KNOWLEDGE OF THE RELATIONSHIP BETWEEN SEXUALLY TRANSMITTED INFECTIONS AND HIV TRANSMISSION AMONG SECONDARY SCHOOL STUDENTS IN KABARTONJO DIVISION, BARINGO DISTRICT.

BY

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DECLARATION

I hereby declare that this is my original work and has not been presented for a degree in any other university or any other award.

Signed: ____________________________ Date: 16th November, 2004

SUPERVISORS' APPROVAL

We confirm that the candidate under our supervision carried out the work reported in this thesis.

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DEDICATION

This thesis is dedicated to the following: my wife Jesca Migalusia Amiani, our children; Kalahi, Adisa and Dennis and my mother, Joyce Ayuma Ambagwa.
ACKNOWLEDGEMENT

I am very grateful to a number of people who made valuable contributions to this study. Foremost, I would like to thank Dr. Mwanzo and Dr. Waswa of the School of Pure and Applied Sciences of Kenyatta University for their tireless guidance, encouragement and keen professional supervision throughout this study.

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To all of you may God bless you.
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GLOSSARY OF ABBREVIATIONS

BDDP - Baringo District Development Plan
GOK - Government of Kenya
KIE - Kenya Institute of Education
HIV - Human Immune deficiency syndrome
KDHS - Kenya Demographic Health Survey
MOH - Ministry of Health
NACC - National Aids Control Council
NASCOP - National Aids and STDS Control Programme
ROK - Republic of Kenya
STI - Sexually Transmitted Infection
STD - Sexually Transmitted Disease
UNAIDS - Joint Programme of United Nations on HIV/AIDS
UNICEF - United Nations Children Education Fund
WHO - World Health Organization

DEFINITION OF OPERATIONAL TERMS

Adolescent - An individual aged between 10 and 19 years (WHO)
AIDS - Acquired Immune Deficiency Syndrome
Common STI - Refers to sexually transmitted infections such as Gonorrhea, syphilis, Herpes and Trichomoniasis
Other STI - All sexually Transmitted Infections excluding HIV Infection
Pop. Coun. - Population Council
Pop. Reports - Population Reports
Youth - An individual aged between 10 and 24 years.
ABSTRACT

A descriptive cross-sectional study was conducted among secondary schools in Kabartonjo Division of Baringo District, Kenya, between October 2002 and April 2003. The study aimed at establishing the students’ knowledge of the relationship between Sexually Transmitted Infections and the transmission of HIV. A total of three hundred and sixty five sampled respondents were interviewed and four Focus Group Discussions (FGDs) held, in addition to interviews with key informants. Data was analyzed using the SPSS and figures done using MS-Excel before being transferred to MS-Word. The results show that more than half of the respondents (55.3%) were males with females constituting (44.7%).

The knowledge of STI among the respondents was highest on gonorrhoea (99.6%), syphilis (97.1%) and HIV (84.7%) while poor on Herpes (35.4%), Chlamydia (19.4%), genital warts (14.5%), trichomoniasis (10.2%), Candidiasis (7.8%) and Hepatitis B were (6.5%). About 50% of the respondents were aware of clinical symptoms of STI in both males and females. Only few respondents (14.8%) reported noticing symptoms of STI in the last 12 months. The results further show that (86.0%) considered STI to be a serious problem, (39.7%) perceived themselves as being at risk of contracting STI and (39.7%) reported being at risk of contracting HIV. The respondents who had suffered from STI had poor health seeking behaviour as only (8.2%) sought professional help from health workers in clinics or health centre, while (4.7%) visited traditional healers, (5.8%) bought medicines from shops or pharmacies and (7.7%) asked friends for advice. The low knowledge of STI (χ² =19.287, df = 3, p= 0.000) accounts for the small percentage of respondents who reported symptoms of STI and the general poor health seeking behaviour elicited. There was good knowledge of relationships between common STI and HIV being spread through sexual intercourse (89.3%). Chi-square test shows (χ² = 8.766, df =3, p<0.05), that STI and HIV being spread through sexual intercourse; the presence of STI and HIV increases the chances of one acquiring HIV (83.6%) χ² =7.600, P< 0.05 did not agree with the working hypothesis. Knowledge of HIV infection prolonging the duration of STI was not significant (χ² =2.540, df =3, p> 0.05). The study revealed that knowledge of the relationship between STI and transmission of HIV was not significant with the level of education (χ² =1.360, df =3,  p> 0.05) but only as individuals (χ² =1.360, df= 1, p< 0.05).

The study therefore concludes that there is need to strategize on information, education and communication targeting adolescents on knowledge of STI as a measure of curbing the transmission of HIV.
CHAPTER ONE: INTRODUCTION

1.0: BACKGROUND INFORMATION

Adolescence is the period between childhood and adulthood usually defined by rapid onset of biological and psychological growth and development prior to or at the second decade of life and terminates before age 20 (WHO, 1996). This period is a very critical phase in life, full of experimentation, risk taking and personality identification. The adolescents face many reproductive health hazards and many unprecedented challenges during their transition to adulthood, the greatest of these encounters being; initiation into sexual experiences, sex exploitation by the older generations and inconsistent information on their reproductive health and rights (Tabifor, 2000). Major social and environmental factors influence the onset, duration and termination of adolescence. With the advent of HIV, these challenges have become even more hazardous. For instance, adolescents are increasingly spending more time in school and experiencing puberty at younger ages. The adolescents now initiate heterosexual behaviour earlier, tend to have more sexual partners and are highly likely to acquire STI and HIV. The number of adolescents is increasing as a result of early maturation compared to the older generations (UNAIDS 2000). Estimates show that there are 1.2 billion adolescents in the world today (UNAIDS 2001). Choices made and behaviours adopted at this stage have far-reaching effects for young people.

The WHO estimates that there are 340 million new cases of curable STI occurring every year of which Trichomoniasis accounts for 50%, Chlamydia 27%, Gonorrhoea 19%, Syphilis 3% and Chancroid 2%. The STI that are preventable but not curable are viral and include HIV, Human Papilloma Virus and Herpes virus. Both curable and non-curable
STI can either be non-ulcerative or ulcerative (UNAIDS/WHO, 2000). Although STI have been causing significant morbidity and mortality for years, the advent of HIV has made the policy makers to give STI control priority in both developed and developing countries. The indisputable facts that STI produce serious economic, social and health consequences are made even clearer by their association with Human Immunodeficiency Virus (HIV) (Piot and Seck, 2001). Young people need to know some of the common symptoms of sexually transmitted infections, the need for treatment and the dangers of not getting treatment. The symptoms vary from disease to disease and between males and females (Tabifor, 2000).

Of the over sixty (60) million people who have become infected with HIV in the past 20 years, half of them became infected between the ages of 15 and 24 years. Young people (15 – 24 years old) make-up the age group most vulnerable to HIV infection. It is estimated that five young persons are infected every minute and 7,000 every day (UNICEF, 2000). The Sub-Saharan Africa region has the highest number of infected people with HIV/AIDS at 29.5 millions of which 8.6 millions are youth (NACC, 2001). The WHO estimates that by the end of 2002, there were 42 million people living with HIV/AIDS, an additional five (5) million new infections per year and 13.7 million cumulative deaths. Kenya accounts for 10% of Africa’s HIV/AIDS cases, the highest number of reported cases being in the 25 – 29 age - group (MoH, 2001). Current estimates show that 350 Kenyans die daily from AIDS related complications (NASCOP, 2001).
The grim scenario captured above has grave implications for a country such as Kenya whose total population is 50% youth, a group that is worst hit by the HIV epidemic. It is not a wonder that today’s youth are the “AIDS generation” for they have not known a world without AIDS. It follows; therefore, that appropriate implementation of effective strategies has to be considered through information, education and communication. This study endeavors to understand if secondary school students for selected schools have knowledge of STI and their vulnerability to HIV.

1.1: The Rationale and Significance of the Study.

Inspite of the spirited Public Health campaigns by both the government and non-governmental agencies, HIV/AIDS continues to exert a heavy toll on health in developing countries, Kenya included. Studies have pointed out that adoption of effective preventive strategies by individuals, groups and communities remain low and unprotected heterosexual intercourse continues amongst the adolescents thus contributing to the rising rates of sexually transmitted infections including Human Immunodeficiency Virus (HIV).

School based sex-education efforts are haphazard and often launched too late to be effective. Improved understanding of the routes of transmission of sexually transmitted infections and HIV by adolescents remains a mirage. Among the target groups for HIV prevention, adolescents are an important group as they are less likely to be infected, are vulnerable to indulging in risk behaviour and yet they represent the future generation.
It was therefore, important that this study be conducted among adolescents to give an insight into their knowledge of STI. The results of this study will be of use in the formulation of new strategies or modify the existing ones so as to facilitate effective intervention measures in the control of STI including HIV not only amongst the adolescents but in the general community. It should be noted that 75 per cent of the adult AIDS cases are between 20 – 40 years implying that the initial infection takes place in the teenage years (Nascop, 2001).

1.2: Research Question.

1) Are the adolescents in secondary schools aware of the relationship between common STI and transmission of HIV?

1.3: Justification for the Research

Adolescents and youth in school constitute more than 50 per cent of the population of Kenya. The awareness of Kenyans about the nature and transmission modes of the HIV/AIDS pandemic is over 90 percent. This awareness has, however, not been successful in bringing about behaviour change. The highest rates of STI incidences are observed in the ages 20 – 24 years age group and this put the adolescents at the highest risk of STI (Nascop, 2001). Public health interventions to prevent new HIV infections can be targeted at different risk behaviours e.g. heterosexual sexual intercourse especially among age at sexual debut, levels of pre-marital sexual intercourse, adolescents and school youth. Interventions range from education to promote sexual behaviour change to treatment of bacterial sexually transmitted infections (STI) that enhance HIV transmission.
For an intervention to have any impact, it should not be implemented late in the HIV pandemic or targeted at the wrong people (Schwartlander B. et al 2000). Intervention that promotes access to educational material about safer sex may lead to changes in sexual risk behaviour in different localities depending on community attitudes to sex (Schwartlander et al., 2000).

Thus, effective control of STI and HIV/AIDS depends not only on accurate biomedical diagnosis but also more importantly on individual knowledge understanding, behaviour and management of the resultant ailments. There was therefore, the need to critically examine the complex interplay between the knowledge, risk factors, perception and health care seeking behaviour adopted by adolescents in regard to STI and HIV transmission. The findings of this study will provide invaluable information for policymakers, implementers, researchers and other groups interested in the STI control strategies with emphasis to adolescents both in-school and out of school.

The HIV and AIDS Prevention and Control Bill (2002) on education and information addresses promotion of public awareness about the causes, modes of transmission, consequences means of prevention and control of HIV/AIDS through a comprehensive nation wide educational and information campaign conducted by the government through its various ministries, departments, authorities and other agencies. It further emphasizes on the educational and information campaign that shall employ scientifically proven approaches, focus on the family as the basic social unit and shall be carried out in all
schools and other institutions of learning, all prisons, remand homes and other places of confinement amongst the disciplined forces, at all places of work and in all communities throughout Kenya. In conducting these educational and information campaigns, the government shall ensure the involvement and participation of individuals and groups affected by HIV and AIDS including persons with HIV and AIDS.

1.4: THE STUDY HYPOTHESIS.

There is no association between the level knowledge of STI and the transmission of HIV among students in secondary schools.

1.5: OBJECTIVES OF THE STUDY

1.5.1: General Objective.

To establish the knowledge of relationship between sexually transmitted Infections and the transmission of HIV among adolescents in secondary schools.

1.5.2: Specific Objectives.

1. To establish the knowledge of STI, mode of transmission and health seeking behaviour among adolescents

2. To determine perception of risk factors that predisposes them to STI.

3. To determine the socio-demographic characteristics on knowledge of common STI in HIV transmission.
4. To describe knowledge of relationship between STI and the transmission of HIV/AIDS.

5. To establish the ability of adolescents in relating the knowledge of common STI to their sexual behaviour.
1.2.1. Sexually Transmitted Infections

Sexually Transmitted Infections (STI) have had a long history and different terms have been used to describe them. The term venereal disease has been used and was derived from Venus, the Roman goddess of Love (Cattarell, 1974). It referred to syphilis, gonorrhoea and chancroid only. Other conditions recognized to be transmitted sexually include trichomoniasis and herpes genitalis. The addition to this group of diseases is HIV and currently, all the Sexually Transmitted conditions are called Sexually Transmitted Infections (STI). These infections are transferred predominantly by sexual contact mainly through genito to genital, oro to genital or ano to genital contact. Transmission can also be from mother to child and by blood transmission (WHO, 1996).

The STI were ignored for a long time in spite of overwhelming evidence of their devastating impact on health, their morbidity and mortality in both men and women (UNAIDS 2000). The HIV in particular, is continuing to spread, killing millions of women and men in the prime of their lives. The current estimates show that over 42 million people are now living with HIV of which 3.2 million are children and 8.6 million young people (NACC, 2002). It is transmitted more efficiently through sexual intercourse when one or both partners are infected with an STI. Currently, 60 per cent of new infections are in the 15 – 24 age-group an indication of the vulnerability of adolescents and youth (UNAIDS, 2000a). It has been reported that no single STI can be regarded as an isolated problem because multiple infections are common. The presence of one STI denotes high-risk sexual behaviour that is often associated with other more serious
infections. STI are not endogenous and rarely are they transmitted through formites, food, flies or casual contact. At least one sexual partner is always infected. Various STI differ in the extent to which their spread and persistence in the population. Infection rates are linked to high rates of sexual partner change.

The initial rate of spread of an STI pathogen within a population depends on the presence and product of three factors: - The average rate of partner change in the population, the average duration of infectiousness of the pathogen and the average efficiency of transmission per exposure of the susceptible person to an infected person (Holmes, 1994). These relationships can be expressed in a mathematical model, in which $R_o$, the reproductive rate of infection, represents the number of secondary cases of STI, arising from a new case. In this model, $R_o = C \times B \times D$ where $C$ is the effective mean rate of sexual partner change within the population, $B$ is the mean efficiency of transmission per exposure and $D$ is the duration of infectiousness after acquisition of a new infection (Anderson and May, 1994). For diseases with a high efficiency of transmission and or a long duration of infectiousness, rates of partner change need not be very high to sustain an epidemic. Whereas STI with a low efficiency of transmission (e.g. HIV infection) or a short duration of infectiousness (chancroid), high rates of partner change may be necessary to sustain an epidemic. There are two types of sexually transmitted infections. These are curable and incurable STI.
Curable STI.

Bacteria cause most curable STI. The common curable STI include Gonorrhoea, Syphilis, Trichomoniasis and Chlamydia. Some of these curable STI tend to be asymptomatic and hence difficult to diagnose. However, they have harmful effects if left untreated. These complications include pelvic inflammatory disease, infertility in females and males and mother to child transmission e.g. Syphilis and Gonorrhoea (Holmes, 1994).

Syphilis.

A chronic systemic infection caused by *Treponema pallidum* subspecies *pallidum*. It is usually sexually transmitted and is characterized by episodes of active disease interrupted by periods of latency. The spirochete enters the body through invisible breaks in the skin or through the mucous membranes lining the mouth, rectum or genital tract. Following the incubation period averaging three weeks, a primary lesion (sore) appears and is often associated with regional lymphadenopathy. Typically, the sores heal, but the spirochete may develop into the next stage (Holmes, 1994)

Clinical Manifestations

A chancre (primary sore) in syphilis appears at the site (sites) where treponemes enter the body contact with these lesions leads to transmission. In pregnant women, the motility can spread by way of placenta infects the foetus. Syphilis is capable of destroying tissues in almost any organ in the body, resulting in a wide variety of clinical manifestations. So manifestations are designated as early or others as late. The time interval between ea
and late syphilis is about 4 years during which the patient develops a partial immunity and an altered tissue response to the spirochete (Holmes, 1994).

Stages of Syphilis

Primary stage: The incubation period is 10 to 90 days with an average of 21 days. This early stage is the most infectious stage. A chancre appears at the site of sites where the treponemes entered the body. The sites are generally related to the pattern of sexual activity: genitalia, anus, rectum, lips or oral cavity. The typical chancre is an indurated painless nodule that breaks down forming a shallow ulcer. The lymph nodes draining the ulcer become enlarged, firm, and non-tender. Untreated, the primary lesion heals in a few weeks.

Secondary stage: Manifestations of secondary syphilis appear about 6 weeks after the initial infection. This is the stage of systematic involvement within a few weeks or months, the treponemes spread throughout the body leading to development of varied systematic illnesses. Symptoms include low-grade fever, malaise, sore throat, headache, lymphanopathy, arthralgia, skin and mucosal rash. The typical skin manifestations are elevated lesions and non-elevated discoloured maculae progressing to pustules. Rash spreads to all over the body, palms and soles. The rash gradually fades over period of 2 - 6 weeks. The hair may drop out sometimes in patches giving he scalp a moth-eaten appearance. The lesions that appear on the mucous membranes of the mouth and tongue glister and are slightly elevated, flat, circumscribed patches and covered with a yellowish
exudate. These mucous patches contain large number of spirochetes. Flat wart-like plaques (condylomata) develop around the vagina and anus (Adler, 2000).

**Late syphilis**

The manifestations of late infection (tertiary syphilis) are of two types; the first is a gumma and the second is a granulomatous degeneration of the media of the large arteries, especially the vasa vasorum of the aorta, and per vascular granulomatous involvement of the meninges and the parenchyma of the central nervous system. Management of syphilis involves antibiotic treatment. A program of sex education and epidemiological screening should be ongoing. Mass screening of special groups with a known high incidence of sexually transmitted infections should be conducted (Dunnihoo, 1990).

**Donovanosis (Granuloma Inguinale)**

A sexually transmitted infection that is contagious, chronic, progressive and ulcerative. It involves the skin and lymphatics of the genital perianal areas. It is diagnosed by the presence of a DONOVAN body. The disease is frequent in sexual partners of chronically infected people. Evidence of sexual transmission includes the age – specific incidence that correspond to STI (Holmes, 1994).

The characteristics of the infection occur after an incubation period of about 8 (eight days to twelve (12) weeks. Lesions appear within thirty days after sexual intercourse. A papule that ulcerates and develops into a painless elevated zone of clean, red tissue occurs. In males, lesions are usually located on the head of the penis (glans penis)
prepuce, and shaft of the penis or the perianal area. In females, the labia and vulva are affected. Extra genital lesions may occur involving the face, neck, mouth and other sites (Holmes, 1994).

**Chlamydial Infection.**

It is a bacterial infection caused by *Chlamydia trachomatis*. It is particularly common among the youth. In 1998, estimates indicated that more than 89 million new cases occur worldwide, 15 million being in the Sub-Saharan Africa (UNAIDS, 2000). Diagnosis can be confirmed by cytological and serologic studies.

Clinical manifestations in women resemble those of gonorrhoea-cerivicitis and mucopurulent discharge. In males, urethritis and epididymitis are evident. In both sex, the condition may be asymptomatic though dysuria is common. Symptoms include mucosal inflammation of the urogenital tract, throat or rectum in both males and females. Neonatal eye infection may also occur. If not treated, Chlamydial infections cause pelvic sepsis, recurrent and chronic pelvic inflammatory disease, ectopic pregnancy and infertility in women while in males, chronic genital tract infection results in infertility (Holmes, 1994).

Management is by Caps doxycycline 100mg twice daily for one week or tabs Erythromycin 500mgs four times daily for one week. Possible complications from delayed treatment are tubal disease, pelvic inflammatory disease and infertility (Adler, 2000).
Gonorrhoea

A bacteria infection caused by *Neisseria gonorrhoea*. It is mainly transmitted through sexual intercourse though mother to child transmission occurs. Estimates show that there were 62 million cases worldwide with 16 million cases of gonorrhoea being in the sub-Saharan African (UNAIDS, 2000). Factors contributing to spread of gonorrhoea are its short incubation period, large number of asymptomatic carriers, use of non barrier methods of contraception and the fact that gonorrhoea co-exists with other sexually transmitted infections. The highest rate of gonorrhoea occurs among ages 15 and 24 although there is a rapid rise of disease in teenagers younger than 15 years of age (Peersman and Levy, 1998).

Path physiology

The gonococcus causes surface infections, ascending by way of the lower genital tract. The primary infection takes place in or near the urethra in males and in the cervix, urethra or rectum in females. Infection of prostatic urethra in male and female urethra and vaginal glands predisposes to chronic infection. Females contract secondary infection of endometrium, uterine tubes, pelvic infection resulting in pelvic peritonitis (Dunnihoo, 1990).

Clinical manifestations occur after an incubation period of 2 to 7 days. Males develop dysuria or urethral discharge. The infection may extend to the prostate, seminal vesicles, and epididymis causing lymphadenitis, pelvic pain and fever. Males however may remain
asymptomatic and can infect their sexual partners. In females, a large percentage is asymptomatic. A small number have vaginal discharge, urinary frequency and dysuria. Endocervical gonococcal infection spreads upwards into reproductive tract, pelvis causing pelvic inflammatory disease, salpingitis, endometritis, and peritonitis. Pelvic infection causes adhesions about pelvic organs and rectum contributing greatly to infertility and ectopic pregnancy (Brunner and Suddarth, 1998).

The goal of management is to eradicate the organisms and educate the patient about condition. An important concern in the treatment of gonorrhoea is its coexistence with chlamydial infection. Serologic testing for syphilis and other sexually transmitted infection is done at the time of diagnosis (Adler, 2000).

**Candidiasis**

Candidiasis is a fungal infection caused by *Candida albicans*. This organism is frequently a normal flora of the mouth, throat, large intestine, and vagina. It propagates where it is moist and warm. Clinical manifestations are a white cheesy vaginal discharge that causes intense pruritis, irritation and burning sensation on micturition, especially if excoriation from scratching is present. The symptoms are more severe before menstruation (Holmes, 1994).

The goal of management is to eliminate the infection. Identify the underlying factors that may contribute to the overgrowth of Candida organisms such as pregnancy, diabetes and oral contraceptives medications. Preferred medications are anti fungal agents such as
clorimazole, miconazole and mycostatin. The treatment is mostly topical and is continued even through a menstrual cycle (Adler, 2000).

**Trichomoniasis**

This is an infection caused by a protozoan known as *Trichomonas vaginalis*. In 1998, it was estimated that 30 million new cases occur in the Sub-Saharan Africa and UNAIDS (2000) reported 170 million new cases worldwide. Symptoms in women include vaginal irritation (Vaginitis), swelling of the vulva, bad smelly vaginal discharge and pain on passing urine. Occasionally, males have a discharge from the penis. Difficult in passing urine occurs. Males are however mostly a symptomatic. Complications of untreated trichomoniasis are mostly localized but there is evidence that vaginal trichomonal infection facilitates the spread of HIV (UNAIDS, 2000).

Clinical manifestations are a vaginal discharge that is thin, frothy, yellow-brown or greenish, malodorous and very irritating. Intense vulvo-vaginal burning and itching is marked. Diagnosis is by microscopic detection of the pear-shaped mobile, flagellate organisms. Speculum inspection reveals generalized vaginal erythema with multiple small petechiae (Holmes, 1994).

Management involves giving metronidazole tablets two orally three times a day with meals for one week. Both partners should be treated because of inaccessible trichomonads in the urinary system. Unpleasant effects of this treatment include metallic
taste, nausea and vomiting, hot and flushed feelings when combined with an alcoholic beverage (Adler, 2000).

**Lymphogranuloma Venereum (LGV)**

It is an STI caused by *Chlamydia trachomatis* strains of the L₁, L₂ and L₃ classifications. Commonest are those caused by L₂ organism. Acute Lymphogranuloma Venereum in heterosexual men, is characterized by a transient primary lesion (sore) followed by suppurative lesions (discharging open sores). It is associated with systemic effect such as fever and increased white blood cell count (Leukocytosis). The inguinal syndrome begins with small erosion or papule that heals and is followed by inguinal adenopathy and the appearance of a genital ulceration. In about 75% of these cases, the nodes drain pus from multiple fistulous tracts.

After a latent period of many years, complications that occur include genital elephantiasis due to lymphatic involvement, strictures and fistulae of the penis, urethra and rectum. Symptoms include primary genital lesions that develop three days to three weeks after exposure. Small painless vesicles or non-indurated ulcer or papule located on the penis and on the labia in females appear. The posterior vaginal wall or fourchette in females is also affected. The primary lesion is noticed by less than one third of males and only rarely, by females (Dunnihoo, 1990).
Gardnerella Vaginitis (Bacterial Vaginosis)

Bacterial vaginosis caused by *Haemophilus vaginalis* or *Corynebacterium vaginale*. Anaerobic lactobacilli and bacteroides predominate in the vagina. Manifestations of bacterial vaginosis include thin, greyish-white watery discharge that has a fishy or stale odour. This is due to the amines (trimethylamines) and fatty acids that are present. Upper genital tract infections have been found in association with bacterial vaginosis.

The treatment of choice for Gardnerella vaginalis vaginitis is metronidazole 500mg three times a day for 7 days, capsules amoxicillin 500mgs three times a day for 7 days. The use of a condom by the patients consort should be encouraged until the vaginitis has been eradicated in an effort to prevent re-infection, and treatment of the male partners is advised (Dunnihoo, 1990).

Incurable STI

These are STI that are viral in origin and include Human Immuno Deficiency Virus (HIV), Human Papilloma Virus (HPV) and Herpes Virus (HV). Human Papilloma Virus infects the epithelium of the skin and mucous membranes. The infection may be asymptomatic, produce warts or be associated with a variety of both benign and malignant neoplasm whereas Herpes virus can either be symptomatic with painful blisters at point of contact or symptomatically widespread among the adolescent population. It enhances the transmission of HIV.
Genital Warts

A small DNA virus, a papilloma virus belonging to the papovavirus group, causes these. Genital warts differ from skin warts histologically and antigenically the commonest type being type 6 or 11. Other types are 16, 18, 31, 33 and 35.

Genital warts are nearly always transmitted by sexual contact. The infectivity of sexually acquired warts is about 60% with an incubation period varying from two weeks to eight months. Genital warts are often asymptomatic and painless. Genital Warts flourish in warm, moist conditions, particularly if a discharge or other infections are present. Warts may be solitary but are usually multiple by the time the patient attends for consultation. Commonest sites in men are on the glans, shaft of the penis, prepuce, fraenum and coronal sulcus, urethral meatus, scrotum, anus and rectum. In women, the commonest sites of infection are the introitus and vulva, but warts may also affect the vagina and the cervix, perineum, anus and rectum (Dunnihoo, 1990).

Diagnosis is not difficult but the differential diagnosis of condylomata lava of secondary syphilis, *Molluscum contagiosum*, sebaceous cysts and benign and malignant tumours should be remembered. Management is usually with locally applied, caustic agents. Podophyllin, a cytotoxic agent, should be applied to the lesions in strengths of 105 or 25% in industrial spirit repeated at least twice or three times a week. Resistance to this agent requires applications of glacial trichloroacetic acid 50-100% with great caution (Adler, 2000).
Electrocautery, cryotherapy and surgical excision should be considered at an earlier stage if the warts are numerous or large. Complications of genital warts include alarming increase in size during pregnancy and caesarean section is necessary (Adler, 2000).

**Molluscum Contagiosum**

It is a contagious viral condition, which may be spread by close bodily contact, clothing or towels. It may be sexually transmitted. The agent causing molluscum contagiosum is one of the poxviruses and has a variable incubation period of two to twelve weeks.

Clinically, the sexually transmitted lesions of molluscum contagiosum are characteristic. Pearl white umblicated papules measuring 2-5mm in diameter appear in the genital area (penis, scrotum, vulva, perineum, abdomen and thighs). None sexually transmitted lesions may be found in any part of the body particularly on the arms, face, eyelids and scalp. Treatment is by applying phenol on the end of a sharpened stick to the central umblicated core of the lesions. This may be repeated several times. Electrocautery or cryotherapy may be used (Adler, 2000).

**Human Immunodeficiency Virus (HIV)**

The first case was reported in the United States of America in 1981. The HIV is transmitted through sexual contact, infected blood and from an infected mother to child.
By the end of 2002, the World Health Organization estimated that 42 million people worldwide to have been infected with HIV and 3.2 million deaths from HIV/AIDS during 2000 (Piot and Seck, 2002). Ninety percent of these infected people live in developing countries. Analysis of HIV infections by geographic distribution reveals that, the highest concentration of the epidemic is in the sub-Saharan Africa accounting for approximately 70% of all HIV infections worldwide. In Africa, reports on AIDS cases generally lag by an average of one year and are incomplete for numerous reasons.

In Kenya, AIDS was first recognized in 1984. The number of new AIDS cases reported in one year has been on average 12,000 since 1990. Due to under-reporting, missed diagnosis and delays in reporting, the reported cases only represent the tip of the iceberg. The current scarcity of empirical data could also be related to the lack or inadequate local infrastructure and difficulty in maintaining a comprehensive registration system. The majority of deaths occur outside the framework of official health care system due partly to legal and administrative systems that rarely operate effectively outside urban areas. These are lack of facilities for diagnosing AIDS, difficulties in the clinical definition of AIDS and confusion with opportunistic infections (Carael and Schwartlander, 1998). The valid estimate may therefore be three times what is reported. Men and women are infected in equal proportions. Eighty percent of the cases occur in the age group 15 to 49 years while 10% are children under the age of 5 years. The epidemic began in Western Kenya and now has spread into the Rift Valley and Central Province where HIV prevalence rates among pregnant women are 15% to 30% (Johnston, 2001).
The East African AIDS epidemic (in Uganda, Tanzania and Kenya) has passed through a series of stages. The first stage was characterized by a rapid spread of the infection among high-risk groups. The infection rate among commercial sexual workers was 60 – 80% and the sexually active population in the “transport towns accounted for 50%. The second stage was marked by a slower spread into the general adult population. Antenatal women infection rate was 20 – 30%, the adult population had 10 – 30% and the other vulnerable communities had 30 – 40% infection rates. Kenya is presently at the beginning of the third stage. This stage of the AIDS epidemic involves the spread to and among the adolescents and young adults. In the year 2000, the percentage of new HIV infections among the under 20 year olds was 20% for males and 30% for females (Johnston, 2001). Projections for 2005 indicate that these infection rates will increase to 40% for males and 60% for females (Johnston, 2001 and MoH, 2002).

The progression of the disease has outpaced all the projections, for example, WHO projected in 1991 that there would be 9 million infected individuals and nearly 5 million cumulative deaths in Africa. Estimates made in 1999 were two to three times higher. The current estimate of 29.2 million infected individuals in Africa, an additional 4 million new infections per year and 13.7 million cumulative deaths highlight the enormous burden that AIDS will place on countries for decades to come. Should all new infections cease today, the burden on populations, health systems and countries will endure for years.
The epidemic of AIDS related deaths is clearly evident. Life expectancy in Africa, Kenya included, has dropped and in some places may fall back to 1960s levels (UNAIDS 2000). The 2001 World AIDS day figures spelt out the stark reality of the epidemic in Africa. Life expectancy at birth in Southern African which rose from 44 years in the early 1950s to 59 in the early 1990s is set to drop to just 45 years between 2005 and 2010 because of AIDS. In contrast, south Asian countries can expect by 2005 to be living 22 years longer than their counterparts in Southern Africa (Garbase, 1998). Eastern and Southern Africa are home to 4.8% of the World’s population yet have over 50% of the World’s HIV-positive people and account for 60% of all lives claimed by AIDS since the epidemic began in 1984 (UNAIDS, 2000).

2.2.1. Factors That Make Adolescents Vulnerable To STI

STI are posing a serious Public Health problem in Kenya. Data concerning the magnitude of common STI are scanty but their prevalence is high (Nascop, 2001). Several factors that make adolescents vulnerable to the high risks of STI include: cultural, social, biological, psychological and environmental, which makes STI to be considered not only as a medical factor but also a biological factor. Biologically, the risk of HIV infection during unprotected vaginal intercourse is two to four times higher for women than men. The women have a bigger surface area of vaginal mucosa exposed to their partner’s sexual secretions during intercourse. Young females’ genital tract is still immature and is easily injured during coitus. Women are more likely than men to have STI which increases the risk of HIV infection by three to four times. There is increasing
evidence that transmission is higher in young girls aged 16 years and less compared with the risk to older women (Temin et al., 1996). The risk of HIV/AIDS may be particularly hard for young people to grasp because HIV has a long incubation period and a person's risky behaviour does not have immediately apparent consequences (Barnett and Blaike, 1994).

According to Peerson and Levy (1998), adolescents, unlike adults, may be reluctant to seek treatment of STI because their sexual activity is frowned upon. They may not know that they have a disease and if they know, they are embarrassed to go for medical assistance and have no access to a health facility or services. They may go to traditional healers or obtain under dosed antibiotics from pharmacies. Faxelid (1997) stated that incomplete treatment of STI may mask symptoms without completely curing the infection. This prolongs the individual's infectiousness. Adolescents may be forced into sex or otherwise have little power in negotiating sexual relationships particularly if the partner is older (World Bank/UNAIDS, 2000). Further, the traditional ways of educating the youth about sex have diminished or disappeared altogether. The social bonds and traditions that used to shape young people's behaviour and help them make the transition to adulthood have weakened in the face of urbanization, new attitudes towards sexuality and the break down of extended family system (Kiragu, 1991).

A study carried out in Thailand and Mexico in 2000 revealed that sexually experienced youth do not appear to see themselves at higher risk than sexually inactive youth. According to the study, 88% of the Thai group, both sexually experienced and
inexperienced perceive themselves to be at no to low risk of HIV and that there is need to personalize the process of risk assessment in educational interventions targeted to youth both sexually experienced and inexperienced (Pop. Council, 2001). In Malawi, another study found that semen of men who were infected by both HIV and common STI contain up to eight times as much HIV as patients infected with HIV alone. Semen therefore contains a higher concentration of HIV than the vaginal secretions and it stays in the vagina for hours after intercourse. When the HIV infected men were treated for STI, the amount of HIV in their semen fell dramatically (Abrahams, 2001).

In Zimbabwe, where the national prevalence of HIV among young women is over 23 per cent, more than half of those interviewed said they were not at risk of HIV/AIDS (Tarantola, 2002). Many adolescents are unaware of what constitutes risky sexual behaviour and even if they appreciate the risks of HIV/AIDS in general, many believe that they are invulnerable themselves (Weiss, 1998). A study done on adolescent students in U.S.A and their increased risk of HIV transmission revealed that STI could increase likelihood of HIV transmission. It attributed this to the four common STI: Chlamydia, gonorrhoea, syphilis and herpes. The study concluded that, the potential benefits in terms of averted medical costs of HIV cases attributable to STI facilitated transmission are sizeable (Weiss et al., 1998). In a study conducted in Tanzania, many adolescents were found to experiment with tobacco, alcohol, sex and drugs as rites of passage. It further revealed that youth aged 16 to 24 years who smoked and took alcohol, were four times more likely than others that age group to have multiple sex partners (Maswanya et al., 1999).
Studies have also reported that there is a stronger relationship between emotional abuse in childhood and experience of sexually transmitted infections in adolescence. Early childhood emotional abuse might predispose male adolescents to seek emotional security in multiple sexual relationships and adolescent girls to seek perceived emotional security offered often by older men. These involvements increase the risks of STI (Johnston, 2000). In a study conducted among secondary school boys and girls in Nyanza Province, 25% of the boys and 50% of the girls described their first sexual experience as unpleasant and done unwillingly (Carr et al., 2001). Sex, particularly with an infected partner, carries a higher risk of infection especially for girls (Population Council, 2001). In another study conducted in Ivory Coast among adolescents aged between 15 to 19 years found that awareness about HIV/AIDS was almost universal, 98% among the adolescents. Despite this high awareness, only 67% of the boys and 53% of the girls were able to mention two or more HIV prevention methods (Mayaud, 1998). Up to 30% of the boys and 41% of the girls did not have knowledge of asymptomatic infection. Knowledge of STI symptoms was also limited among this group. It further found that multiple partners and unprotected intercourse was common among the adolescents (Rao, 2000).

The Kenya Demographic Health Survey (1998) among women aged between 15 and 49 years and men aged between 20 and 55 years illustrated that knowledge and awareness of AIDS in the general population was 99% for both sexes. Only 40% of these respondents correctly identified at least two methods of protecting themselves from becoming infected. These were abstaining from sexual intercourse, use of condoms; avoid multiple
sexual partners and being faithful to one partner. None mentioned treatment of common
sexually transmitted infections. Some adults still think that sex education encourages
sexual experimentation. Programmes and campaigns often are limited in what they can
discuss. Educators at University of Cairo in Egypt had to alter their programme so as not
to be accused of immoral propaganda (El-Gawhary, 1998). In a study done in South
Africa among the secondary schools, the head teachers were interviewed on the
importance of education about HIV/AIDS. Of the 60% who acknowledged that their
students were at moderate or high risk of HIV/AIDS, only 18% of the schools offered full

2.2. 2: Strategic Focus on Adolescents

Epidemiological patterns show that, most HIV infections occur during adolescence.
Focusing on the youth appears therefore, to be a crucial strategy against transmission of
HIV (Ainsworth and Over, 1997). Based on simulation models, focusing on preventing
HIV among adolescents would be more effective than focusing on high-risk populations
(defined as people having sex with more than one partner in the past six months). A
combined focus on young people and on high-risk groups would be most effective
(Tarantola, 2002). Another reason to focus prevention efforts on youth is that HIV-
positive youth, because they were recently infected, are highly infectious. HIV is most
infectious when viral loads in the blood are high resulting in HIV shedding, in many body
fluids. Since adolescents are likely to have been recently infected, many are at the
primary stage; which is the most infectious stage, where behaviour change could be
especially effective at reducing further HIV transmission (Royce et al., 1997). Tettekpo (2001) further states that, growing research should inspire using peer group education as a strategy in sexual and reproductive health programmes. The programme should be concentrated on the very young, those aged between 10 and 12 years in order to ensure that they have information that is appropriate for their age, competence and the motivation. These will enable them to make healthy decisions in sexual matters. Reaching the youths before they become sexually active strengthens the likelihood of their adopting healthy behaviours when they eventually choose to engage in sexual relations (Tuju, 1996).
Summary of Principal Factors in Risk-taking Behaviour (Adapted from, Irwin and Millstein, 1993).

Predisposing Biopsychosocial (Endogenous) factors
- Sensation seeking
- Aggressiveness
- Developmental stage
- Drives
- Cognition
- Hormonal effects in boys
- Low self-esteem

Predisposing Environmental (Exogenous) factors
- Family Factors: authorization and permissive parenting styles.
- Maladaptive family situation
- Low parental support and control
- Parental denial
- Parental involvement in risk-behaviour
- Lack of knowledge of the consequences of risk-behaviour
- Peer behaviour
- School transition
- Societal denial and Unresponsiveness.

Increased vulnerability and/or risk situation

Precipitating factors
- Lack of experience/knowledge
- Substance use
- Lack of skills to resist peer Pressure
- Peer initiation
- school transition
- social pressure
- substance use and availability

Risk taking behaviour
2.2.3: Relationship between STI and HIV/AIDS

There is a synergistic relationship between STI and HIV. Sexually transmitted infections enhance the transmission of HIV infection and HIV increases the duration of some STI (Dallabetta, 1996). Scientific evidence shows that a person with an untreated STI is six to ten times more likely to pass on or acquire HIV during sexual intercourse. According to the current hypothesis, the risk of becoming HIV infected from a single exposure is increased 10 to 300 fold in the presence of a genital ulcer (UNAIDS, 2001). Sexually transmitted infections raise the number of white blood cells in the genital tract thus increasing the risk of HIV transmission (Panchaud et al., 2000). The Human Immunodeficiency Virus (HIV) concentrates in the seminal fluid particularly in situations where there are increased numbers of lymphocytes in the fluid as in urethritis and other conditions related to sexually transmitted infections (Fauci & Lane, 1994). The STI increase by more than 100 fold the amount of HIV shed into the genital secretions thereby raising the probability that the secretions will contain enough HIV to cause infection (Royce et al., 1997).

Since the majority of sexually transmitted infections are transmitted through heterosexual contact, the infectivity of a partner depends on the viral load of the infected partner, the presence in either partner of STI like syphilis, chancroid or those that cause genital ulcers (Nascop, 2001). Having another STI makes both HIV positive persons more infectious and those HIV negative more susceptible to infection (Panchaud et al., 2000).
In Malawi, a study conducted by North Carolina medical school researchers found that the semen of men infected by both HIV and other common STI, contain up to eight times as much HIV. When these infected men were treated for these STI, the amount of HIV in their semen fell dramatically (Abrahams, 2000).

2.2.4: Misconceptions Regarding STI and HIV

Unreliable sources of information relating to STI and HIV transmission have led to many serious misconceptions (Appendices VII a and VII b) that have further distorted the knowledge of adolescents. It is noted that the proportion of Kenyan adolescents aged 13 – 19 years receive sexuality information as follows; through school, 14%, home 14% and 72% from other sources. While adolescents receive information from these diverse sources, a number of it is sometimes incorrect, incomplete or misleading (McCauley and Mane, 2000). A study done in Central Province found that adolescents believed that AIDS could be cured and that healthy looking people do not have HIV (Erulkar, 1998). According to another study conducted by Nzioka in 2001 among adolescents aged 15-19 years in rural Kenya, boys perceived sexual activity as part of their initiation into manhood and that failure to have sex was seen as carrying the risk of losing status among their peers. Contracting STI but not HIV/AIDS seemed acceptable as part of gaining experience. The study also noted that the preferred strategies to protect themselves against STI were unsafe example choosing young girls to have unprotected sex with or avoiding “thin” and “sickly” looking girls (Nzioka, 2001).
In another study conducted in Zambia (Gerbase and Mertens, 1998) to measure knowledge, attitude and sexual behaviour among adolescents, virtually all respondents had heard of AIDS. A large proportion of the young people did not think a person could do anything to avoid AIDS. It further noted that 25% of men and 29% of women aged 15 – 19 years thought that HIV/AIDS could not be avoided (Ndubani et al., 2001). When students in Papua New Guinea were asked how to protect against HIV, 27% said knowing the partner first or ensuring the partner had not had sex in the previous six months was enough (Friesen et al., 1996). Measures for preventing sexual transmission of STI and HIV/AIDS are the same as the target audiences for interventions. Strong evidence supports several biological mechanisms through which, common STI facilitate HIV transmission by increasing both HIV infectiousness and susceptibility. Significant also, is the observation of a sharp decline in the concentration of HIV in the genital secretions when the infection is treated (Abrahams, 2000).

Monitoring trends of common STI can provide valuable information on the sexual transmission of HIV as well as the impact of behavioural interventions (Nascop, 2001). Interventions can prevent spread of an STI within a population (Anderson and May, 1994; Merson et al., 2000). These interventions include: reducing the rate of exposure to STI by lowering rate of partners change, mitigating the efficiency of transmission and by shortening the duration of infectiousness of the STI. However, for HIV infection and most other viral STI, therapy has not yet been clearly shown to shorten the duration of infectiousness. Current interventions target the rate of exposure and efficiency of
transmission (Incurable STI) while for curable STI; targets include the duration of infectiousness (Anderson & May, 1988; Merson et al., 2000).

2.2.5: Kenya Government Policies concerning STI Control.

The government of Kenya accords high priority to the control of STI. Recognizing the impact the HIV/AIDS was going to have on the individual, family, social services and the economy of the country, the government created the AIDS programme secretariat (APS) in 1987. The aim was to organize the Nation's effort against AIDS. The Nascop was created within the Ministry of Health to be the major implementing organization. The AIDS programme secretariat (APS) developed a Medium Term Plan (MTP) for the period 1987 – 1991. Its focus was on public awareness, campaigns, strengthening of laboratory services, surveillance of HIV/AIDS and training of health workers. In 1992 the second Medium Term Plan (MTP II 1992 – 1996) was prepared. This medium Term plan for aids prevention and control, states that the unprecedented AIDS pandemic, which has now become a major problem to the society is, if not checked likely to undermine the achievements made in the health sector over the last 28 years of independence. The government adapted a multisectoral approach in the control of STI and HIV/AIDS.

The following are some of the policy statements on STI and HIV/AIDS: -

- That people have a right to have all relevant knowledge about AIDS and related infections.
• That through information and education, people will be helped to make informed decisions in adopting lifestyles that do not favour transmission and the spread of AIDS.

• That AIDS and related infections have the potential to cause physical, social and moral problems of immense dimensions. The government of Kenya will organize and mobilize appropriate resources to support individuals, families and communities.

• That health workers need to be given available information on AIDS and related infections and the necessary resources to enable them to deal with AIDS and problems associated with it.

• That the personnel from the Ministry of Health alone will not be able to stop the spread of common STI and HIV/AIDS. It will therefore adopt an active multisectoral policy of co-ordination and collaboration with other government ministries, departments and non-governmental organizations.

• That because of the association between sexually transmitted infections and AIDS, the Government of Kenya recognizes the need for early diagnosis and treatment of STI as an important strategy in the control of AIDS.

The strategies proposed in the Medium Term Plan for AIDS prevention and control include prevention of sexual transmission of HIV by giving AIDS education to youth in and out of schools. These include family life education to provide children with information to protect themselves against HIV/AIDS, control of sexually transmitted diseases, diagnosis and treatment of STI in order to reduce their prevalence in the population and as a result, reduce the transmission for HIV (ROK, 1996).
2.2.6: Government Policy on AIDS and Youth

Young people comprise the majority of AIDS cases as reported from various hospitals. The youth become infected through environmental, social, cultural, psychological and biological factors. To protect young people against STI and HIV, the government proposes to:

- Provide direction in designing culturally, morally and scientifically acceptable AIDS education programmes for youth in and out of school.
- Advocate for protection of youth against anti-social behaviours such as pre-marital sex, drug abuse, teenage pregnancy and school drop out.
- Strengthen the capacity of teachers, parents, leaders and communities in general to enable them to lead and educate young people about HIV/AIDS and provide role models for the youth.
- Enforce the liquor-licensing act in order to stamp out the current practice where bars, lodges and other social amenities are located in residential areas thus giving young people negative experiences.
- Address the issues of poverty, unemployment and productivity in line with social dimensions of development and the Initiative for Youth Action (ROK, 1997).

The government in 2001 reviewed the secondary school curriculum by incorporating STI as an integral subject among the various subjects being taught in the schools. The topics being covered under STI include any one of the following infections; HIV/ADS, Herpes, Candidiasis, Trichomoniasis, Gonorrhoea, Chlamydia, Genital warts, Syphilis and students are supposed to know the other sexually transmitted infections through their own reading (KIE, 2001). The subjects under which STI can be taught are Social Ethics
Education, Geography, Christian Religious Education, Biology and in all the subjects including mathematics. Education for some parents to allay their fears and misconceptions about the connection between the provision of information and services still has a long way for some of them to relate this knowledge to increased sexual activity among the adolescents in school.
The study was conducted in Kabapho Division of Barino District, Kenya, Barino Division, Bungoma, Turkana, and Siaya Districts.

This area is one of the 17 districts in the Rift Valley Province. It is bordered by Turkana, Bungoma, and Siaya Districts.

The district covers 8,655 square kilometres of which 140.5 square kilometres is swamps.

The district has an altitude that ranges from 1000m to 2600m above sea level and a rainfall pattern that varies from 1000mm to 1500mm in the highlands and 600mm in the lowland.

The district is classified into rural and urban populations. This population density of 156.3 persons per square kilometre. The rural population is classified into rural areas.

The district lies between Longitudes 35° 00' and 36° 30' East and between Latitudes 0° 10' South and 0° 40' north. The district is located in the South. Kajiro, Mabok and West Pokot districts to the west, the district is located to the north, Samburu and Turkana districts to the east, and Isiolo districts to the south. The district is one of the 17 districts in the Rift Valley Province.

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This study was conducted in Kabapho Division of Barino District, Kenya, Barino Division, Bungoma, Turkana, and Siaya Districts.
MAP SHOWING BARIAGO DISTRICT ADMINISTRATIVE BOUNDARIES

Inset: Location of the District
3.1: Demographic Profile

The demographic profiles of the district indicate that it had a population size of 286,643 people out of whom were 140,704 males and 145,939 females. The population growth rate was 2.65% and the dependency ratio of 100:110. The total number of youthful population (15-25 years) in the district was 31,212 males and 33,481 females. The total population of secondary school going youth was 15,741 males and 15,694 females (BDDP, 2003).

Kabartonjo division is one of the 14 divisions of Baringo District. It is bordered by Kipsaraman to the north, Barwesa to the west, Ng’inyang to the east and Kabarnet and Marigat divisions to the south. It receives high rainfall and so it is one of the most agricultural divisions and densely populated with a population of 36,303 people according to the population census of 1999 (CBS, 2000). It has got the highest rural population density of 117.5 persons per square kilometer in a total area of 309 square kilometers. The total population of the secondary school going age is 39.5 percent of the adult population. There is over utilization of the secondary schools’ facilities in the area and by the end of December 2002, there were 3500 students in these schools. The district development plan 2002-2008 gave an annual secondary enrollment of 28% for boys and 22% for girls.
3.2: Study population

3.2.1: The target population.

The study population was the adolescents who were currently students in some selected secondary schools within Kabartonjo Division of Baringo District of Kenya. The respondents were assured that the purpose of the study was for academic purposes and that the findings will be utilized in initiating programmes that would enable the adolescents to develop mechanisms of preventing the transmission of STI and HIV.

3.2.2: Inclusion criteria.

The study included the following.

a). Adolescents aged between 13 – 19 years and in forms I to IV.

b). Respondents who gave their informed consent to be included as research subjects in the research.

3.2.3: Exclusion Criteria.

The study excluded the following.

a). The students who were aged less than 13 years and those who were 20 years at the time of research.

b). Those adolescents who did not consent to be included as research subjects.

3.2.4: Ethical Consideration.

Permission to carry out the study was given by relevant ethical authorization bodies: Kenyatta University Ethics Committee and the Ministry of Education Science and technology (Appendix VIII). Once in the field, permission was sought from the Provincial Administration, the District Education Office.
(Appendix IX), the Divisional Education Office, the Head teachers of the relevant schools that were used and from the respondents (Appendix II).

3.3: Study Design

This was a descriptive Cross-Sectional study in which both quantitative and qualitative data was collected. The study was used to determine the knowledge of adolescents regarding common STI and the transmission of HIV/AIDS

3.3.1 Sampling Method

The district and division were sampled purposively. Multistage sampling in three stages to identify the schools and the potential respondents in the selected secondary schools then followed this. The schools were sampled first by assigning simple random numbers to all the secondary schools in the division followed by the classes, then the respondents. The classes were then stratified. Class registers were utilized to assign simple random numbers to all the students in forms one to four. This was meant to ensure that every student had an equal opportunity of being included in the research. The students were sampled proportional to the size of the classes.

3.3.2 Sample size determination: The process of sampling was determined by the formula:

\[ n = \frac{Z^2pqD}{d^2} \]

as used by Fisher et al., (1998);

Where: \( Z = 1.96 \) at 95% Confidence Interval (C.I)
P = Proportion of target population with a particular characteristic under study (Use 0.5 if not known).

q = 1 - p

d = Degree of accuracy set at 0.05

D = design effect – is equal to 1 where there are no replications or comparisons

Where: p = 0.5, assume D = 1

\[ n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = 384 \]

Since the population of my study was less than 10,000, the formula used by Fisher et al for populations less than 10,000 was used to calculate my sample size

\[ nf = \frac{n}{1 + \left( \frac{n}{N} \right)} \]

Where \( n \) = sample size and \( N \) = population with characteristics under study.

\[ nf = \frac{384}{1 + \left( \frac{384}{3500} \right)} = 363 = 365 \]

The minimum sample size for this study was therefore 365. A total of four Focus Group Discussion and Four Interviews were conducted. Other interviews to key informants included four to the teachers, and four to the school nurses/matrons. Four secondary schools were sampled out of a total of eight in the Division as follows: - One (1) all girls’ boarding school was sampled purposively being the only girls’ school in the Division; one (1) all boys’ boarding school was also sampled purposively by virtue of being the only boys’ boarding secondary school and two (2) mixed gender schools (one of which
was having students mixed in all classes while the second school had two different streams – one for girls only and the other for boys only from form one to form four).

3.4: Methods of Data Collection

A pilot study of the research tool was done for validation in Wareng secondary school in Uasin gishu District. Questionnaires were administered to 24 respondents who then filled them in. The researcher and the assistant collected the questionnaires after the exercise. Necessary amendments were then done to the tool. The research assistants were then trained for two days by the principal investigator to ensure that they had understood the research instrument. Pre-tested semi-structured self-administered questionnaires (Appendix I) were used after being serialized to ensure confidentiality of the respondents. They were given to the sampled respondents who then filled them and the researcher and his assistants collected the questionnaires on the same day. This was to avoid students copying from each other or discussing the possible responses before filling in. Focus group discussions (FGDs) were used to elicit more information from the subjects.

The method used for selecting participants for FGDs was purposive sampling (Dawson et al., 1993). The selection criteria for these groups included some of those who had filled in the questionnaires, the student leaders, the STI and HIV/AIDS scouts/guides and some officials of the religious associations. Focus groups of between 10 and 12 students were then assembled in a classroom for the discussions. The principal investigator conducted the discussions. Other members of the group discussions were: a facilitator, two members
for taking notes and an observer. Questions on STI and HIV/AIDS were used in these focus group discussions (Appendix III). Key informant persons were also interviewed using an interview guide. These informants included the head teachers (Appendix IV), biology teachers, social ethics education teachers, guidance and counseling teachers (Appendix V) and from the school matrons/nurses (Appendix VI).

The District Development Office gave all the demographic information/data regarding the division in which the study was conducted. The District Aids Coordinator provided the statistics of STI and HIV/AIDS. The officer in-charge of the local health centre provided the figures for student attendance in the facility. Between the month of August 2002 and March 2003, the total number of clients seen in the health centre was 83 out of whom, 13.3 percent were secondary school students aged between 13 and 19 years.

3.5: Data Management and Storage.

3.5.1: Qualitative Data

The qualitative data from the questionnaire was transcribed, translated and coded before entering into the computer. Data from each FGD and the interviews was analyzed manually according to the study objective and a summary written. Data from the summary provided necessary explanation for quantitative data. Where necessary, similarities and disparities have been described in text.
3.5.2: Quantitative Data

Data collected was stored in confidence under the safe custody of the researcher. The questionnaire was structured with both closed and open-ended questions. The instrument was constructed in English and needed no interpretation. All open-ended questions were coded before data entry. Data from the questionnaire was checked for errors and double entered into a computer using the statistical package for social sciences (SPSS version 8.0). The results were presented in descriptive form using frequency tables, cross tabulation tables, bar charts and histograms.

The following analytical procedures were used:

a) Comparison and differences of variables (Chi square) statistical tests of association and significance are given where applicable. Level of significance fixed at 0.05 \( (p = 0.05) \)

b) The Chi-square test for relationships between the independent research variables (age, type of school attended, gender, level of education) and the dependent variable (knowledge) was used (G-Test).

c) Analysis of variance (ANOVA) was used to test the significance of factors that determine sexual behaviour among adolescents.

3.5.3: Reliability And Validity Of The Research Instruments

a). Validity.

According to Coolican (1994), validity refers to whether a measure is really measuring what it was intended to measure. Content validity of the knowledge and sexual practices
questionnaire were initiated at the design stage while Edwards and Smillie (1994) established the content validity of knowledge test and attitude. All the pretest subjects agreed that STI knowledge and level of education were necessary and that individuals needed to know more about them. They also agreed that statements in the sexual practices questionnaire were in line with what goes on in the society and in schools where they lived and learned thus ascertaining the content validity of the research instruments.

For reliability, the adopted knowledge test was tested using the Kuder-Richardson Formula 21 (KR-21) after the pilot study. Gay (1994) identifies the following as the advantages of using KR Formula 21 as an estimate of reliability. It is an easy to apply approach which provides an estimate of KR-20 (a highly accepted method by social scientists of assessing reliability). It requires less time than any other method since it is administered only once. KR-21 formula states as follows:

\[
R (\text{total test}) = \frac{k (\delta^2) - \mu (k - \mu)}{\delta^2 (k - 1)}
\]

Where:

- \( R (\text{total test}) \) = reliability of the total test
- \( k \) = the no. of items in the test
- \( \delta^2 \) = standard deviation of the scores
- \( \mu \) = the mean of the scores.
After the pilot study, the researcher performed the reliability checks separately for the data collected from the knowledge test. The internal reliabilities were estimated at Cronbach’s alpha, $\alpha = 0.95$.

Data on knowledge of STI and its relation to HIV transmission was based on an interval scale that is; 1, 2, 3 and 4. The intervals were further categorized in percentages as 0-24% for interval scale one, 25-49% for interval scale two, 50-74% for scale three and 75-100% for interval scale four. Each correct response was given a one-point score. The highest possible score was 75-100% and the lowest score was 0-24%.

It follows in the overall that subjects who attained a total score of between 75 -100% were regarded as being highly knowledgeable (HK) about STI/HIV/AIDS, 25-49% were less knowledgeable (LK) and scores of between 0-24% had poor knowledge of STI/HIV/AIDS. The same reasoning applied to the various knowledge content domains under investigation.

A closer look at the results indicated that student knowledge regarding STI facts and HIV/AIDS is wanting. It is possible that IEC campaigns that are the major tools of HIV/AIDS awareness in secondary schools are cued to certain knowledge aspects only. For example, they performed well on knowledge of limited types of STI, transmission mechanisms of HIV and how to avoid contracting HIV. Knowledge was however low on STI. These are the focus of the three knowledge domains namely, information about how STI/HIV is spread, actual modes of transmission, major risk factors, clinical presentation of the various STI and methods of general or personal risk reduction.
4.1: Socio-Demographic Characteristics of the Respondents

4.1.1: Distribution of respondents by Gender

The distribution of respondents by gender was 55.3% males and 44.7% females. This correlates with the annual admission of students to secondary schools at 28% for boys and 22% for girls as per the Development Plan of the Division.

4.1.2: Distribution of respondents by Age Range

As shown in figure 1 below, 40.0% of the respondents were in the age range of 15 – 16 years, 36% were aged between 17 – 18 years followed by respondents in the age range 13 – 14 years, 8.6%.

Figure 1: Distribution of respondents by Age Range
4.1.3: Distribution of respondents by Level of Education.

With regard to the level of education, 28.2% of the respondents were in form Two followed by 22.8% in form three. Details are provided by figure 2 below.

Figure 2: Distribution of respondents by Level of Education
4.1.4: Distribution of respondents by Type of School Attended

More than half (55.1%) of the respondents were from the mixed gender schools, followed by 24.9% in boys' school and lastly 20% from the girls' school (Figure 3).

Figure 3: Distribution of respondents by Type of School Attended
4.2: Knowledge of STI by the Respondents.

4.2.1: Knowledge of Definition of STI by Respondents

Among the respondents who defined the term "STI", females (63.8%) were highly knowledgeable as compared to males (Table 1).

Table 1: Frequency of Responses on Knowledge of Definition of STI by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number (N)</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>202</td>
<td>46.0</td>
<td>54.0</td>
</tr>
<tr>
<td>Females</td>
<td>163</td>
<td>63.8</td>
<td>36.2</td>
</tr>
</tbody>
</table>

Bold indicates highly knowledgeable

Knowledge of STI did not seem to increase with level of education. There was an average response rate among the subjects. Level of knowledge was not statistically significant in relation to STI and HIV transmission ($\chi^2 = 3.427$, df = 3, p > 0.05) (Table 2).

Table 2: Frequency of Responses on Knowledge of Definition of STI by Level of Education

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form I</td>
<td>79</td>
<td>58.2</td>
<td>41.8</td>
<td>$\chi^2 = 3.427$, df = 3, p &gt; 0.05</td>
</tr>
<tr>
<td>Form II</td>
<td>103</td>
<td>52.4</td>
<td>47.6</td>
<td></td>
</tr>
<tr>
<td>Form III</td>
<td>95</td>
<td>55.8</td>
<td>44.2</td>
<td></td>
</tr>
<tr>
<td>Form IV</td>
<td>88</td>
<td>50.0</td>
<td>50.0</td>
<td></td>
</tr>
</tbody>
</table>
The age-range with the highest respondents who defined STI was 15-16 years. These findings however were statistically not significant. Level of knowledge was not statistically significant in relation to STI and HIV transmission. The results indicate that there is no statistical significance regarding age of respondent and the knowledge of STI ($\chi^2 = 213.378$, df = 3, $p > 0.05$). See table 3.

Table 3: Frequency of Responses on Knowledge of Definition of STI by Age Range

<table>
<thead>
<tr>
<th>Age-Range (yrs)</th>
<th>No</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-14</td>
<td>36</td>
<td>50.0</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>15-16</td>
<td>170</td>
<td>57.1</td>
<td>42.9</td>
<td>$\chi^2 = 213.378$, df = 3, $p &gt; 0.05$</td>
</tr>
<tr>
<td>17-18</td>
<td>150</td>
<td>52.0</td>
<td>48.0</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>9</td>
<td>44</td>
<td>55.0</td>
<td></td>
</tr>
</tbody>
</table>

4.2.2: Knowledge of STI By School Attended

As shown in table 4 below, the majority of respondents had high levels of knowledge of gonorrhea (99.6%), syphilis (97.1%) and HIV (74.1%). Knowledge of herpes (35.4%) Chlamydia (19.9%), Trichomoniasis (10.2%) and others are shown in table 4. It is apparent that knowledge of STI is individual.
Table 4: Frequency of Responses on Knowledge of Definition of STI by School Attended.

<table>
<thead>
<tr>
<th>Type of STI</th>
<th>Highly Knowledgeable (HK) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type of School Attended</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>20.9(n=73)</td>
</tr>
<tr>
<td>Syphilis</td>
<td>19.4(n=68)</td>
</tr>
<tr>
<td>HIV</td>
<td>16.2(n=59)</td>
</tr>
<tr>
<td>Herpes</td>
<td>20.5(n=15)</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>2.8(n=7)</td>
</tr>
<tr>
<td>Genital Warts</td>
<td>9.5(n=7)</td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>1.4(n=1)</td>
</tr>
<tr>
<td>Candidiasis</td>
<td>3.1(n=9)</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>5.5(n=4)</td>
</tr>
</tbody>
</table>

Key: Bold indicates highly knowledgeable
4.2.3: Knowledge of mechanism for the transmission of STI causing organisms

More than three quarters of the respondents 80%, knew blood as the most suitable mechanism of STI transmission. This was followed 65% for vaginal fluids and for semen 57%. A few respondents 16%, thought clothing could transmit these organisms. The rest of the respondents (5%) considered food as a mechanism for transmission of STI causing organisms (Figure 4).

Figure 4: Knowledge of mechanism for the transmission of STI causing organisms
4.2.4: Knowledge of other modes of STI transmission among the respondents

Other than having knowledge of the sexual route of transmission of sexually transmitted infections, the majority of the respondents (82%) knew that blood transfusion was another suitable mode of STI transmission. Mother to child followed by (80%), Cultural practices (48%) and others thought sharing of items within the families (11%), Sharing utensils (9.0 %) and handshaking (2%) were other possible modes of STI transmission. The cultural practices identified by the respondents were circumcision using same instrument (24.9%) and wife inheritance by 75.0% (Figure 5).

Figure 5: Knowledge of other modes of STI transmission among the respondents
4.2.5: Knowledge of Symptoms of STI in Women

The knowledge of the respondents appeared higher on some clinical symptoms of STI in women while poor on other symptoms (Figure 7). They were more knowledgeable on reporting about burning pain on urination (60.8%), itching in the genital area by (58.1%), discharge from the vagina (53.7%), lower abdominal pain (39.2%), pelvic pain during sexual intercourse (39.2%), loss of weight (43.8%), genital ulcers/sores (25.8%), swellings in the genital area (34.0%), inability to conceive (25.8%) and blood in urine (22.7%) (Figure 6).
Figure 6: Knowledge of Symptoms of STI in Women
4.2.6: Knowledge of Symptoms of STI in men

More respondents were knowledgeable of clinical symptoms of STI in men. High levels of knowledge were reported on; discharge from the penis (60.5%), burning pain during urination (59.5%), itching in the genital area (55.1%). However, knowledge was poor on; Pain during sexual intercourse (40.0%), open sores (38.4%), swellings in the genital area (31.8%). Other symptoms included, failure to pass urine (30.1%), Blood in urine by (24.1%) and less than 25 percent (23.6%) stated lower abdominal pain as a symptom (Figure 7).
Figure 7: Knowledge of Symptoms of STI in men
4.2.7: Experience of STI symptoms in the past 12 months by respondents

According to the study findings, 14.8% of the respondents had experienced clinical symptoms of sexually transmitted infections ($\chi^2 = 4.900, \text{ df}=6, p>0.005$) while the majority had not. The common symptoms experienced by respondents were; itching in the genital area, lower abdominal pain and genital rashes. The respondents did not tell their partners and did not stop having sexual intercourse with their partners ($\chi^2 = 6.687, \text{ df}=6, p>0.005$) Further, they did not consider these symptoms serious ($\chi^2 = 8.546, \text{ df}=6, p>0.005$).

4.2.8: Knowledge of Complications Resulting From STI

Majority of the respondents had little knowledge of complications that may arise as a result of one suffering from STI ($\chi^2 = 17.975, \text{ df}=1, p=0.000$). Among those who were knowledgeable, (29.0%) mentioned death, (22.0%) reported congenital deformities/abnormalities, (21.1%) social stigma; (16%) mental health problems; (10.1%) suffering from incurable diseases such as sterility and (14.5%) reported other complications such as poverty, orphans and loss of employment (Figure 8).
4.3: Sexual Experience by Respondents

4.3.1: Sexual Experience

The results show that 44 percent of the respondents were already having a sexual partner while 56% of the respondents did not have sexual partners. More males (66.7%) as compared to (33.3%) of the females had a sexual partner. A reasonable number of respondents (32.0%) had experienced vaginal intercourse, while 11.5% had experienced oral intercourse. Other experiences included mutual masturbation (5.2%) and anal intercourse (3.2%). The respondents who were already having sexual partners were (38.1%) indicating that there were long sexual relationships held by the respondents.

The study findings also show that a number of respondents were already engaged in sexual activities. Thus, 34.5% of the respondents started at the age range of 15 – 17 years, followed by the 13-14 years (24.7%). The least age of first sexual experience was 18 and
above (2.7%) with a median age of commencement of sexual activity being 15.2 years.
Less than 40% of the respondents had not engaged in sexual activity.

4.3.2: Distribution of sexual partners among the respondents

The results indicate that less than 50% of the respondents did not have sexual partners.
However, those who reported having had one partner constituted 35.9% and with two partners were (9.9%). Details are in figure 9.

Figure 9: Distribution of sexual partners

4.3.3: Duration of sexual relationship

Less than 40% of the respondents reported not to have commenced sexual relationships (38.1%). For those already in sexual relationship, (27.1%), had experienced a relationship that lasted only once, (9.9%) had lasted for less than one week; (9.3%) lasted for more
than 12 months, (7.4%) lasted for less than one month, (5.2%) for less than 6 months and (3.0%) relationships had lasted for less than 12 months. Less than 40% of the respondents (23.6%) had on-going sexual relationships while 38.6% of respondents had ended their relationships as seen in Figure 10.

With reference to factors influencing commencement of sexual relationships, majority of the respondents (93.4%) were not given any inducement (money or material form).

4.4: Health Seeking Behaviour of the respondents

4.4.1: Health seeking behaviour by Respondents who had suffered from STI in the last 12 Months

Among the respondents who had suffered symptoms of STI, 8.2% sought treatment and advice from health workers in clinics and in hospitals. Further, 4.7% of the respondents who visited the traditional healers, 5.8% bought medicines from the shops and chemists or pharmacies and 7.7% asked friends or relatives for advice (Figure 11).
4.4.2: Action Taken By Respondents Who Had Suffered From STI in the Last 12 Months

Most of the respondents who had experienced symptoms of STI, 7.9% told their sexual partners. More so, (7.1%), thought of the symptoms as a big problem to their health ($\chi^2=8.546$, df =6, $p>0.05$); followed by (7.1%), who reported that they could use a condom when having sexual intercourse with their partners ($\chi^2=10.891$, df=6, $p>0.05$). The rest of the respondents reported that they could stop having sexual intercourse the moment they noticed symptoms of sexually transmitted infections ($\chi^2=6.687$, df=6, $p>0.05$). This determines the infectivity and transmission rate of STI and HIV/AIDS (Figure 12).
4.5: Perception of Risk of contracting STI by the Respondents.

4.5.1: Perception of Risk of Contracting STI by Respondents

More than half of the respondents considered themselves of being at risk of contacting an STI. About 51.6% of the respondents were in the age range of 15-16 years. The percentage in the age range 17-18 years was 36.8% and 8.23% in the 13-14 age range. This contrasts with 60.5% of respondents who did not think that they were at risk of contracting sexually transmitted infections (Figure 13).
When asked if they thought they were at risk of contracting an STI, most of the respondents (33.3%) in the mixed gender schools thought they were at risk, 58.2% from the boys’ school and 27.5% from the girls’ only school thought that they were at risk. It seems therefore that more respondents in boys’ school perceived themselves at risk more than in the other schools ($\chi^2 = 14.600$, df = 1, $P = 0.000$)

Table 5: Knowledge of the Perception of Risk of Contracting STI by Type of School

<table>
<thead>
<tr>
<th>Type of School</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>91</td>
<td>58.2</td>
<td>41.8</td>
<td>$\chi^2 = 78.926$, df = 2, $p = 0.000$</td>
</tr>
<tr>
<td>Girls</td>
<td>73</td>
<td>27.5</td>
<td>72.5</td>
<td></td>
</tr>
<tr>
<td>Mixed Gender</td>
<td>201</td>
<td>33.3</td>
<td>66.7</td>
<td></td>
</tr>
</tbody>
</table>
Knowledge of risk of contracting an STI was found to be high among respondents in form two (41.7%), followed by those in form three (41.1%), then those form one (38.0%) and lastly those in form four (37.5%).

Table 6: Knowledge of the Perception of Risk of Contracting STI by Level of Education

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form I</td>
<td>79</td>
<td>38.0</td>
<td>62.0</td>
<td>$\chi^2 = 3.427$, df=3, p&gt;0.05</td>
</tr>
<tr>
<td>Form II</td>
<td>103</td>
<td>41.7</td>
<td>58.3</td>
<td></td>
</tr>
<tr>
<td>Form III</td>
<td>95</td>
<td>41.1</td>
<td>58.9</td>
<td></td>
</tr>
<tr>
<td>Form IV</td>
<td>88</td>
<td>37.5</td>
<td>62.5</td>
<td></td>
</tr>
</tbody>
</table>

Respondents aged 19 years had a high perception of contracting STI. However, due to the small number of respondents in this age-range, the result is of no statistical significance that is; the figure is not representative (Table 7).

Table 7: Knowledge of Perception of Risk of Contracting STI by Age –Range

<table>
<thead>
<tr>
<th>Age-Range (yrs)</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-14</td>
<td>36</td>
<td>33.3</td>
<td>66.7</td>
<td>$\chi^2$ = 213.378, df=3, p=0.000</td>
</tr>
<tr>
<td>15-16</td>
<td>170</td>
<td>41.2</td>
<td>58.8</td>
<td></td>
</tr>
<tr>
<td>17-18</td>
<td>150</td>
<td>38.0</td>
<td>62.0</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>9</td>
<td>66.7</td>
<td>33.3</td>
<td></td>
</tr>
</tbody>
</table>

Bold indicates high knowledge (HK).
The level of education did not influence the perception of risk of contracting an STI ($\chi^2 = 3.427$, df = 3, $p > 0.05$). Significance was however observed at individual level ($\chi^2 = 4.167$, df = 1, $p < 0.05$) (Table 7).

Perception of risk of STI was not related to gender of the respondent (Table 8)

Table 8: Knowledge of the Perception of Risk of Contracting STI by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>202</td>
<td>45.1</td>
<td>54.9</td>
<td>$\chi^2$</td>
</tr>
<tr>
<td>Females</td>
<td>163</td>
<td>33.1</td>
<td>66.9</td>
<td>= 4.167, df = 1, $p &lt; 0.05$</td>
</tr>
</tbody>
</table>

.5.3: STI as a Serious Problem To The Adolescents

The majority of the respondents (85.75%) acknowledged that STIs were a serious problem to the adolescents, while 14.25% did not think so. With regard to school type, 89.0% from the mixed gender schools, 81.3% from the boys’ school and 83.6% from the girls’ perceived STI as a serious problem to them ($\chi^2 = 3.533$, df = 2, $p > 0.05$) (Table 10).

Table 9: The Perception of STI as a Serious Problem to the Adolescents by Type of School

<table>
<thead>
<tr>
<th>Type of School</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>91</td>
<td>81.3</td>
<td>18.7</td>
</tr>
<tr>
<td>Girls</td>
<td>73</td>
<td>83.6</td>
<td>16.4</td>
</tr>
<tr>
<td>Mixed Gender</td>
<td>201</td>
<td>89.0</td>
<td>11.0</td>
</tr>
</tbody>
</table>

Bold indicates highly knowledgeable
The level of knowledge of STI did not seem to influence perception of the seriousness of STI among the adolescents. It was however highest among the respondents for more than 80 percent of respondents in all classes perceived STI as serious problem ($\chi^2 = 0.928$, df=3, p>0.05) (Table 10).

Table 10: The Perception of STI as a Serious Problem to the Adolescents by Level of Education.

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form I</td>
<td>79</td>
<td>87.3</td>
<td>12.7</td>
</tr>
<tr>
<td>Form II</td>
<td>103</td>
<td>86.4</td>
<td>15.6</td>
</tr>
<tr>
<td>Form III</td>
<td>95</td>
<td>87.4</td>
<td>13.6</td>
</tr>
<tr>
<td>Form IV</td>
<td>88</td>
<td>83.0</td>
<td>17.0</td>
</tr>
</tbody>
</table>

Bold indicates highly knowledgeable.

Perception of the risk of STI was perceived highly by 86.7% in the 15 -16 age range and lastly 66.7% by those who were 19 years (Table 11).

Table 11: The Perception of STI as a Serious Problem to the Adolescents by Age -Range.

<table>
<thead>
<tr>
<th>Age-Range (yrs)</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-14</td>
<td>36</td>
<td>86.1</td>
<td>13.9</td>
</tr>
<tr>
<td>15-16</td>
<td>170</td>
<td>87.6</td>
<td>12.4</td>
</tr>
<tr>
<td>17-18</td>
<td>150</td>
<td>85.3</td>
<td>14.7</td>
</tr>
<tr>
<td>19</td>
<td>9</td>
<td>66.7</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Bold indicates high knowledge (HK).
With regard to gender, male respondents perceived STI as a serious problem were 85.1% and 87.1% females perceived STI as a serious problem to them (Table 12).

Table 12: The Perception of STI as a Serious Problem to the Adolescents by Gender.

<table>
<thead>
<tr>
<th>Gender</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>202</td>
<td>85.1</td>
<td>14.9</td>
<td>( \chi^2 = 4.167, ) df=1, p=0.000</td>
</tr>
<tr>
<td>Females</td>
<td>163</td>
<td>87.1</td>
<td>12.9</td>
<td></td>
</tr>
</tbody>
</table>

Bold indicates high knowledge (HK).

4.5.5: Perception of being at risk of contracting HIV/AIDS by Respondents

Most of the respondents (55%) perceived themselves of being at risk of contracting STI/HIV. The rest of the respondents (45%) did not consider themselves of being at risk of contracting STI/HIV.

Respondents from the boys' school (66.0%) perceived themselves at high risk \( \left( \chi^2 = 6.035, \text{ df}=2, p<0.05 \right); \) followed by (50.7%) from mixed gender schools who gave responses regarding their perception of being at risk of contracting HIV/AIDS. Least were 39 (53.4%) respondents from the girls' school (Table 13).
Table 13: The Perception of being at Risk of Contracting HIV/AIDS by Type of School

<table>
<thead>
<tr>
<th>Type of School</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>91</td>
<td>66.0</td>
<td>18.7</td>
</tr>
<tr>
<td>Girls</td>
<td>73</td>
<td>53.4</td>
<td>16.4</td>
</tr>
<tr>
<td>Mixed Gender</td>
<td>201</td>
<td>50.7</td>
<td>11.0</td>
</tr>
</tbody>
</table>

Bold indicates highly knowledgeable.

With regard to gender, a statistical significance was observed on the perception of the respondents regarding the risk of contracting HIV/AIDS (Table 14).

Table 14: The Perception of being at Risk of Contracting HIV/AIDS by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>202</td>
<td>57.4</td>
<td>42.6</td>
<td>$\chi^2 = 4.167, \text{df}=1$</td>
</tr>
<tr>
<td>Females</td>
<td>163</td>
<td>52.1</td>
<td>47.9</td>
<td>p&lt;0.05</td>
</tr>
</tbody>
</table>

Perception seemed to increase with the level of education considering that the class with the highest respondents was form four with 68.2%, form two with (53.4%), (47.4%) in form three and least were (51.9%) respondents in form one ($\chi^2 = 9.004, \text{df}=3, \ p<0.05$) (Table 15).
Table 15: The Perception of being at Risk of Contracting HIV/AIDS by Level of Education

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form I</td>
<td>79</td>
<td>51.9</td>
<td>48.1</td>
</tr>
<tr>
<td>Form II</td>
<td>103</td>
<td>53.4</td>
<td>46.6</td>
</tr>
<tr>
<td>Form III</td>
<td>95</td>
<td>47.4</td>
<td>52.6</td>
</tr>
<tr>
<td>Form IV</td>
<td>88</td>
<td>68.2</td>
<td>31.8</td>
</tr>
</tbody>
</table>

Bold indicates highly knowledgeable.

The age range 17-18 years had 56.7% respondents who felt they were at high risk of contracting HIV/AIDS ($\chi^2 = 6.715, df=3, p>0.05$), followed by 54.1% in the age range 15-16 years and least were in the age range 13-14 years with 44.4% of the respondents (Table 16).

Table 16: The Perception of being at Risk of Contracting HIV/AIDS by Age -Range

<table>
<thead>
<tr>
<th>Age-Range (yrs)</th>
<th>No.</th>
<th>Highly Knowledgeable (%)</th>
<th>Less Knowledgeable (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-14</td>
<td>36</td>
<td>44.4</td>
<td>55.6</td>
</tr>
<tr>
<td>15-16</td>
<td>170</td>
<td>54.1</td>
<td>45.9</td>
</tr>
<tr>
<td>17-18</td>
<td>150</td>
<td>56.7</td>
<td>43.3</td>
</tr>
<tr>
<td>19</td>
<td>9</td>
<td><strong>88.9</strong></td>
<td>21.1</td>
</tr>
</tbody>
</table>

Bold indicates highly knowledgeable.
4.5.6: The Perception of the Seriousness of STI.

Most of the respondents gave valid reasons as to why they thought that adolescents were at risk of contracting an STI. The majority (73.6%) was from the mixed gender schools followed by boys' schools (66.0%) and respondents from girls' schools were last with 64.4% of the respondents.

Knowledge of perception of risks of STI was highest in form two (71.8%) followed by form three (70.5%) and lowest in the form one (64.6%). The age range 15-16 years had the highest number of respondents (69.4%) with perception of the risk of STI. The next age range 17-18 had 70 percent and 72.2% in the 13-14 age range ($\chi^2 = 213.378$, df=3, p=0.000).

More than half of the male respondents (71.8%) and 67.5% female respondents perceived STI as being serious to adolescents ($\chi^2 = 4.167$, df=1, p<0.05) (Table 17).
Table 17: Responses given on the seriousness of STI by respondents

<table>
<thead>
<tr>
<th>Type of School</th>
<th>Responses</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Yes (%) 60(66.0)</td>
<td>N (%) 31(33.0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>Yes (%) 47(64.4)</td>
<td>N (%) 26(35.6)</td>
</tr>
<tr>
<td>Mixed</td>
<td>Yes (%) 148(73.6)</td>
<td>N (%) 53(26.4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class/Form</th>
<th>Responses</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes (%) 51(64.6)</td>
<td>N (%) 28(35.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Yes (%) 74(71.8)</td>
<td>N (%) 29(28.2)</td>
</tr>
<tr>
<td>3</td>
<td>Yes (%) 67(70.5)</td>
<td>N (%) 18(29.5)</td>
</tr>
<tr>
<td>4</td>
<td>Yes (%) 63(71.6)</td>
<td>N (%) 25(28.4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Range (In Years)</th>
<th>Responses</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-14</td>
<td>Yes (%) 26(72.2)</td>
<td>N (%) 10(27.8)</td>
</tr>
<tr>
<td>15-16</td>
<td>Yes (%) 118(69.4)</td>
<td>N (%) 52(30.6)</td>
</tr>
<tr>
<td>17-18</td>
<td>Yes (%) 105(70.0)</td>
<td>N (%) 45(30.0)</td>
</tr>
<tr>
<td>19-20</td>
<td>Yes (%) 6(66.7)</td>
<td>N (%) 3(33.3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Responses</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Yes (%) 145(71.8%)</td>
<td>N (%) 57(28.2%)</td>
</tr>
<tr>
<td>Female</td>
<td>Yes (%) 110(67.5%)</td>
<td>N (%) 53(32.5%)</td>
</tr>
</tbody>
</table>

**KEY:**

Bold: Indicates High Knowledge
4.5.7: Awareness of respondents on how to avoid contracting HIV/AIDS

The majority of the respondents (88%) were aware of how to avoid contracting HIV, the virus that causes AIDS. Few of the respondents (12%) were not aware of how to avoid contracting HIV. Findings from cross tabulations show that knowledge levels increased with level of education. Respondents in form three, two, and four highly perceived that there was something they could do to avoid contracting HIV/AIDS while those in form one had low perception/awareness on how to avoid contracting HIV/AIDS ($\chi^2 = 12.376, df=3, p<0.05$).

4.5.8: Precaution Taken Against Contracting HIV by Respondents

Majority of the respondents gave various precautions that they could take against contracting HIV. Abstinence and use of condoms during sexual intercourse were reported by 71.2%, avoidance of blood transfusions by 70.7%, avoidance of injections using contaminated needles and other sharp instruments (70.7%) and both partners having no other sexual partners (32.9%); no casual sex (28.2%). More precautions suggested are captured in figure 14.
Figure 14: Precaution Taken Against Contracting HIV
4.6: Perception of healthy looking people and HIV by respondents

An overwhelming percentage (93%) of the respondents reported that healthy looking people could be infected with HIV. The rest of the respondents (7%), could not relate healthy looking people to being suffering from HIV. The response was statistically significant ($\chi^2 = 268.408, \text{df}=1, p=0.000$).

4.7: Knowledge of the relationship between the STI and HIV/AIDS.

More than three quarters of the respondents seemed aware of the relationships between HIV and common sexually transmitted infections (STI). The following are the responses regarding the relationship between: both HIV infection and STI are spread through sexual intercourse were 89.3% ($\chi^2 = 8.766, \text{df}=3, p<0.05$) and 72.3% stated that both HIV and STI could be prevented ($\chi^2 = 8.389, \text{df}=3, p<0.05$). No significance was however noted on the presence of common STI increasing the chances of one acquiring HIV (83.6%) ($\chi^2 = 7.600, \text{df}=3, p>0.05$) and (61.4%) thought that HIV infection prolongs the duration of STI ($\chi^2 = 2.540, \text{df}=3, p>0.05$). Details are evident in Figure 15.
Both HIV infection and the presence of common STIs are spread through sexual intercourse. The presence of common STIs increases the chances of one acquiring HIV. Both HIV and common STIs can be prevented. HIV infection prolongs the duration of common STIs.

Figure 15: Knowledge of The Relationship Between The STI and HIV/AIDS.
4.8: Measures Taken In The Event Of Having Had Sexual Intercourse with an Infected Person by Respondents

More than half of the respondents (62.7%) had reported that seeking medical advice was a measure to take in the event of having had sexual intercourse with an infected person. These were followed by 32.3% for avoidance of sexual intercourse, 31.3% for guidance and counseling and 4.4% suggested that they would hang themselves. A few respondents (12.3%), reported that they could just walk away and do nothing since it had already happened, killing that sexual partner and discontinuing their schooling (See Figure 16 below).

Figure 16: Behavioural Measures Taken
4.9: Sources of information on STI by respondents

The results show that the majority of the respondents (89.9%) received information regarding STI from their teachers, 83.3% from their parents, 83% from the church, 77.8% from the mass media and 75.6% from their friends. Other sources 27.7% captured in figure 17 below included the medical personnel.

Figure 17: Sources of information on STI
4.10: Control measures against the spread of STI and HIV/AIDS.

A high percentage of respondents (68.8%) suggested that abstinence was a measure for controlling the spread of STI and HIV/AIDS, followed by teaching students about STI and HIV/AIDS (41.1%), guidance and counseling (26.6%), avoid use of contaminated needles, blades and other sharp instruments (25.2%). Other suggestions included; use of condoms during sexual intercourse, avoiding bad peer groups, being faithful to one sexual partner, avoid blood transfusion, formulating strict rules and regulations in schools, prohibit watching of pornographic films and other materials, providing time for extra curricula activities and avoiding mixed gender schools. Punishment of those in sexual relationships was also suggested as a measure for controlling the spread of STI (Figure 18).
Figure 18: Measures for controlling the spread of STI and HIV/AIDS
CHAPTER FIVE

DISCUSSION

This study evaluated the relationship between knowledge of common STI and the transmission of HIV among the secondary schools in Kabartonjo Division of Baringo District, Kenya. The subjects of the study were adolescents of both gender and who were aged between 13 and 19 years. This group was targeted because studies have shown that it is highly at risk of contracting STI. The main reasons were: they practice premarital sex, are unlikely to use condoms, have a likelihood of high sexual partner change, they lack adequate information regarding STI, are reluctant to seek medical care when infected and coerced into sexual activities (Weiss, 1996). In a study conducted by McCauley et al (1995) the same facts were reported for targeting adolescents. The study findings show that more than 50 percent of respondents in the sampled schools had adequate knowledge of the following common STI: Gonorrhoea, Syphilis and HIV. Knowledge was however poor and less than 30 % had knowledge of Trichomoniasis, Chlamydia, Herpes, Genital Warts, Hepatitis B and Candidiasis. Therefore, there was no statistical significance on most of the common STI with the exception of genital warts and trichomoniasis. These findings were further supported by focus group discussions held in the sampled schools whereby three quarters of the participants had more knowledge of the two major common STI namely; gonorrhea, syphilis and HIV more than the other STI. Similarly, focus group discussions held in one Nigerian study in 1999 revealed that adolescents had more knowledge about HIV and AIDS than other common STI (Temin, 1999). The results therefore compare well with the findings of this study.
where adolescents’ knowledge was high on HIV and AIDS. The prevalence of STI in Kabartonjo division was 13.3% of the total population. This study therefore strongly urges that there is urgent need to teach students all the common STI. In interviews conducted in four secondary schools, the school head teachers acknowledged that their students were at moderate or at risk of contracting STI but still there was inadequacy in the curriculum for teaching sex education.

Regarding the provision of STI in the syllabus, the findings revealed that the syllabus limited the teachers to teaching only one optional STI (KIE 2002) and therefore the teachers tended to biased towards teaching HIV, gonorrhoea and syphilis at the expense of the other STI. This appears to be a common problem in schools. For instance, a study conducted among 277 secondary school principals in South Africa, 60% acknowledged that their students were at moderate or high risk of contracting HIV, but only 18% of the schools offered a full sex education. Interviews conducted in this study between head teachers in the sampled secondary schools revealed that reproductive health related subjects were being covered in the curriculum. Sexually transmitted infections were integrated in other subjects like social ethics education (SEE), biology, and Christian religious education and in all the other subjects. Both the head teachers and other relevant subject teachers further reported that they had not been trained to teach reproductive health related subjects like adolescents, STI and family planning. The STI were not being examined nationally as a paper, but in the form of a few scattered questions. The interviews also indicated that most of the teachers preferred teaching reproductive health subjects in single gender schools. They further identified obstacles that hinder successful
teaching of sexual education to their students. These were; inadequate time allocated for teaching STI, no clearly defined areas of scope in the curriculum (though the syllabus emphasized teaching of only one STI), inadequate reference material, cultural inhibitions, fear by teachers teaching HIV/AIDS of being referred to or stigmatized by being given names such as "AIDS IS COMING" to teach. There was lack of adequately trained personnel in the schools who could cover the subject. All the respondents noted with concern that their students were at risk of contracting STI.

According to a study conducted by Merson et al. (2000), more evaluation was needed for developing country AIDS education for youth both in school and out of school. This study argues that an effective curriculum should be able to focus on reducing specific risky sexual behaviours by using theoretical approaches to behaviour change. It should also deal with peer pressure and other social pressures on young people for behaviour change. It should provide for modeling and practice of communication through a variety of teaching methods that involve the participants and help personalize information. It should also provide for teaching methods and materials appropriate to students' age, sexual experience, and social cultural background. It can therefore be argued from these findings that the teachers need more training on reproductive health related subjects in order for them to be effective agents in disseminating information on STI to the students.

The findings of this study revealed that the majority 55% of respondents were males as compared to 44% of the females. This could either be related to cultural beliefs about the education of the girl child or to the numerous mixed gender schools in the Division.
As indicated in figure 1, the annual secondary school intake was 28% for males and 22% for females. The mixed gender schools comprised of 55% of respondents and this indicated preference of these types of schools in the Division noting that 62.5% of the schools were of mixed gender. The study also revealed that 51.7% of the respondents in mixed gender schools correctly defined STI as being infections transmitted through sexual intercourse with an infected person; followed by girls’ only school with 75.3%. The boys’ school had the least number of respondents (41.8%) who gave the correct definition of STI. This study therefore shows that boys are less knowledgeable on STI than the females. It can therefore be argued that there were freer discussions of matters relating to STI in mixed gender schools as compared to the other schools.

Regarding knowledge of respondents on STI, the results show no increase with the level of education with Form three having the highest percentage of respondents (55.8%). The respondents (58.2%) in form one were quite knowledgeable inspite of their level of education, while those in form four exhibited less knowledge levels as only 50% could correctly define STI. Chi square test therefore rejected the null hypothesis that there is no association between knowledge of common STI and transmission of HIV among adolescents in school.

The age range with the highest percentage of respondents (57.1%) who correctly defined STI was 15-16 years ($\chi^2 = 213.378, df=3, p > 0.05$). This was the first level to be taught lessons in STI before the subject was integrated. This was then followed by 17-18 age range with 52% of the respondents. Fifty percent in the age range 13-14 years defined
STI while the least were 19 years (44%). These results show that reaching the youth before they become sexually active strengthens the likelihood of their adopting healthy behaviour when they eventually chose to engage in sexual relations (Tettkpo, 2001). These research findings show that the earlier programme of teaching reproductive health to students as a topic was effective as a measure of imparting knowledge to the adolescents unlike the current syllabus, which has been integrated. Females had the highest number of respondents 63.8 % who correctly defined STI as compared to the 46.0 % of the male respondents. This translates into the potentiality of females in the control and prevention of common STI and transmission of HIV.

More than 80% of the respondents knew that blood was a suitable media for transmission of STI causing organisms. Other body fluids identified by the respondents were, vaginal fluids (64.7%) and semen (56.7%). A few respondents (15.6%) thought that clothing could transmit these organisms while the rest (4.7%) thought food was a media for transmission of STI causing organisms. The results further show that knowledge on HIV was high for these are routes through which it is spread. It can therefore be argued from these findings that most young people are aware of the common routes of transmission of STI. Through concerted campaigns, adequate knowledge among the respondents can lead to the control and prevention of STI.

With regard to knowledge of other modes of STI transmission, the majority of the respondents (82.1%) reported blood transfusion being a mode of STI transmission, (80%) mother to child transmission), while 41% reported cultural practices. The cultural
practices identified by these findings were: Circumcision through the use of the same instrument on more than one client (24.9%) and wife inheritance (75 %). Other respondents reported sharing of items within families (9.4 %), sharing utensils (9.0 %) and handshaking (2.2 %). These results show that despite the knowledge on modes of transmission of STI, many misconceptions still abound among the adolescents regarding transmission of STI and HIV. Knowledge of STI will enable them to fully understand the modes of transmission of STI and HIV.

The study shows that 44% of the respondents were involved in sexual relations out of whom, 38.1 % had experienced the following sexual experiences: vaginal intercourse (32.0%), oral intercourse (11.5 %), mutual masturbation by (5.2%) and anal intercourse by 3.2 %. In mixed gender schools, penetrative sexual experience was highest among respondents in forms two and three. About 66.7 % of male respondents reported the highest number of sexual relationships as compared to 33.3 % of the females. It can also be shown from these findings that males being older and stronger than the females are likely to be forcing or sweet-talking the females who have little power in negotiating sexual relationships particularly if the sexual partner is older (Weiss *et al.*, 1995). This points to a particular social pattern or relations of power structure in which older males have an upper hand over the young females especially those ones in the lower classes. Findings from focus group discussions indicated that some students had been lured into sexual activities for material gains. Some members also reported idleness as the beginning of sexual activities in addition to drugs. There was a revelation by members of the groups that the commencement of their sexual activities were initiated through peer
influence, administration of love portions by the opposite gender, hormonal influence especially progesterone, watching of pornographic films and materials, the rebellious attitude of adolescents and lack of proper guidance from the seniors.

As regards sexual experiences, most of the respondents had their first sexual encounter between the 14-17 age-range. The highest percent (34.5%) being in the mixed gender schools. This age range was then followed by those 13 years of age (24.7%). Similarly, mixed gender schools had the highest number of respondents who reported having had sexual relationships ($\chi^2 = 78.926, \text{df}=2, \text{p}=0.000$). The study further revealed that the respondents were having a high frequency of sexual partner change ($\chi^2 = 296.411, \text{df}=4, \text{p}=0.000$) and ($\chi^2 = 29.534, \text{df}=4, \text{p}=0.000$) for those who had ended their relationships. This shows that sexual behaviour of adolescents is not always associated with the level of education ($\chi^2 =3.42, \text{df}=3, \text{p}>0.05$). That the longer the sexual relationships with the opposite gender, the more likely they were to engage in sexual intercourse. This observation agrees with studies conducted by the Population council in 1998 and Nzioka (2001) in rural Kenya. In these studies, boys perceived sexual activity as part of their initiation into manhood and also to avoid being scorned by their peers.

The study further shows that most of the sexual relationships started at a median age of 15.2. These findings contrast with the KDHS (1998) reports that the median age of first sexual intercourse was currently 17. This study notes with concern that most of the respondents had more than one sexual partner in the last 12 months. Of all the relationships reported, 38.6% had ended, 23.6% were on going and 34.4% had lasted less
than one month. It can thus be argued that when the number of sexual partners in any current or lifetime context affects the risk of infection and that every percentage increase in the number of sexual partners multiplies the spread of the epidemic and its rate of increase. As the number of partners increases so too does the likelihood of HIV transmission. However most of the respondents (38%), reported having no sexual experience and these are likely to have been underreported due to either cultural inhibitions or fear of being frowned upon. Findings of a similar study by Population Communication of Africa (2000), reported 20% had relationships that lasted less than one month. This study therefore urges that reaching the adolescents at an earlier date before they become sexually active could help in curbing the spread of STI and HIV.

The results of this study further revealed that 58.2% of the respondents, perceived themselves as being at risk of contracting STI. There was a high perception of STI as a serious problem by 80% at all levels of education. Further 50% of the respondents who reported being at risk of contracting HIV by level of education and 66% by type of school attended. These findings further show that those who thought that there was something they could do to avoid HIV were statistically insignificant. According to the KDHS of 1998, 84% of the Kenyan adolescent boys perceived themselves to be at risk or small risk of contracting AIDS compared to 80% of Kenyan adolescent girls who perceived themselves of being at no risk of contracting AIDS (KDHS, 1998). In addition, they agreed that healthy looking people could be infected with HIV by 93 percent of the respondents (f=1.853, p = 0.137). Members of the FGDs who concurred expressed similar findings that healthy looking people could be living with the virus that causes AIDS.
Previous studies done on the same topic in Ivory Coast showed that awareness about HIV/AIDS was almost universal 98% among the adolescents. Despite the awareness, 67% of boys and 53% girls were unable to mention two or more methods of curbing the transmission of HIV/AIDS. This contrasts with findings of this study where most of the respondents mentioned more than one method; teaching of STI in schools, guidance and counseling, being faithful to one another, abstinence, avoiding sharing sharp instruments, needles, blades and use of condoms. The study further showed that the respondents were aware of complications of untreated STI ($\chi^2 = 17.975, df=1, p=0.000$).

In reference to sources of information relating to STI, majority of the respondents received information regarding STI from their teachers (89.9%), from their parents (83.3%), from the church (83%), mass media (77.8%), from their friends (75.6%) and (27.7%) from other sources like kin members and medical personnel. These findings study show the central role that teachers play in disseminating information regarding STI to the respondents. This contrasts with a study conducted by Weiss et al (2000) which showed teachers provided 14%, parents 14% and other sources provide 72% and it further state that while adolescents receive information from these diverse sources, a good deal of the information is incorrect or misleading. Findings of another survey carried out in Central province of Kenya on adolescent experiences and lifestyles by Population Council in 1998 revealed that adolescents received this information from media (55%); friends (47%), teachers (38%) and parents were an infrequent source (20%). According to a study conducted in China to explore views of parents on sex education and contraceptive, parents revealed their own limitations in communicating
with their children about sex and contraception. They also perceived the appropriate age for such education as 18 years.

According to a similar study by Johnston (2000), religious groups in Kenya stated that the ideal place for sex education was in the home yet the survey revealed that less than 10 percent of the parents sought to educate their children on matters relating to sexuality. Of the 10%, the majority were mothers. The religious groups further claimed that introduction of family life education into schools would lead to adolescent promiscuity, increase accidental pregnancy rates, generate increased pregnancy school dropouts and lead to dramatic increases in sexually transmitted infection rates. The mass media especially the television and the radio reach a large number of young people and a great deal of the information about reproductive health may be obtained from entertainment programmes such as “ushikwapo shikamana”, “wakati ni sasa”, and “The youth variety show” both on Kenya Broadcasting Corporation. However, some of these programmes have the effect of promoting unsafe sex in ways that encourage risk-taking such as the “Bold and the Beautiful” and “Passions” on television. It can therefore be argued that adolescents should be helped to understand that television and radio programmes do not always reflect reality and that they should be able to think critically about what they see and hear. Mass media therefore can lead to positive health behaviour.

An insignificant 14.8% of respondents admitted that they had had a sexually transmitted infection in the last 12 months. This figure is likely to be underreported. Around 40% of the respondents could mention at least five symptoms of STI in both gender, with 60.5%
for discharge in males and 53.7% in women; 59.5% for burning pain on urination in men and women, and 55.1% for genital ulcers/open sores and itching in genital area being the commonest. Several socio-economic factors have been identified as contributing to the sustained high prevalence rates of STI. These include delay in seeking treatment arising from the use of less effective alternative care and self-treatment (Msiska et al. 1997). A similar study by Faxelid in 1998 identified shortage of drugs needed to treat STI, ineffective treatment, non-treatment of sexual partners and inadequate health information.

In relation to these views, this study notes that the average distance to the nearest health centre according to the District Development Plan 2003-2008 was 15 kilometers. The study encountered few other revelations about the health seeking behaviour among the respondents who had suffered from STI and these correspond with the findings of Ann Grunseit et al., (1994). While 8.2% sought medical advice from the health workers in the clinics and hospitals, 18.2% visited traditional healers, bought medicines from the shops and pharmacies and asked friends or relatives for advice. Further, 7.9% of respondents who had experienced symptoms of STI informed their partners while only 7.9% thought the symptoms were a big problem ($\chi^2 = 8.546, df = 6, p > 0.05$). This study strongly believes that young people need to know the clinical symptoms of STI, the need for getting adequate treatment and the dangers of not getting treatment.

This study also shows that respondents are aware of the relationships STI and HIV transmission ($\chi^2 = 8.766, df = 3, p < 0.05$) the working null hypothesis was thus rejected on relationship between both HIV and STI, being sexually transmitted, that presence of STI enhances HIV transmission ($\chi^2 = 7.600, df = 3, p > 0.05$), both HIV and STI are preventable
(\chi^2 = 8.389, df = 3, p < 0.05, f = 2.844 and p < 0.05), the presence of STI increases the chances of one acquiring HIV and that HIV prolongs the duration of STI (\chi^2 = 2.540, df = 3, p > 0.05, f = 0.832, was not significant). Analysis of Variance (ANOVA) shows that the type of school attended (f = 15.003, df = 1, p = 0.000) and Gender (f = 4.843, df = 1, sig. 0.05) were significantly related to STI and the transmission of HIV/AIDS whereas level of education (f = 0.032, df = 1, p > 0.05) and age range (f = 0.420, df = 1, p > 0.05) were not significant. The study hypothesis was thus rejected that there is no association between level of knowledge of STI and HIV transmission among adolescents. The respondents reported that guidance and counseling, abstinence, teaching of STI in schools, avoiding blood transfusions with unscreened blood, avoiding use of contaminated needles, blades and other instruments, being faithful to one partner from both FGDs and interviews as being significant control measures against the spread of STI. Other recommendations from the findings included; teaching sex education as a separate subject examinable up to the national level, encouraging and financing of more peer counseling in learning institutions, social areas making and promoting health awareness campaigns in all areas up to the Location levels. There should also be provision of adequately stocked health facilities to treat students and other people at risk of and suffering from STI.

From this study, it could be argued that most adolescents are aware of HIV/AIDS, mode of transmission and the risk factors that predispose them to contracting STI. Similarly, they are knowledgeable about some common STI, yet some still engage in sexual relations with several partners and may not seek appropriate medical intervention. It is
also clear that there are cultural and social-economic factors that increase vulnerability particularly among female students. Furthermore, recommendations from both respondents show that more control measures are needed in order to curb the spread of STI among the adolescents in schools. The study, therefore, notes that the challenge in promoting sexual and reproductive health of adolescents is to fill the gaps in what is known about their immediate sexual and reproductive health needs and perspectives. There is also need to assess the feasibility and acceptability of different models that enhance their access to information and skills. This will assist in identifying best practices and youth friendly policies and programmes. Findings from this study further point to the need to promote communication skills and sexual responsibility among adolescents; skills that will provide not only information about their reproductive and sexual rights, but also address gender power imbalances by building self-esteem among them. The programmes need to teach parents about availability of contraceptives and facilities and assist them in overcoming inhibitions about communicating with their adolescent children on these matters. This study therefore suggests the need to empower all the resources in ensuring that adolescents in schools are protected from those factors and circumstances that predispose them to acquiring Sexually Transmitted Infections.
CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSIONS

1 The school going adolescents in the sampled schools in Kabartonjo Division were highly knowledgeable about three STIs; gonorrhea (99.6%), syphilis (97.1%) and HIV (74.1%). Their knowledge on the other common STI such as trichomoniasis, herpes, Chlamydia, genital warts, candidiasis and other viral STI was deficient.

2 Knowledge of mechanisms for STI/HIV transmission was high on blood (80%) and 65% on body fluids.

3 Knowledge of symptoms of STI/HIV/AIDS was high on burning pain on urination (60.8%) and discharge from the penis (60.5%).

4 Only 14.8% of the respondents had experienced clinical symptoms of STI. The health seeking behaviour among those who had suffered from STI is unsatisfactory, as most of them did not display the right health seeking behavior.

5 Less than 50% of respondents had engaged in sexual activity and were maintaining sexual partners.
6 Low knowledge of complications (29%) resulting from untreated STI was noted among the respondents.

7 About 40% perceived themselves being at risk of contracting STI/HIV. However, the seriousness of STIs was acknowledged by 70% of the respondents.

8 More than 70% of the respondents were highly knowledgeable of use of condoms and abstinence as precautionary measures against contracting STI/HIV. In addition, 93% perceived healthy looking people being infected with HIV.

9 Knowledge of the relationship between STI and HIV/AIDS was very high (70%) among the respondents.

10 The sources of information regarding STI were equally reported by 75% of the respondents. The sources were; teachers, parents, the church, mass media and friends.

11 On control measures against the spread of STI and HIV/AIDS abstinence (68%) was highly reported. Others were; guidance and counseling, teaching STIs in schools, avoiding bad peer groups and punishing those in sexual relationships.

12 The current integrated school curriculum on STI does not adequately meet the needs of the target groups. The initial curriculum that was used to teach the
current students in Forms II and III seems to have had an impact on the students’ knowledge of STI.

13 The teachers had stereotyped fears and reluctant to teach STI and especially as a subject for fear of being given names, “AIDS”, in reference to the teacher.

14 Adolescents in mixed gender schools appear to be more knowledgeable on STI. In these schools, the highest number of sexual partners, maintenance of long sexual relations, high perception rates of risk and good knowledge on the relationships between STI and HIV transmission were reported.

15 Guidance and counseling sessions were reported being given to students on specified days only and by people who had not received adequate or no training on the subject.

16 Almost all the sampled schools had no trained resident school nurse among their staff for early diagnosis and treatment of sick students. This is likely to increase the infectiousness of the students and subsequently, the development of complications related to STI.
6.2: RECOMMENDATIONS

6.2.1: Operational Recommendations

1) There is need to develop and disseminate Information, Education and communication strategies targeting adolescents in secondary schools. The parents, the church, teachers and mass media should be extensively used.

2) There is an urgent need to allocate hours on the timetable so that STI are taught as a subject together with other reproductive health related disciplines and it should be examined at the national level.

3) Guidance and counseling should be emphasized by all those caring for the students and this will require proper training in order for them to be effective in disseminating information on STI to the students.

4) Friendly health care facilities should be provided where students can freely seek medical attention and advice with the hope of improving their poor health seeking behaviour without fear of being ridiculed or frowned upon by the service providers.

5) The teachers currently in the field need to be trained on STI, guidance and counseling so as to make them more effective and confident while handling the students under their care. This training should also be extended to those currently in teacher training.
colleges. In fact, STI and HIV/AIDS should be one of the core subjects to be passed before graduating from college.

6) Misinformation, misconceptions, high rates of sexual partner change and other wrong perceptions regarding STI are dominant in the mixed gender schools. Inspite of this, most respondents in these mixed gender schools had knowledge of STI. This study recommends that the management of these schools be empowered with qualified personnel so that the students become change agents in curbing the spread of STI both among the adolescents and in the general public.

7) The Ministry of Health personnel in the division seemed to have forsaken their role as the chief health promoters. Frequent campaigns should be commenced to cover all the schools since the medical personnel have the expertise that enable them to disseminate STI information with confidence.

8) The Ministry of Education should have among its staff establishment qualified teachers to handle all reproductive health related subjects including STI.

9) In order to avoid mistrust among the parents, the church and the teachers on “sex education” in schools, the study recommends an all friendly term “reproductive health education” to cater for topics like puberty, adolescents, human reproductive systems, STI, HIV/AIDS and contraceptives.
6.2.2: **Research Recommendation**

There is need to carry out research to determine the knowledge levels on STI held by adolescents not only in schools but also out of school.

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APPENDICES

Appendix I

QUESTIONNAIRE

KNOWLEDGE OF THE RELATIONSHIP BETWEEN SEXUALLY TRANSMITTED INFECTIONS AND HIV TRANSMISSION AMONG ADOLESCENTS IN SECONDARY SCHOOLS IN KABARTONJO DIVISION, BARINGO.

INTERVIEW SCHEDULE

PARTICIPANTS ARE GUARANTEED IN ADVANCE THAT INFORMATION RECEIVED DURING THE INTERVIEW WILL BE TREATED IN TOTAL CONFIDENCE AND ARE REQUESTED TO PARTICIPATE WITH SINCERITY.

SERIAL No. : .................................................................

SCHOOL NAME: ...........................................................

DATE: ............................................................................
INTRODUCTION

Hello, my name is __________________ of the School of Pure and Applied Sciences, Kenyatta University, NAIROBI. Thank you for letting me talk to you and explain what I am doing here today. I am working on a research study to help us learn about the knowledge of sexually transmitted infections and HIV/AIDS that adolescents are likely to suffer from during this era of AIDS pandemic. I will pick a few of you today by chance (random) and ask them to answer about 32 questions concerning their knowledge of sexually transmitted infections. This information will be kept confidential. You will not write your name anywhere on the questionnaire. I will not share or leak any of your answers to anyone. Your teachers will not know what you have said. I will use your answers to understand what the adolescents in secondary schools know regarding STI and HIV/AIDS so that improvements can be made. I cannot give you any money or gifts for answering the questionnaire and you are obliged to can refuse to participate. If you agree to answer the questionnaire, you may refuse to answer any of the questions. Thank you and welcome.

**QUESTIONNAIRE**

Circle the correct answer or fill in the blank spaces provided. Note that, some questions may have more than one correct answer.

**Socio-Demographic Information.**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Name of Your School __________________</td>
</tr>
<tr>
<td>2.</td>
<td>Your class: Form [ ]</td>
</tr>
<tr>
<td>3.</td>
<td>Your age:</td>
</tr>
<tr>
<td>1.</td>
<td>13 – 14 years</td>
</tr>
<tr>
<td>2.</td>
<td>15 – 16 years</td>
</tr>
<tr>
<td>3.</td>
<td>17 – 18 years</td>
</tr>
<tr>
<td>4.</td>
<td>19 – 20 years</td>
</tr>
<tr>
<td>4.</td>
<td>Sex: [ ]</td>
</tr>
<tr>
<td>5.</td>
<td>Religion:</td>
</tr>
<tr>
<td>1.</td>
<td>Muslim</td>
</tr>
<tr>
<td>2.</td>
<td>Catholic</td>
</tr>
<tr>
<td>3.</td>
<td>Protestant</td>
</tr>
<tr>
<td>4.</td>
<td>Others ---------------------------------</td>
</tr>
</tbody>
</table>
Knowledge of Sexually Transmitted Infections.

6. What is a sexually transmitted infection?

7. Which of the following diseases are spread through sexual intercourse?
   1). Gonorrhoea
   2). Trichomoniasis
   3). Chlamydia infection
   4). Syphilis
   5). Candidiasis
   6). Typhoid fever

8. Apart from the diseases given in No. 7 above, what other diseases do you know of that are also transmitted through sexual intercourse?
   1.
   2.
   3.
   4.

9. Which of the following are media for the transmission of STI causing organisms?
   1. Clothing
   2. Blood
   3. Semen
   4. Food
   5. Vaginal fluids

10. Which of the following are other modes of STI transmission?
    1. Mother to child
    2. Sharing families
    3. Blood transfusion
    4. Cultural practices
    5. Sharing utensils
    6. Hand shaking
11. i) Do you have a sexual partner? 1) Yes 2) No
   ii) If yes, what type of sexual experience have you had with your partner?
       (More than one answer is possible)
       1. Vaginal intercourse
       2. Anal intercourse
       3. Oral intercourse
       4. Mutual masturbation
       5. others ____________________________

12. At what age did you have your first sexual experience?
    1). 10 – 13 years 2). 14 – 17 years
    3). 18 and above 4). None

13. With how many partners in total have you had sex with during the last 12 months? ___________

14. For how long have you had a sexual relationship with your partner?
    1. Once
    2. < One week
    3. < One month
    4. < 6 months
    5. < 12 months
    6. More than 12 months

15. Is this relationship still on or has ended? 1). Ongoing 2). Ended

16. The last time you had sex with your partner; did you give or receive money or anything in return for sex? 1). Yes 2). No

17. Can you describe any symptoms of STI in women? (Circle all mentioned. More than one answer is possible)
    1. Low abdominal pain
    2. Discharge from vagina
    3. Itching in genital area
4. Burning pain on urination
5. Pelvic pain during sex
6. Genital ulcers/open sores
7. Swellings in the genital area
8. Blood in urine
9. Failure to pass urine
10. Loss of weight.
11. Inability to conceive
12. Other ________________________________

18. Can you describe any symptoms of STI in men? (Circle appropriate answers mentioned more than one answer possible)
1. Low abdominal pain
2. Discharge from penis
3. Itching in genital area
4. Burning pain on urination
5. Pain during intercourse
6. Genital ulcers/open sores
7. Swellings in the genital area
8. Blood in urine
9. Failure to pass urine

19. i) Have you had any of the above symptoms in the past 12 months? 1). Yes 2). No
ii) If yes specify ________________________________

20. When you had the above symptoms, did you do any of the following:-
(i) Seek advice from a health worker in a clinic or hospital? 1) Yes 2) No
(ii) Visit a traditional healer? 1) Yes 2) No
(iii) Buy medicines in a shop or pharmacy? 1) Yes 2) No
(iv) Ask friend or relatives for advice? 1) Yes 2) No
21. When you noticed any of the above symptoms, did you:
   (i) Tell your sexual partner about the symptoms?  1) Yes  2) No
   (ii) Stop having sex when you had the symptoms?  1) Yes  2) No
   (iii) Use a condom when having sex when you had the symptoms 1) Yes 2) No
   (iv) Did you consider the symptoms a big problem to your health? 1) Yes 2) No

22. Do you think you are at risk of getting an STI? 1) Yes 2) No
   Give reasons.................................................................

23. Are STI a serious problem to the adolescents? 1) Yes 2) No
   If yes specify.................................................................

24. Do you think you are at risk of getting Human Immunodeficiency Virus/AIDS? 1) Yes 2) No

25. Is there anything you can do to avoid getting HIV, the virus that causes AIDS? 1) Yes 2) No

26. How can adolescents protect themselves from getting infected with HIV? (Circle correct answers. More than one answer is possible)
   1 Use Condoms
   2. Have fewer partners
   3. Both partners have no other partners
   4. No casual sex
   5. No sex at all
   6. Avoid injections with contaminated needles
   7. Avoid blood transfusion
   8. Other.................................................................

27. Do you think that a person who looks healthy could be infected with HIV? 1) Yes 2) No.

28. The following are relationships between HIV/AIDS and common STI:-
   i) Both HIV infection and common STI are spread through sexual intercourse 1) Yes 2) No
ii) The presence of common STI increases the chances of one acquiring HIV infection. 1). Yes 2). No

iii) HIV infection prolongs the duration of common STI 1). Yes 2). No

iv) Both HIV and common STI can be prevented. 1). Yes 2). No

28. What measures would you take if you had sexual intercourse with an infected person?

30. How have you been getting information about STI and HIV/AIDS?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
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<tbody>
<tr>
<td>1. Parents</td>
<td></td>
</tr>
<tr>
<td>2. Teachers</td>
<td></td>
</tr>
<tr>
<td>3. Friends</td>
<td></td>
</tr>
<tr>
<td>4. The church</td>
<td></td>
</tr>
<tr>
<td>5. Mass media</td>
<td></td>
</tr>
<tr>
<td>6. Others, If others, specify</td>
<td></td>
</tr>
</tbody>
</table>

31. Are you aware of any complications one might get as a result of suffering from STI? 1). Yes 2). No

If yes, please list any 5

1) ..............................................................
2) ..............................................................
3) ..............................................................
4) ..............................................................
5) ..............................................................

32. What would you recommend as a measure for controlling the spread of STI and HIV/AIDS among the adolescents in secondary schools?

Thank you for your co-operation. God bless you
Appendix II

CONSENT FORM

KNOWLEDGE OF THE RELATIONSHIPS BETWEEN SEXUALLY TRANSMITTED INFECTIONS AND HIV TRANSMISSION AMONG ADOLESCENTS IN SECONDARY SCHOOLS IN KABARTONJO DIVISION, BARINGO.

INTERVIEW CONSENT FORM

This is to certify that I, Mr. ................................................................. Of P. O. Box .............. Kabartonjo, being a teacher in ........................................ secondary school having been explained to and fully understood that confidentiality shall be maintained of any information I will give in this study. I understand the purpose of this study and its benefits to my students’ community and do hereby voluntarily give consent to participate in the study.

Signature: .................................................................

Signature of Interviewer: .................................................................

Date: .................................................................
Appendix III: FOCUS GROUP DISCUSSION LEAD QUESTIONS

Name of school:
Type of group:
Time FGD started:
Time FGD ended:
Date:
Facilitator:
Secretary:

Questions
1. Can you name any symptoms of STI's/HIV/AIDS in both males and females?
2. Is there any relationship between STI's and HIV/AIDS?
3. How do you receive your information regarding STI/HIV/AIDS?
4. Who would you prefer to teach you Reproductive Health related subjects like STI's family planning, puberty etc?
5. Are you currently being taught the above subjects in your classrooms?
6. What prompts adolescents to start sexual activities?
7. Do you think healthy looking people can be carriers of STI's/HIV?
8. What measures do you take so as to prevent yourself from getting STI's/HIV/AIDS?
9. In the event of having had sexual intercourse with a person suffering from STI's/HIV, What actions would you take?
10. Do you consider condoms as a prevention of STI's/HIV?
11. If you were the headteacher, how would you protect your students from STI's/HIV/AIDS?
12. Are there any recommendations to make that will prevent the spread of STI's/HIV among adolescents in schools?
Appendix IV: INTERVIEW GUIDE TO HEADTEACHERS

Name of school:
Name of person being interviewed:
Position held:
Date: Time interview began:
Time interview ended:
Name of interviewer:

Questions

1. How old are you?
2. Please could you state your qualification?
3. How long have you held this position?
4. Reproductive Health is a tricky topic now being covered in the curriculum. Do you think it is fully covered?
5. Have your teachers been trained to teach Reproductive Health related subjects? (Example adolescents/puberty, sexual biology/pregnancy, STI's, family planning etc).
6. Are these subjects examinable at the national level?
7. Are there cases of male female students sexual relationships that you might have observed in your school?
8. What corrective measures do you put in place in the event of such observations?
9. Do you think your students are at risk of getting STI’s/AIDS?
10. How do you treat the suspected cases of STI’s?
11. What would you recommend as a preventive measure for STI/HIV/AIDS transmission in secondary schools?
Appendix V: INTERVIEW GUIDE OF KEY INFORMANTS (TEACHERS)

Name:
Name of person being interviewed:
Position:
Date: Time interview began:
Time ended:
Name of interviewer:

Questions
1. How old are you?
2. What is your level of education?
3. Which subjects do you teach and for how long?
4. Do you prefer teaching in a mixed, all girls or all boys school?
5. STI/HIV/AIDS is a serious problem amongst school children. Is it adequately covered in the curriculum?
6. Have you been trained in the teaching of STI/HIV/AIDS?
7. Do you offer a full sex education curriculum?
8. Are there counselling sessions in the school that enable you to guide the students towards changing their sexual behaviour?
9. Do you think your students are at risk of acquiring STI's and eventually HIV/AIDS?
10. Are there any measures you have taken to prevent and control this from happening?
11. Are there obstacles that hinder your teaching of sex education in the school?
12. Are there any recommendations you can make that can be implemented with an aim of changing the student's sexual behaviour?
Appendix VI: INTERVIEW GUIDE OF KEY INFORMANTS  
(School Nurse/Matron)

Name of school:

Name of person being interviewed:

Position held:

Date: Time interview began:

Time ended:

Name of interviewer:

Questions

1. What are your qualifications?

2. For how long have you been working in this school?

3. What are your duties?

4. Are you directly involved in the care of the students?

5. If yes explain...............................................................

...............................................................

6. Do you teach students about their Reproductive Health matters?

7. Do you think your students are at risk of suffering from STI’s/HIV/AIDS?

8. What measures do you take to prevent this? ..........................
Appendix VII a

Misconceptions regarding HIV/AIDS

Extract from the Daily Nation Wednesday 31\textsuperscript{st} July, 2002

Week-old baby girl is raped

\textbf{JOHANNESBURG, Tuesday}

A week-old baby girl has been raped in South Africa; police said today, making her the youngest victim in a spate of child rapes fuelled by the myth that sex with virgin cures Aids.

Superintendent Lawrence Zondi told Reuters by telephone that police were investigating Sunday's attack at Kwa-minya in KwaZulu-Natal province.

"A week-old child has been raped by an unknown person. She is seriously injured but her condition is stable," he said.

On Friday, a South African man was sentenced to life imprisonment for raping a nine-month-old baby in an attack that outraged a country known for high levels of violent crime.

Passing sentence on 23-year-old David Potse, Judge Hennie Lacock said the rape of the baby — identified only by the nickname Tshepang, meaning "Have Hope" — was the most gruesome example of a human rights violation that he had come across.

Judge Lacock said he would have imposed the death penalty without hesitation had South Africa not abolished capital punishment.

Tshepang survived October's attack but had reconstructive surgery to repair her genitals and internal organs.

Some 21,000 cases of child rape were reported to South African police last year. Experts say some of the culprits are infected with the HIV/Aids virus and believe that sex with a young virgin will cure them. (Reuters)
Appendix VII b

Misconceptions regarding HIV/AIDS

“What is the silliest thing you’ve heard about HIV/AIDS?”

As we collected the dozens of assorted remarks so kindly sent from people all over the world, we experienced various feelings: some comments drew the shadow of a smile, with others it was difficult to believe that they meant what they seemed to mean and yet others sent a shiver down the spine. But it also became clear that the contributors’ views should be fully respected and that there is still much work to be done at a grassroots level: what may appear self-evident to those of us who live with HIV/AIDS may not be as obvious to many other people, and this explains why the letter’s often expressed doubt, fear and prejudice. If left alone, such feelings can only help the epidemic to spread further and more readily promote the social exclusion of those who live with HIV/AIDS.

The web page contains a list of the sentences, each accompanied by the name of its author. Thanks.
Appendix VIII: RESEARCH AUTHORIZATION

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

Phineas Amiani Ambagwa
Kenyatta University
P.O. BOX 43844
NAIROBI

Dear Sir

RE: RESEARCH AUTHORIZATION

Please refer to your application for authority to conduct research on Relationship between knowledge of common sexually Transmitted Infections and the prevention of HIV/AIDS Transmission among Adolescents in Secondary Schools.

I am pleased to inform you that you have been authorised to conduct research in Baringo District for a period ending 30th April, 2003.

You are advised to report to the District Commissioner and the District Education Officer Baringo District before embarking on your research project.

You are further expected to avail two copies of your research findings to this Office upon completion of your research project.

Yours faithfully

A. E. WAKATA
FOR: PERMANENT SECRETARY/EDUCATION

CC
The District Commissioner
Baringo District

The District Education Officer
Baringo District
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

DISTRICT EDUCATION OFFICE
BARINGO DISTRICT
P.O. BOX 6
KABARNET

Date: 5th February, 2003

TO WHOM IT MAY CONCERN

RE: PHINEAS AMIANI AMBAIGWA

The bearer of this note Mr. P. A. Ambagwa is a student of Kenyatta University. He is carrying out research within our district Baringo and more so in Kabartonjo Division.

Please accord him the necessary assistance.

We shall appreciate your assistance.

J. K. Barkutwa
For: DISTRICT EDUCATION OFFICER
BARINGO DISTRICT