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THE GAP BETWEEN KNOWLEDGE OF HIV/AIDS AND POSITIVE CHANGE OF BEHAVIOR

A thesis Submitted in Partial Fulfillment of the Requirement
Of M Sc degree on Econometric and Social Statistics

By:

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English Abstract

It is a descriptive and analytical study on HIV/AIDS knowledge; attitude and the risky behaviors that mainly affect the spread of the disease. Its basic objective is to identify knowledge, attitude and practice of people towards HIV/AIDS. The study used data from ADRA survey in knowledge attitude and behavior of adult population aged (15-49) years old towards HIV/ AIDS of south Elsalaam village on July 2003.

Three statistical procedures used in this study to achieve the main objective and the other objectives. Descriptive statistic to provide meaningful description of the main characteristics of population under study, cross-tabulation to measure the relation between practicing illegal sex as amode of transmission of HIV/AIDS and use of condom as prevention method and how it can be affected by age, education level, and HIV/AIDS knowledge, and also to know to what extent can gender, age group, and education level affect having regular partner. Logistic regression has been applied to estimate the effect of gender, age group, education, other source of income and know of AIDS on illegal sexual practice.

Findings of the study showed that the level of knowledge about HIV/AIDS is very high, but with no much detail about the disease. Also it has been found that there is strong relation between gender, age, education level and having illegal sexual partner. Logistic regression showed that education level has significant and positive relation with illegal sexual practice.
As HIV/AIDS has great impact on human life, and to control the spread of the epidemic, the study recommend that spread knowledge and awareness about HIV/AIDS through use of health education programmes, and use of comprehensive mass media and lectures to enlighten people about the epidemic. Provision of technical support regarding blood and blood products supply and strengthening laboratory qualifications, testing and counseling.
دراسة وصفية تحليلية لتحقيق مستوى المعرفة بمرض فدان المناعة المكتسبة والسلوكيات الخطرة والاتجاهات الشخصية التي تؤدي لانتشار المرض. هدفها الأساسي هو تحديد معرفة واتجاه وسلوك الناس تجاه الإصابة بالمرض. تمت الاستفادة من البيانات المتعلقة بمجموعة المعرفة، السلوكيات والاتجاهات للمجموعة العمرية من (15-49) تجاه مرض الايدز والذي تم بواسطة منظمة بقرية السلام جنوب عام 2003 (ADRA).

تم استخدام ثلاثة طرق إحصائية في هذه الدراسة لتحقيق الهدف الرئيسي للدراسة والإهداف الأخرى وهي الإحصاء الوصفي لتحقيق وصف لاهم المميزات الخاصة بالمجموعة المبحوثة. الجداول المتقطعة لقياس العلاقة بين ممارسة الجنس كوسيطة لانتقال فيروس فدان المناعة المكتسبة/الإيدز واستخدام العCELER الزكريا كوسيلة حماية وكيف يمكن لها أن تتأثر بالعمر، ومستوى التعليم والمعرفة بفيروس فدان المناعة المكتسبة/الإيدز. وكيف ولأي مدى يستطيع النوع، المجموعة العمرية ومستوى التعليم أن يؤثر في اتخاذ شريك منتظم. الانحدار اللوجستي لقياس تأثير النوع، المجموعة العمرية ومستوى التعليم مصدر دخل آخر لمعرفة بالإيدز على ممارسة الجنس غير شرعية.

توصلت الدراسة إلى أنه بالرغم من أن مستوى المعرفة بمرض الإيدز عالى جدا وسط المبحوثين إلا أنهم لايعملون الكثير عن المرض.

توصلت الدراسة بأنه توجد علاقة قوية بين النوع، العمر ومستوى التعليم وممارسة الجنس مع شريك منتظم.

أوضح التحليل اللوجستي أن هناك علاقة قوية وموجهة بين مستوى التعليم وممارسة الجنس.

بما أن فيروس فدان المناعة المكتسبة/الإيدز تأثير كبر على حياة الناس، وللسيطرة على انتشار المرض أوصت الدراسة بنشر المعرفة بالمرض من خلال برامج التعليم الصحي ووسائل الإعلام المرئية والمقروءة والندوات لتثقيف الناس عن المرض. والاهتمام بسلاسل عمليات نقل الدم وتوفر التقنيات المنظمة للمعالح لفحص المرض.
Dedication

To my father's soul,
To my mother,
To my dearest family,
To the dearest people to my heart.
Acknowledgement

I grateful to alla for giving me the ability to complete this work.

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<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
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<td>AZT</td>
<td>Azido Thymidine</td>
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<td>CCM</td>
<td>Country Coordinating Mechanism</td>
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<td>CDC</td>
<td>Centers for Disease Control</td>
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<td>CMV</td>
<td>Cytomegalovirus</td>
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<td>DHS</td>
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<td>EBV</td>
<td>Epstein-Barr Virus</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GHF</td>
<td>Global Health Foundation</td>
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<td>HBV</td>
<td>Hepatitis B Virus</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>IRIN</td>
<td>Integrated Regional Information Networks</td>
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<td>KS</td>
<td>Kaposi's Sarcoma</td>
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<td>MMWR</td>
<td>Morbidity and Mortality Weekly Report</td>
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<td>PCP</td>
<td>Pneumocystic Carinii Pneumonia</td>
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<td>RHS</td>
<td>Reproductive Health Survey</td>
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<td>SCC</td>
<td>Sudan Council of Churches</td>
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<td>SNAP</td>
<td>Sudanese National AIDS Programme</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNFPA</td>
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<td>VCI</td>
<td>Voluntary Counseling and testing</td>
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1.1. What is HIV/AIDS?

The term AIDS first appeared in the Morbidity and Mortality Weekly Report (MMWR) of the Centers for Disease Control (CDC) in 1982 to describe "... a disease, at least moderately predictive of a defect in cell-mediated immunity, occurring with no known cause for diminished resistance to that disease" (CDC, 1982b).

AIDS stands for acquired immune deficiency syndrome, it is caused by the human immunodeficiency virus, which is commonly called HIV, is a virus that directly attacks certain human organs, such as the brain, heart and kidneys, as well as the human immune system. (Brain A., Healthology, 2004).

The immune system is made up of special cells, which are involved in protecting the body from infections and some cancers. The primary cells attacked by HIV are the CD4+ Lymphocytes, which help direct immune functions in the body (Hubely J, 1994).

HIV disease, however, is not uniformly expressed in all individuals. A small proportion of persons infected with the virus develop AIDS and die within months following primary infection, while approximately 5 percent of HIV-infected individuals exhibit no signs of disease progression even after 12 or more years (Pantaleo et al., 1995a; Cao et al., 1995). Host of factors such as age or genetic differences among individuals, the level of virulence of the individual strain of virus, as well as influences such as co-infection with
other microbes may determine the rate and severity of HIV disease expression in different people (Fauci, 1993a; Pantaleo et al., 1993a).

The disease is unique, and is different from most of the epidemics and diseases, which needs a different and much broader response, the factors that make it unique are:

It is a new epidemic although AIDS was first recognized as specific condition in 1981, and it was not till 1984 that the cause (and a test to detect it) it was identified.

It has a long incubation period. Persons who are infected by the virus may have many years of productive normal life, although they can infect others during estimates range from five to fifteen years with shorter period found in the developing world, where people are less healthy and under nourish. It is known that good health and nutrition, and early treatment of opportunistic infections, will extend the period of healthy and productive life. Infected children will for the most part, die before their fifth birthdays.

The prognosis for people infected with HIV is bleak. At the end of the incubation period, a person will usually experience periods of sickness increasing in severity, duration and frequency until one die.

The disease is found mainly in two specific age groups: children under five and adults aged between 20-40 years. For various reasons there seem, in the developing world, to be slightly more females than males infected, and women develop the disease at younger age. The scale of the epidemic is different from most other diseases. HIV is mainly sexually transmitted.

There are links between HIV and other diseases, most notably tuberculosis.

In general, the epidemic is still spreading in the developing world (Dr Lieve and Pr. Alan, 2005).
The evidence for HIV’s primary role in the pathogenesis of AIDS is reviewed elsewhere, has responded to specific arguments from individuals who assert that HIV does not cause AIDS. The scale of the epidemic is also different from most other diseases (Greene, et al 1993).

1.1.1. Historical Background:
AIDS was first recognized in 1981 when a cluster of AIDS cases were reported among homosexuals in Los Angeles in the U.S.A. Evidence from heterosexual and blood transfusion led to the transmissible agent hypothesis and in 1984 the causative agent was isolated, in the same year doctors in New York came across another puzzling disease in young men they were all homosexuals. In 1982 the Center of Disease Control in Atlanta in U.S.A. decided that enough is known about the disease to produce a case definition (Frommeklin and Leonard, 1995), so AIDS was defined as the presence of a reliably defined defense which was due to an underlying immune deficiency in 1980, in Africa doctors came across unusual symptoms in Rwanda and Zaire, in Uganda a disease was found where youth lost their weight and died (UNAIDS, 2000).

1.1.2. Signs and Symptoms:
1.1.2.1. Major Signs:
- Weight loss more than 10% of body weight.
- Chronic diarrhea than one month.
- Prolonged fever for more than one month.

1.1.2.2. Minor Signs:
- Persistent cough for more than one month.
• Generalized pruritic dermatitis
• Recurrent herpes zoster.
• Orpharyngeal candidacies.
• Chronic progressive disseminated herpes.
• Lymphadenopathy.
• Kapos's sarcoma.
• Tuberculosis.

1.1.3. How HIV is transmitted:
There are mainly three mode of transmission, either through sexual practice with an infected person, exposure to infected blood & blood products & organ duration and from infected mother to her baby (Frommeklin and Leonard, 1995).

1.1.3.1 Sexual activity with a person who is HIV-positive:
Having sex with an infected partner spread HIV most commonly. The greatest risk for HIV infection is from unprotected sexual intercourse.

Sexual Route;

a. Heterosexual Transmission:
It causes the majority of infections, and existence of STIs. There is an increase rate in heterosexual Transmission up to 18% in Europe, it is considered as the main route in central and sub-Saharan Africa, in East Asia and India .(Global AIDS surveillance, 1999).

b. Homosexual transmission:
This is the case where people practice sex with their own gender, it contributes for most reported cases of HIV/AIDS, homosexuals engaged in different sex practices such as oral-rectal sex (Global AIDS surveillance, 1999).

c. Oral Anal Sex:
The probability of saliva from HIV oral-oral or oral-genital sexual contact is very low due to less concentration of HIV saliva (Mandell and Bennett, 1995) but the breaks in the lining of the rectum can serve as a portal entry for the virus from the semen (Hubely J, 1994).

1.1.3.2 Exposure to infected blood & blood products & organ donations:
HIV also spread through contact with infected blood. Before donated blood was screened for evidence of HIV infection and before heat-treating techniques to destroy HIV in blood products were introduced, HIV was transmitted through transfusions of contaminated blood or blood components. Today, because of blood screening and heat treatment, the risk of getting HIV from such transfusions is extremely small, that it is much preventable, although it causes considerable number of HIV/AIDS cases in many areas in the Middle East and an important cause of the epidemic in Sub-Saharan Africa (Chin, 1990).

1.1.3.3 Infected mother to her baby (Frommeklin & Leonard, 1995):
Women can transmit HIV to their babies during pregnancy or birth (vertical transmission). Approximately one quarter to one – third & all untreated pregnant women infected with HIV pass the infection to their babies. It is found that about 15% to 25% in Europe and USA, 25% - 40% in Africa (Newelle, 1997 and Working group on HIV of MTCT, 1995). HIV is also
spread from mother to her child through breast feeding which increases the risk up to 20% (Backe et al, 1993 and Langeston et al, 1995).

1.1.3.4 Injection drug users:
HIV frequently is spread among injection drug users by the sharing of needles or syringes contaminated with very small quantities of blood from someone infected with the virus. The highest risk of becoming infected with HIV is from sharing needles to inject drugs with someone who is infected with HIV. When you share needles, there is a very high probability that someone else's blood will be injected into your bloodstream.

There is no evidence that the AIDS virus is spread by insect bites, air, water, food, or close nonsexual contacts with a person who is HIV-positive. Caregivers of persons with HIV/AIDS are not at significant risk for becoming HIV-infected while caring for such individuals, provided that they take the proper precautions.

1.2 The Impact of AIDS:
Boarder areas of concern for development assistance, where AIDS expect to have an impact are:
   1. Demographic.
   2. Economic.
   3. Development.

1.2.1. Demographic Impact:
AIDS will not stop population growth, nor cause population to fall. What it will do in some regions is to slow the population rate of growth and alter the population structure; it reduces the working age population and increasing
the dependency ratio, most women will complete their child-bearing before falling it so increase the number of orphans.

1.2.2. Economic Impact:
AIDS will have an effect on economies at various levels; especially at household level, that expenditure on medical care will increase for the household with infected person(s). It will affect labor force income and producing goods for sale & accordingly will reduce household welfare (Dr Lieve and Pr. Alan, 2005).

Also since the epidemic affect people who are the labor force in economic sector & firms, so it will affect significantly efficiency & cost, also it may reduce the rate of economic growth.

AIDS weakens economic activity by squeezing productivity, adding costs, diverting productive resources, and depleting skills. Also, as the impact of HIV/AIDS on households grows more severe, market demand for products and services can fall. The epidemic hits productivity through increased absenteeism.

The toll of HIV/AIDS on households can be very severe. It is often the poorest that are the most vulnerable to HIV/AIDS and on whom the consequences are most severe.

1.2.3. Development Impact:
It is increasing by argued that development is about more than economic growth and increases in GDP per capita. It is on the development that the impact of the epidemic will be felt first and worst.

Particularly vulnerable are the indicators of life expectancy; infant mortality rates; child mortality rates and the crude death rate. Infant mortality rate may nearly double in Zambia and Zimbabwe and increase by 50 % in Kenya and
Uganda. Child mortality rates will increase even more, as many children survive beyond their first birthday. Life expectancy is predicted to fall by an estimated 9 years in Zaire to more than 25 years in the worst affected countries by the year 2010 (Way and Stanecki, 1994).

1.3. HIV/AIDS Prevention:
With no cure or vaccine on the horizon, efforts to overcome the HIV epidemic must remain focused upon prevention, people need to be given the education and skills to protect themselves. (Robert MD, healthology, 2004).
Prevention of HIV/AIDS is mainly depends on control and change of the risky behaviors that lead to the transmission of the disease such as sexual practice, use contaminated blood and blood products, avoid of sharing tools that penetrates the body and mother to child transmission.

1.3.1. Basically Sexual transmission:

HIV can be prevented basically by control of sexual transmission, through the following ways:

- Abstinence.
- Monogamous relations between uninfected partners.
- Non-penetrative sex.
- Consistent and correct use of male or female condoms.

1.3.2. Additional ways for avoiding infection:
To avoid transmission of HIV by use of new needles and syringes that are disposable or those that are properly sterilized before reuse. Ensure that
blood and blood products are tested for HIV and that blood safety standards are implemented (Cheesbrough, 1990). Infected woman with HIV has not to breast feed any body.

1.4. HIV test:
An HIV test is a test that reveals whether HIV is present in the body. Commonly used HIV tests detect the antibodies produced by the immune system in response to HIV, as they are much easier (and cheaper) to detect than the virus itself. Antibodies are produced by the immune system in response to an infection. For most people, it takes three months for these antibodies to develop. In rare cases, it can take up to six months. Generally, it is recommended that to wait three months after possible exposure before being tested for HIV. Although HIV antibody tests are very sensitive, there is a 'window period' of 3 to 12 weeks, which is the period between infection with HIV and the appearance of detectable antibodies to the virus. In the case of the most sensitive anti-HIV tests currently recommended, the window period is about three weeks. This period may be longer if less sensitive tests are used. During the window period, people infected with HIV have no antibodies in their blood that can be detected by an HIV test. However, the person may already have high levels of HIV in their body fluids such as blood, semen, vaginal fluids and breast milk. HIV can be passed on to another person during the window period even though an HIV test may not show that you are infected with HIV. (UNAIDS, 2004).
Chapter II
2. Literature Review

2.1. Introduction:
As we enter the new millennium, the human immunodeficiency virus (HIV) continues to pose a significant threat to the worldwide public Health.
In this chapter we go through AIDS globally, and great focus being made on Africa, it was found that the majority of infections on Africa, and because Sudan is an African country and is bordered by nine countries some of which are lying in the AIDS' belt.

2.2. Global Nature and dimensions of the problem:
At the end of 1996, according to the joint United Nations programme on AIDS and the world Heath Organization estimated that since the start of the epidemic, close to 30 million people worldwide have been infected by HIV, the virus that causes AIDS. Of these an estimated 8.4 million have developed AIDS, and 6.4 million have died. An estimated 510,000 people with HIV infection currently live in Western Europe, and a further 750,000 live in North America (UNAIDS and WHO (1996)). By the end of 1996, there has been 13,720 reported cases of AIDS in Britain, and a reported 28,447 infection. (AIDS/HIV surveillance tables, 1996).
UN statistics show that there are approximately 34 million people in the world infected with HIV, and that there (5.6) million new infection each
year. The human tragedy associated with HIV is unparallel (Robert MD, 2004).

UNAIDS says the AIDS epidemic is spreading twice as fast as five years ago. 3 million people died in 2003 and a further 5 million were infected. Over 45 million are alive with HIV and another 43 million have already perished. 3 million children are alive with HIV, a number increasing by almost a million a year. There are still early days in a global pandemic that started relatively recently.

Survey programs have paid increasing attention to HIV/AIDS as it has reached epidemic proportions in some parts of the world. An estimated 40 million people around the world are living with HIV/AIDS. In 2003, 3 million people died of AIDS (UNAIDS, 2004). In some countries AIDS mortality will overwhelm the progress made in life expectancy achieved through control of other infectious diseases during the last half century (TIMAESUS, 1998).

Between June 1981 and Dec. 1994, 441,528 cases of AIDS in the United States, including 270,870 AIDS-related deaths, were reported to the CDC (CDC, 1995a). AIDS is now the leading cause of death among adults aged 25 to 44 in the United States (CDC, 1995b).

In the United States, more than one million American are believed to be infected with the HIV virus and there are 40 to 80,000 new infections each year (Robert MD, Healthology, 2004).

Three independent surveys of HIV-1 prevalence and risk factors among men working at sugar estate in Malawi were conducted in 1994, 1997, and 1998. Procedures included obtaining informed consent, interviewing, and drawing blood for HIV and syphilis testing.
Analyses determined prevalence of HIV and associated risk factors. HIV prevalence was (24.3%) in 1994 (n = 1691), (22.8%) in 1997 (1615), and (20.9%) in 1998 (n = 135; P< 0.03). From 1994 to 1998, the percentage of subjects with a history of sexually transmitted disease (STD) decreased from (43.6%) to (29.5%), (P < 0.0001), accompany by a substantial rise in STDs confirmed by testing for syphilis (from 6.5% to 10.4%; P < 0.0001). The percentage with multiple sex partners declined (from 62.0% to 35.2%; P< 0.0001), and condom use rose (from 10.9% to 18.9%); P < 0.0001 STD were significantly associated with prevalent HIV infection each year. The prevalence of HIV has remained relatively stable and high in this cohort. (Sex Transm DIS.2002).

Since 1990, 58 countries surveyed in the Demographic and Health Surveys (DHS) and Reproductive Health Surveys (RHS) programs have asked women, and 44 countries have asked men, questions about their awareness and perceptions of AIDS; and also about their behavior in response to the AIDS crisis. Most surveys about HIV/AIDS have been conducted in sub-Saharan Africa and Latin America and the Caribbean.

Surveys find that awareness of AIDS is widespread among both men and women in most surveyed countries. In most surveyed countries, however, more men than women have heard of AIDS. Awareness of AIDS is widespread in surveyed countries. In 36 of 44 countries with survey data on men, at least (90%) of men have heard of AIDS. Only in Bangladesh, at (50%), and in Nepal, at (72%) does men’s awareness of AIDS fall below (85%).
In 41 of 59 countries with survey data for women, at least (90%) of women have heard of AIDS. In four countries, however, Bangladesh, Haiti, India and Nepal – no more than half of women have heard of AIDS.

In 33 of the 44 countries with data on both men and women, more men than women have heard of AIDS – by at least 20 percentage points in Chad, Haiti, Niger, and Nepal. In the other 11 countries men and women have similarly high levels of awareness of AIDS. Where knowledge of AIDS is relatively low, differences in awareness among groups of men and women are occasionally large Knowledge of AIDS is generally somewhat lower among men and women in rural areas than among urban men and women. Knowledge of AIDS is lower among men and women with little or no schooling than those with more schooling. Differences between groups of women are more substantial than between groups of men. In Niger, for example, (98%) of urban men have heard of AIDS compared to (86%) of rural men, a difference of 12 percentage points. In contrast, (94%) of urban women but only (45%) of rural women in Niger have heard of AIDS, a difference of 49 percentage points (Population Reports, 2004).

2.3. Dimensions of the Problem in Africa:

One vocal septic of the role of HIV in AIDS argues that, in Africa, AIDS is nothing more than a new name for old diseases (Duesberg, 1991). It is true that the diseases that have come to be associated severe burdens there. However, high rates of mortality from these diseases, formerly confined to the elderly and malnourished, are now common among HIV-infected young and middle-aged people (Essex, 1994). In a recent study of more than 9,000 individuals in rural Uganda, people testing positive for HIV antibodies were 60 times as likely to die during the subsequent two-year observation period
as were otherwise similar persons who tested negative (Mulder et al., 1994b). Large differences in mortality were also seen between HIV – seropitive and HIV-seronegative individuals in another large Ugandan cohort (Sewankambo et al., 1994).

Elsewhere-in Africa finding are similar. One study of 1,400 Rwandan women tested for HIV during pregnancy found that HIV infected women were 20 times more likely to die in the two years following pregnancy than their HIV-negative counterparts (Lindan et al., 1992). In another study in Rwanda, 215 HIV- seropositive women 216 HIV-seronegative women were following prospectively for up to four years, during which time 21 women developed AIDS (WHO definition), all of them in the HIV-sero-positive group. The mortality rate among the HIV-sero-positive women was-sero-positive group. The mortality rate among the HIV-sero-positive women was nine times higher than seen among the HIV-sero-negative women (Leroy et a., 1995).

In Zaire, investigators found that families in which the mother was HIV-1 sero-positive experienced a five-to 10 fold higher maternal, paternal and early childhood mortality rate than families in which the mother was HIV- sero-negative (Ryder et al., 1994b). In another study in Zaire, infants with HIV infection were shown to have an 11-fold increased risk of death from diarrhea compared with uninfected children (Thea et al., 1993). In patients with pulmonary tuberculosis in Cote d’Ivoire, HIV- sero-positive individuals were 17 times more likely to die than HIV-sero-negative individuals (Ackah et al., 1995)
The extraordinary death rates among HIV-infected individuals confirm that the virus is an important cause of premature mortality in Africa (Dondero and Curran, 1994).

Sub-Saharan Africa is the region of the world that is most affected by HIV & AIDS. An estimated 25.4 million people are living with HIV and approximately 3.1 million new infections occurred in 2004. In just the past year the epidemic has claimed the lives of an estimated 2.3 million people in this region. Around 2 million children under 15 are living with HIV and more than twelve million children have been orphaned by AIDS. AIDS has a huge impact on every aspect of African life. It has reduced the average expectancy to 47 years in Sub-Saharan Africa ((Jenni and Annabel, 2004).

2.4. Dimensions of the Problem in Sudan:
Some factors affect the prevalence of the disease is likely to have more effect in the future. The fact that the Sudan borders 9 African countries, some of which has the highest AIDS prevalence in the world put the Sudan in a unique position. Added to this is the uncontrolled population movement of those who live on both sides i.e. citizens of the neighboring countries and Sudan the first of HIV/AIDS was reported in 1986. This was followed by two cases in 1987. The number of cases reported annually increased and by 1997 about 250 cases were reported and in 1998 the total number of cases was 511. In the year 2000 the number of reported cases was 652. During the period 1986 through 2001 a total of 4004 cases reported. Currently, there is limited information about the HIV/AIDS prevalence in the Sudan. The data used for the assessment of the situation is mostly
extracted from the UNAIDS country situation report and complemented by some data from Sudan National AIDS control Program (SNAP, 2002). The estimated national figure of the prevalence HIV/AIDS is 0.99 percent among the population between 15-49 years old. There is no data on the number of deaths due to AIDS.

The HIV prevalence among women attending antenatal clinics in Khartoum in 1996 was (0.5%) and by the year 1998 the prevalence was still less than (1%). In a study carried out in Juba, Bahr El Jebel State, in 1995 revealed that 3 percent of the women who attended the antenatal clinic were HIV positive. However, in 1998 the prevalence was 4 percent among women who attended antenatal clinic in both Juba and Gedarif towns.

SNAP has issued information about the prevalence of HIV among women attending clinics, blood donors and tuberculosis patients in three states i.e. Khartoum, Gedarif and Bahr El Jebel States (SNAP, 2002).

Study was conducted in Soba Aradi camp showed that (14.2%) of mothers used condom, and the rate of HIV infection among antenatal mothers attending antenatal clinics the overall prevalence was 0.5% (M. G. Sayed, 2002).

The fact that many Sudanese will return to their homes countries where HIV/AIDS rates are high might increase the likelihood of a further spread of the epidemic, (UNFPA, 2004).

2.4.1. Epidemiological Characteristics of HIV/AIDS in the Sudan:
Sudan’s civil war began in 1983. The war resulted in continuous movement of troops from one location to another and this could be an important factor in the spread of AIDS. The war also led to displacement of the population from the south to different locations in the north. According to UN estimates
there are 1.8 million displaced people settled in Khartoum and 1.2 millions in the transition zone. The displaced live in camps or in overcrowded squatter areas in the big town. They live under difficult economic conditions and use illegal practices including prostitution and making local beer to earn their living. This environment is conducive for HIV transmission to flourish (SNAP, 2002).

The prevalence of HIV/AIDS in southern Sudan is aside be much lower than in neighboring countries, but experts warn this is false comfort. According to the UN children’s Fund (UNICEF), who recently published an “Overview of the Health Situation in Southern Sudan”, exact data on HIV/AIDS is limited and little sentinel surveillance has been done on the disease. In terms of creating public awareness, NGOs and UN agencies still have a long way to go in southern Sudan, where myths, denial and prejudice abound.

The UN Development programme in Khartoum, funded survey covering knowledge, attitude and practice in HIV/AIDS and sexually transmitted infection, carried out in December 1997 and January 1998. The study found that knowledge of HIV/AIDS prevention methods in southern Sudan was 58.9 percent, condom use was low, unsafe sexual practice high, STIs occurred frequently but were treated sporadically, and HIV infection was highest in females.

With an estimated HIV Prevalence of 7.2 percent Yambio County in the Western Equatorial region, bordering Uganda in the southwest of the country is one of Awareness campaign, which reached up to 7, 000 people in the area (IRINPlusNews, 2003).
2.4.2. Opportunity to act:

Funding is another issue. A proposal to support HIV/AIDS activities was submitted to the Global Fund for HIV/AIDS, Tuberculosis and Malaria in 2002, but was rejected. Another application for the HIV/AIDS component, made in May 2003 by the southern sector of the Country Coordinating Mechanism (CCM), a consortium of agencies working in southern Sudan, also proved unsuccessful.

But the opportunity to prevent HIV/AIDS from reaching epidemic proportions in southern Sudan exists now. According to a 2002 UN-commissioned report by Mary Anne Fitzgerald on the impact of war on southern Sudanese women, once peace arrives, HIV will spread rapidly through the population as there are no checks in place to stop it (IRIN PLUS NEWS, 2005).
Chapter III

3. Research Methodology

3.1. Definition of the problem:
HIV/AIDS is a human tragedy that continues to pose a significant threat to worldwide public health. The human tragedy associated with HIV is unparalleled.
Most of cases of HIV transmission can be linked to human behavior in some way. The human toll and suffering due to HIV/AIDS is already enormous. AIDS is now by far the leading cause of death in some areas mainly in Sub-Saharan Africa. Many countries have failed to bring the epidemic under control. There is a significant risk that some countries will be locked in a vicious cycle, as the number of people falling ill and subsequently dying from AIDS has a tremendous impact on societies including demographic, household, health sector, educational and economic aspects.
There is still no cure for HIV disease, and no vaccine to protect against infection. Once a person is infected, they remain infectious for life, and their life expectancy is seriously shortened.

3.2. Importance of the study:
The importance of the study arise from the fact that HIV/AIDS is a human tragedy which spread over all the world, and that no vaccine to protect against the disease, immediate action is needed to control the spread of disease, this can be through prevention methods by spread of knowledge about the disease.
3.3. **Objectives:**

3.3.1. **General objective:**
To identify the knowledge attitude and practice of South Salaam Village adult population towards HIV/AIDS.

3.3.2. **Specific objectives:**
1- To identify the general characteristics of the adult population under study.
2- To determine the level of Knowledge.
3- To determine the risky behaviors of population under study towards HIV/AIDS.

3.4. **Methods of estimation:**
Three statistical procedures have been used to achieve these objectives, which are;

3.4.1. **Descriptive statistic:**
This procedure provides statistics and graphical displays that are useful for describing many types of variables for a first look at the data.

3.4.2. **Cross-tabulation:**
The Cross-tabs procedure forms two-way and multi-way tables and provides a variety of tests and measures of association for two-way tables. The structure of the table and whether categories are ordered determine what test or measure to use.

Cross-tabs' statistics and measures of association are computed for two-way tables only. If a row, a column, and a layer factor were specified (control
variable), the Cross-tabs procedure forms one panel of associated statistics and measures for each value of the layer factor (or a combination of values for two or more control variables). For example, if gender is a layer factor for a table of married (yes, no) against life (is life exciting, routine, or dull), the results for a two-way table for the females are computed separately from those for the males and printed as panels following one another.

3.4.3. Logistic Regression:

Logistic regression is part of a category of statistical models called generalized linear models. This broad class of models includes ordinary regression and ANOVA, as well as multivariate statistics such as ANCOVA and log linear regression. Logistic regression allows one to predict a discrete outcome, such as group membership, from a set of variables that may be continuous, discrete, dichotomous, or a mix of any of these. Generally, the dependent or response variable is dichotomous.

The dependent variable in logistic regression is usually dichotomous, that is, the dependent variable can take the value 1 with a probability of success $\theta$, or the value 0 with probability of failure $1-\theta$. This type of variable is called a Bernoulli (or binary) variable. (Tabachnick and Fidell (1996)).

The independent or predictor variables in logistic regression can take any form. That is, logistic regression makes no assumption about the distribution of the independent variables. They do not have to be normally distributed, linearly related or of equal variance within each group. The relationship between the predictor and response variables is not a linear function in logistic regression; instead, the logistic regression function is used, which is the logit transformation of $\theta$:
Where \( \alpha \) = the constant of the equation and, \( \beta \) = the coefficient of the predictor variables.

An alternative form of the logistic regression equation is:

\[
\theta = \frac{e^{(\alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k)}}{1 + e^{(\alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k)}}
\]

The goal of logistic regression is to correctly predict the category of outcome for individual cases using the most parsimonious model. To accomplish this goal, a model is created that includes all predictor variables that are useful in predicting the response variable. Several different options are available during model creation. Variables can be entered into the model in the order specified by the researcher or logistic regression can test the fit of the model after each coefficient is added or deleted, called stepwise regression.

There are two main uses of logistic regression. The first is the prediction of group membership. Since logistic regression calculates the probability or success over the probability of failure, the results of the analysis are in the form of an odds ratio. For example, logistic regression is often used in
epidemiological studies where the result of the analysis is the probability of developing cancer after controlling for other associated risks. Logistic regression also provides knowledge of the relationships and strengths among the variables (e.g., smoking 10 packs a day puts you at a higher risk for developing cancer than working in an asbestos mine).

There are many assumptions underlying logistic regression some are; group membership or the binary result or outcome is naturally occurring rather than formed by random assignment and every case can belong to only one group or outcome result, the population of the groups being compared is not necessarily have equal covariance (dispersion) matrices (that variances need not be homogeneous with few out-liers), independent variables need not be interval, and non linearity relationship to be available.

Logistic regression has a single variate comprise of estimated coefficients for each independent variable. The non-linearity nature of the logistic transformation requires Maximum Likelihood procedure to be used in an iterative manner to find the “most likely” estimates for the coefficients.

Hosmer and Lemeshow's Goodness of Fit Test tests the null hypothesis that the model fitted by the researcher generated the data. The test divides subjects into deciles based on predicted probabilities, and then computes a chi-square from observed and expected frequencies. Then a probability (p)
value is computed from the chi-square distribution with 8 degrees of freedom to test the fit of the logistic model. If the Hosmer and Lemeshow Goodness-of-Fit test statistic is .05 or less, we reject the null hypothesis that there is no difference between the observed and model-predicted values of the dependent. (This means the model predicts values significantly different from what they ought to be, which is the observed values).

If the H-L goodness-of-fit test statistic is greater than .05, as we want for well-fitting models, we fail to reject the null hypothesis that there is no difference, implying that the model's estimates fit the data at an acceptable level. This does not mean that the model necessarily explains much of the variance in the dependent, only that however much or little it does explain is significant. As with other tests, as the sample size gets larger, the H-L test's power to detect differences from the null hypothesis improves.

**Logistic coefficient explains the change in the log odds associated a one-unit change in the independent variable.** The procedure predicts its estimate of the probability that the event will or will not occur. If the predicted is greater than .05 then the prediction is yes, otherwise no. To calculate the logistic coefficients compare the probability of an event with the probability of its not occurring. This odd ratio can be expressed by the following formula:
The estimated coefficients \((B_0, B_1, \ldots, B_n)\) are actually measures of the changes in the ratio of the probability, termed the odds ratio and we found that an appositive coefficient increases the probability whereas a negative value decreases the predicted probability.

In logistic regression the measure of association is the odds ratio. Logistic function for the probability \(\theta\) can also be expressed as a linear model in the log scale:

\[
\ln \left( \frac{\theta_i}{1-\theta_i} \right) = B_0 + B_1 x_i
\]

The odds ratio used as a measure of association between the binary dependent variable and a covariate \(x\), the scale with which to measure \(x\). When the logistic model has been fitted, one can estimate the individual risk \(\theta(X_s)\) given the covariate value \(x\) as well as any risk ratio or relative risk.

3.5. Source of data:
This study depends on secondary data from ADRA survey in knowledge, attitude and behavior of adult population (aged 15 –49 years) towards HIV/ AIDs of south Elsalaam village on July 2003. Which was one of those tools to monitor the progress in knowledge, positive change in attitude and behavior if any, so as to make use of the work done and to pinpoint the extent of needs for more intervention efforts or not.

Total coverage of adults was done and 823 individuals were interviewed.

3.6. Study Area:
The Study Area Salaam South Village it is a plan by area allocated by the government in order to accommodate the influx of displaced persons. It is situated in the area adjoining jabal Awlia town, 40Kkilometer south of the city center; it has been designed to accommodate a total of 3,800 families or
an estimated population of 26,000. Administratively it is under the authority of the directorate of the displaced. Health services are limited to two health centers, one of them run by Sudan Council of Churches (SCC), and the other by the Global Health Foundation (GHF). Education is limited, with the local community been served by only one primary school and two Khaluwas.
Chapter IV

4. Results and Discussion

4.1. Introduction:
To achieve the objectives covered by this study, three analytical approaches were used which are; descriptive analysis, cross-tabulation and Logistic Regression.

4.2. Respondents General Characteristics:
Gender, age group, education level, and religion describe the general characteristics.

Table (4.1) General Characteristics

<table>
<thead>
<tr>
<th>Of Respondents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>45.4</td>
</tr>
<tr>
<td>Female</td>
<td>54.6</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
</tr>
<tr>
<td>15 – 24</td>
<td>49.8</td>
</tr>
<tr>
<td>25 – 34</td>
<td>29.6</td>
</tr>
<tr>
<td>35 – 44</td>
<td>15.8</td>
</tr>
<tr>
<td>45+</td>
<td>4.7</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
</tr>
</tbody>
</table>
As it shown in table (4.1) we found that the majority of the respondents were females (54.6%) while (45.6%) were males. Most of the respondents are at the age group 15-24 years (49.8%), where (4.7%) at age group 45+. Also we found that (46.8%) were illiterate while (31.3%) of primary level, (14.3%) were of secondary level and (1.3%) were of university level which indicates that their is of low schooling enrollment. Also we found that (70.1%) were Christian while (29.6%) were Muslim (0.2%) others.

It is clear that majority of this group study were females and can be characterized that most are of age group 15 – 24 years, illiterate and Christians displaced come to Khartoum due to war and from the Southern Sudan, and majority were married.

4.3. **Reasons for Movement:**

There are many reasons for movement like war, education, work and other reasons.
All the resident of the study area were displaced more than half (57%) came due to war, (16.8%) came for work, and only (7.3%) came for education which cleared from table (4.2), while (18.9%) came to Khartoum for other reasons such as draught and medication. Since this group is displaced and majority is Southern this justified the result that the majority came to Khartoum due to war.

### 4.4. Marital Status:

The distributions of respondents as married un-married and having many wives.

Table (4.3) Marital Status, Many Wives

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>89.6</td>
</tr>
<tr>
<td>Un- married</td>
<td>10.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many wives</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>28.8</td>
</tr>
<tr>
<td>No</td>
<td>71.2</td>
</tr>
</tbody>
</table>
Table (4.3) shows that (89.6%) were married while (10.4%) were unmarried. From the males respondent (28.8%) has many wives while (71.2%) has one wife. Since more than quarter of married males has many wives they can be considered to be at risk of having HIV infection.

4.5. Practice and Attitudes towards HIV/AIDS:

There are some behaviors considered as risky behaviors through which HIV can be transmitted such as; illegal sexual practice, blood transfusion, tattoo and sedatives.

Table (4.4) Regular Sexual Partner

<table>
<thead>
<tr>
<th>Partner</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>36</td>
</tr>
<tr>
<td>No</td>
<td>64</td>
</tr>
</tbody>
</table>

Table (4.4) represents that (36%) having regular partner while (64%) have no partner, (19.9%) out of those who having regular partner have only one partner while (16.1%) have two and more partners. (70.6%) of those partners were female partners and (27.3%) were male partners while (2.1%) having male and female partners (homo-sexual).
Concerning illegal sexual practices and having regular partner among this group, it is clear that more than one third have regular partner. This indicates that there is a high risky behavior among this group towards HIV/AIDS.

<table>
<thead>
<tr>
<th>Reasons Behind sexual</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>14.5</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>61.1</td>
</tr>
<tr>
<td>Imitation of friends</td>
<td>11.4</td>
</tr>
<tr>
<td>Spend time</td>
<td>7.8</td>
</tr>
<tr>
<td>Others</td>
<td>5.2</td>
</tr>
</tbody>
</table>

(Source: combined by the researcher).

From table (4.5) it is noticed that the majority of those who practicing illegal sex for enjoyment (61.1%) while (14.5%) practicing for financial reason, (11.4%) for imitation of friends, (7.8%) for spend time and (5.2%) practicing sex for other reasons.

Regarding reasons behind practicing sex majority practice for enjoyment, which can be justified by the fact that more than three quarters of respondents has a job and one third has another source of income, there is no financial problem among them.

4.6. Knowledge and Awareness of HIV/AIDS:
Knowledge and Awareness of the epidemic have great importance for HIV/AIDS prevention.
Figure (4.1) represents the practice of the respondents. (25.4%) out of all respondents have tattooing before, (47.3%) of them shared the instruments. (7.8%) have blood transfusion while (8.5%) use one or more of sedatives in their lifetime. Only (70) respondents from all sample size using sedatives the distribution of them (4.3%) using tablet, (48.5%) using injection while (47.2%) using other sedatives.

**Among this community it is clear that the risk of being infected by HIV can be transmitted from share use of instruments and can be justified be the fact that because there exist tattooing among these communities as a matter of tribal rules or regulations.**
Table (4.6) Regular Sexual Partner by Gender, Age group & Education level

<table>
<thead>
<tr>
<th>Gender</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>23.8%</td>
<td>21.6%</td>
</tr>
<tr>
<td>Female</td>
<td>12.2%</td>
<td>42.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Group</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15 – 24</td>
<td>21.5%</td>
<td>28.3%</td>
</tr>
<tr>
<td>25 – 34</td>
<td>9.8%</td>
<td>19.8%</td>
</tr>
<tr>
<td>35 – 44</td>
<td>3.8%</td>
<td>12.0%</td>
</tr>
<tr>
<td>45+</td>
<td>0.9%</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>11.3%</td>
<td>35.5%</td>
</tr>
<tr>
<td>Khalwa</td>
<td>0.2%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Primary</td>
<td>14.5%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Intermediate</td>
<td>1.8%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Secondary</td>
<td>7.4%</td>
<td>6.9%</td>
</tr>
<tr>
<td>University</td>
<td>0.7%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

(Source: combined by the researcher).

Table (4.6) shows the distribution of those having sexual partner with gender, age and education levels. Females scored high percentage of those who don’t having partner (42.4%) while males were (21.6%). The majority of those having sexual partner were in age from 15-24 years (21.5%) while (0.9%) in age 45+. The highest percentage of those having regular sexual partner was found among those who completed primary level (14.5%) followed by illiterate (11.3%) but in khalwa level it was (0.2%) this may be
due to their Muslim beliefs. Fisher exact test shows that (P- 000) there is strong relationship between gender, age, education levels and sexual regular partner.

This result show that with increase level of education the possibility of having illegal sexual partner was decreased. This can be confirmed by the fact that this practice can be found among social groups like this one.

As shown in fig. (4.2) the majority of the respondents heard about AIDS (88.6%) and only (11.4%) have never heard about AIDS.

**Table (4.7) Heard about AIDS and having Partner**

<table>
<thead>
<tr>
<th>Partner</th>
<th>Heard about AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Yes</td>
<td>33.0%</td>
</tr>
<tr>
<td>No</td>
<td>55.5%</td>
</tr>
</tbody>
</table>
Out of (88.6%) who heard about AIDs (33%) have regular sexual partner as table (4.7) shows while (2.9%) of those never heard about AIDs having regular sexual partner, that means there is significant relation-ship (P- 0.01) between hearing about AIDs and having partners.

It can be concluded that majority of respondents have heard about AIDs but not in much details.

<table>
<thead>
<tr>
<th>Table (4.8) Methods of HIV Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods of Prevention</td>
</tr>
<tr>
<td>Nutrition</td>
</tr>
<tr>
<td>Stay with one partner</td>
</tr>
<tr>
<td>Un-use of Public WC</td>
</tr>
<tr>
<td>Use of Condom</td>
</tr>
<tr>
<td>Contact with AIDs Patients</td>
</tr>
<tr>
<td>Eat with AIDs Patients</td>
</tr>
<tr>
<td>New Injection</td>
</tr>
<tr>
<td>Mosquito</td>
</tr>
<tr>
<td>Needles</td>
</tr>
<tr>
<td>Use of Contaminated Blood</td>
</tr>
<tr>
<td>Kiss</td>
</tr>
</tbody>
</table>

Table (4.8) shows that more than three quarters (76.5%) believe that AIDs can be prevented by avoid of reuse of needles followed by (75%) for use of
contaminated blood, (71.3%) for use of new injection, (66.5%) stay with one partner and less than half of respondents (42.1%) for use of condom.

It can be concluded that avoiding share use of tools that penetrates skin is the most method of prevention agreed upon by respondents followed by having contaminated blood, use of new injection, keeping to one partner and use of condom comes as last method of prevention, also among this group there exists mis-conception about mode of transmission of HIV/AIDs such as mosquito bite and use of public latrines and contact with AIDS patients. This result indicates that respondents have no much details about HIV/AIDs.

Figure (4.3) shows the distribution of those who tested of AIDS before, only (2.1%) of the respondents already tested. Out of them (29.4%) tested for traveling, (17.6%) for work, (23.5%) for blood transfusion and (29.9%) for
other reasons. (17.6%) their results were positive while (82.4%) negative result.

Majority of respondents did not test for HIV before; this may be due to high cost of testing, lack of testing and counseling centers and prevention programmes achieved by government, or mainly health authorities or ignorance about the importance of testing HIV/AIDS.

![Fig. (4.4) Heard About Condom](image)

Figure (4.4) shows that (46.2%) of respondents heard about condom but out of those (76.6%) saw the condom, and from those who saw the condom only (26.5%) use it. Also for those who use condom (45.5%) use them to avoid Aids and other diseases, and (29.9%) use them to avoid pregnancy finally (24.6%) using for other reasons.

Although use of condom to avoid HIV among this group is low, it can be considered as a good sign and it can be justified by the fact that no much detail are known about the epidemic.
<table>
<thead>
<tr>
<th>Gender</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>19.6%</td>
<td>39.9%</td>
</tr>
<tr>
<td>Female</td>
<td>6.9%</td>
<td>33.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 – 24</td>
<td>13.4%</td>
<td>41.9%</td>
</tr>
<tr>
<td>25 – 34</td>
<td>6.5%</td>
<td>22.3%</td>
</tr>
<tr>
<td>35 – 44</td>
<td>6.2%</td>
<td>7.9%</td>
</tr>
<tr>
<td>45+</td>
<td>26.5%</td>
<td>73.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>7.6%</td>
<td>19.6%</td>
</tr>
<tr>
<td>Khalwa</td>
<td>0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Primary</td>
<td>9.3%</td>
<td>29.9%</td>
</tr>
<tr>
<td>Intermediate</td>
<td>2.4%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Secondary</td>
<td>6.9%</td>
<td>17.2%</td>
</tr>
<tr>
<td>University</td>
<td>0.3%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heard about AIDs</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>25.1%</td>
<td>71.5%</td>
</tr>
<tr>
<td>No</td>
<td>1.4%</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Practicing Sex</th>
<th></th>
<th></th>
</tr>
</thead>
</table>
Table (4.9) revealed the results of the relation between using condom and gender, age, education level and heard about AIDs the results shows that (19.6%) of males were using condom and (6.9%) females Using condom, ranging from (13.4%) in age group (15-24) years to (0.3%) in age (45+) which show significant relationship (P- 0.05).

It is clear that use of condom among males is more than that of females because the awareness of female condom is rare than of male condom.

But out of those who heard about AIDs (25.1%) using condom and (71.5%) not use (P- 0.25), which is insignificant.

This result can be accepted due to the fact that although knowledge about HIV/AIDS is high among this group but they have no much information about HIV/AIDS.

For those who practicing sex the results indicates that only (35.1%) using condom, the relation is insignificant (P- 0.06). while (87.0%) of those using condom have partner and (48.6%) although not using condom but having partner which is highly significant.

4.7 HIV/AIDS Source of knowledge:
Knowledge can be got either from reading or mass media or lectures, which is considered as the basic issue to control the spread of the disease.

Fig. (4.5) shows that more than half of the respondent mentioned that the suitable source to discuss and educate about HIV/AIDS is by lectures (58.8%), and followed by (45.7%) mentioned radio, (42.6%) mentioned TV. So due to this result it can be concluded that in order to spread awareness and knowledge about HIV/AIDS, the best way can be through lectures, radio and TV, because there is lack of education among this group that majority of respondents are at primary level of education.

4.8 Estimation of the effect of gender, age group, education, other source of income and know of AIDS on illegal sexual practice:
Table (4.10) Result of illegal sexual practice with gender, age group, education, other source of income and know of AIDS.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
<th>S.E</th>
<th>Odds ratio</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.417</td>
<td>.298</td>
<td>1.518</td>
<td>.161</td>
</tr>
<tr>
<td>Age group</td>
<td>-.264</td>
<td>.170</td>
<td>.768</td>
<td>.121</td>
</tr>
<tr>
<td>Education</td>
<td>.192</td>
<td>.097</td>
<td>1.212</td>
<td>.049</td>
</tr>
<tr>
<td>Other source of income</td>
<td>-.511</td>
<td>.272</td>
<td>.600</td>
<td>.060</td>
</tr>
<tr>
<td>Know of AIDS</td>
<td>.242</td>
<td>.444</td>
<td>1.273</td>
<td>.586</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.095</td>
<td>1.035</td>
<td>.123</td>
<td>.043</td>
</tr>
</tbody>
</table>

(Source: combined by the researcher).

To estimate the effect of gender, age group, education, other source of income and know of AIDS on illegal sexual practice, logistic regression has been applied. Logistic regression coefficients explain the extent of effect of these independent variables on the variation in the log odds of the dependent variable.

As results given by this model, education level has shown significant and positive relationship with illegal sexual practice that as education level increases more individuals will be included in this practice, with odds ratio 1.212 times reference category.

Gender has shown insignificant and positive relationship increases the risk of illegal sexual practice with odds ratio 1.518 times reference category.

Age group has shown insignificant and negative relationship decreases the risk of illegal sexual practice with odds ratio .768 times reference category.

Other source of income has shown insignificant and negative relationship decreases the risk of illegal sexual practice with odds ratio .600 times reference category.

Know of AIDS has shown insignificant and positive relationship increases the risk of illegal sexual practice with odds ratio 1.273 times reference category.

According to the observed significance the final likelihood equation of the illegal sexual practice can be presented in the following form:

$$\ln \left( \frac{\theta_i}{1-\theta_i} \right) = -2.095 + .417(\text{gender}) - .264(\text{age group}) + .192(\text{education level}) - .511(\text{other source of income}) + .242(\text{know of AIDS})$$
Chapter V
5. Conclusion, Recommendations

5.1. Conclusion:
1- Knowledge and awareness of HIV/AIDS among this community is very high but there exist misconceptions about mode of transmission such as mosquito bites, eat with infected persons, and low rate of knowledge about methods of prevention such as use of condom.
2- Concerning practices there exist risky behaviors among this group towards HIV/AIDS, mainly use of shared instruments followed by illegal sexual practices.
3- Regarding the illegal sexual practice as important risky behavior towards HIV/AIDS, among this community as level of education increases illegal sexual practice increases, although this result contradict with the result that illegal sexual practice increases among groups of low level of education.
4- Most of those who practicing illegal sex and having regular partner do not use condom.
5- The main reason behind practicing illegal sex is for enjoyment.
6- the most preferred source of knowledge is through lectures, Radio and TV.
3  5.2. Recommendations:

HIV/AIDS epidemic has become great threaten to people life over the entire world, and has bad impact on all population activities. The sad reality of the epidemic impact needs strong, urgent and continuous action to prevent and control the spread of the epidemic especially in poor areas in Africa and Asia.

1. Use of most successful Health promotion approaches for HIV/AIDS education to help people to understand the major channels of transmission and recognize false or distorted information, and to shorten the gab between HIV/AIDS knowledge and risky behaviors towards HIV/AIDS.

2. Programme emphasizes use of condoms.

3. That AIDS education includes such strategies in prevention messages, which highlight cross- gender communication on sexual risk especially among students.

4. Great attention should be paid upon family planning and HIV.

5. Provision of technical Support such as making the blood supplies safe and treating STIs.

6. Voluntary counseling and testing specially among risky groups.

7 Mass media is one method of educating people about articles about the disease. The press should be encouraged to publish articles about HIV/AIDS. Radio and television should also be given liberty to broadcast HIV/AIDS programmes countrywide. Another important means of enlightenment is to promote the use of videotapes and video cassettes on TV programmes to be distributed to the people, both literate and illiterate, to let them see images of people suffering from AIDS. Visual
practice would have a positive effect on the video tape viewers because seeing is believing.

8. Involve the parents in educating adolescents and children on the HIV/AIDS, all parents have to advise and enlighten their daughters and sons about the threats, and devastating effects of HIV/AIDS.

9. Offers of guidance on the approaches that should be adopted to prevent HIV/AIDS and promote sexual and reproductive health.

10. Strengthening laboratory qualifications and increase of testing and counseling centers.

11. Schools can be a primary source of knowledge of HIV/AIDS and about prevention methods to fight HIV/AIDS.
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