Dissertation By
MUTUA, M.
ERNEST

SCHOOL OF
PUBLIC HEALTH
MOI UNIVERSITY

HIV RISK PERCEPTION AND SEXUAL BEHAVIOUR AMONG STI PATIENTS ATTENDING UASIN GISHU DISTRICT HOSPITAL, ELDORET-KENYA

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BY

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DECLARATION

DECLARATION BY STUDENT

I hereby declare that this thesis is my original work, presented in partial fulfillment for the award of the Degree in Master of Public Health of Moi University.

Ernest Mutua
SPH/PGH/01/06
ernmutua@yahoo.com

DECLARATION BY SUPERVISORS

This thesis has been submitted with our approval as University Supervisors.

Ms. J. B. Baliddawa
Lecturer,
Department of Behavioral Sciences,
School of Medicine,
Moi University,
P.O. Box 4606,
Eldoret, Kenya

Dr. S. Ndege
Lecturer,
Department of Epidem. & Nutrition,
School of Public Health,
Moi University,
P.O. Box 4606,
Eldoret, Kenya

DEDICATION

To all my family members for their support and encouragement through out the entire period of my study.

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I wish to recognize and appreciate the efforts, commitment and dedication of all those who contributed in one way or another to the success of this project.

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I recognize the contribution and critique made by my colleagues.

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LIST OF ABBREVIATIONS AND ACRONYMS

ARRM – AIDS Risk Reduction Model

AIDS- Acquired Immunodeficiency Syndrome

BSS - Behavioral Surveillance Survey

CDC- Center for Disease Control and Prevention

CD4 – cluster differentiated cells

HBM – Health Belief Model

HIV- Human Immunodeficiency Virus

HSV 2 – Herpes Simplex Virus Type 2

IREC- Institutional Research and Ethics Committee

KDHS – Kenya Demographic Health Survey

MOH- Ministry of Health

MPH – Masters in Public Health

NACC- National AIDS Control Council

NASCOP- National AIDS and STI Control Programme

PGH- Post Graduate Student in the School of Public Health.

STI- Sexually Transmitted Infection

SPH- School of Public Health

UNAIDS- Joint United Nations Programme On HIV/AIDS

VCT- Voluntary Counseling and Testing

WHO – World Health Organization

DEFINITION OF TERMS

Clinician – Clinical/Medical Officer

District Hospital- A health care institution under the Ministry of Health, which covers a given district in the provincial administrative structure.

Dysuria – Sensation of pain on passing urine

HIV Risk perception- The subjective judgment that people make about their individual vulnerability to HIV

Inguinal Adenopathy – Swelling of lymph nodes in the groin

Sexual Behavior - Sexual practices with regard to sexual transmission of HIV, for example, number of sexual partners, condom use

STI Clinic- A health care facility where patients with STIs are diagnosed and treated.

STI Patient- a Clinic attendee diagnosed of a Sexually Transimitted Infection according to the WHO STI syndromic management criteria.

ABSTRACT

Title: HIV Risk Perception and Sexual Behavior among STI Patients Attending Uasin Gishu District Hospital STI Clinic, Eldoret.

Background: Individual risk perception has been mentioned in the AIDS Risk Reduction Model, as the first stage in adopting HIV protective behavior (Catania *et al*., 1990). Yet no study has been done to determine the level of risk perception among high risk groups like STI patients.

Objectives: The study sought to: 1) determine the level of perceived HIV/AIDS risk among STI patients, 2) describe HIV related sexual practices among STI patients 3) determine the proportion of STI patients with HIV misconceptions 4) determine predictors of condom use in the last sexual encounter.

Study design: This was a cross sectional study.

Setting: The study was carried out at Uasin Gishu District Hospital STI clinic, Eldoret-Kenya.

Study Sample: A total of 390 STI patients being seen at Uasin Gishu District Hospital STI clinic participated in the study.

Data Collection Methods: Data was collected using an interviewer administered semi-structured questionnaire.

Data analysis: Data on HIV risk perception, sexual practices and misconceptions was summarized and presented using proportions, frequency tables and bar charts. A multiple logistic regression model was fitted to determine the predictors of condom use in the last sexual encounter.

Findings: The mean age of the participants was 30 years. Most of the respondents (75.9%) underestimated their risk for HIV, with only 23.3% correctly stating their risk as high and the remainder (0.8%) saying that they did not know their risk. Only 28% of the respondents who had sex in the preceding 12 months, reported condom use in the last sexual encounter. In multivariate analysis, significant predictors of condom use in the last sex included: self perceived risk for HIV, previous episode of an STI and possession of misconceptions on HIV and AIDS.

Discussion, Conclusion and Recommendation: A high proportion of STI patients underestimate their risk for HIV. Unsafe sexual practices (lack of condom use, multiple sexual partners) were also rampant among STI patients. Despite universal awareness of HIV, Some STI patients still possess HIV misconceptions. The association between self perceived risk for HIV and adoption of protective behavior (condom use) is consistent with the AIDS Risk Reduction Model. Behavior change communication programs targeting high risk groups should emphasize on enhancement of risk perception and correction of HIV misconceptions.

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Globally, Acquired Immunodeficiency Syndrome (AIDS) has killed more than 25 million people since it was first recognized in 1981, making it one of the most destructive epidemics in recorded history (UNAIDS/WHO, 2005). Despite recent improved access to antiretroviral treatment and care in many regions of the world, the AIDS epidemic claimed 3.1 million [2.8–3.6 million] lives in 2005; more than half a million (570 000) were children. The total number of people living with the human immunodeficiency virus (HIV) reached its highest level: an estimated 40.3 million [36.7–45.3 million] people are now living with HIV. Close to 5 million people were newly infected with the virus in 2005 (UNAIDS/WHO, 2005).

Kenya is among the countries in sub Saharan Africa where the devastation of AIDS has had a profound effect. According to Kenya HIV/AIDS Data Booklet (NACC, 2005), almost 1.3 million people are infected with HIV. As in all countries in sub-Sahara Africa, the predominant mode of HIV transmission in Kenya is sexual contact, therefore making behavior change the cornerstone in reducing infection rates.

The socio psychological literature on health-related behavior emphasizes the perception of being at risk of infection as being one of the necessary conditions for behavioral change (Laura, 2002). Moreover, the degree of the perceived risk seems to affect individuals' actual control in adopting preventive measures (for example, condom use). For instance, in the literature focusing on contexts with high HIV prevalence, it is a

common finding that the wife's ability to ask her husband to use a condom is significantly enhanced by the extent she feels to be at risk of HIV (Wolf and Blanc, 2000). Individual risk perception has also been mentioned in the AIDS Risk Reduction Model, as the first stage in adopting HIV protective behavior (Catania *et al*., 1990).

STIs are caused by a number of pathogens, that is, bacteria, viruses, protozoal agents, fungal agents and ecto-parasites. The World Health Organization (WHO) estimates that approximately 340 million incident cases of the four main curable STIs (gonorrhoea, *Chlamydia* spp, syphilis and *Trichomonas vaginalis*) occur every year, with 85% in nonindustrialised countries (Gerbase A *et al*, 1998) Existing evidence indicates that presence of other STIs increases the likelihood of both transmitting and acquiring HIV (Fleming and Wasserheit, 1999). Targeting behavioral studies and interventions to STI patients is therefore important in reducing sexual transmission of HIV.

This study was carried out at Uasin Gishu District Hospital STI clinic, where existing records indicated an average attendance of about 100 to 150 STI patients per month.

1.2 PROBLEM STATEMENT

Ever since HIV was identified as the virus that causes AIDS, there is still no cure. AIDS responses have grown and improved considerably over the past decade. But all this has not matched the scale or the pace of a steadily-worsening pandemic.

Despite a great deal of medical information about this virus, including the advent of highly active antiretroviral therapy, the world still continues to face escalating epidemics of the scourge (Kippax *et al.*, 2003). The adoption of preventive behavior would be the only protection against the virus, if a major medical breakthrough remains elusive.

It is against this background, that focus and strategy has now taken a major shift towards strengthening awareness- based programs that target behavior change.

In Kenya, significant gains from these awareness programs are clearly evident: HIV and AIDS awareness has virtually become universal. Almost all Kenyan adults have heard of AIDS, and three-quarters know someone personally who has AIDS or has died of AIDS (KDHS, 2003). This awareness has however not translated into much behavior change since some groups of people still continue to engage in HIV risky behaviors. According to the 2003 KDHS report, about one-third (30%) of young women and 84% of young men report engaging in high risk sexual behavior. Thus there exists a gap in knowledge for factors other than awareness that are important in bringing about HIV behavior change.

The importance of risk perception as an influencing factor in adoption of HIV protective behavior has been shown in the existing models on behavior change. Yet no study to date has been done to specifically establish the level of self perceived risk among STI patients as a high risk group of people.

1.3 JUSTIFICATION

People infected with STIs constitute a highly vulnerable and susceptible group for HIV infection. A previous study (Wasserheit, 1992) indicates that individuals who are infected with STIs are at least two to five times more likely than uninfected individuals to acquire HIV if they are exposed to the virus through sexual contact. According to the same study, presence of an STI facilitates HIV transmission by increasing both HIV infectiousness and HIV susceptibility. The predominant mode of transmission of both HIV and other STIs is sexual intercourse. Measures for preventing sexual transmission of HIV and STIs (for example condom use) are the same, as is the target group for interventions. Targeting STI patients is therefore an important strategy in control of sexual transmission of HIV.

Existing literature on health-related behavior emphasizes the importance of risk perception as one of the necessary conditions for behavioral change (Laura, 2002). Presence of misconceptions about HIV and AIDS has also been cited as a possible barrier to adoption of HIV protective behavior (Konde-Lule, 1993; Nzioka, 1996).

Hence there is need to have continuous surveillance systems in the form of behavioral studies to track the levels of risk perception, sexual practices, knowledge and any misconceptions concerning HIV and AIDS among high risk groups of people.

This study sought to obtain baseline information on individual HIV risk perception and HIV related sexual behaviors and misconceptions among such high risk groups as patients with STIs. Such information was intended to form a basis for development of an HIV/AIDS prevention health education program that targets behavior change by increasing levels of risk perception and correcting any misconceptions among STI patients.

1.4 RESEARCH QUESTION

Do people with STIs perceive themselves to be at high risk for HIV infection?

1.5 STUDY OBJECTIVES

1. To assess the level of self perceived HIV risk among STI patients
2. To describe HIV related sexual practices among STI patients
3. To identify HIV misconceptions among STI patients
4. To determine the predictors of condom use in the last sexual encounter

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The content of this chapter will be presented in two sections. Under Section one, pertinent literature on various components of the study will be categorized into: HIV and STIs, HIV risk perception, HIV risky sexual behavior, beliefs and misconceptions about HIV and AIDS**.** In section two, the conceptual framework underlining the rationale of the study will be discussed.

2.2 STIs and HIV

STIs impose an enormous burden of morbidity and mortality, both directly through their impact on reproductive and child health, and indirectly through their role in facilitating the sexual transmission of HIV infection (Philippe M and Duncan M, 2001). The World Health Organization (WHO) estimates that approximately 340 million incident cases of the four main curable STIs (gonorrhoea, *Chlamydia* spp, syphilis and *Trichomonas vaginalis*) occur every year, with 85% in nonindustrialised countries (Gerbase A *et al,* 1998).

STI patients are classified among the high risk groups for contracting or transmitting HIV. This is so because of the existing evidence that having an STI increases both susceptibility and infectiousness for HIV (Fleming and Wasserheit, 1999). Such a link between STIs and HIV is viewed in two aspects:

- *Increased susceptibility***;** Genital ulcers (for example, syphilis, herpes, or chancroid) result in breaks in the genital tract lining or skin. These breaks create a

portal of entry for HIV. Non-ulcerative STIs (for example, chlamydia, gonorrhea, and trichomoniasis) increase the concentration of cells in genital secretions that can serve as targets for HIV (for example, CD4 cells).

- *Increased infectiousness***;** Studies have shown that when HIV-infected individuals are also infected with other STIs, they are more likely to have HIV in their genital secretions. For example, men who are infected with both gonorrhea and HIV are at least twice more likely to shed HIV in their genital secretions than those who are only infected with HIV. Moreover, the median concentration of HIV in semen is as much as 10 times higher in men who are infected with both gonorrhea and HIV than in men infected only with HIV.

The above mechanisms have also been demonstrated in other studies. In sub-Saharan Africa, for example, infection with the viral HSV2 (herpes simplex virus type 2) appears to be strongly associated with HIV infection (McFarland *et al.,* 1999). HSV2, which is incurable, causes periodic genital ulcers throughout life. Studies in Zimbabwe and Tanzania suggest that the two viruses favor each other, with each boosting the odds that a person will contract and transmit the other (McFarland *et al.,* 1999). Some studies have also suggested an association exists between infection with bacterial vaginosis (a common vaginal infection in women of childbearing age) and HIV. Research from South Africa suggests that infection with bacterial vaginosis could double a woman's susceptibility to HIV infection (Myer *et al.,* 2005).

The strong link between STI and HIV as shown in the above studies further underpins the view that designing specific AIDS risk reduction programs to target STI patients is critical in preventing sexual transmission of HIV. Identifying people with STIs allows for

not only the benefit of treating the STI, but for prevention education, HIV testing, identifying HIV-infected persons in need of care, and partner notification for STIs or HIV infection (UNAIDS Epidemiological Fact Sheet, 2005).

2.3 HIV Risk perception

Despite being considered to be the first stage towards behavioral change, HIV risk perception is still low in some populations in Kenya. A study carried out among migrant tea workers in Kenya showed that despite the respondents having high awareness about HIV and AIDS, a big proportion still perceived themselves to be at low risk of infection, and did not consider AIDS to be a serious problem in the community (Ondimu, 2006). The socio psychological literature on health-related behavior emphasizes the perception of being at risk of HIV infection as being one of the necessary conditions for preventive behavior to be adopted (Laura, 2002). Several studies have demonstrated that increasing perception of risk increases HIV protective behavior. In a study done using data from the 1998 Kenya Demographic and Health Survey, a strong positive association was found to exist between perceived risk of HIV and sexual behavior for both women and men (Akwara, *et al.*, 2003).

A study of South African couples found that women who considered themselves at risk of HIV because of their husbands were four times as likely to use condoms as women who did not (Maharaj, *et al.*, 2005). In a study of university students in Zimbabwe and Nigeria, those who used condoms were more likely than nonusers to have an accurate

perception of their HIV risk (Akande, 1994). Personal risk perception was also associated with increased condom use among urban youth in Cameroon (Meekers and Klein, 2002) In Ghana, self-perceived high risk among youth was associated with sharply increased odds of condom use at last sex (Adih and Alexander, 1999)

The findings above are consistent with HIV behavior change models, where risk perception is identified as a prerequisite for behavior change. Though the existing evidence indicates that STI patients are at a higher risk for HIV, no study has yet been designed to determine whether they perceive their risk as such.

2.4 HIV Risky Sexual Behavior

Despite the increased awareness of HIV and AIDS, risky sexual behavior is still prevalent. In the 2003 KDHS, high risk sexual behavior is defined as sex with a non-marital, non-cohabitating partner in the 12 months preceding the survey. In the report (KDHS, 2003), 18% of women and 40% of men were reported to have engaged in high risk sexual behavior in the year before the survey. Less than one-quarter of the women and one half of the men used a condom at their most recent high risk sexual encounter (*KDHS*, 2003).

This persistent behavior indicates that heightened awareness of HIV and STIs, and of the efficacy of condom use were not translating into safer sex.

A recent behavioral survey on youth (BSS, 2002) found out that about 65% of out-of-school youth were sexually active and engaged in early and risky sex.

According to a 2005 NASCOP report, sex with non-regular partners or sex workers without a condom is prevalent. Unprotected sex with higher-risk partners is most

common among out-of-school youth (78%). Among out-of-school youth, condom use is particularly low at first sexual encounter (21%) and remained relatively low with non-commercial sex partners (NASCOP, 2005). Information from all the above surveys, only describes the sexual behavior of the general population, without special focus on HIV high risk groups like STI patients.

Effective prevention of STIs including HIV requires consistent and correct use of condoms (CDC, 2002). Information on previous use of condoms among STI patients is therefore important in order to determine the proportions of those who did not use at all and those who used but inconsistently.

2.5 Beliefs and Misconceptions about HIV and AIDS

A report published by UNAIDS in the year 2000 noted that general awareness of AIDS is no longer important in AIDS prevention but accurate knowledge of how HIV is transmitted is important. For example if people believe that mosquitoes transmit HIV, they may see the use of condoms as futile. Some researchers report that asymptomatic transmission of HIV is not common in local concepts of disease (Irwin, *et al*., 1991; Hogsborg and Aaby, 1992). A study of AIDS knowledge in Zimbabwe revealed that while all men and women had heard of AIDS, 15% of men and 26% of women did not believe that a healthy-looking person can carry the AIDS virus (Central Statistical Office, Zimbabwe and Macro International, 1995). This belief can lead to exposure to HIV infection since people are unlikely to take precautions when having sexual intercourse

with healthy-looking partners. The 2003 KDHS report identified three commonly held HIV misconceptions in Kenya as: 1) belief that HIV is transmitted by mosquitoes, 2) a healthy looking person cannot be having HIV 3) one can get HIV by sharing utensils with an HIV positive person. The study therefore sought to establish the extent to which these misconceptions are still prevalent among STI patients as a group of people who are at high risk for HIV.

2.6 HIV/AIDS Education

Clearly HIV prevention education and health promotion has worked in some Countries and for certain periods, and much is known about how prevention education works (Coates, *et al*., 1996; Kippax and Race, 2003). However, there is need to put more resources and efforts in reaching out to those who have not been reached.

Studies show that HIV prevention efforts work best when they are intensive, i.e. comprehensive and long term (Global HIV Prevention Working Group, 2006). For example, intensive prevention programmes in the Mbeya region of Tanzania led to an increase in the use of condoms and the treatment of sexually transmitted infections between 1994 and 2000. Those changes were accompanied by a decline in HIV prevalence among 15–24 year-old women from 21% to 15% in the same period (Jordan-Harder, *et al*., 2004). But in the Mwanza region of the country, less intensive and isolated HIV prevention efforts did not yield similar results; in fact, HIV prevalence increased in this area from 6% in 1994-1995, to 8% in 1999-2000 (Mwaluko, *et al*., 2003).

Hence there is need to study the behavioral patterns of STI patients in order to inform the design of specific HIV prevention programs for incorporation in STI care facilities.

2.7 Conceptual/Theoretical Framework

2.7.1 AIDS Risk Reduction Model (ARRM)

The AIDS risk reduction model (Catania, *et al.*,1990), uses constructs from the health belief model, the social cognitive theory and the diffusion of innovation theory to describe the process individuals (or groups) pass through while changing behavior regarding HIV risk.

The model identifies 3 stages involved in reducing risk for HIV transmission (Catania *et al*, 1990):

(1) *Behavior labeling*

This is the first stage which entails the process of recognizing and labeling of one's behavior as high risk. It is influenced by;

- knowledge of sexual activities associated with HIV transmission;
- believing that one is personally susceptible to contracting HIV;
- believing that having AIDS is undesirable;
- Social norms and networking.

(2) *Commitment to change*

This is the second stage in which an individual makes a commitment to reduce high-risk sexual contacts and to increase low-risk activities. It is shaped by four factors: perceptions of enjoyment, self-efficacy, social norms and aversive emotions.

(3) *Taking action*

This is the final stage where people make decisions to take action. It occurs in three phases; 1) information seeking; 2) obtaining remedies; 3) enacting solutions. Depending on the individual, phases may occur concurrently or phases may be skipped.

Programs that use the AIDS risk reduction model focus on:

• Clients' risk assessment

• influencing the decision to reduce risk through perceptions of enjoyment or self efficacy

• Clients' support to enact the change (e.g. access to condoms, social support).

As depicted in this model, determining the level of risk perception among STI patients can be valuable in informing the design of HIV/AIDS behavior change programs.

2.7.2 Health Belief Model (HBM)

The Health belief model, developed in the 1950s, holds that health behavior is a function of individual's socio-demographic characteristics, knowledge and attitudes (Rosenstock, Strecher and Becker, 1994). According to this model, a person must hold the following beliefs in order to be able to change behavior:

(1) Perceived susceptibility to a particular health problem ("Am I at risk for HIV?")

(2) Perceived seriousness of the condition ("How serious is AIDS; how hard would my life be if I got it?")

(3) Belief in effectiveness of the new behavior ("Condoms are effective against HIV Transmission")

(4) Cues to action ("witnessing the death or illness of a close friend or relative due to AIDS")

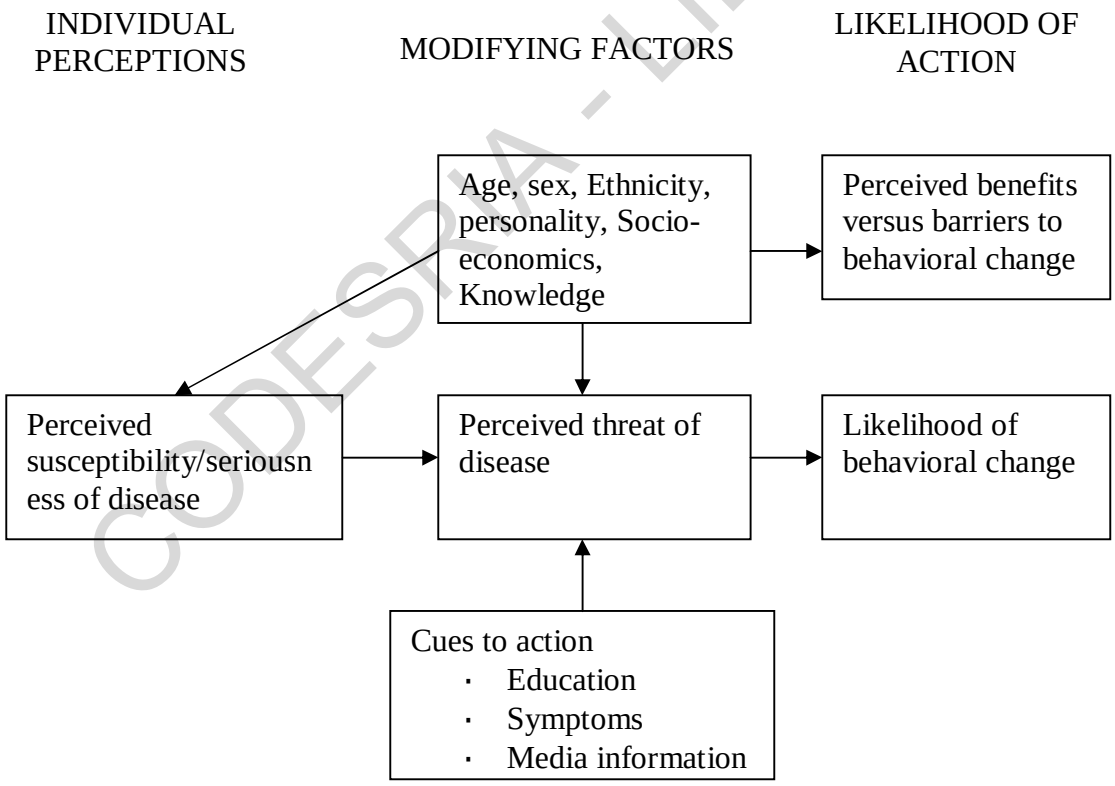
(5) Perceived benefits of preventive action ("if I start using condoms, I can avoid HIV infection")

(6) Barriers to taking action ("I don't like using condoms").

In this model, promoting action to change behavior includes changing individual personal beliefs. Individuals weigh the benefits against the perceived costs and barriers to change. For change to occur, benefits must outweigh costs. With respect to HIV, interventions often target perception of risk, beliefs in severity of AIDS ("there is no cure"), beliefs in effectiveness of condom use and benefits of condom use or delaying onset of sexual relations.

This study focused on the element of risk perception as a prerequisite to behavior change among an HIV/AIDS high risk group of people like STI patients.

Figure 1: Health Belief Model



Source: Glanz et al, 2002, p. 52

CHAPTER THREE: METHODOLOGY

3.1 Study Area

The study was conducted at Uasin Gishu District Hospital located in Eldoret town. Eldoret is a town in Western Kenya and the administrative centre of Uasin Gishu District of Rift Valley Province.

The town has experienced a rapid growth in terms of physical expansion and population. According to the 1999 census, the population was 193,830, and the town is currently ranked the 5th largest in Kenya.

Uasin Gishu District Hospital is under the Ministry of Health (MOH) and mainly operates as an outpatient facility. Among the outpatient services is an STI clinic which runs from Monday to Friday and records an average attendance of about 100 to 150 patients per month. Diagnosis and management of STIs in the clinic is done according to the WHO syndromic management guidelines (WHO, 2005).

3.2 Study Population

The study population comprised of the STI patients being treated in the STI clinic at Uasin Gishu District Hospital Outpatient Department, Eldoret. On average, about five to seven patients are seen daily in the clinic. The clinic attendance statistics for the last three months preceding the study are given in appendix 3.

3.3 Study Design

The study was a Cross sectional survey using a semi structured questionnaire. This design was appropriate since the study was mainly descriptive in nature.

3.4 Sample Size Determination

Sample size (N) was determined by the following formula;

$$N = \frac{z^2 pq}{D^2}$$

Where

- **N** is the sample size
- **z** is the normal variate associated significance level a- 1.96
- **p** is population proportion- 50%
- **q = 1-p**
- **D** is the required level of precision / discrepancy

$$N = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384$$

Since the prevalence of parameters under study (HIV/AIDS risk perception and sexual behavior) among STI patients were not available, 50% was used as the value for **p** in the above formula. The calculated sample size was the minimum number of participants, such that the number could be consecutively exceeded as eligible participants would present during data collection period.

Whenever possible, increasing the sample size from the minimum calculated number is always desirable as it tends to decrease the sampling error of the study (Stephen *et al.*, 2001).

3.5 Sampling Method

Participants were selected by use of consecutive sampling, where all eligible STI patients visiting the Uasin Gishu District Hospital STI Clinic were consecutively chosen during the data collection period. This method of sampling was chosen on account of feasibility, given the low number of STI patients (5 to 7) that are seen daily in the clinic. The World Health Organization has also recommended consecutive sampling as a suitable sampling approach for cross sectional/prevalence studies involving STI patients (WHO, 1999). Besides the benefit of overcoming the practical difficulties of meeting sample size requirements in clinical research, consecutive samples are useful in minimizing volunteerism (Stephen, *et al*., 2001).

3.6 Inclusion Criteria

All STI clinic attendees (18 years and above) who were seen by the facility clinician and diagnosed with an STI according to the MOH-WHO syndromic management criteria, qualified for inclusion into the study sample. In this criterion, patients were clinically diagnosed according to the presenting symptoms and categorized into three classes namely:

- Genital ulcer syndrome: Any male with an ulcer on the penis, scrotum, or rectum, with or without inguinal adenopathy, or any female with ulcer on labia, vagina, or rectum, with or without inguinal adenopathy.
- Urethral discharge syndrome: any male with urethral discharge with or without dysuria.

- Vaginal discharge syndrome: any female with vaginal discharge with or without itching.

Since the study was not seeking to establish the prevalence of the different types of STIs, clinical diagnosis was considered adequate for identification of the patients. Only those STI patients who had attained the legal age (18 years and above) were included in the study.

3.7 Exclusion Criteria

All STI patients who reported being HIV positive from a previous test were excluded from the study. This was so because the study aimed to determine the extent to which STI patients rated their self perceived risk for getting infected with HIV.

3.8 Data Collection

A semi structured questionnaire was administered to 390 consecutive STI patients being seen at the Uasin Gishu District Hospital STI Clinic. Information collected from the questionnaires included socio demographics, information on past STI history, sexual behavior, HIV risk perception and misconceptions on HIV.

Clinicians working at the clinic were requested to direct all STI patients to the research assistants before any counseling for HIV was done. This was so because being counseled for HIV would influence the responses for questions in the questionnaires.

Administration of the questionnaires was done in a private (consultation) room that guaranteed utmost confidentiality and privacy.

3.9 Data Management

3.9.1 Data Quality Checks

Reliability and validity of the data collected was enhanced by standardized training of all research assistants on data collection. The training mainly focused on interviewing skills, eligibility criteria and taking consent from participants. This training was aimed at standardizing data collection procedures and enhancing accuracy, such that, data generated could be reproducible and also that it was a true measure of what was intended to be measured. Prior to actual execution, the questionnaire was pre-tested, piloted and reviewed to establish its accuracy in generation of required information.

3.9.2 Data Handling and Cleaning

Completed study instruments were submitted to the investigator at the end of each working day. Data was then entered into STATA 9 data editor, after which both the hard and soft copies were kept under lock and key. The computer program (STATA 9) which has a function for data editing was run to check the data for completeness and consistency. In case missing values were detected, the corresponding questionnaire was traced and the values entered where appropriate.

3.9.3 Data Analysis

Data collected was summarized using proportions, for example, proportion of respondents with low level of HIV risk perception. Presentation of data was done using summary tables and bar charts. Responses from open ended questions were summarized and presented in a narrative form.

The predictors of condom use in the last sexual encounter were determined by fitting a multiple logistic regression model using version 9 of STATA statistical program.

First, a bivariate analysis was done using Chi Square (x^2) and Kruskal-Wallis test. All statistically significant variables (at $p<0.05$) were then selected for inclusion into the multiple regression model with condom use as the dependent (outcome) variable. Stepwise forward selection procedure at 0.05 probability of entry was then applied to fit the final model. The significance level for interpretation of variables in the model was 0.05.

3.10 Pilot Study

In order to test for adequacy of the study instrument, a pilot study was conducted before execution of the actual study.

The study was conducted at Huruma sub District Hospital STI clinic, Eldoret municipality. The hospital is an outpatient facility that operates an STI clinic with an average attendance of about 80 patients per month. A total of 38 STI patients (10% of the study sample) were interviewed using the study questionnaire. Findings from this pilot study showed that the study instrument was indeed valid and reliable.

3.11 Study Limitation

Given that the study applied a consecutive sampling design, the sample obtained was likely to be unrepresentative of the entire STI patient population. Hence the findings may not be generalizable to the wider population, but only applicable to the STI patients being seen in Uasin Gishu district hospital STI clinic.

3.12 Ethical Considerations

Ethical Approval: Before execution of the study, the research protocol was submitted to the University's Institutional Research and Ethics Committee (IREC) for ethical approval. Permission was sought from the District Medical Officer of Health, Uasin Gishu District Hospital, from whose endorsement the investigator was able to carry out the study at the STI clinic in the outpatient Department.

Respect of persons: The potential participants were fully informed about the nature and purpose of the research, the procedures to be used, and the expected benefits to the participant and/or society, the potential of reasonably foreseeable risks, stresses, and discomforts, and alternatives to participating in the research.

The participants were also assured of confidentiality and anonymity for any information they were to give. Participation in the study was voluntary, free of any coercion or promises of benefits unlikely to result from taking part.

The respondents who accepted to participate were given a consent form to sign as a way of authorizing their participation in the research study.

Justice and Beneficence: All study participants were counseled on HIV behavior change after being interviewed. They were also directed to the VCT center for HIV testing and further risk reduction counseling.

CHAPTER FOUR: RESULTS

4.1 Socio Demographic Characteristics

The mean age of the respondents was 30 years, with the majority (56.1%) falling in the 18 to 31 age bracket. The youngest and oldest respondent was aged 18 and 55 years respectively, making a range of 37 years.

Other demographic characteristics are summarized in the table below.

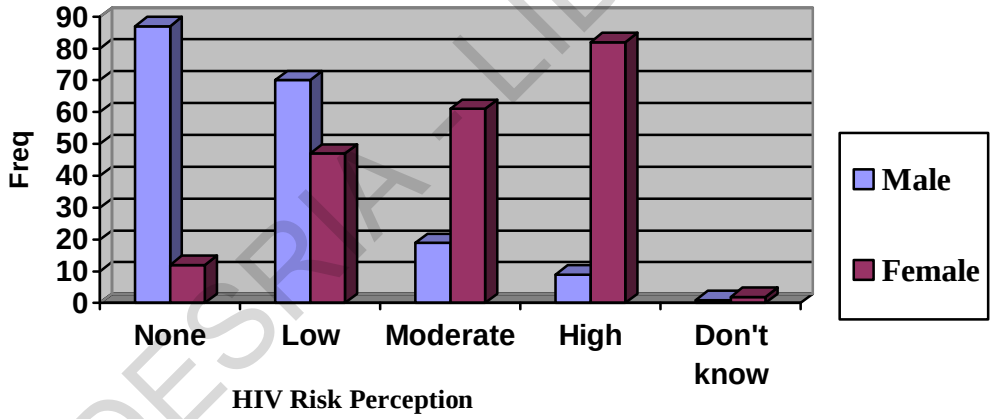
Table 1: Study sample demographics

Characteristic	**Frequency**	**%**
1. Sex distribution		
Male	186	47.7
Female	204	52.3
Total	390	100
2. Age		
18-31	215	55.1
32-45	98	25.1
46 and above	77	19.8
Total	390	100
3. Education level		
None	91	23.3
Completed primary	103	26.4
Completed secondary	95	24.4
Completed college/university	101	25.9
Total	390	100
4. Marital status		
Single	97	24.9
Married	112	28.7
Divorced	68	17.4
Widowed	72	18.5
Other	41	10.5
Total	390	100
5. Religion		
Christian	321	82.3
Muslim	69	17.7
Total	390	100
6. Economic Activity		
Formally employed	102	26.2
Self employed	117	30.0
Unemployed	171	43.8
Total	390	100

4.2 HIV Risk Perception

Of the 390 respondents who were asked to state how they perceived themselves to be at risk for contracting HIV, 25.4% said they had no risk, 30 % low risk, 20.5% moderate risk, 23.3% high risk and the remaining 0.8% did not know how to asses their risk. Reasons for those rating themselves to be at high and moderate risk included: partner mistrust, having several partners and having sex with commercial sex workers. Those rating their risk to be low or none gave their reasons as: having only one partner, being careful in selecting their partners and trust that their partner is faithful.

Fig 2: HIV Risk Perception by Gender



4.3 STI History

With regard to past histories of STI episodes, 41.5% reported that they had been infected with an STI before while the other 58.5% said it was their first time to have such STI symptoms. Of those reporting a past episode of an STI, only 65.4% sought treatment in a health facility, with the other 34.6% saying they visited a traditional healer.

4.4 Sexual Behavior

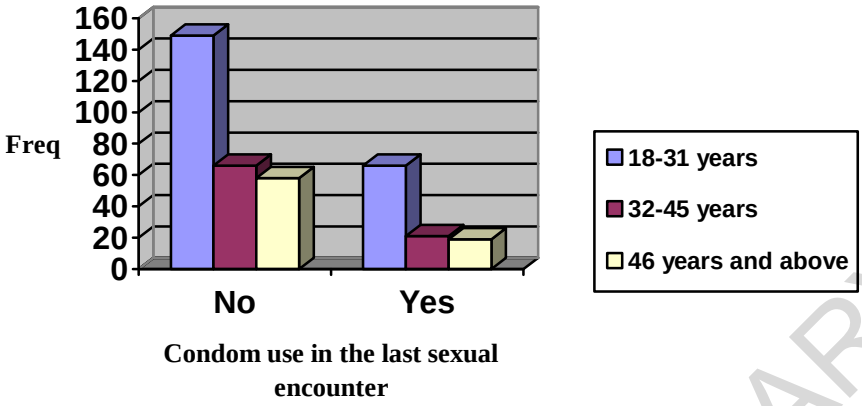
Since having an STI is a strong indicator that one is sexually active, the respondents who stated that they did not have sex in the preceding 12 months before the survey were considered as unwilling to report on their past sexual experiences: and therefore excluded from subsequent questions on sexual behavior. The rate of reporting on sexual behavior was however high (97.2%) with only 2.8% stating that they did not have sex in the preceding 12 months to the study. Consequently, only 379 of the total 390 participants included in the study qualified to respond to the subsequent questions on sexual behavior.

Condom use in the last sexual encounter was low. Only 28% of the respondents who had sex in the preceding 12 months reported condom use in the last sexual encounter. Consistent condom use was even lower, with only 10.4% saying that they used a condom in every act of intercourse. Reasons for using condoms included: prevention of unwanted pregnancies and protection from HIV and STIs. Those not using condoms gave their reasons as: condoms decrease sexual pleasure; condoms offer little protection against HIV and condom dislike by the partner.

Multiple sexual relations were also rampant. When asked about the number of partners they had sex with in the last 12 months, only 31.9% said they had one partner, with the remaining 35.6% and 32.5% saying they had two and more than two partners respectively.

Paid sex in the preceding 12 months before the survey was reported by 38% of the respondents. Forced sex was also reported by 28.5% of the respondents.

Figure 3:Condom use in the last sexual encounter by age



4.5 Misconceptions about HIV

The study found out that HIV misconceptions are still prevalent among some STI patients. The statement that a person cannot be having HIV if he/she feels healthy was agreed to by 21% of the respondents. With regard to the statement that a person can get HIV from sharing a meal with someone infected, 24.4 %(95 out of 390) of the respondents answered yes. The statement that mosquitoes transmit HIV was agreed to by 23.3% of the participants. Overall, 27.9 %(108 out of 390) possessed at least one of the above HIV misconceptions.

4.6 Predictors of Condom Use

Since condom use is one of the key elements in HIV protective behavior, the association between reported condom use in the last sex (as the outcome variable) and other variables was explored. The sample size (n) for participants responding to the question on condom use in the last sex was 379. This is different from the entire sample of 390 because only participants who admitted having had sex in the preceding 12 months were eligible to respond to the question on condom use. Subsequently the questions on condom use among those who said they did not have sex in the preceding 12 months were marked as not applicable.

In analysis, the entries of 'not applicable' were treated as missing and the sample size was adjusted accordingly. On the variable about HIV risk perception, those who responded that they did not know their risk for HIV were combined with the 'no risk group' for purposes of statistical analyses. The results of bivariate analysis between condom use and other study variables are presented in table 2.

Table 2: Bivariate analysis involving several study variables as predictors and reported condom use as the outcome variable

Predictor variable	Outcome variable Condom use in the last sex (n=379)			Test	P value
1.sex	No	Yes	**Total**		
Males	126	58	184		
Females	147	48	195	Chi square	**0.243**
Total	273	106	379		
2. Age	No	Yes	**Total**		
18-31	153	66	219		
32-45	62	26	88		
46 and above	58	14	72	Kruskal-wallis	**0.574**
Total	273	106	379		
3. Education level	No	Yes	**Total**		
None	76	23	99		
Primary	74	25	99		
Secondary	64	28	92		
College	59	30	89		**0.632**
Total	273	106	379	Chi square	
4. Marital Status	No	Yes	**Total**		
Single	56	28	84		
Married	92	25	117		
Divorced	52	16	68		
Widowed	47	27	74		
Co habiting	26	10	36	Chi square	**0.342**
Total	273	106	379		
5. Religion	No	Yes	**Total**		
Christian	225	85	310		
Muslim	48	21	69		
Total	273	106	379	Chi square	**0.614**
6. **Employment Status**	No	Yes	**Total**		
Formally employed	69	33	102		
Self employed	79	27	106		
Unemployed	125	46	171		
Total	273	106	379	Chi square	**0.497**
7. Ever had an episode of an STI before	No	Yes	**Total**		
No	165	52	217		
Yes	108	54	162		
Total	273	106	379	Chi square	**0.044**

8. Self perceived risk of contracting or having contracted HIV	No	Yes	**Total**		
No risk	80	19	99		
Low risk	82	27	109		
Moderate risk	50	30	80		
High risk	61	30	91		
Total	273	106	379	Chi square	**0.028**

9. Number of sexual partners in the last 12 months	No	Yes	**Total**		
One	104	31	135		
Two	85	36	121		
More than two	84	39	123	Kruskal-wallis	**0.523**
Total	273	106	379		

10. Ever paid for or been paid to have sex	No	Yes	**Total**		
No	165	73	238		
Yes	108	33	141		
Total	273	106	379	Chi square	**0.314**

11. Ever been forced to have sex in the last months?	No	Yes	**Total**		
No	192	79	271		
Yes	81	27	108		
Total	273	106	379	Chi square	**0.416**

12. Agreed to at least one misconception about HIV/AIDS	No	Yes	**Total**		
No	187	84	271		
Yes	86	22	108		
Total	273	106	379	Chi square	**0.037**

The statistically significant variables at $p<0.05$ from the above analysis included: reporting past history of STI episode, level of HIV risk perception and possession of at least one of the HIV misconceptions. A multiple logistic regression model using forward selection procedure at 0.05 probability of entry was then fitted to identify the predictors of condom use in the last sexual encounter. The table for the STATA 9 output of the model is given as appendix 2.

From the output, the model was highly statistically significant ($p<0.001$).

The option of perceiving ones risk to be none was used as the reference for the variable on HIV risk perception. Having no previous STI episode was the reference for the variable on past STI history while not agreeing to any of the HIV misconceptions was the reference for the variable on possession of an HIV misconception.

The likelihood of condom use in the last sex for those who rated their risk for HIV as high was 4.5 times higher than for those who said their risk was none. Those who rated their risk for HIV as moderate were 3.9 times more likely to use a condom in the last sex than those who rated their risk as none. The odds of using a condom in the last sex among those who reported a previous episode of an STI was 2.4 times higher than for those who did not report any previous STI episode. Among those who agreed to at least one HIV misconception, the odds of condom use in the last sex was 2.2 times lower than for those who did not possess any misconception.

CHAPTER FIVE: DISCUSSION

5.1 Introduction

Discussion of study results will be organized into three sections: HIV risk perception, HIV related sexual practices and HIV misconceptions. Significant predictors of condom use in the last sexual encounter will be discussed as they apply to the above mentioned sections.

5.2 HIV Risk Perception

Overall, majority of the respondents underestimated their risk for HIV. Available evidence indicates that having an STI serves as a cofactor for HIV transmission, hence the categorization of STI patients as a high risk group of people (Fleming and Wasserheit, 1999). As such, all respondents who did not rate their risk for HIV as high were considered to be underestimating their risk. Of the reasons given by the study participants who rated their risk for HIV to be moderate and high, being infected with an STI was not mentioned among them. This therefore implies that the study participants may not have conceptualized the aspect of having an STI as a cofactor for HIV transmission.

In multivariate analysis, individual risk perception for HIV was positively associated with condom use while holding other factors constant ($p<0.001$). This phenomenon is consistent with the AIDS Risk Reduction Model (ARRM) and Health Belief Model (HBM), where individual risk perception is considered to be the first step in adopting HIV protective behaviors (Catania, *et al.*, 1990).

The importance of risk perception as a prerequisite for adoption of HIV protective behavior has also been demonstrated in a number of studies. In a study of university

students in Zimbabwe and Nigeria, those who used condoms were more likely than nonusers to have an accurate perception of their HIV risk (Akande, 1994). A study of South African couples found that women who considered themselves at risk of HIV because of their husbands were four times as likely to use condoms as women who did not (Maharaj, *et al.*, 2005). In Ghana, self-perceived high risk among youth was associated with sharply increased odds of condom use at last sex (Adih and Alexander, 1999). In Kenya, the 2003 KDHS report indicates that the proportions of respondents reporting condom use in the last sex was significantly higher among those who rated their risk to be high compared to those said that their risk was low or none.

5.3 Sexual Behavior

Majority of the respondents reported having had sex in the preceding 12 months, with only a few saying they used a condom in the last sexual encounter. Even among the ones reporting condom use, only a small proportion reported that they used it in every act of intercourse. Multiple sexual relations were also rampant.

These findings appear to corroborate the view that people with STIs represent a subsection of the general population engaging in unsafe sexual practices and hence enhancing the sexual transmission of HIV. Past episodes of an STI were also reported by nearly half of the respondents, an indication that the pattern of unprotected sexual practices among STI patients may have a perpetual and recurrent nature.

In multivariate analysis, reporting a past history of STI was a significant predictor of condom use in the last sex ($p=0.006$). This finding is consistent with a previous study where past STI history was a significant predictor of condom use in the last sex (Ndola,

et al, 2006). The increased likelihood of condom use among people with previous histories of STIs may be attributed to risk reduction counseling services that may have been offered at the facilities where treatment was sought.

5.4 Misconceptions about HIV

Misconceptions about HIV are still prevalent among STI patients, despite the universal awareness on HIV in Kenya reported in the 2003 Kenya Demographic Health Survey. This is therefore an indication that accurate knowledge with regard to HIV progression and transmission methods is lacking among STI patients.

In multivariate analysis, having at least one of the HIV misconceptions significantly decreased the likelihood for condom use in the last sex ($p=0.015$). This phenomenon implies that possession of an HIV misconception may act as a barrier to adoption of HIV protective behavior. Previous studies have argued that misconceptions about HIV can lead to exposure to HIV infection since people are unlikely to take precautions when having sexual intercourse with 'healthy-looking partners'(Konde-Lule, 1993; Nzioka, 1996).

5.5 CONCLUSION

The study has pointed out that many of the STI patients underestimated their risk for HIV. Unsafe sexual practices like lack of condom use and multiple sexual relations were also rampant among the STI patients. Among those reporting condom use, consistency in use was low; a finding that is in agreement with the fact that condom use *per se* is not the main factor in safe sexual behavior, but rather its consistency in all acts of intercourse. HIV misconceptions were also prevalent among some STI patients, an indication that not all people possess accurate knowledge on various aspects of HIV.

The association between self perceived risk for HIV and adoption of HIV protective behavior (condom use) appeared to be consistent with the AIDS Risk Reduction Model (ARRM) and Health Belief Model (HBM).

5.6 RECOMMENDATIONS

HIV prevention interventions among STI patients should emphasis on enhancement of individual risk perception as an important step in adoption of protective behaviors (like condom use).The components of such programs should among others include:

- Specific educational programs to increase levels of risk perception among STI patients, especially by explaining the biological link between STIs and HIV. The programs should also seek to identify and correct any HIV misconception that STI patients may be having.
- Promotion of condom use: HIV prevention messages should seek to stress the need for condom use, particularly in situations where either of the partners has an indicator of high risk sexual behavior (for example, current or previous history of

an STI). Such messages should also emphasize on the importance of consistency and the correct ways of using a condom.

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APPENDICES

Appendix1: Questionnaire

STUDY TITLE: HIV RISK PERCEPTION AND SEXUAL BEHVIUOR AMONG STI PATIENTS ATTENDING UASIN GISHU DISTRICT HOSPITAL STI CLINIC, ELDORET

QUESTIONNAIRE NO. -------

Introduction

Thank you for your offer to participate in the study.

This questionnaire is intended to collect data for compilation of a thesis report to be presented in partial fulfilment for the award of Master of Public Health degree at Moi University, School of Public Health.

You will not be required to write your name for purposes of anonymity and confidentiality. The whole questionnaire will take approximately 20-25 minutes.

1.0 Background Information

1.1 Sex. [0] Male [1] Female

1.2 Age._____ yrs

1.3 Education level:

[0] None

[1] Completed Primary

[2] Completed Secondary

[3] Completed College/University

1.4 Marital Status:

[0] Single

[1] Married

[2] Divorced

[3] Widowed

[4] Other (specify)…….

1.5 Religion:

[0] Christian

[1] Muslim

[2] Hindu

[3] Other (specify)_____

1.6 Economic Activity:

[0] Formally employed

[1] Self employed

[2] Unemployed

1.7 Place of residence _____

2.0 STI History

2.1 Present Diagnosis: …….

2.2 Have you ever had an episode of an STI before? [1] Yes [0] No

2.3 If yes, where did you seek treatment?

[0] Health facility

[1] Traditional healer

[3] Any other, specify……

3.0 HIV risk perception

3.1 How do you consider yourself to be at risk for HIV?

[0] No risk

[1] Low risk

[2] Moderate risk

[3] High risk

[4] Don't know

3.2 Give reasons for the answer above?

……..

.....

……..

4.0 Sexual behavior

4.1 Have you had sex in the last 12 months? [1] Yes [0] No

If no, skip to section 5.0

4.2 How many partners have you had sex with in the last 12 months?

[0] One

[1]Two

[2] More than two

4.3 Did you or your partner use a condom in the last sexual contact?

[1] Yes [0] No

4.4 If yes in 4.3, did you use it in every act of intercourse? [1] Yes [0] No

4.4 If yes in 4.3, what were your reasons for using?

……..

……..

4.5 If no in 4.3, what were your reasons for not using?

……..

……..

……

4.6 Have you ever paid for sex or been paid to have sex?

[1] Yes [0] No

4.7 In the last 12 months, has any sexual partner forced you to have sex against your will?

[1] Yes [0] No

5.0 Misconceptions about HIV/AIDS

For each of the following statements relating to HIV/AIDS, answer True or False:

		TRUE[1]	FALSE[0]
5.1	A person can get HIV from sharing a meal with someone infected with HIV		
5.2	A person get HIV from mosquito bites		
5.3	A person cannot be having HIV if he/she feels healthy		

Appendix 2: STATA 9 output of the fitted model for predictors of condom use

Logistic regression

xi: sw logistic conduse i.rispercep i.misconcep i.paststihx , pe(0.05)

```
                                                Number of obs   = 379
                                                LR chi2 (4) = 30.14
                                                Prob > chi2     = 0.0000
Log likelihood = -209.54415                     Pseudo R2 = 0.0671
------------------------------------------------------------------------------
     conduse | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
_Irisperce~2 |   3.896137   1.293608     4.10   0.000     2.032429    7.468837
_Imisconce~1 |    .447835   .1482358    -2.43   0.015     .2340808     .856782
_Irisperce~3 |   4.486484    1.65413     4.07   0.000     2.178087    9.241386
_Ipaststih~1 |   2.430059   .7827455     2.76   0.006     1.292518    4.568747
```

Key: conduse- condom use in the last sex
Irisperce~2 – moderate risk perception
Irisperce~3 – high risk perception
Imisconce~1 – agreeing to a misconception about HIV/AIDS
Ipaststih~1 – having history of a previous STI episode

Appendix 3:Uasin Gishu District Hospital STI Clinic attendance statistics (Jan 2008- March 2008)

	Condition			
Year/Month	Genital Ulcer Disease(GUD)	Vaginal Discharge Syndrome	Urethral Discharge Syndrome	**Total**
2008 January	37	24	35	96
2008 February	43	39	25	107
2008 March	50	37	20	155
Total	130	100	80	358

Appendix 4: Schedule for Training of Research Assistants

Week	Topic/Activity
1	Recruitment of study participants: the inclusion and exclusion criteria
2	Taking an informed consent
3	Interviewing skills
4	Filling of the study questionnaire and data entry

Appendix 5: Consent Form

STUDY TITLE: HIV RISK PERCEPTION AND SEXUAL BEHVIUOR AMONG STI PATIENTS ATTENDING UASIN GISHU DISTRICT HOSPITAL STI CLINIC.

Introduction: You are invited to participate in a research study titled: 'HIV risk perception and sexual behavior among STI patients Uasin Gishu District STI Clinic'. The Principal investigator of this study is a Masters student at the School of Public Health of Moi University; and shall compile information gathered from this study into a thesis for presentation and defense for the degree of Master in Public Health of Moi University.

Procedures of the Study: If you agree to participate in this study, you will be required to respond to a number of questions contained in a questionnaire. There will be an interviewer who will take you through an introductory session and thereafter present the questions to you. The questions touch on different areas of HIV related issues. The interview will take approximately 20 to 25 minutes.

Voluntary nature of participation in the study: Participation in this study is entirely voluntary. If you decline to participate, you shall not be discriminated against in any way and your decision shall be respected.

Confidentiality of information: Utmost confidentiality will be observed in handling the information given. The information will only be used for the purposes of this study. Names of the participants will not in any way be produced in analyzed information, and raw data will be safely kept under key and lock, and will only be accessible to study staff. Study staff will be trained on protection of human subjects.

Benefits associated with participating in this study: Participation in the study will not translate into any direct monetary benefits for the participants. However, individual participants shall be counseled on the importance of knowing their HIV status and offered direction to sites where they can get HIV comprehensive care if found HIV positive. Information generated from this study will be useful in designing HIV risk reduction programmes to be integrated in health services being offered in STI clinics.

Feedback on findings: Findings of this study shall be contained in a thesis submitted to the School of Public Health, Moi University for the award of a degree of Masters in Public Health. A stake holder's workshop shall be held to communicate the findings

Study Contacts: For more information about this study, contact the Investigator on 0721223180, or by post through Moi University School of Public Health, P.O Box 4606 Eldoret, Kenya.

Participants consent: I declare that I have read the foregoing information or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction. By signing below, I consent to participate in the study described above, with knowledge that I can withdraw from the study at any time.

Participant's Name……..

Participants Signature or Thumb print……Date……

Name and Signature of consenting Staff

……..Date……

Name and Signature of Witness (*if participant does not know how to read or write*) ……...…… Date……

NB: If participant does not know how to read and write, a witness shall be required. In such a case the participant shall put the left thump print in the space provided for him, whilst the witness shall be required to sign in the area provided for the witness.