

Due to the small size of the sample (n = 57), it was not possible to subject this to statistical analysis the individual risk perception and reasons for seeking VCT services.

Nevertheless, it was important to note that, out of those who sought VCT because of their past sexual risky behaviours, (21.1%) had high risk perception of HIV infection. High-risk perception was indicated by (22.2%) of those who sought VCT to plan their future and none of those who planned to get married perceived that they were at high risk of HIV infection.

6.1.3 Evaluation of risky sexual behaviours

This involved only those who were sexually active in the last six months. Risky sexual behaviours considered were; number and type of sexual partners, sex under external influence like alcohol, drugs or for money /material gain and failure to use condoms. Age at first sex was also considered because of its association with HIV transmission. (Menya, 1998; MOH, 2001a)

The mean age at first sex for n = 300 was 17.5 years (SD = 3.086). The mean age for males was 17.1 years (SD = 3.099) and 18.3 years for females (SD = 2.93). This age difference was significant with P value of 0.0007. This means that the males in the study population got sexually active about one year earlier than the females. This finding compares well to the findings of the Kenya Demographic Health survey that males get sexually active about one year earlier than females. (NCPD 1999; MOH, 2001a) The risky sexual behaviours were

scored per individual and proportion of those who attained above the 17.5 mean score was considered high-risk (38.5%) and (61.5%) low-risk.

There was a significant relationship between risk evaluation and sex of respondents (P = 0.0072). Out of those who were sexually active in the last six months, (45.3%) of the males were scored high risk compared to (28.1%) of the females in the same category. Those scored low risk, (54.7%) and (71.9%) were males and females respectively.

Risk evaluation was significantly associated with individual risk perception of those who were sexually active (P = 0.00027). Of those who perceived that they had high risk of HIV infection, (59.3%) were scored high risk and those who perceived that they were low and no risk, (34.4%) and (18.5%) were scored high risk respectively.

The relationship between risk evaluation and sero- status was not statistically significant. However, it was important to note that (25.5%) of those scored high risk were HIV positive and (13.3%) of those scored low risk were HIV positive.

There were significant associations established between risk evaluation and the following reasons of seeking VCT services; plan to get married P value = 0.04, worried and curious about self-status P value = 0 and clients past risky sexual behaviour P value = 0.

A unique finding in this study was that 57 (18.9%) of the respondents were clients seeking VCT services when they have already adopted such behavioural changes in their life as abstinence. The period of abstinence varied from 7 months to 13 years. The mean duration of abstinence was 26.6 months. Significant difference between sexes was noted with males having a mean of 33.1 months (SD = 32.57) and females had a mean of 11.4 (SD = 4.87) with a p value of 0.0006. Thus women managed to have abstained for about one year while men had average abstinence period of over 2.5 years.

6.2 CONCLUSION

This study was able to achieve its objectives. The main objective was to evaluate individual risk perception of acquiring HIV infection and risky sexual behaviours among VCT clients and relate these to reasons for seeking VCT services and their sero status.

The awareness campaign through posters/signposts and media are reaching their appropriate target as evidenced in the study from the sources of information about VCT centres.

Among those who were sero- positive, females were more affected contributing 56.3%. Individual risk perception of acquiring HIV infection was low as shown by the study that only 24% of the study population perceived that they were at high risk of HIV infection. It is of importance to note that men were more likely to perceive that they are at high risk of HIV infection compared to women. Socio-demographic characteristics, such as occupation and level of education proved to be related to the individual risk perception of HIV infection.

This is a challenge to the awareness campaign programs to design strategies that empower women to enable them, change attitude and perception of HIV infection thus enhance their decision making concerning taking a HIV test.

Individual risk perception was found to be associated with HIV sero-status, risk and some reasons for seeking VCT services such as; planning the future and worry / curiosity of self status. These findings are essential in behaviour change. In this case, an individual who perceives his/her sexual behaviour as risky is likely to adhere to the client specific risk reduction plan that one formulates with the help and guidance of the counsellors. Support counselling which is an enabling process should be initiated during follow up counselling. The impact of the VCT services on behaviour change should then be monitored and evaluated through health research to ensure achievement of its goal.

6.3 LIMITATIONS OF THE STUDY

1. Misclassification of some of the negative HIV results for clients in the "window period" where sero-conversion had not occurred. Due to limitation of funds and time, this study was not in position to control for this since no follow up testing was to be done later on all those with initial negative results.

2. Self-report bias may have arisen in the risk evaluation and perception of risk of getting HIV infection. Many research assistants stated a number of times that clients were able to open-up more during post-test counselling when they already know the results than during the pre-test. In such cases, the researcher clarified the facts and made appropriate adjustments.

3. It was noted during data collection that some research assistants did not understand some concepts and terminologies on the National VCT questionnaire while others mixed up occupational classifications. For instance, a client who had had oral sexual contact with a steady partner was considered as not having been involved in heterosexual or homosexual sex.

   Another error arose when the client was a medical student but happened to be taking some part-time job in a clinic and was classified as a professional.

4. Misclassification of reasons for seeking VCT services since the option for clients past behaviour does not appear on the national VCT form. For purposes of this study, the research assistants were instructed to group it among others and then it was set on its own during data processing.

5. The study design applied limits generalisation of the results to the general population since a self-selected study population was involved. However, the study generated

vital issues in VCT services that need further consideration and research during this period of advocacy and promotion of VCT services in Kenya.

6.4 RECOMMENDATIONS

1. The government through collaboration with NACC and other stakeholders need to strengthen the on going awareness campaign so as to change attitude and improve on individual risk perception of risk of HIV infection since it has been shown to be very low even among those seeking VCT services.

2. The Ministry of Health through NASCOP should facilitate revision of the national VCT form in order to cope with changes in the requirement of clients to ensure the best service for all.

3. The Counselling bodies and employers need to enhance counsellor supervision to improve and sustain counselling skills on the job. They also need to have regular refresher courses on HIV information and VCT counselling so that they get updates on new developments in the field of HIV infection. This is important since some clients get a lot of information from other sources including the internet and would like clarification when they come for VCT services.

4. Further research is suggested to evaluate the VCT services and the impact of VCT services on behaviour change following the initial HIV counselling. This would cover those in the window period and those VCT clients in abstinence, right from the study design. This may require qualitative component to measure behaviour change following VCT.

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APPENDIX

Questionnaire

Section A Demographic data

Client code ----------

Centre code	1	KNH
	2	Mugumo-ini
	3	Sokoni

Age _____

Sex	1	male
	2	female

Education level	1	Nil
	2	Primary
	3	Secondary
	4	Tertiary

Marital status	1	Single
	2	Married

	3	Widowed
	4	Separated/Divorced
Occupation	1	Student
	2	Professional
	3	Skilled
	4	Unskilled
	5	None
	Specify----------	
Presentation	1	Individual
	2	Couple

How did you learn of this VCT centre?

1 Friend/family member

2 Partner

3 Poster / sign post

4 Other VCT client

5 Referred from another VCT site

6 Community meeting

7 Health worker

8 Radio/TV

9 Newspaper

10 Other_____

Section B **Reasons for seeking VCT services**

Tick all that apply

1 [ ] Plan to get married

2 [ ] Plan to get pregnant

3 [ ] Planning the future

4 [ ] Worried and curious about my status

5 [ ] Worried about my partners behaviour

6 [ ] Feel unwell

7 [ ] Recent blood transfusion

8 [ ] Pregnant

9 [ ] Re-union with steady partner

10 [ ] Had a child who is sick or died from AIDS or unknown illness

11 [ ] Had a partner who is sick or died from AIDS or unknown illness

12 [ ] New sexual partner(s)

13 [ ] Exchanged sex for money/favours

14 [ ] STD or other worrying symptoms

15 [ ] Shared needles/Intravenous drug use

16 [ ] Client's past sexual risky behaviour

17 [ ] Others (specify)_____

_____

Section C **Risk evaluation**

(This section was applicable only to those who were sexually active)

1. At what age did you have sex for the first time? ----------

2. Have you had sex in the last 6 months? 1 Yes

2 No

If no, How long ago did you have sex last? ---------- months

(Then move to question no. 11)

3. **If yes,** have you had sex while under drugs/alcohol? 1 Yes

		2	No
	or exchanged money/material/drugs for sex?	1	Yes
		2	No
	or raped in the last 6 months?	1	Yes
		2	No
4.	Have you suffered from any STD in the last 6 months?	1	yes
		2	No

5. **(If single)** How many sex partners have you had in the last 6 months?

Steady ----------

Non-steady----------

(If married) Have you had other sexual partners in the last 6 months?

1	Yes	
2	No	

(If yes) How many? Steady ------

Non-steady----

6.	Do you know the HIV sero-status of your steady partner?	1	Yes
		2	No
	If yes, what is the result?	1	Positive
		2	Negative

7.	Have you used condoms in the last 6 months with S/P?	1	Yes
		2	No
8.	**If yes,** how often do you use condoms on S/P?	1	Always
		2	Occasionally/Mostly
9.	Have you used condoms in the last 6 months with N/S/P?	1	Yes
		2	No
10.	**If yes**, how often do you use condoms on N/S/P?	1	Always
		2	Occasionally/Mostly
11.	Did you use a condom the last time you had sex?	1	Yes
		2	No

Section D **Individual's risk perception**

1	From your own point of view, do you perceive yourself at risk of getting HIV infection.	1	High risk
		2	Low risk
		3	No risk
2.	What most probable result did you expect as you came for VCT today?	1	Positive
		2	Negative

	3	Cannot predict

Section E **Results**

HIV Rapid test results	1	Positive
	2	Negative
	3	Inconclusive