KNOWLEDGE, ATTITUDES AND PRACTICES OF CONDOM USE IN A TIME OF HIGHLY ACTIVE ANTIRETROVIRAL THERAPY IN A RURAL AREA IN UGANDA.

by

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DECLARATION

I declare that **KNOWLEDGE, ATTITUDES AND PRACTICES OF CONDOM USE IN A TIME OF HIGHLY ACTIVE ANTI RETROVIRAL THERAPY IN A RURAL AREA IN UGANDA** is my own work and that all the sources that I have use or quoted have been indicated and acknowledged by means of complete references and this work has not been submitted before for any other degree at any other institution

_____ _____

Kabikira Fredrick **Date**

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KNOWLEDGE, ATTITUDES AND PRACTICES OF CONDOM USE IN A TIME OF HIGHLY ACTIVE ANTIRETROVIRAL THERAPY IN A RURAL AREA IN UGANDA.

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ABSTRACT

Antiretroviral drugs were introduced into Uganda during the past decade and have revolutionised the treatment of AIDS. However, in as much as success was recorded, new challenges emerged. One such challenge was the continued use of condoms. This study investigated existing knowledge, attitudes and practices of condom use in a time of highly active antiretroviral therapy in a rural area. A quantitative, cross sectional design, with probability sampling form the general population was utilised. A self-designed questionnaire was used to collect data which was then analysed at the descriptive statistics level. The results indicated that: knowledge of HIV, its transmission, condoms and antiretroviral drugs were high among the respondents; condom acceptance and use were low; and respondents would not intentionally engage in unprotected sexual intercourse because of availability of ARVs. However it was acknowledged that some people taking ARVs have engaged in risky sexual behaviours that would expose others to infection.

Key concepts

Human immunodeficiency syndrome; HIV Transmission; Acquired Immune Deficiency Syndrome; Antiretroviral drugs; Condoms, Knowledge; Perceptions; Attitudes; Practices; Acceptance;

Table of contents

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

The Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) has had, and continues to exert, devastating effects on the continent of Africa, including Uganda. A concerted effort was directed at this scourge with documented success though not without predicament. Such efforts ranged from behavioural modifications to treatment with different drugs including specially developed antiretroviral drugs (ARVs). However, the adoption of a new strategy might lead to a decline in the practice of an earlier successful strategy.

The current study aimed at exploring one such aspect namely condom use during a period of newer and acclaimed effective drugs against HIV. The study was conducted in a rural setting where preventive and promotive health messages, targeting the sexually active population had been available, but had not consistently been reinforced through relevant information, communication and education channels. Respondents for this study were selected from people in a defined location, the Jinja district in Uganda, regardless of their HIV status. The positivist research paradigm adopted aimed at statistically describing variables relating to condom use which were present during the time of newer and more effective drugs against HIV. The results obtained may be of help in the re-evaluation of the initial preventive and health promotive strategies against HIV infection in the context of availability of antiretroviral drugs.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

This section analyses the HIV/AIDS situation in Sub Saharan Africa and narrows it down to the Ugandan context in terms of HIV/AIDS prevention approaches, policies and the period of the arrival of ARVs.

1.2.1 HIV/AIDS situation in Sub Saharan Africa.

The HIV/AIDS epidemic is still a continuing and growing problem worldwide, particularly in Sub Saharan Africa. By the end of the year 2007, the Joint United

Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organization (WHO) estimated that about 33 million people were living with HIV/AIDS. Of these, about 22 million people were living in Sub Saharan Africa (UNAIDS 2008:32-39).

The cumulative figures for HIV/AIDS in Uganda could not readily be accessed but results from the Uganda HIV/AIDS sero behavioural survey of 2004-2005 showed that the average prevalence for the age groups 15 to 59 was about 6.3% for both sexes, with rates being higher among women (7.3%) as compared to men (5.2%) (MOH 2006:101).

The Joint United Nations Programme on HIV/AIDS (2008:30) reported that the number of newly infected individuals in the world declined from 3 million to 2.7 million but Sub Saharan Africa still had the highest number with about 1.9 million people infected in 2007.

Ogunbodede (2004:352) made an analysis of HIV/AIDS in Africa, specifically sub Saharan Africa, and pointed out that despite efforts aimed at preventing new infections, people still had multiple sex partners and engaged in persistent unsafe sexual practices. Ogunbodede proposed a multi sectoral approach to address the persistent unsafe sexual practices observed among people in sub Saharan Africa as these seem to be responsible for the failing efforts to control the epidemic; at least in Sub Saharan Africa.

1.2.2. The Situation in Uganda

To understand the situation with regard to HIV/AIDS in Uganda, the geographic and demographic details and the HIV/AIDS prevalence relating to Uganda are illuminated in this section.

1.2.2.1 Geographical and Demographical background of Uganda

Uganda is a land locked country in the eastern African region and lies between latitudes 2º south and 3º north of the equator and longitudes 30º to 35º east of the Greenwich line (Phillips 2001:54). It shares borders with Sudan in the north, Democratic Republic of Congo in the west, the Republic of Rwanda on the south western tip, Tanzania on the south and Kenya on the east. Uganda is divided into 80

administrative areas referred to as districts; most named after their major administrative or business towns. Jinja district, one such administrative area, where the current study was conducted, is nestled in the east central region of the country on the shores of Lake Victoria. (See fig 1.1).

As of 2009 the estimated total population was about 30,700,000 people according to the national population census conducted in 2002 with an annual estimated population growth rate of 3.4%. Only 13% of the population lived in urban areas. More than half (49%) of the population was under 15 years of age, the literacy rate was 68% for those aged 10 years and above (Haub & Kent, 2009:6).

1.2.2.2 The structure of health services in Uganda

Formal health facilities in Uganda range from health centre II, health centre III, health centre IV, district hospital, regional referral hospital to national referral hospital (teaching hospital) (MOH 2008). In the rural communities there are groups of volunteers who are trained in basic health care provision. These are referred to as village health teams (VHTs) and are equivalent to a health centre I facility.

A health centre IV facility provides services that include outpatient services, in-patient services, emergency surgery and supervises a health centre III facility. Supervision includes support in terms of technical capability, procurement, data collection, and limited financial and administrative roles. It is staffed by a medical officer, clinical officers and nursing and laboratory personnel. Upward referral in those health care facilities is from health centres II facilities to national referral hospitals. However, referral can also be horizontal or in the opposite direction depending on the convenience to the patients and intended services. As the hierarchy of the health facility increases in complexity so is the range of services offered. As ARV drug provision is being rolled out, some health centre IV facilities now dispense these drugs and the intention is to have all of them rendering this service (MOH 2003{c}:16).

Both the provision of ARVs and general HIV/AIDS services are shared between government health facilities and non government facilities. In Jinja District, HIV/AIDS care services are mainly provided by government health facilities but ARVs are

predominantly provided by “The AIDS Support Organisation (TASO), a non governmental organisation.”

The health system in Uganda has been characterised by many changes in the way services are funded. The characteristic feature was to decrease funding for health services from the central government and encourage the involvement of the private sector (Okuonzi 2004:1173).This led to a decreased efficiency in service delivery in public health facilities. The intended increased access to ARVs was thus hampered by a poorly functioning health system plagued by lack of ARV stock and other drugs and by personnel related problems such as poor motivation (Bamuturaki 2008:417); and yet, Uganda is one of the countries in which prevention efforts against HIV/AIDS were once hailed by the international community as a role model for other countries (Tumushabe 2006:6-7).

1.2.2.3 National HIV sero prevalence by region

Figure 1.1 is a map showing the HIV sero prevalence of Uganda by the major regions as of December 2005. As shown, the sero prevalence is high especially in the central regions of the country. In the east central region where this research was conducted, the prevalence was at 6.5%. Sero prevalence is defined in section 2.2.1.

(Source UAC 2006:7)

Figure 1.1 Map of Uganda showing the prevalence of HIV by regions

1.2.2.4 The Uganda National policy on ARVs.

The Ministry of Health of Uganda undertook a deliberate effort to scale up antiretroviral therapy to the rural areas where the majority of people that could not afford to pay for these drugs reside. The scale up process began with referral hospitals followed by district hospitals and eventually health centre IV facilities. The ARVs were made available to those who were infected with the HIV, who were deemed eligible after a clinical and laboratory assessment and were also ready to take them. These drugs were provided by both public and private providers in order to ensure increased access (MOH 2003{c}:6-16).

1.2.2.5 HIV prevention approaches.

Initial attempts to curtail the spread of HIV/AIDS in Uganda focused primarily on prevention strategies, particularly the promotion of safe sexual behavioural practices (Hogle, Green, Nantulya, Stoneburner, & Stover 2002:2). These proved worthwhile in terms of reducing HIV incidence among the adult populations (Genuis & Genuis 2005:616, Kamali, Carpenter, Whiteworth, Ruberantwati & Ojwiya 2000:433,). With time, these approaches were expanded to include treatment of common opportunistic infections and overall care strategies similar to trends in other parts of the world (Commission of the European Communities 2004:4-9). Prevention strategies incorporated abstinence, faithfulness to partners and condom use; commonly referred to as the ABC strategy and were made popular by funding from the Presidential Emergency Plan for AIDS Relief-PEPFAR (Kanabus & Noble 2006). Since these strategies were adopted, intense medical research on HIV/AIDS in the developed world led to the discovery and adoption of other approaches that could further help to contain the disease. In particular, drugs that could be used to slow the development of AIDS or improve the conditions of those with full blown AIDS, known as antiretroviral drugs (ARVs), were developed and programs to supply people living with AIDS (PLWAs) with these drugs were rolled out.

However Ogunbodede (2004:352) and Emasu (2006) report a situation in Uganda in which the ABC strategy had failed to reduce HIV infection among married women in the eastern part of the country. This situation is similar to other regions of sub Saharan Africa, in which new infections persistently occur due to multiple sexual partners and unsafe sexual practices, (as a result of abandoning the principles of the

ABC approach). This situation might be complicated by the wrong perceptions of what ART could achieve and the false security stemming from this. The current research took this situation as its main focus.

1.2.2.6 The period of highly active antiretroviral therapy in Uganda

In the period from 1994 to the present, there was an increased availability and affordability of antiretroviral drugs. These drugs are used in potent combinations for the treatment of HIV/AIDS (Green, [sa]). From 2001 ART was scaled up through government policy and funding from the Global Fund and other donors (Atuyambe, Neema, Otolok-Tanga, Wamuyu-Maina, Kasasa, Wabwire-Mangen 2008:13). Subsequently many HIV/AIDS patients were able to get free or subsidised ARV's. However, the intended increased access to ART and ARVs came during a period when the health system in the Uganda was at its lowest level of performance (Okuonzi 2004:1173). This resulted in many bottle neck situations in the provision of ARVs. Since 2007, one hundred and five thousand (105,000) PLWAs accessed antiretroviral drugs, representing only half of those in need of ARVs. This, despite the fact that the number of sites providing ARVs was also significantly scaled up from 48 in 2003 to 370 in 2009 (UAC 2007:13-15; ART coordinator – ACP/MOH. 2010. Personal interview, 22 January 2010. Kampala).

1.2.2.7 Antiretroviral therapy and risky sexual behaviours.

Atuyambe et al (2008:14) in a qualitative study conducted in a Kampala suburb found that a great number of the participants had a perception that increased availability of ARVs would contribute to increased indulgence in risky sexual behaviours and consequently an increase in the transmission of HIV. In that study Atuyambe et al (2008:15) also heard from the participants that some people who used to rely on the condoms for protection could go into complacence because of the availability of ARVs. In addition, levels of abstinence, faithfulness and condom use were also feared to reduce. Similarly, it was found that some HIV positive women would want to conceive because drugs that prevent mother to child transmission were available. The findings by Atuyambe et al were corroborated by Bunnell, Opio, Musinguzi, Kirungi, Ekwaru, Mishra, Hladik, Kafuko, Madraa, Mermin (2008:621) in a parallel research conducted within the Uganda HIV/AIDS sero behavioural survey of 2004-2005, aimed at evaluating the HIV sexual transmission

risk behaviour among people living with HIV/AIDS (PLWA). They reported that the level of knowledge on ARVs among respondents who were HIV positive was high at 82%. Seventy seven percent (77%) of the HIV positive respondents engaged in sexual acts in the year preceding the research. Among those who engaged in sexual acts in the previous year, 84% were unprotected at their last sexual encounters. A number of HIV infected women were also reported to have become pregnant with about 47% of these being unplanned pregnancies.

1.3 RESEARCH PROBLEM.

Knowledge, attitudes and practices of condom use in an era of antiretroviral therapy among the general community in rural areas in the Eastern Central region of Uganda are not well documented. Although there is information for the region as a whole on ways of reducing the chances of HIV infection (MOH 2006{b}:44-45) the impact of ARV on these, and on condom use specifically, is not documented. The Uganda AIDS Commission (2006:21) reported an increase in the number of condoms procured for the year 2004/5 to about 95 million; however, the Commission also noted problems related to condom availability due to poor distribution systems at sub-county level. Figures from the National Drugs Authority (NDA) indicated that the number of condoms procured for the year 2008 were 56,569,726 and for 2009 56,297,698 (Condom coordinator – NDA. 2010. Personal interview, 27 January. Kampala). These figures show that the number of condoms procured for the country is decreasing with time. Therefore, with the increased availability of ARVs and in combination with condom distribution problems, it was not known whether people's attitudes and practices in relation to condom use had changed. This scenario deserved to be investigated.

1.4 AIM OF THE STUDY

The aim of this study was to assess the knowledge, attitudes and practices towards condom use in an era and area of highly active antiretroviral therapy.

1.4.1 Research objectives.

The objectives for this research were to:

- Determine respondents' knowledge of HIV and its transmission, of ARVs and of condoms

- Describe respondents' attitudes towards condoms and their sexual practices in relation to HIV/AIDS, ARVs and condom use
- Relate respondents' responses with regard to HIV/AIDS, ARVs and condoms using statistical methods so that patterns of perceptions or behaviours could be determined.

1. 5 RESEARCH DESIGN AND METHOD

This section gives a summative overview of the research design and methodology implemented during the current research, with a detailed account contained in chapter 3.

1.5.1 Research Design.

During the current research, a research design or plan was developed (see 3.2.2) that was followed in order to attain the objectives set for the research. A quantitative study design (see 3.2.2.1) was adopted in which data on variables of interest were collected using a self designed questionnaire. Data were quantified and then analysed statistically.

The study is descriptive in nature (see 3.2.2.2); variables of interest in the population were explored and described using descriptive statistics so as to provide useful information about the population. A cross sectional design (see 3.2.2.3) was adopted and data were collected once from the sampled group at the same moment in time.

1.5.2 Research Method

Data was collected, processed and analysed; this constituted the research methodology (see 3.3).

1.5.2.1 Sampling.

The study was conducted in Budondo sub county in Jinja District; a rural area with a total population of 45,205 inhabitants and located about 15 km north of Jinja, the main district town. The population for this research was all persons living in Uganda. Probability sampling was conducted in which all eligible people from the accessible population an equal chance of being selected to participate in the study. A sample

size of 133 people was selected for this research. Sampling is discussed in detail in section 3.3.1.

1.5.2.2 Data collection

As indicated previously, data were collected using a questionnaire that was specifically developed for the study. The main sections of the questionnaire that was developed include: demographic information, knowledge of HIV, knowledge of HIV transmission, knowledge on condoms, condom use, attitudes towards condoms, knowledge of antiretroviral drugs, perceptions towards ARVs, condom use and ARVs. The questionnaire is discussed in section 3.3.2.5 and attached as appendix D

1.5.2.3 Data analysis

The collected raw data were processed using descriptive statistics to generate useful and comprehensible information about the population of interest. The descriptive statistics included frequency analysis (distribution) and chi square calculations. The data generated was managed and analysed using the Statistical Package for the Social Sciences (SPSS version 15).

1.6 ETHICAL CONSIDERATIONS

During data collection a number of factors relating to ethics were considered. Details regarding the ethical considerations of this research are discussed in section 3.3.2.5. The ethical endeavours of the researcher were guided by the following definitions and principles.

1.6.1 Ethics

Ethics is defined by the Oxford Advanced Learner's Dictionary of current English as "a system of moral principles or rules of behaviour" (Wehmeier 2000:395). Regan (sa: 5) defines it as anything that is about what is right, fair and obligatory. The researcher throughout the current research endeavoured to act in this manner; to do what is "right" and "fair", taking into consideration his obligation towards respondents, and the broader scientific community

1.6.2 Research ethics

During the current research, ethical principles were considered and followed. The guiding ethical principles were autonomy, beneficence, justice and non maleficence. These were considered in relation to the respondent, the researcher and the institutions (villages) at which the research was conducted. This is discussed in detail in section 3.5.

1.7 SIGNIFICANCE OF THE STUDY

At the onset of the research it was envisioned that the results of the study might be put to use in a number of ways, including:

- Contributing towards information included in counselling on condom use, antiretroviral therapy and VCT-counselling in general.
- Providing information to be included during health education of the general public.
- Assessing previous HIV prevention activities in the area especially those related to condom use.
- Providing a base from which other studies on the same topic could depart in the future.

From this research it was possible to unveil pertinent information and facts about the context of condom use in a time of antiretroviral therapy in Budondo Sub County. Conclusions and recommendations that support this are contained in chapter 5.

1.8 DEFINITION OF KEY CONCEPTS IN THE STUDY

This section defines key concepts used and variables investigated during the current research. As this is a descriptive study, the definitions are mostly conceptual.

1.8.1 Condom

A condom is a latex or rubber tubular sheath used during sexual intercourse to form a two way barrier that prevents the passage of genital fluids and their contents, including organisms, between sex partners (MOH 2003{b}:19). Both male and female condoms are available. The male condom is a rubber sheath worn over an erect penis. The female condom is a loose-fitting polyurethane sheath with a flexible

ring at either end. The inner, closed ring is pushed into the vagina, while the outer, open ring rests outside the vagina (Macaluso, Lawson, Hortin, Duerr, Hammond, Blackwell & Bloom 2003). Female condom use in Uganda has failed to get established due to attitudinal problems, availability and cost. (Kibirige 2005:8; UAC 2006:10). In this study, condom will be taken to mean the 'male condom'.

1.8.2 Condom use

Condom use refers to the correct enclosure of the penis in a male condom before and during sexual intercourse.

1.8.3 Antiretroviral Therapy (ART)

Antiretroviral Therapy (ART) refers to the treatment of infection caused by retroviruses; primarily the Human Immunodeficiency Virus using drugs referred to as antiretroviral drugs (ARVs) (New Mexico 2006; The AIDS Education & Training Centers 2006).

1.8.4 High risk sexual behaviour

Sexual risk behaviour involves practices that do not protect the individual against unwanted pregnancy and sexually transmitted organisms such as HIV (Youngerman-Cole 2005).

1.8.5 Knowledge

To know is to "learn or find out about something". Knowledge is "what someone knows about a particular subject" (Rundell 2006:790-791). Cambridge advanced learner's dictionary (2010) defines knowledge as "understanding of or information about a subject which a person gets by experience or study, and which is either in a person's mind or known by people generally". Oxford online dictionary (2010) defines knowledge as "acts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject, awareness or familiarity gained by experience of a fact or situation". In this study knowledge refers to what respondents knew about the use of male condoms, HIV/AIDS and ARVs.

1.8.6 Attitudes:

Attitude refers to “someone’s opinion or feeling about something, expressed through behaviour” (Rundell 2006:76). Cambridge advanced learner’s dictionary (2010) defines attitude as “a feeling or opinion about something or someone, or a way of behaving that is caused by this”. Oxford online dictionary (2010) defines attitudes as “a settled way of thinking or feeling about something”. In this study attitudes refer to the opinions and feelings of the respondents regarding the use of condoms, HIV/AIDS and ARVs.

1.8.7 Practice:

According to Rundell (2006:1104), practice refers to “[a] way of doing something especially as a result of habit, custom or tradition” Cambridge advanced learner’s dictionary (2010) defines practice as “something that is usually or regularly done, often as a habit, tradition or custom”. Oxford online dictionary (2010) defines practices as the “actual application or use of an idea, belief, or method, as opposed to theories relating to it or the customary, habitual, or expected procedure or way of doing of something”. In this study practice refers to the habit, custom or tradition surrounding male condoms.

1.8.8 Time of highly active antiretroviral therapy:

This represents the current moment in time reflecting the roll out of ART by the Uganda health services, whose end result is the availability of ARVs since 1994. (Green, [sa]).

1.9 STRUCTURE OF THE DISSERTATION.

The research report (dissertation) is structured as follows:

Chapter 1: Introduction and overview

Chapter 2: Literature review

Chapter 3: Research design and methodology

Chapter 4: Presentation of the data

Chapter 5: Conclusion: Findings, implications and recommendations

The appendices provide copies of the questionnaire and evidence of administrative measures carried out to ensure the successful and ethical outcome of the research.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter contains the result of the literature review on the subjects of: current trends in HIV prevalence, condom use practices, antiretroviral drugs (ARVs) and sexual behaviour related to ART. The main focus is on sub Saharan countries, although information relating to other countries also appears in this chapter. The literature review is in accordance with the research topic, research problem and study objectives.

2.2 HIV/AIDS SEROLOGY AND PREVALENCE

In this section aspects relating to HIV/AIDS and HIV sero prevalence are discussed.

2.2.1 Sero prevalence for HIV

This section presents sero prevalence levels for HIV in major regions of the world, and the major sub Saharan countries, including Uganda. Sero prevalence is a double barrel concept representing an abbreviation of the word *serology* as “sero” and the word *prevalence*. Definitions of these terms as they are used in this study are presented in section 2.2.1.1 and 2.2.1.2.

2.2.1.1 Serology

The term serology is defined as the scientific study of serum. Serum is the liquid component of blood that is left after clotting has taken place and the cellular contents of blood are separated from the liquid (serum) part of the blood. Serology is usually concerned with investigation of antibodies found in serum for purposes of diagnosis and research. The antibodies in serum are produced by the immune system in the human body as a counter measure to foreign substances or organisms entering or breaching the first lines of defence namely the skin and mucous membranes. Antibodies neutralise the effects of foreign organisms or substances. The immune system is thus a natural defence (Madge, S, Matthews, P, Singh, S & Theobald, 2005:15).

mechanism of the body that guards against infection by micro organisms and other foreign substances (Heath 2002:26-29).

When HIV infects the body, the immune system reacts by producing antibodies in the blood against the virus and it is these antibodies that are traced in diagnostic tests; in HIV testing there is tracing of antibodies to the HI-virus This is what was done in Uganda HIV/AIDS sero behavioural survey of 2004-2005, a national sero survey undertaken to determine HIV sero prevalence levels. Blood was taken from the participants and analysed for the presence of antibodies against HIV; those in whom the antibodies were found were then labelled as being infected with HIV infection. (MOH 2006:7).

2.2.1.2 Prevalence

The Department of Health Studies at the University of South Africa (DHS [sa:4.4]) defines prevalence as that proportion of any given population that have a health problem or disease condition at a particular period in time. It is a term that is used in measuring disease frequency. According to Gordis (2000:33) prevalence is a ratio of persons affected by a particular disease in relation to the whole population of a defined area at a specified time. UNAIDS (2005:17) defines prevalence of HIV as the number of all those who are living with HIV regardless of when they acquired the infection.

2.2.1.2.1 Usefulness of sero prevalence

The usefulness of prevalence rates lies in the fact that they are used in tracking the extent and spread of a disease over time and also in evaluating the impact of any measures designed to mitigate the effects of such a disease (Tumushabe 2006:13 - 14). The best measure to track the HIV epidemic would be the incidence rates which represents the new cases of HIV transmission occurring in a defined locality in a specified period of time. However in a country like Uganda where data is not routinely computed or if it is computed it is not easily accessed, it becomes difficult to obtain incidence rates. It is even worse when the disease in question is a non notifiable disease; with notifiable diseases being diseases that have to be reported to

health authorities because they have the potential to spread fast and could have dire consequences for a population.

2.2.1.3 Comparison of global HIV prevalence rates

Prevalence rates can be compared across countries and regions and this serves to highlight the magnitude of the problem of a given disease in different areas. The tables below provide a comparison of HIV in the different regions of the world including sub Saharan Africa

TABLE 2.1: HIV PREVALENCE AND INCIDENCE BY REGION IN 2005, 2007 & 2008.

REGION	TOTAL NO (%) LIVING WITH HIV/AIDS (MILLIONS)			NEWLY INFECTED (MILLIONS)			ADULT PREVALENCE RATE % (15 – 49 YEARS)		
	2005	2007	2008	2005	2007	2008	2005	2007	2008
Global total	38.6	33	33.4	4.1	2.7	2.7	1.0	1.0	0.8
Sub-Saharan Africa	25.8 (67%)	22 (67%)	22.4	2.7	1.9	1.9	6.1	4.3	5.2
Asia	8.3	4.2	4.65	0.93	0.38	0.355	0.4	0.4	0.2
Latin America	1.8	1.7	2.0	0.14	0.14	0.17	0.5	0.5	0.5
Eastern Europe /Central Asia	1.5	1.5	1.5	0.22	0.11	0.11	0.8	0.8	0.7
North America		1.273	1.4			0.055	0.6	0.5	0.4
Western /Central Europe	0.72	0.8	0.85			0.03	0.5	0.3	0.4
North Africa/middle East	0.44	0.38	0.31	0.064	0.04	0.035	0.2	0.3	0.25
Caribbean	0.33	0.23	0.24	0.037.	0.02	0.02	1.6	1.1	1.2
Oceanic	0.078	0.074	0.059	0.072	0.013	0.004	0.3	0.4	0.31

Source: UNAIDS 2006:13; 2008:32-33; 2009:11

Table 2.1 presents the total number of people living with HI-virus, new infections (incidence) and prevalence rates across all major regions of the world for the years 2005, 2007 and 2008. The total number of those infected have decreased from 39.4 million in 2004 to 33 million in 2007. This trend is observed also for new infections and prevalence rates. Sub Saharan Africa has however carried and continues to carry the biggest burden of the disease in all the aspects considered in the table

2.2.1.4 HIV prevalence rates in selected sub Saharan countries

Table 2.2 presents prevalence rates for countries in sub Saharan Africa representing the regions of southern, western and eastern Africa.

TABLE 2.2: HIV SERO PREVALENCE RATES OF AGES 15 – 49 IN SELECTED SUB SAHARAN COUNTRIES (%).

COUNTRY	2003	2005	2007	2008
Botswana	24.0	24.1	23.9	25.0
South Africa	18.6	18.8	18.1	16.9
Ghana	2.3	2.3	1.9	-
Senegal	0.9	0.9	1.0	-
Uganda	6.8	6.7	5.4	-
Tanzania	6.6	6.5	6.2	-

Extracts from UNAIDS 2006:11; UNAIDS 2008:215, UNAIDS 2009:19

Prevalence rates for HIV are on the decline with marked declines projected for Uganda. Countries in the southern region of the continent of Africa still present the highest HIV sero rates with Botswana and South Africa having rates of 23.9% and 18.1% respectively in 2007. Countries in western Africa show a lower and more stable prevalence as appears in table 2.2. Countries in eastern Africa have had rates below 7% with Uganda estimated at 5.4% and Tanzania at 6.2% 2007 (UNAIDS 2006; UNAIDS 2008:215). Statistics for Kenya were not available.

2.2.1.5 Sero prevalence trends in Uganda

The prevalence rates for HIV in Uganda have been dropping since 1995 when levels peaked at 28% (UAC 2006:4). The decline in numbers was largely due to the intense efforts geared at combating the epidemic using a multisectoral approach (Ntozi, JPM, Mulindwa, IN, Ahimbisibwe, F, Ayiga, N, & Odwee, J. 2003:107). This is corroborated by Tumushabe (2006:12) who presents sentinel survey data from selected sites across the country (Uganda) for the years 1989 to 2002, which indicates the same decreasing trend. From 2005 the prevalence rates continued to fall as presented in table 2.2. However Tumushabe does question these figures because sentinel surveys normally investigate mothers that visit antenatal clinics excluding many other groups that engage in high risk sexual behaviours. These results are then generalised to the rest of the population without the sample having been representative of the population. Nonetheless, the national sero survey results for the year 2005 indicated that the battle for HIV prevention was being lost, particularly in the 30 to 40 year age group with sero prevalence rates averaging 8.7% for men and 11% for women (UAC 2006:5, MOH 2006:10). This age group represent people who are supposed to have settled down with stable partners. A possible factor contributing to the rise in HIV prevalence for this age group could be the fact that since 2004 free ARVs became available and so people could have become complacent and engaged in risky behaviours again (Zaccagnini 2009). Overall average prevalence levels seem to have settled at about 6.4% (UAC 2007:11).

2.2.2 Knowledge of HIV/AIDS

A person with knowledge is an empowered person and having knowledge about HIV effects ways to prevent it. One's perceived risk, based on one's knowledge can lead to personal behaviour modification. This is the principle of the AIDS risk reduction model (Zellner 2003:42).

2.2.2.1 Knowledge of HIV/AIDS outside of Uganda

UNAIDS reports that about 40% of males and 36% of females in 64 countries have "accurate and comprehensive" knowledge of HIV/AIDS. However, this rate has fallen short of the intended target of 96% of people having adequate

knowledge about HIV/AIDS.UNAIDS also reveals that some national programs for HIV/AIDS prevention that are meant to provide comprehensive information don't do it effectively resulting in many people in several countries not having received sufficient knowledge on the basic facts about HIV/AIDS (UNAIDS 2008:127,200). Prata, Morris, Mazive, Vahidnia and Stehr (2006:194-5) in a study relating individual risk perceptions to the use of condoms in Mozambique reported a high level of knowledge about HIV transmission but knowledge about other aspects of HIV/AIDS was found deficient as discussed in section 2.2.3.

2.2.2.2 Knowledge of HIV/AIDS in Uganda

The Uganda demographic and health survey of 2000-2001, reported a number of aspects related to the level of knowledge of HIV/AIDS. At that point in time, it was indicated that nearly 100% of participants had awareness about HIV/AIDS, 95% knew that the infection could be avoided. The majority of participants knew the main ways of avoiding the infection. These included abstaining from sexual intercourse, use of condoms during sex, avoiding multiple sexual partners. The other information known about HIV/AIDS included the fact that the virus can be passed from mother to child during pregnancy, birth and breastfeeding. The participants also knew of people who had died of the disease. In the same survey the participants were asked whether HIV can be transmitted through a bite by a mosquito, through kissing, and whether it can be transmitted through witchcraft; few believed that HIV could be transmitted through these ways(UBOS and Macro 2001:168-172).

Ntozi et al (2003:109-112) in an investigative study about a possible behavioural change in the face of the HIV epidemic in five areas in Uganda reported a high level of HIV/AIDS awareness. This was evident from the responses collected through focus group sessions. Many participants gave accounts of people who had died of the disease and the number of people that they buried per day due to AIDS related deaths. The respondents were also aware that there is no specific treatment for HIV and some even listed the risky behaviours that can predispose one to infection such as having multiple sexual partners, being single, prostitution, victims of rape and

intoxication with substances that could change someone's perception and behaviour. Despite the awareness of HIV/AIDS, myths also abound in some societies as presented below in section 2.2.3.

Harms, Schulze, Moneta, Baryomunsi, Mbezi, Poggensee (2005:261) conducted a study to determine awareness of mother to child transmission of HIV, for clients visiting health units in Tanzania and Uganda. They found a high level of awareness among respondents in Uganda that heterosexual intercourse can lead to HIV transmission (over 96%). The means of preventing HIV were also known by the women, who mentioned using condoms (58%), being faithful (49%) and abstaining from sexual intercourse (32%). Seventy eight percent (78.3%) of males had higher knowledge about mother to child transmission of HIV compared to 67.1% females.

The Uganda Bureau of Statistics and Macro International (2006:193-195) reported that knowledge of HIV in Uganda is very high. Knowledge levels are however higher among urban residents. The ways of preventing HIV transmission were also well known by the respondents; 77% knew that condoms prevent HIV, 92% mentioned faithfulness. Comprehensive knowledge of HIV among the youth was 35%, and this was higher among urban residents (especially the capital), those who were educated and had higher income levels (UBOS & Macro 2007:225).

Opio, Mishra, Hong, Musinguzi, Kirungi, Cross, Mermin & Bunnell (2008:324) conducted secondary analysis of demographic data for surveys conducted in Uganda between 1988 and 2005. They reported unchanged levels of comprehensive knowledge of HIV among the respondents between 2001 and 2005. Knowledge was also much higher among urban populations and the males.

2.2.3 Myths associated with HIV

Mufune (2005:677) quoting Barthes defines myths as "the stories and pictures or signs that humans use to make sense of the world that they live in." By making sense of the world, they are then able to offer explanations about

complex phenomena that occur around them. Myth is common in areas where people have little knowledge about given phenomena. HIV is still a complex disease and as a result some people have formulated myths to try and explain it. Myth also often obstructs progress in certain directions.

2.2.3.1 Myths outside of sub Sahara Africa

Ma, S, Dukers. NH TM, van den Hoek, A, Yuliang, F, Zhiheng, C, Jiangting, F, Lina, Z and Xiuxing, Z. (2002:113) present a series of misconceptions about HIV transmission that are normally heard from people in Guangzhou, China. These include: HIV/AIDS can be acquired through insect bites, by sharing toilet seats; washing the private parts immediately after sex prevents HIV infection; only people who look unhealthy can transmit HIV to their partners. Weiss (2003:13) reports a number of myths reported in several unspecified countries. Some people believe that HIV does not exist. Others believe that HIV was manufactured by the United States military as a biological weapon. According to Piot, Kazatchkine, Dybul and Lob-Levyt (2009), some people believe that programs aimed at preventing HIV infection are not working as HIV/AIDS does not seem to get eradicated or controlled nearly 30 years from the onset of the epidemic.

2.2.3.2 Myths in some Sub Saharan African countries

It is widely believed by men in the southern African countries that having sex with virgin girls can cure one of the HI-virus (Weiss 2003:13). Mufune (2005:679) while studying myths about condoms and HIV in Namibia found a high awareness about the existence of HIV/AIDS; thanks to an active government program to promote information, education and communication (IEC) materials. However there were also a number of misconceptions found among the respondents including that: HIV can be acquired by sharing of drinking cups; sex with a child or a virgin will cure one of the HIV infection; AIDS results from witchcraft; it is useless to practice protected sex any longer if one is already infected by the HI-virus; AIDS is a punishment from God and only prayer can heal or prevent it; some people intentionally spread AIDS so that they wont die alone. Some of these myths have jeopardised the acceptance of condoms especially by males. According to Wreford (2008:3,8)

myth is usually taken advantage of by traditional healers in an attempt to offer their clients reasons and comfort as to why HIV/AIDS has happened to them particularly. In some instances, myths also help to deflect some of the stigma associated with HIV/AIDS.

2.2.3.3 Myths in Uganda

Ntozi et al (2003:109–112) report that one group of people in Uganda believed that offering prayers or having an exchange blood transfusion can cure one of HIV. Discordance to HIV infection among sexual partners is not a myth, but it is one aspect that is misunderstood in Uganda. Bunnell, R, Nassozi, J and Marum, E (2005:1002–5) report that some clients attending voluntary counselling sessions at a clinic in the capital city tried to explain this rather unusual phenomenon by putting forward possible reasons. Some of the reasons include HIV transmission being based on luck; having "strong blood" which resists infection; rough sex and the size of the man's penis that can cause injury and so increase the chances of transmission; and God's protection.

In an HIV discordant relationship, one partner is HIV positive while the other is negative. This has been found to be common in countries that have high prevalence rates for HIV. The positive partner may have been infected with HIV through the commonly known routes (sexual transmission, Mother to child and through blood transfusion) (see section 2.2.2.2). Considering the sexual route, the HIV positive partner may have got infected before he/she got into the current relationship or could have been having other concurrent partners outside of the relationship (Centers for Disease Control and Prevention (CDC), 2010:8-10). The negative partner then has a very high risk of HIV infection if such a relationship is a steady one. There is therefore need to regularly use condoms during sexual intercourse, which has been found to reduce the risk of transmission by as much as 80% Presence or infection with sexually transmitted infections also greatly increases the risk of transmission of HIV. (Smith 2009:26).

According to the 2000-2001 Uganda Demographic and Health Survey, about 6% of the respondents still believed that HIV is transmitted by mosquito bites (UBOS and Macro 2001:168). According to the Uganda Bureau of Statistics and Macro International (2006:195), 57.7% of respondents knew that a bite from a mosquito cannot lead to HIV infection. Eighty eight percent (88.5%) of the respondents knew that witchcraft or other supernatural powers are not the source of HIV infection.

2.2.4 Perceptions of personal risk to HIV

Maharaj and Cleland (2005:26-27) in a study of risk perception and condom use among couples in Kwazulu reported that women perceived themselves at risk of HIV infection from their partners due to the fact that men were considered unfaithful and were culturally allowed more than one wife. Prata et al (2006:195) found mixed perceptions on personal risks for HIV/AIDS. Many respondents downgraded their risk perception of contracting HIV, however, on alternative assessment they were found to have moderate to high risk. The alternative assessment found that 53% of men and 46% of women gave a realistic and correct assessment of their risk of contracting HIV. This more realistic assessment correlated positively with the level of education and history of symptoms of sexually transmitted infections a respondent had.

A study to assess risk perception and condom use in three districts in Uganda found that the perception of risk was highest among the 25-34 age group; Moslems perceived a higher risk for HIV infection while Catholics considered themselves less at risk. Those who had multiple sexual partners felt they were more at risk than were women in polygamous marriages. The main reasons for perceiving self as being at risk in order of importance included: mistrust of the partners, having many partners; and having had a blood transfusion. Due to these perceived risks many of the respondents reported having used a condom although different reasons were given for their use. About 73% of the males reported having used a condom with either a prostitute or a casual partner. Of the women (65%) reported that condoms were used mainly with regular partners and the reason was to avoid getting pregnant. However, 31% of women reported that they would have sex with a partner even when he

refuses to use a condom (Najjumba, Ntozi, Ahimbisibwe, Odwee and, Ayiga [Sa]: 71-73). The issue of condom use is further explored in section 2.3.

2.3 CONDOM USE

Condoms were shown to be over 90% effective in preventing pregnancy, the transmission of HIV and other sexually transmitted diseases (Stammers 2005:273). Several studies done among discordant couples who engaged in regular sexual activity support this finding (United States Department of Health and Human Services 2001; Weller and Davis 2003; Macaluso, Lawson, Hortin, Duerr, Hammond, Blackwell and Bloom 2003).

2.3.1 Knowledge of condoms

The importance of knowledge has been explained in section 2.2.4. In this section knowledge related to condoms is explored.

2.3.1.1 The situation globally

According to the Joint **U**nited **N**ations Programme on HIV and **A**IDS, (UNAIDS), knowledge of the effectiveness of condoms in preventing HIV transmission is high in most countries; however many people still fail to use them consistently especially those who engage in high risk sexual practices. A survey commissioned by the united nations general assembly in 2007 and done in 64 countries, found high levels of knowledge related to condoms on average. However on a differential analysis the level of knowledge in females was lower at 55% compared with the males at 70% (UNAIDS 2008:98).

2.3.1.2 Knowledge about condoms in sub Saharan Africa

Mufune (2005:676) reports that despite an intensified program to promote condom knowledge and use in Namibia, their acceptance and use remained low. According to UNAIDS (2008:98–99) knowledge of condoms is high in Namibia with rates over 60%. Bankole et al (2007:209-210) in a study of consistent and correct condom use among adolescents in four African countries (Malawi, Ghana, Burkina Faso and Uganda) found that those respondents who gave correct responses to questionnaire items were 50% and less in all the countries with a range from 26% to 50%. Questionnaires

included items to test respondents' (adolescents') knowledge on how condoms should be worn, when they should be put on in relation to the sexual act and whether they could be used again. Knowledge on condoms depended on prior witnessing of demonstrations of their use and sex education sessions. In Somalia levels of knowledge related to condoms were quite low. Only 4% of women in the ages 15-24 years and only 11% of adults knew the effectiveness of condoms in preventing HIV (UNAIDS 2008:98).

2.3.1.3 Knowledge of condoms in Uganda

In a survey conducted on adolescent sexual and reproductive health in Uganda, it was revealed that knowledge of condoms was high among the surveyed youths under the age of 24 years and from rural areas. However only half of the respondents reported ever using a condom (AYA [sa: 8-10]). Morris, Wawera, Makumbi, Zavisca and Sewankambo (2000:737) report from Rakai District, a rural area in Uganda, that people who travelled regularly had a high level of knowledge and acceptance of condom use. This paper focused more on regular travellers and therefore little if any information was reported about the non regular travelling public. It was reported in the 2001 demographic and health survey that there was a high level of knowledge among the respondents (over 80%), that condoms are a contraceptive device (UBOS and Macro 2001:51).

Musinguzi, Kirungi, Opio, Madraa, Biryahwaho and Mulumba (2003:34) in their HIV surveillance across 56 Districts in Uganda report that by 2001 the level of knowledge of condoms was about 80% for men and 55% for females. This knowledge was high in people with a higher educational level and those who were residing in urban areas. Ntozi et al (2003:113) found a good level of condom knowledge among adolescents using focus group sessions. The knowledge issues about condoms that came out of these discussions included checking for expiry dates on packs, using the condom only once, applying the condom on an erect penis, and checking if the condom does not have holes in it.

Bessinger, Katende and Gupta, (2003:17), reviewed data from surveys done in 1997 and 1999 in Uganda, on the role of mass media on the level of knowledge that condoms could protect against HIV and other sexually transmitted infections. They reported that those who got exposed to particular messages from the mass media about behaviour change had a high level of awareness that condoms could help in preventing sexually transmitted infections.

The Uganda Bureau of Statistics and Macro International (2007:193-195) reported that levels of condom knowledge among youths aged between 15 and 24 years to be above 70% overall for both sexes. However there are differences based on education, region and wealth index. Among the educated, those with a secondary level of education and more exhibited higher levels of knowledge.

Opio et al (2008:324) reported an increase in condom knowledge among women from 65 to 68% over a four year period. This was especially evident in the rural areas. There was no change in knowledge levels among men however; the levels were higher in urban areas compared to rural areas.

2.3.2 Condom use and HIV

Condoms have been and are an integral part of HIV preventive measures worldwide and many countries have designed programs that encourage people to use them (Versteeg and Murray 2008:84). Despite this concerted effort, many people don't use condoms consistently (UNAIDS 2008:110). Wong, Lubek, Dy, Pen, Kros and Chhit (2003:163) in an investigative study in Siam, and Cambodia found a low level (58.7%) of condom use by sex workers in comparison to the neighbouring countries of Thailand and Singapore; this was despite an almost 100% knowledge of the incurability of HIV infection and presence of programs on condoms established by authorities for these sex workers. The low level of condom use was partly due to paying clients refusing to use condoms and emotional attachment to their non paying clients (boy friends). Ma et al (2002:111 -113) in a prospective cohort study on STD and condom use in Guangzhou, China, found that there was an increase in consistent condom use among female sex workers from

30% to 82% over a period of 18 months. This was because the program provided them with knowledge about the transmission of HIV and the role condoms play in reducing that transmission. This increase in consistent condom use led to a decreased incidence of sexually transmitted diseases by an average of 78% over the same period of time.

2.3.2.1 Condom use and HIV: the sub Saharan context

While researching the use of condoms and related HIV/AIDS knowledge in Côte d'Ivoire, it was reported that condom use among men was low and this decreased further with age from about 35 years onwards; married men were least likely to use them. The problem is that it is men who control sexual matters in relationships in most African settings. The level of knowledge a person had about HIV/AIDS was in tandem to the level of condom use. It was also found that living in an urban area and having a low education were associated with decreased level of condom use (Zellner 2003:42). Bunnell et al (2005:1000) quoting Allen et al 2003:736 and Kamenga et al 1991:64-65) reports a 15 fold rise in condom use among discordant couples in both Congo and Zambia. This was the result of sustained efforts in voluntary counselling and testing (VCT) and therefore a reduction in HIV transmission and sero conversion rates. Despite this, HIV incidence and pregnancy still occur among such couples probably due to a desire for children or a low quality of VCT services offered to them. There has also been a noticeable increase in the use of condoms by those who reported having multiple sexual partners in selected countries across the sub Saharan region. That said though, there is a new trend developing where decline in condom use in some countries is being noticed (UNAIDS 2008:120).

2.3.2.2 Condom use and HIV-the Ugandan context

During the early years of the nineties decade condom use among some youths in Uganda was as low as 6.2% in Rakai district (Konde-Lule, Sewankambo & Morris 1997:5). The reasons for this low usage were, among others, that some people had not as yet heard about them; some respondents trusted their partners; some indicated their religious beliefs; and some the intention to get pregnant.

The ABC strategy as described in section 1.2.2.5 was one of the earliest strategies adopted in Uganda for combating the spread of HIV and this resulted in an increase in the use of condoms by the general public. Analysis of data for the 1990s decade showed an overall increase in condom use in Uganda for non-regular partners from 27.5% in the mid 1990s to 49% in the late 1990s (MACRO [sa]). This was the trend in the other sub Saharan countries too. Tumwesigye, Madise and Holmes (2003) in an analysis of the Uganda Demographic and Health Survey (UDHS) reported that data for females between 1995 and 2001 indicated a similar trend of increased condom use but surprisingly there was a drop in abstinence among unmarried and sexually experienced women. Kamali, Carpenter, Whitworth, Ruberantwati and Ojwiya (2000:432) while looking at trends in behavioural change over a seven year period in a cohort in south western Uganda, reported a three fold increase in condom use. This also matched the observed fall in HIV prevalence nationally from 8.2 to 6.9% over that same period. Musinguzi et al (2003:34) also report levels of condom use at an average of 32.5% across the age group 15 - 50 years.

Ntozi et al (2003:112-113) found a high degree of condom use among high risk groups especially in adolescents. For sex workers though, the use of condoms depended on the situation prevailing at the time of sex. In some instances customers would force them to have sex without a condom. In some situations customers were willing to pay them more if condoms were not used as they disliked them. Truck drivers only used condoms when their partners were casual and thus not with their wives. Tumushabe (2006:7) reported that by 1998 condom use had reached 76% and this was one of the factors that contributed to a decrease in the HIV prevalence rates from 30% in the early 1990s to 8% in the late 1990s.

Kajubi, Kamya, Kamya, Chen, McFarland, and Hearst (2005:81) report an increased awareness and uptake of condom use among men, in Kampala, an urban area of Uganda, with subsequent inconsistent use after a period of time, especially with casual partners. They also report an increase in the number of sexual partners among the survey group. Pool, Kamali and

Whitworth (2006:482, 486) found that in rural Masaka district, 48% of respondents had used a condom since becoming aware of HIV infection. The use of the condoms to specifically guard against HIV infection was only about 19%.

It was reported that despite some groups of people in Uganda having knowledge of HIV, they still failed to use condoms during sexual intercourse because “you don’t feel good” (Kibombo, Neema, Moore and Ahmed (2008:12&15). For some women, especially adolescents, little or no negotiation power on whether to use a condom or not existed. This was found to be the case in both urban Kampala and a rural setting in Mbarara. Bunnell et al (2008:621) in a study of risky sexual behaviour among PLWA, found a level of 83% of non condom use in marriage and cohabiting relationships with high levels in rural areas compared to urban areas. This situation prevailed despite the fact that respondents had knowledge of HIV transmission pertinently.

2.3.3 Attitudes to condom use

In this section a discussion about attitudes in relation to condom use is presented. Attitudes are moulded by culture, religion and personal attributes and experiences. Noar and Morokoff (2002:52) in research on the relationship between masculinity ideology, attitudes to condoms and eventual usage among a group of university undergraduates in the USA, found that those with high degrees of masculine identity had a correspondingly high negative attitude to condoms and consequently low usage levels.

2.3.3.1 Attitudes to condom use in Sub Saharan Africa

Zellner (2003:42) reports that attitudes to condoms (and consequent use) in Côte d’Ivoire have a similar pattern to that of sub-Saharan region as discussed in section 2.3.2.1. Men indicated condom use as important only for extra marital sex while, for women, condoms served a contraceptive purpose. Maharaj and Cleland (2005:26-27) reported that among couples with a high education level there was an associated positive attitude towards condom use. Women who were less educated, or who were from a rural area had

lower positive attitudes to condoms (31%) than their urban and well educated counterparts (76%). The urban women were more likely to discuss condom use with their partners than were rural women. Men had a negative attitude towards condom use within a marriage. Agha, Kusanthan, Longfield, Klein and Berman (2002:2-3) quoting several authors in their literature review about non condom use in sub Saharan African countries, reported reasons for not using condoms such as: emotional distance; reducing naturalness of sexual intercourse; and lack of lubrication and consequent dryness and pain..

2.3.3.2 Attitudes to condom use in Uganda

Attitudes towards condoms, with regard to Uganda, are discussed in terms of personal attitudes, culture and religion.

2.3.3.2.1 Condom use and personal attitudes

As early as 1993 when HIV prevalence peaked in Uganda and condoms were the most effective means of prevention of infection, men were reported to be resistant to their usage citing condom use as encouraging prostitution and multiple partners on the part of their spouses (Marcus 1993:12). This was corroborated by a study in a rural area of south western Uganda about attitudes towards condoms and female controlled devices. The study found that women had ill feelings about condoms because they interfered with enjoyment, or some wanted to have more children. The men were reported to have developed unease with female protective devices like the female condom as they perceived it as denying them control over the sexual act, although they acknowledged the protective potential for condoms against infections and pregnancy. They also had fears that women would not achieve sexual satisfaction as happens with male condoms; worse that they would engage in extra marital affairs (Pool, Hart, Green, Harrison, Nyanzi & Whitworth 2000:207).

Some batches of condoms imported into Uganda were found to be defective thus eroding the confidence people had in condoms. These negative attitudes were reinforced by contradictory statements from people in higher circles (Human Rights Watch 2005; CHANGE 2005; 1-3 UAC 2006:17). Pool et al

(2006:483) also found that sporadic use of condoms was fuelled by the mistrust that they were impregnated with the HI-virus.

Ntozi et al (2003:111) found that although HIV awareness was high among the groups involved in the study, non condom use among married couples prevailed because of trust, especially on the part of female partners, notwithstanding the fact that it was common knowledge that the men were often unfaithful. Pool et al (2006:483), in a study undertaken between 1996 and 2000 in rural south west Uganda, also found high awareness of HIV and AIDS but with sporadic use of the condoms due to “dislike or partners refusing them” (Pool et al 2006:483),

2.3.3.2.2 Condoms and culture

Pool et al (2006:486) report that using a condom in a stable relationship is considered a “taboo” and this reason accounted for about 39% of non use of condoms. This was corroborated by the findings of Ntozi et al (2003:111) among high risk groups. According to UNAIDS (2008:67) culture plays a major role in who will use the condom and when it will be used with women being in a disadvantaged position when it comes to negotiating condom use. Culture often relegates women to passive roles on sexual matters while male masculinity roles result in risk taking, aggressiveness and excessive alcohol consumption, often defined by society and culture, leading men to engage in unprotected sexual escapades.

2.3.3.2.3 Condoms and religion in Uganda

In a study about condom use in relation to gender and religion in the rural area of Masaka, it was found that religion was a significant factor in whether one would use a condom or not. Roman Catholics knew less about condoms; had lower attitudinal scores compared to the other religions; and the numbers that would use a condom if one was available were fewer compared to the non Catholics (Kinsman, Nakiyingi, Kamali & Whitworth 2001:217-218). World Vision (2005:2) conducted a survey in a rural area in Uganda and also found negative attitudes towards condoms from some religious groups. A Muslim focus group discussion revealed that condoms were considered to increase

immoral sexual practices among people. A pastor of a non-Muslim group also said that condoms only served to encourage people, especially the youth, to behave in ways that do not lead to the fear of God.

2.3.4 Condom use after the ARV advent

With the introduction of ARVs in Uganda it was not known what effect this would have on the level of condom use. Okware, Kinsman, Onyango, Opio, and Kaggwa (2005:627) expressed pessimism about the success of additional strategies in the prevention of HIV, like antiretroviral therapy (ART), if these were to be introduced without taking into regard other issues like attitudes and practices in relation to earlier strategies, for example condom use. They therefore urged for a reinvigoration of the ABC strategy in addition to the introduction and scaling up of antiretroviral therapy to prevent a behaviour dysinhibition among the population. The use of condoms, abstinence and faithfulness were also the subject of some media reports; that these could be taken into laxity by the general public owing to misunderstanding of what could be achieved by ART. The misconception that persons on ARVs are cured of HIV/AIDS and that such persons no longer harbour the virus, could re-ignite cultural ground or motivation for extra marital affairs - encouraging people to engage in these affairs and polygamy as proposed by some cultures (Emasu 2006). Thus the introduction of ARVs might have tipped the level of condom use in Uganda due to a reduced perception of risk to HIV after the advent of ART leading to a dysinhibited sexual behaviour as has happened in the industrialised world (UNAIDS 2004:2).

2.3.5 Summary

In summary, knowledge about condoms and condom use is high, both in Uganda and sub Saharan Africa. However this knowledge does not correspond with actual condom use. There are negative attitudes to condoms especially from men. Condom use is highest among adolescents and youths and seems to decreases with age. In Uganda, culture and religion also seem to have a significantly negative impact on the use of condoms. With the introduction of ARVs in this scenario, and misunderstanding of what could be achieved through ART, the impact on condom use is not well documented.

This research therefore set out to describe the attitudes and practices surrounding condom use in the context of ART.

2.4 ANTI RETROVIRAL DRUGS

This section presents literature related to antiretroviral drugs. An overview of antiretroviral drugs is presented first followed by the effects of these drugs; perceptions regarding these drugs and the relationship of these drugs to sexual behaviour.

2.4.1 Overview

Antiretroviral drugs are medicines that were developed to treat viral infections particularly the Human Immune Deficiency Virus (HIV). It is just over a decade since the introduction of these drugs to Sub Saharan Africa initially as research or pilot projects in 1998 (Berry and Noble 2008; MOH 2003{c}:6) then later as formal organised national programs, the first having been introduced by Botswana in 2001 (Anabwani and Navario 2005:97). The era following the introduction of ARV's to Sub Saharan Africa was characterized by various challenges not the least of which was calculating the most cost effective method of providing these drugs to patients and clients (Hutchinson 2004:9) and ascertaining adherence to the ART regimen. Combinations of several (typically three or four) antiretroviral drugs were used in such regimens and are known as Highly Active Antiretroviral Therapy (HAART). The Uganda Bureau of Statistics and Macro International (2006:193-195) reported that 85% of respondents knew of drugs that can help people with AIDS to live longer, but only 15% mentioned ARVs. Knowledge of ARVs was higher among urban compared to rural residents.

2.4.2 Effects of Antiretroviral drugs

All drugs have desirable effects and possible side-effects that could be desirable or undesirable. The desired effects are the clinical and immunological outcomes aimed at when taking these drugs; the undesired effects are adverse effects.

2.4.2.1 Clinical effects

Greene ([sa]:5) reports that clinical benefits of ARVs include a decrease and then a disappearance of HIV induced signs and symptoms (the opportunistic infections) with the result that PLWA would spend less days hospitalised, translating into fewer deaths and lower loss of working hours in the labour market – all in all a positive socioeconomic gain. However the effectiveness of ARV's depends on patient compliance to the prescribed regimen with those maintaining the regimen benefitting most and those breaking the regimen positively counteracting the aim of ART. The ultimate aim of ART is an improved quality of life and improved life expectancy as well as a reduction in mother to child transmission of the HI-virus (WHO 2004:15). Cohen and VandeKieft (2003:2) state the benefits of HAART (a combination of potent ARVs) as essentially that of reducing the viral load and consequently reducing associated effects such as weight loss, peripheral nerve irritation; reduction in the episodes of opportunistic infections leading to an improved quality of life and a delay in onset, and eventual progression of, deterioration in cognitive mental functions.

2.4.2.2 Immunological effects

In a study of CD4 cell recovery among patients on ARV therapy in South Africa, the investigators report an increase in cell counts by a factor of 3 over a 48 week period. However, the rate of CD4 cell recovery depends on the CD4 count a patient had at the time of initiation of ART, with those starting at CD4 rates below 50 cell/µl taking longer to reach a safe zone of about 200 cell/ µl. The increase in CD4 cell counts reflects a recovery of the immunological capacity of the body (Lawn, Myer, Bekker & Wood 2006; AETC 2006:3-5). Waters, Stebbing, Jones, Michailidis, Sawleshwarkar, Mandalia, Bower, Nelson and Gazza (2004:505) corroborate these findings in their study of CD4 cells in patients started on ART with low CD4 counts. As discussed by Heath (2002:28) CD4 cells are part of the white blood cells referred to as lymphocytes; specifically T lymphocytes. These lymphocytes have characteristics on their surface that differentiate one type from the other called clusters and they are referred to as differentiated proteins. CD4 cells are lymphocytes with cluster differentiating proteins number four. The CD4 cells

act in the primary stages of adaptive immunity, and are specifically stimulated when a foreign substance enters the body. The HI-virus specifically attacks these cells which leads to their decrease over time, resulting in immune deficiency. A rise in CD4 cells after starting on ARV therapy thus indicates an immunological recovery (UNAIDS 2004 {b}:12).

2.4.2.3 Side effects of ARVs

As indicated previously, medications of any nature have effects which are both positive and negative; likewise ARVs have positive and negative effects. The adverse effects can be mild to severe; even life threatening; they can be of a short term duration or long term. Adverse effects of antiretroviral drugs vary by drug, by ethnicity, by individual, and by interaction with other drugs, including alcohol. Hypersensitivity to some drugs may also occur in some individuals (Crowe 2006). There is hardly a system in the human body that is not affected by ARV's due to ARV's nucleoside properties.

2.4.2.3.1Short term side effects of ARVs

The short term effects of ARV's include:

Fever: This is a rise in body temperature above 38^{o}C (or 100.4^{o}F) as measured in the rectal area; normal body temperature is 37^{o}C or 98.4^{o}F (Reyes: 2006:218). It is caused when various chemicals in the brain are released in the blood in reaction to a stimulus. Fever can be caused by ARVs when the body regains its capacity to fight off foreign substances as explained below, but other causes include infections, immune reactions, hormones and malignancy (Epstein, Perkin, Cookson and Bono 2003:47, Hunter, Haslett, Chilvers, Boon and Colledge 2002:8).

Fatigue: This is a result of anaemia and lactic acidosis resulting from mitochondrial toxicity that is caused, primarily, by Zidovudine (AZT) but also by other drugs as explained in section 2.4.2.3.2. L'Heureux (2006:1) and the New Mexico AIDS Education and Training Center (2009:1) defines anaemia as a condition in which red blood cell are reduced in the body. The red blood cells contain a pigment called haemoglobin that is responsible for carrying oxygen round the body tissues. When the cells are reduced in the body, the

ability of the body to undergo increased physical activity is reduced and the affected person gets tired easily, a state referred to as fatigue.

Weight loss: is caused by an unusually high wastage of calories. This can happen in pancreatic inflammation or failure of major body organs. It is a symptom of gastrointestinal conditions as may occur when someone is taking ARVs (Pacheco, Guilford, Kwyer, 2002:3; Nguyen, 2009:63).

Nausea and vomiting: Nausea is a sensation which precedes vomiting, and may lead to vomiting and relief felt thereafter. Nausea is often due to drugs that affect the liver or stomach. It can also be provoked by the smell or taste of these drugs (Epstein et al 2003:180)

Skin conditions: Rash, hypersensitivity reactions and toxic epidermal necrosis; refer to section 2.4.2.3.2.

Anaemia: This is mainly caused by Zidovudine (AZT) an antiretroviral drug in the class of nucleoside reverse transcriptase inhibitors. Other drugs implicated are lamivudine and stavudine. These drugs suppress bone marrow activity leading to a decrease in the production of red blood cells and a class of white blood cells called neutrophils (Rang, Dale, Ritter & Moore 2003:661, Madge et al 2005:59).

2.4.2.3.2 Long term side effects

The long term side effects of ARV therapy include:

Hypersensitivity reactions: These range from mild skin reactions to severe and life threatening Steven-Johnson syndrome, where there is severe death of skin and the picture resembles a person who has been scalded with hot water (Madge et al 2005:60).

Organ damage: Damage to important organs in the body takes the form of kidney toxicity (ranging from acute to chronic failure), pancreatitis, and liver damage.

Lactic acidosis: This is a condition in which there is a decrease in the blood PH. The blood is thus in a state of having too much acid and this harms the body. This is caused when mitochondrial enzymes within the structures in cells that undertake metabolism and provide the cell and indeed the whole body with energy are poisoned. The body then resorts to making energy though other means that result into the excess production of lactic acid as a by product. This presents as fatigue, weight loss, abdominal pain and liver dysfunction (Bartlett 2001:8; DHHS 2005:1-2).

Body fat redistribution: The drugs that commonly cause this problem are the protease inhibitors class of antiretroviral drugs. Body fat is redistributed from the head and limb areas of the body and deposited in the abdominal, breast and chest areas. This leads to a characteristic body shape commonly referred to as the buffalo hump a source of stigma commonly making patients avoid ARV's or to poorly adhere to these drugs (Rang et al 2003:661, Madge et al 2005:61).

Immune reconstitution inflammatory syndrome (IRIS): When the immunity of an individual who has been started on ARVs has sufficiently recovered, the patient may continue to get worse clinically despite a rising CD4 count and a falling plasma viral load. In this case the body is once again able to recognise foreign substances and initiate mechanisms to try to eliminate them as explained in section 2.2.1.1. As the immune mechanism battles foreign substances, the patients will feel clinically worse off than at the time before starting on these drugs. One of the commonest problems that occur is the emergence or reactivation of tuberculosis although other viral syndromes may also emerge or get worse (Murdoch, Venter, Van Rie and Feldman 2007:2-4).

Death is mostly from organ failure mainly the liver, pancreas or kidneys. According to Crowe (2006) kidney disease, especially acute renal failure is now a leading cause of death in patients taking ARVs.

2.4.3 Lived testimonies of being on antiretroviral drugs

In this section testimony of people taking ARVs will be presented; use will be made of the real names of people involved as they accepted their condition and came out openly to declare their HIV status and the fact that they are taking ARVs; their testimonies have also been published widely.

2.4.3.1 Lived testimonies from some countries in Sub Saharan Africa

Zoliswa Magwentshu from South Africa and Harriet Kopi from Botswana gave testimony of how ARVs restored them from the brink of death back to normalcy (UNAIDS [b] 2004:9). At the peak of her illness, Zoliswa couldn't walk, had probably developed mental confusion and she had even made her will. Within a week of starting antiretroviral drugs she reports that she had already started feeling a difference in her life. Subsequently the quality of her life improved so significantly that she started looking to the future of her children again. Harriet was even in a worse situation as she was not aware that she was suffering from AIDS and was attending traditional healers' clinics for treatment. She had very bad skin rashes, was paralysed on one side, and her immune system was totally compromised as measured at initiation of ARVs. When she started on the ARVs she went through a series of side effects till the best combination was found for her. So many months down the road and still on ARVs she was a different woman from the one who was dying months before and had already started work as a community mobiliser.

2.4.3.2 Lived testimonies from Uganda

Bamuturaki (2008:423) gives an account of Elinah Kasubo, a primary school teacher, who benefited from a government sponsored program on ARVS. She has been able to live longer and also continue with her work thanks to ARV drugs. Her problem is the irregular drug supply and the fact that there are many people who collect these drugs thus one has to spend nearly a whole day at the clinic.

Médecins Sans Frontières (MSF) (2006) presents testimonies of patients who are on ARVs. The first case is of Dona Aseni a secondary school teacher in the north western part of the country. She lost her husband through AIDS

(diagnosed clinically) as he refused to get tested. She felt stigma at first as she imagined all the people where discussing her fate. She eventually picked courage and got tested for HIV and despite her expectation for positive results she still was shocked when they gave her positive results. She then joined a local support group for HIV/AIDS victims and got support and counselling from the group members. She was tested for her CD4 cell and it was discovered the count was low, so she got started on ARVs. She however got worse on starting the drugs and it was later realized she also had a tuberculosis infection in addition. This was treated and she started getting better. At the time of starting the ARV drugs she used to take three big pills and would vomit each time she swallowed them. Later this was reduced to only one pill and she was feeling no more side effects. At the time of telling this story she was already back to her work of teaching

Jack Kokole was one of the first seven patients enrolled for ARVs in Arua hospital. At the time of his testimony he had been taking ARVs for two years already. His illness started with a cough and he was treated for tuberculosis. He was hesitant to get tested for HIV but eventually picked up courage; he was found to be positive for the HIV infection. He again picked up courage and disclosed this to his family members, friends and the church congregation. He says by this time he had lost weight significantly and his CD4 cells were well below the safe zone as defined in section 2.4.2.2. After starting on ARVs he experienced side effects for a few weeks but none the less persisted in taking the drugs. He got better, started moving out of the house and regained his strength. He says that his quality of life was improved and he is regular for work and his life span increased and has vowed to keep taking the drugs for as long as he lives (MSF 2006).

2.4.4 Perceptions towards ARVs

Vincent, Bouhnik , Carrieri, Rey, Dujardin, Granier, Fuzibet, Obadia , Moatt ‘Spire (2004:1322) quoting several authors report a common perception among people taking ARVs that it will reduce HIV transmission. A number of these persons have been reported to engage in unprotected sexual episodes due to this perception. This inappropriate response to the positive outcome

that ARV's aim at is in a way reverberated in peoples negative response to the side effects of ARV's. Although ARVs could improve the quality of life of PLWA, the disfigurement caused by abnormal distribution of fat as a side effect leaves some people on ARV's feeling exposed; open to identification as being on ARV's and thus HIV positive. Many PLWA on ARVs experiencing this abnormal fat distribution reported having low psychological contentment, fewer social relationships and dressing problems embarrassments resulting from their body changes. This causes low self esteem and relationship problems and may bring into question the perceived improved quality of life intended by ART (Mutimura, Stewart and Crowther 2007:4-6).

Some PLWAs believe that ARVs can cure them; this perception was made known during a briefing by Uganda's director of the commission that deals with HIV/AIDS, Dr. Kihumulo Apuuli (Lu 2008). Atuyambe et al (2008:15-18) also reported that people were no longer practicing safe sex due to the perception that drugs are now available that weaken the HI-virus. Some females infected with HIV were also reported to have conceived because ARVs were available for them. Others were reported as saying that AIDS was now like any common disease, if one acquired it, one just had to take the ARVs and get better again. The fear expressed by some people though was that ARVs would considerably undermine the message of positive living that is preached to people living with HIV. Some people interviewed by acknowledged the potential for HIV transmission by those taking ARVs if they engaged in unprotected sexual relations.

2.4.5 Antiretroviral therapy and risky sexual behaviour

In this section a review of the sexual behaviours in relation to antiretroviral therapy is going to be made. An analysis of the global, sub Saharan African and Ugandan situation will be made.

2.4.5.1 The global situation

Some studies in the United States and Europe argue that risky sexual activity could have increased with the initiation of ARVs. According to Erbelding (2001:6-7), "Effective ART restores health and sexual function and leads to a

resumption in sexual activities, either risky or safe, after a period of illness." This observation was made after following up on patients taking ARVs in the United States. Erbelding also quotes several studies conducted in the United States in which an increase in the incidence of sexually transmitted diseases (the direct indicators of HIV and unsafe sexual practices) had been reported in people on HAART. Scheer, Lee, Klausner, Katz and Schwarcz (2001:433) investigated whether taking ARVs would predispose one to acquiring sexually transmitted infections and established that an increase in these infections indeed occurred. Vincent et al (2004:1322) report about 50% episodes of unsafe sexual practices in patients on ARVs who were followed up over a seven year period. This was because of the perceived reduction in HIV transmission while on treatment.

In a study involving risky behaviours among HIV positive travellers in Canada, 89.5% international travellers were taking ARVs. These travellers reported engaging in casual sexual episodes with new partners and most times condoms were not used although frequencies are not reported. This exposed their casual partners to HIV infection or reinfection (Salit, Sano, Boggild, Kain 2005:885-7). McCormick, Walensky, Lipsitch, Losina, Hsu, Weinstein, Paltiel, Freedberg and Seage (2007:1116-1118) tracked two cohorts of men in the USA who were HIV positive, and were having sex with men; one cohort was treated with ART and the other not. They reported a reduction in secondary transmission of the HI-virus among the treated cohort compared to the non treated cohort within a period of 10 years of primary infection. This study thus demonstrated the beneficial effects of ART in reduction of HI-virus transmission. However despite that benefit, some men still engaged in risky sexual practices resulting in secondary transmission.

2.4.5.2 The situation in sub Saharan Africa

Kalichman, Ntseane, Nthomang, Segwabe, Phorano, Simbayi (2007:372-3) examined the issue of having multiple partners among people living with HIV in Botswana, some of whom were recruited from antiretroviral clinics. They reported that 62% of respondents had been sexually active in the past three months. Among those who were sexually active, 24% did not use protection.

Twenty five percent (62 participants) had engaged sexually with multiple partners. Among the participants who reported being sexually active in the three months, condom use was high at 80% but this rate was not maintained especially in those who had multiple partners. The other risky behaviour reported among those with multiple partners was non disclosure of HIV status. The partners were therefore at risk of acquiring HIV infection as some were HIV negative.

Auvert, Males, Puren, Taljaard, Carael, and Williams (2004:617) evaluated the impact of provision of highly active antiretroviral therapy on the spread of HIV. This was in one town ship in South Africa that had a high prevalence of HIV-1. They expressed pessimism that in the short term only a small percentage of partners to PLWA would benefit from the reduced transmission of HI-virus. This was attributed to drug adherence and supply problems that would inevitably lead to the emergence of drug resistant HIV strains. The other factor that would contribute to the continued transmission would be the practicing of unprotected sex and a very high prevalence of sexually transmitted infections. These researchers thus suggested that besides HAART programs, there is need to continue emphasizing other preventive measures that have been proven effective.

2.4.5.3 The situation in Uganda.

Bateganya, Colfax, Shafer, Kityo, Mugyenyi, Serwadda, Mayanja and Bangsberg (2005:764) found no significant change in risky sexual behaviour of people taking ARV drugs. Their study was about the relationship between ARV and associated risky sexual behaviour carried out in Kampala; condom use was comparable to those that had not started taking the drugs. An intervening variable in this instance might have been the fact that the study was conducted in Kampala, an urban setting where awareness was constantly reinforced through the media.

Bunnell, Ekwaru, Solberg, Wamai, Kajura, Were, Coutinho, Liechty, Madraa, Rutherfold and Mermin (2006:90) conducted a similar study in Tororo, a rural setting in Eastern Uganda; investigating the risk of HIV transmission among

people taking ARVs to their HIV negative partners or those with unknown sero status. They found that 62% of the participants had been sexually active in the three months preceding data collection; with 44% of these engaging in unprotected sex. There was an increase in consistent condom use and a decrease in episodes of unprotected sex among participants. However among the married and cohabiting couples there was a high level (80%) of risky sexual behaviours, fortunately only one partner sero converted. Why the risky behaviours occurred among participants in marriage or cohabiting situations was not clearly brought out in this paper.

2.4.6 Summary on antiretroviral drugs.

Antiretroviral drugs which are relatively new to sub Saharan African have changed the trend, the picture of HIV, the lives and indeed perception of the people towards AIDS. People who had lost hope due to the diseases have had their lives turned around and are once again living good quality lives. The sad part of this is that some people whose lives were turned around are beginning to engage in risky sexual behaviours both globally and locally.

2.5 CONCLUSION

This chapter has reviewed some of the literature that was available regarding condoms use and antiretroviral therapy. From the literature review undertaken, knowledge about HIV and condoms appears to be high in sub Saharan Africa. There are however myths about HIV in some sections of society both in sub Saharan Africa and Uganda which counteract the campaign against HIV/AIDS. There are attitudinal problems towards condom use especially from the men. ARVs have increasingly become common and these have turned around the lives of those previously badly afflicted with AIDS. A new trend though, of resurgence in risky behaviours, is being observed probably as a result of ARVs although there are few papers to document this for Uganda. The introduction of ARVs could in effect have led to changes in previously successful strategies against the spread of HIV.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

This chapter presents the procedures that were implemented during collection of data from the respondents, its processing and eventual analysis. The research was conducted within the quantitative research paradigm using a non experimental research design.

3.2 RESEARCH DESIGN

This section begins by presenting definitions of some key terminologies that were used in this report. The section ends with outlining the research design adopted. Research theory is defined and the application of theory in practice substantiated.

3.2.1 Research

Bowling (2002:1-2) defines research as "the systematic and rigorous process of inquiry which aims to describe phenomena and to develop and test explanatory concepts and theories". This author further indicates that research can take on several forms ranging from observing and describing characteristics at a given point in time to subjecting people or objects to some intervention and following them up for a cause and effect relationship (experimental research). Hulley, Cummings, Browner, Grady and Newman (2007:226) define research as an organised investigative process that leads to development and generation of new knowledge. The Oxford Advanced Learner's Dictionary of current English defines research as an organised study about a subject or people and this leads to the discovery of new knowledge about that subject or people (Wehmeier 2000:999).

3.2.2 Research Design

The research design is the overall plan that the study followed (Bowling 2002:143). According to Bryman (2001:507) a research design is a framework adopted to collect, and eventually analyse data so that useful information can be obtained. Added to this, Sekaran (2003:117-118) describes a research design as the series of steps and choices that are made relating to the research process in order to arrive at

meaningful information generation; that is, answering the research question or attaining the research objective(s).. The design for the current research was quantitative, descriptive and of a cross sectional nature.

3.2.2.1 Quantitative Methodology

With quantitative research, one is dealing with quantities (numbers) and relationships that exist within and among variables. Bryman (2001:20) defines quantitative methodology as a research process in which quantification in data collection and analysis is undertaken. Bowling (2002:143,194) corroborates this viewpoint and adds that in order to achieve quantification a researcher requires a certain level of knowledge about a research topic.

Quantitative research is defined by Neuman (2006:41,151) as a process in which data about variables are collected in the form of numbers and then analysed by statistical calculation to identify meaningful trends and information. Methodology in research refers to the practices and techniques used to select samples, and collect and analyse the data.

The term variable is important to quantitative research. A variable represents any concept, item or thing that will assume different values in different situational settings. Such a variable should be quantifiable in the sense that it can be measured (Daniel 2005:3). According to Bryman (2001:509), a variable is “an attribute in which cases or values vary”. Bernard (2002:28) defines a variable as anything that can take on more than one value or score; such a variable can be words or numbers. The main variables for the current research were knowledge, attitudes, practices and perceptions as they related to condom use and ARVs.

3.2.2.2 Descriptive study

In a descriptive study the characteristics of, and associations between variables are described. By describing such characteristics and relationships or associations, useful information can be obtained about the topic under study. Such studies however cannot clarify cause and effect relationship between variables (Bowling 2002:196) as the variables of interest will not be manipulated (Sim & Wright 2000:7) and the design will not be controlled.

Aday and Cornelius (2006:36) define descriptive study designs as those that focus on characteristics that exist in a given group. Such designs often explore characteristics and later provide estimates for such characteristics in the research population. Hypotheses are not tested and neither are comparisons made between groups. Hypotheses might however be generated from descriptive studies. According to Neuman (2006:35) in descriptive research the aim is to give an account of a situation by using words, numbers or both so as to provide answers to queries relating to the topic under study.

3.2.2.2.1 Advantages of a descriptive study

Descriptive study designs have a number of advantages as spelt out by Sim and Wright (2002:71- 84), which include:

- Collection of data using a number of methods like questionnaires, interviews, diaries and observation. In the current research data was collected using a self designed questionnaire.

- The study is done in natural settings without any manipulation. The current research was conducted in the sub county and villages where the respondents live and there was no intervention done before data was collected.

- In this research data was collected and analysed by descriptive statistics that included frequency distribution and relational statistics as discussed in section 3.3.3.5.2.

3.2.2.2.2 Disadvantages of a descriptive study

Descriptive studies cannot provide information on cause and effect relationships (Aday & Cornelius 2006:36). The implication of this was that the researcher could not relate causes to any observations made or information derived from the study.

3.2.2.3 Cross sectional study

A cross sectional study was adopted as data were collected only once from the sampled group within a brief span of time. In a cross sectional study any variable of interest that exists in a given population is measured once at a specific point in time (Hulley et al 2001:107). This is corroborated by Bryman (2001:502) who indicates that a cross sectional study design involves collection of data on many elements in the research population at a single point in time. The end result is quantifiable data on more than one variable. Neuman (2006:36) describes cross sectional research as one where the aim is to gather information on many study elements at one moment in time. It is normally the easiest and cheapest research process yielding results in a relatively short period of time.

3.2.2.3.1 Advantages of a cross sectional study.

The cross sectional study used in the current research had advantages and disadvantages. The advantages include:

- This research aimed at determining frequencies of the attributes of knowledge, attitudes and practices in the population of Budondo sub county (Sim and Wright 2002:7).

- It was relatively easy for the researcher to design and undertake the current research although he was inexperienced and a novice.

- The population in the current research was contacted once and this happened at the time and point of data collection.

- It was relatively cheap for the researcher to undertake the current research although he had meagre resources.

3.2.2.3.2 Disadvantages of a cross sectional study

It is not possible to use this design if the purpose is to determine changes that have taken place over a period of time in a phenomenon of interest. It is also not suitable if the purpose is to study diseases that are rare (Hulley et al 2007:111). This meant that the researcher relied on respondents' perceptions on behavioural change and

could not investigate it within an ART group over an extended period of time at different intervals.

3.2.2.4 Survey

As indicated in section 1.5.1 the study adopted a survey in the collection of data. According to Bowling (2002:195-196) surveys are quantitative research tools used during the process of data collection from a sample of the population of interest commonly through face to face interviews; however data can also be got through postal and other self completion questionnaires. The emphasis in surveys is on the individual who acts as the unit of analysis. Surveys help to establish the level of a given characteristic of the phenomenon of interest in a given population. Daniel (2005:1) defines surveys as tools used in the collection of data on topics of interest from a population through asking individual questions to generate information from that group or groups. Such information can also be expressed statistically. Neuman (2006:43) describes surveys as a process where data is collected using written questionnaires or interviews from a large number of respondents. The responses are recorded as given by the participants and there is no manipulation of situations in order to influence responses. Such data is normally related to behaviours, attitudes and beliefs.

During the current research, data were collected from respondents in Budondo sub county using questionnaires. The data collected was about attributes of knowledge, attitudes and practices. The unit of analysis was an individual from whom data had been collected. There was no intervention done to the respondent before data was collected.

3.2.2.4.1 Advantages of a survey

Advantages of a survey, (of any aspect of research), primarily state the reasons why it was adopted for a study. The advantages of the survey are as follows (Bowling 2002:194-195) with regard to the current research:

- The current research aimed to measure attributes of knowledge, attitudes and practices in the population of Budondo sub county. A survey was thus the data collection tool of preference.

- This research was about the individual as the unit of analysis; of respondents acting in their individual capacity. In a survey an individual is a convenient unit that is used in data collection, however groups or institutions can also be units or data sources.

- The survey was adopted for this research as some respondents could complete the questionnaires unaided.

- Random probability sampling from the population was facilitated by the survey approach.

- Attributes that the respondents were exposed to in the past were conveniently reported on.

3.3 RESEARCH METHODOLOGY

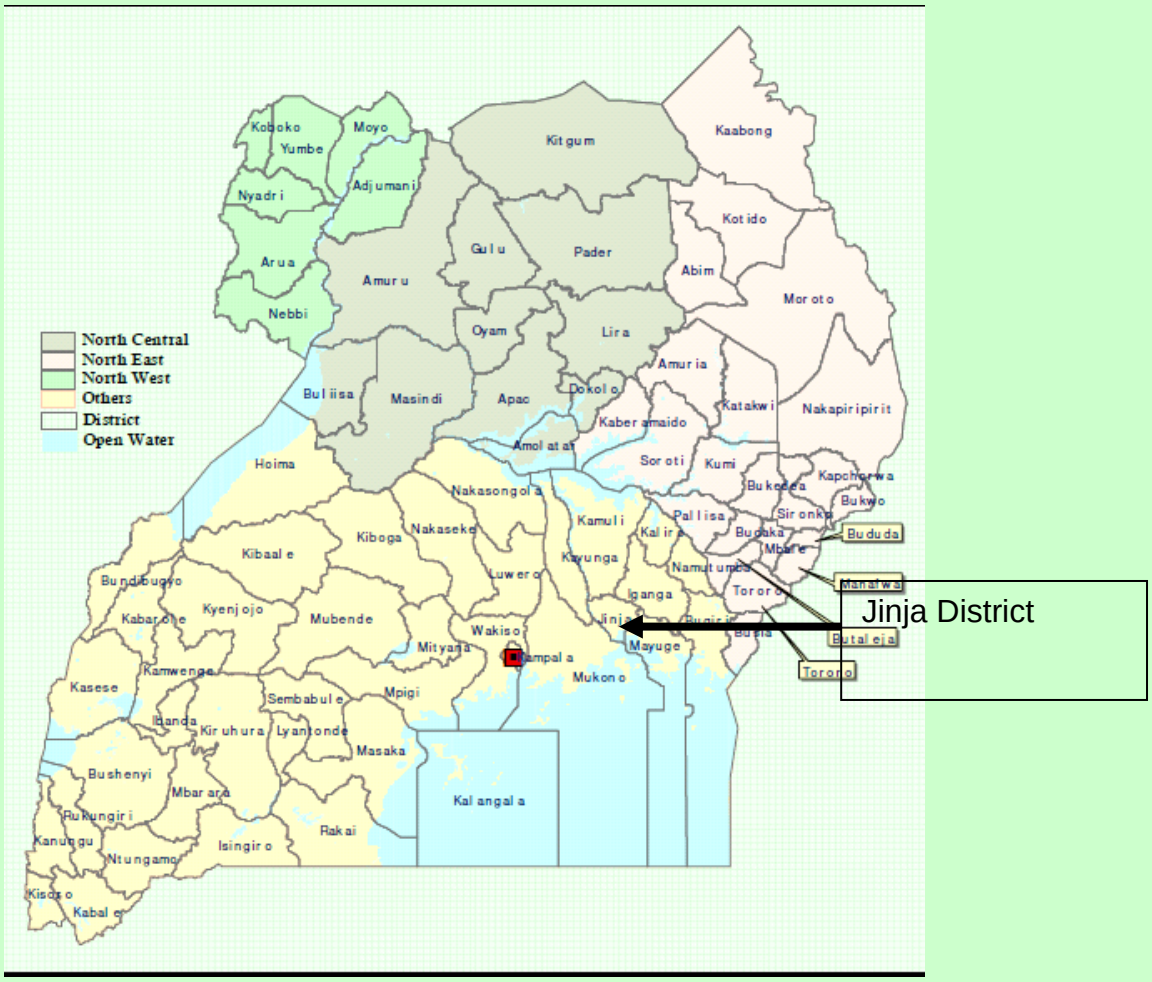
Methodology in research refers to "the practices and techniques used to collect process and analyse data" (Bowling 2002:143). Bryman (2001:29) refers to it as a "technique for collecting data." The Department of Health Studies (DHS 2007:25) defines research methodology as the approach and ways in which data are collected from data sources and the ways in which data are analysed. This involved a series of steps as described further in this section. This section presents the ways in which samples of the study participants were selected, how data collection was done and finally the techniques used to analyse the data.

3.3.1 Sampling

To answer the research questions of the current research, data on the phenomena and variables of interest needed to be collected from all the individuals comprising the population in Budondo Sub County. However this was too big a task and a representation of that population was chosen using statistical methods. Data were then collected from the smaller sampled group. For sampling to be successfully conducted, the study location, the population and target population and sample size required had to be defined and selected.

3.3.1.1 Study location

As indicated in section 1.5.2.1, the study was conducted in Uganda, a country in East-Africa with a Population of 24,442,084 people (UBOS 2005:4). The study was conducted in Budondo sub county of the Jinja District (see figure 3.1) Jinja is one of 80 administrative areas in Uganda; it is found in the east central region of the country on the shores of Lake Victoria. It is one of the most densely populated districts in the country with a density of 587 persons per square kilometre. The population of Jinja District is about 387,573 people (190,329 males and 197,244 females) (UBOS 2005: 6-7). The main administrative and commercial town of Jinja District is Jinja town which is about 80 km east of Kampala, the capital and administrative city of Uganda. The district is further subdivided into smaller administrative areas referred to as sub counties.



Source: Peace, Recovery and Development Plan for Northern Uganda 2007: xiii

Figure 3.1Map of Uganda showing political boundaries of districts.

Budondo sub county is one of the sub counties that make up Jinja District; it is a rural area with a total population of 44,909 inhabitants (87,384 males and 94,668 females) and located about 15 km to the north from Jinja town, the district main town; this is where the study was conducted. The sub county is made up of five parishes and thirty eight villages (See appendix A). The main economic activity in the sub county is subsistence farming and small scale fishing along river Nile. In terms of health services, the Sub County is served by a grade IV health centre which also serves as the supervision unit of Budondo health sub district. It is headed by a Medical officer who supervises grade three level health centres. Other staffs include clinical officers Medical assistants, registered nurses and midwives as well as subordinate nursing categories and a laboratory technician. It has in-patient facilities with a 25 bed capacity; has a male and female ward; provides blood transfusion, maternity and laboratory services. There were plans for surgical services although there is no operating theatre yet. In the chain of referral, patients are referred to the district hospital in Jinja town which also doubles as the regional referral Hospital.

The health centre in Budondo also offered HIV prevention and treatment programmes and activities, including HIV counselling and testing (HCT), prevention of mother to child transmission (PMTCT) of HIV, provision of antiretroviral therapy, psychosocial support, Tuberculosis screening and treatment services. Before patients are started on ART they get their blood tested for CD4 cell counts as an eligibility criteria, but this service is done from a different location. HCT services at the health centre commenced in 2003 with the support of the AIDS Information Centre (AIC), a local non governmental organization in conjunction with Population Services International (PSI). However, these two non governmental organisations stopped supporting the health centre with effect from 2006 and the services are now supported by the Ministry of Health. As part of HCT services, condoms are distributed to those who request for them. In 2009 the health centre was supplied with 39,848 condoms.

3.3.1.2 Population

Subjects for a research are picked or selected from the population. A population in a research is defined as a collection of people or objects that are eligible to be included in that study (Bowling 2002:176). Daniel (2005:5) defines a population as

any collection of entities that a researcher has interest in at any moment in time. A research population is also defined by Neuman (2006:224) as the entire group that has characteristics that a researcher wants to study. The population in this research comprised of the target population and an accessible population. In the current research the population for this research was defined as all adult persons living in Uganda as they are all potentially afflicted by HIV/AIDS, subjected to the same health system and due to the limited longitudinal and latitudinal location lived in similar geographic surroundings.

3.3.1.2.1 Target population

Hulley et al (2007:28) describe a target population as the wider part of a group on which results from the study can be generalised. This could be a defined geographical area or the wider world. According to Aday and Cornelius (2006:126) a target population is the group from which information is sought and to which results of the research will be generalised. Sim and Wright (2002:111-112) define a target population as the elements or units that have the characteristics the researcher wants to study. Generalisations from the results could also be made to that population. In the current research, the target population included all adult persons living in Jinja District and are generally homogeneous with regard to language, cultural characteristics, and same socio-economic conditions.

3.3.1.2.2 Accessible population

An accessible population is defined as a temporary part of the population in a defined geographical location that will be immediately available for the study purpose (Hulley et al 2007:28). An accessible population according to Sim and Wright (2002:111-112) is part of the group of units or elements with characteristics that the researcher can access in order to draw a sample. In the current research the accessible population were the people living in Budondo sub county. Their sero status for HIV was not ascertained by any means as this study was not about HIV status but about aspects of condom use and perceptions on ARVs.

3.3.1.3 Sampling

The accessible population as discussed in section 3.3.1.3 in the sub county of Budondo was too large for data to be effectively collected for the study, so a

representative sample was selected; this was achieved through a process of probability sampling in which multistage and simple random sampling were carried out.

3.3.1.3.1 Definitions of sampling

According to Daniel (2005:7) sampling involves selecting a smaller group from a population where actual data collection will be undertaken. Bowling (2002:174-177) defines sampling as a process that involves listing all the eligible persons in the population as the sampling frame from which the smaller group would be selected. According to Neuman (2006:219), sampling is a process of getting a smaller collection of elements from a larger group so that studies can be made on that smaller group. Findings from the smaller group can then, providing certain conditions, be generalised to the larger group.

3.3.1.3.2 Theoretical background to the Sampling method

This section presents the theory upon which sampling was based, the actual method of sampling is presented in section 3.3.1.3.5.

i. Probability Sampling

Probability sampling involves choosing units to be included in the sample in such a way that each unit has an equal chance of being selected. Probability of selection is shared across all the units (Bernard 2002:142). Hulley et al (2007:32) describe probability sampling as a random process that ensures that every element in the population gets an equal chance of being included in a sample. Bryman (2001:85-92) refers to probability sampling as a method which enables each unit in the population to have a known chance of being selected.

In order to ensure that probability sampling is achieved, randomisation of the units in the population has to be carried out. Both randomisation and probability parameters contribute towards representativeness of the sample in relation to the population as is described below.

ii. Randomisation

Sim and Wright (2002:91-92) define randomisation as a process which ensures that elements to be included in different groups for an experimental study get the same or known chances of being distributed into those groups. The groups created have almost similar characteristics although slight differences can occur. According to Bryman (2001:507) randomisation involves the allocation of participants for a research study into an experimental and a control group; it is done in an experimental research study. This research design did not involve studying different groups like in an experiment and so randomisation was not carried out. Elements were however *randomly* selected by allowing for each element to have the same chance of being selected.

iii. Representativeness

According to Sim and Wright (2002:112-113) characteristics or features in the study sample should resemble those in the accessible population as closely as possible. When that is achieved, representativeness has been achieved. A representative sample is a reflection of the population as accurately as possible. There is mimicking of the population in many ways (Bryman 2001: 507). It is believed that the way in which the sample for the current research has been selected provided for equal chance on representing the information the researcher was looking for.

iv. Multistage sampling

In this type of sampling the population is divided into clusters and sub clusters depending on the complexity of the research population structure. The different clusters then constitute the primary, secondary and tertiary sampling frames or units. Sampling can then take place at each level of the cluster and sub cluster (Bowling 2002:187). According to Bryman (2001:91-92), in multi stage sampling if one is dealing with a widely dispersed population it becomes convenient to divide the population using some defined stratified clusters or groups like regions, then schools or villages, then homesteads till a convenient stage is reached where sampling the unit of interest is done. At every stage of clusters formation, probabilistic sampling methods are carried out to select units from which other secondary and tertiary sampling levels will be done. This is corroborated by Hulley et al (2007:33) who indicate that this type of sampling involves sampling the population based on the

natural groupings like districts, sub counties and villages as was done during the current research. At each stage or cluster simple random sampling is carried out (Hulley et al 2007:33).

v. Simple random sampling

This is where members of the population are numbered or listed and a sample selected from that list. Each person in the list has an equal chance of getting selected (Bowling 2002:184). According to Daniel (2005:7) in simple random sampling every item in a population of interest has an equal chance of getting picked and included in the sample. Neuman (2006: 227) defines simple random sampling as one where elements are selected from the target population using mathematical random procedures and all the elements have an equal chance of being selected. The selected elements are then included in the sample.

3.3.1.3.3 Sample Size

For sampling to be done a sample size required for the study was determined upon which a sampling method that could provide that sample was adopted. The sample size is the number of people who are included in the sample through a process of sampling (Bowling 2002:167-170). Kumar (2005:165) defines a sample size as the number of units or elements from whom data will be collected.

3.3.1.3.4 Sample size calculation

The sample size was calculated using the formula below (Aday & Cornelius. 2006:36; Israel 2009)

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

Where

- n = sample size
- d = Precision of the study was ±5%
- z = Standard normal deviation corresponding to the 95% confidence interval; which was 1.96

- p = the prevalence (levels) of condom use in the Sub county. Prevalence for females was 0.646; for males it was 0.687. Average prevalence level for males and females was 0.667 (0.67). (MOH, 2006:83)
- q = 1- p

Given that z = 1.96, p = 0.67, q = 0.33 & d = 0.5

Therefore

$$n = \frac{(1.96)^2 \times 0.67 \times 0.33}{(0.05)^2}$$

$$n = 340$$

From the formula above a minimum of 340 people needed to be included in the sample. However the study selected 133 participants; the Justification for this was due to the fact that the sampled population was highly homogeneous (UBOS 2005: 6-7) as described in section 3.3.1.2.1 and thus very minimal variability was anticipated in all the main variables under study (Israel 2009). Secondly the costs of conducting the study were also prohibitive and it was then decided that a sample of 133 would still be representative as it permitted numeric quantifications. Bailey (1994:97) reports that in any survey research process, a minimum of 30 cases are required for the sample size although most researchers would prefer 100 cases as the minimum necessary for sampling to be undertaken successfully.

3.3.1.3.5 Method of sampling

As discussed in section 3.3.1.3.2, the research population was distributed into five parishes and each parish had a number of villages (in total 38 villages). Each village had a number of households; defined by the district authorities as a group of people who live in one house or compound and share a meal. Each household also had more than one person who was eligible for inclusion in the research.

Parishes represented the primary sampling frame. Simple random sampling was done in all five parishes in order to select the villages (secondary sampling frame) from each parish to be included in next level sampling frame. Then simple random

sampling was again carried out within the identified villages in order to select households (tertiary sampling frame). From each household one person was sampled who met the selection criteria to participate in the research by completing the questionnaire (interview). If the household had more than one eligible person, a simple random sampling as explained below was carried out to select the person to be interviewed. Selection of samples at the different levels of parishes, villages and households constituted multistage sampling.

Four parishes out of the five were randomly selected; three villages were then selected from each of these four parishes and from each of the villages nine households were selected. In the remaining parish two villages out of the three were randomly selected and in these nine households identified. In the remaining village of the fifth parish seven households were randomly selected. From each identified household, one eligible person was randomly selected. This sampling method ensured that a sample size of 133 people was randomly selected. Provision was made to select other people from the identified villages using the sampling frames in case some people opted out of the study. Table 3.1 depicts the result of the multistage sampling process.

TABLE 3.1. RESULT OF THE MULTISTAGE SAMPLING PROCESS

PARISHES	VILLAGES	HOUSEHOLDS	INDIVIDUALS RESPONDENTS
1	3	9	27
2	3	9	27
3	3	9	27
4	3	9	27
5	2 1	9 7	18 07
TOTAL:			**133**

Simple random sampling involved making cards with numbers corresponding to numbers allocated to the households as those listed in the sampling frames and putting them in a box. Then a card was picked from the box at random and the number on it represented the unit in the sampling frame to be included in the sample. There after the card was not put back in the box. This was done at all the stages of the population distribution. More random sampling was carried out if an identified

person was not able or comfortable with the English language or was not willing to participate.

3.3.1.3.6 Sample inclusion criteria

The inclusion criterion for the sample was that both males and females were included who were:

- aged between 15 to 50 years regardless of their HIV status
- resident in the Sub county of Budondo for at least two months prior to the completion of the questionnaire
- willing to participate in the study.

Persons excluded from the study were those who

- did not consent to participate
- had problems which could not allow them participate like disagreement with the spouse, feeling very uncomfortable with the content of the questions
- were too sick to participate.

3.3.1.3.7 Advantages of sampling

Selection of the sample was done because results obtained from a statistical analysis of the data from the sample could be generalised to the rest of the research population from which it was drawn through estimation of statistics (Aday & Cornelius 2006:156). In addition, considering time, resources and man power, it is a cheaper option. The data could also be checked more thoroughly for any mistakes than if the whole population had been involved.

3.3.2 Data collection method and technique

Data are the elements that are constituted to make statistics. Data are obtained when a measurement or a count of a variable or concept is performed (Daniel 2005:2). Voca, Blaauw & Knight (2004:3) define data as the “raw uninterrupted facts” that are later processed to get information. Sekaran (2003: 219) defines data as “that information” which is collected from a variable representing the topic of interest by the researcher. Data collection was achieved by the use of a questionnaire as described in section 3.3.2.1.

3.3.2.1 Data collection instrument

A self designed questionnaire was used for data collection during the current research.

3.3.2.1.1 Development and testing the data collection instrument

The questionnaire was designed based on the literature reviewed for the study. The language used in the questionnaire was in undemanding English so that respondents could understand. Items contained in the questionnaire were those that could provide information relevant to the research topic. A statistician (see appendix I) also reviewed the questionnaire before it was finally adopted.

3.3.2.1.2 Characteristics of the data collection instrument

The questionnaire contained different sections that related to the different main variables studied (Berg 2001:74), as follows:

- Section A investigated demographic information
- Section B addressed knowledge of HIV
- Section C established respondents' knowledge of HIV transmission
- Section D related to knowledge of condoms
- Section E examined practice of condom use
- Section F explored attitudes towards condoms
- Section G elicited knowledge of antiretroviral drugs
- Section H considered perceptions towards ARVs
- Section I investigated the relationship between condom use and ARVs.

Close ended items had choices and the respondents were required to choose from one of the pre-coded choices. The choices were placed in vertical columns and the corresponding codes placed in an adjacent second column for easier reading. Some variables had batteries of items where there were a number of related items about an issue (variable).

The questionnaire was designed to collect nominal and ordinal data. According to Daniel (2005:5-6), nominal data is the least ranked measuring scale that groups observations into distinct categories like "Yes" or "No"; or "Male" or "Female". Altman

(1999:11) defines nominal data as one in which there is no obvious ordering of categories, but there is a natural division. According to Aday & Cornelius (2006:51) in dealing with nominal variables names, labels or systems are used to classify responses into one group or another. The demographic items of gender, marital status and level of education in the questionnaire provided nominal data. In other sections of the questionnaire the responses provided ordinal data; ranked depending on a person's judgement or opinion about the variable or item but the magnitude of differences is not specified (Bowling 2002:434). Daniel (2005:5-6) defines ordinal data as one in which observations are different from the categorisations as seen in nominal data and these can be ranked according to some criterion. With ordinal data there is ranking or ordering of responses resulting from a study variable; there is an underlying continuity along which the responses are ranked (Aday & Cornelius 2006:53). Examples of these responses are presented in the table 3.2. Sections B, C, D, E, F, G, H and I of the questionnaire were designed to produce ordinal data through the Likert scale options.

With regard to Likert scales, statements about concepts were presented to the respondents and they in turn had to choose responses that corresponded to their opinions about that statement. These responses were arranged to range from strongly agree to strongly disagree with four scales across (Bowling 2002:289-290; Hulley et al 2001: 231-245) as shown in table 3.2.

TABLE 3.2 EXAMPLE OF A LIKERT SCALE ITEM

INDICATE THE EXTENT TO WHICH YOU AGREE ON THE FOLLOWING STATEMENT: CONDOMS HAVE AN EXPIRY DATE.			
Strongly agree	Agree	Disagree	Strongly disagree
4	3	2	1

Two columns were inserted to the right of the items "For Office Use Only". These were used for the coding of responses to ease capturing of responses on computer. The questionnaires were numbered serially to correspond with the respondents homes and were administered once for each respondent.

3.3.2.1.3 Pre- testing of the questionnaire

The instrument was pre-tested on a convenience sample of 16 people of both genders who were not part of the study population. These respondents were asked to assess the questions for clarity of meaning, language clarity and general layout of the questionnaire. Problems detected with language, comprehension, instructions, inadequacy of content and ease of answering the questions were corrected before the questionnaire was finally adopted as proposed by Bowling (2002:274-277). The questionnaire was also tested for reliability and internal validity as discussed section in 3.4.

3.3.2.1.4 Administration of questionnaires

- *Briefing and orienting of field workers.*

Four field workers were picked from the parishes in which data collection took place. They were identified with the help of the health assistant of Budondo health centre IV, who was also part and (coordinator) of the data collection team. These field workers have routinely worked with the health assistant in collecting data from the parishes served by the health centre. They were assembled together before data collection and orientated towards the research, their role in collecting data and the ethical conduct expected of them. The questionnaire was explained to them section by section and item by item, any issues and questions that arose were clarified by the researcher. The mode of filling in the questionnaire items was explained in relation to the type of items as indicated previously. The households identified during sampling in the respective villages and parishes were pointed out to field workers at this stage. They were also acquainted with conducting a simple random sampling among all eligible respondents in a given household so as to pick the respondent who would fill out the questionnaire. This was done because it was not possible for the researcher to move with each and every field worker to all the households. The researcher was also to collect data in one parish. The issues and training undertaken with the field workers are presented as appendix K.

3.3.2.2 Data collection method

Each of the field workers and the researcher were allocated one parish in which to collect data. They moved with copies of introductory letters from the resident district commissioner of Jinja district (the representative of the president in the district; see

appendix H), through the sub county local council chairperson and moved into the selected villages to the identified households through the office of the chairperson of the village council. All the households in the five parishes had earlier been listed by the researcher, with the aid of the parish council chairperson or their representatives. Random sampling was then done to identify the ones where a respondent would be sampled as explained in section 3.3.1.3.5

The field workers moved through their parishes to the various households alone as they were conversant with the area and were also known by the local people. However the researcher employed the services of a local guide to introduce him to the households and the people. In the households the field workers and the researcher introduced themselves to the household members and also the purpose of their visit. The identified respondents in the household were then briefed on the exercise using the information sheet on the questionnaire and requested to participate. Those who agreed to participate were requested to sign the consent form and handed the questionnaires. The respondents who could read and write were asked to complete the questionnaires on their own. In some cases the respondents were not sufficiently fluent in English, so the field workers and the researcher helped with translation of the items and responses into the local language, then the respondents filled in their responses. In cases were the respondents were not able to read and write completely, the field workers and the researcher helped with translation of the items and also filled in the choices of responses. Items in the questionnaires were specific and presented in the same way to all the respondents in order to get similar responses that could more easily be summarised and analysed (Bryman 2001:107). After completing the questionnaire a verbal appreciation passed over to the respondents (Hulley et al 2001: 241-241; Bowling 2002:258). At the end of the data collection exercise the field workers were given a small allowance for their time and travel. Thereafter the consent form was kept separate from the questionnaire so that names of the respondents were not revealed to the public.

3.3.2.2.1 Advantages of the questionnaire

The questionnaire had a number of advantages (Bowling 2002:258-259; Burgess 2004:1-29) including:

- Data on the abstract views of knowledge, attitudes and practices was collected without much difficulty.
- A sample size of 133 respondents was covered in a relatively short time of one week.
- Descriptive statistical measures were used to process the data and these generated useful information which could contribute to the general body of scientific knowledge in health.

For these advantages the questionnaire was adopted as the data collection tool.

3.3.2.2.2 Problems experienced with data collection

Not withstanding all the advantages of the questionnaire, the researcher did experience some problems during data collection including:

- Some of the respondents were not in the position to recall past events.
- Some of the respondents did not answer comprehensively and so possibly not all the information was gathered.
- Not all questions were understood in the same way by all the respondents.

The current research was quantitative in nature and so there was no probing done in order to extract a response. In some instances close ended questions were not understood by the respondents and these were left unanswered. This was an option provided for in the information sheet (see appendix B). For the open ended questions, the responses provided were assigned different codes that were earlier developed, to cater for all the possible responses (see appendix E).

3.3.3 Methods of data analysis

During analysis, raw data were processed using statistical methods to generate useful estimates about the population. These estimates were then converted into useful information. The following steps were followed during data analysis.

3.3.3.1 Cross checking the data

The data obtained from the respondents were in an unprocessed format as described by Voca et al (2004:4) in section 1.5.2. After completion by the respondent each questionnaire was cross-checked by the research assistants for completeness

of information and consistency of responses in relation to the questions. Any obvious mistakes, inconsistencies and incomplete sections were noted and corrected before the research assistants left that homestead (Kumar 2005:224; Bowling 2002:343).

3.3.3.2 Coding the data

Kumar (2005:224) defines coding in quantitative research as a system for assigning numerical values to answers obtained from respondents; this makes analysis of such data possible. According to Bowling (2002:336) coding involves organising data into categories that are then assigned numbers (codes) so that analysis will be carried out. With coding, information from the respondents is translated into a form that can be entered into and processed by a computer (Aday & Cornelius 2006:341).

3.3.3.2.1 Developing the coding for the responses

Numerical codes were developed and assigned for the sections with structured items in the questionnaire; this applied to all sections. For every possible response only one numerical code was developed. Section B and D contained open ended questions. The responses to these open ended questions were analysed for similarities and key words in order to come up with common groups. Categories of responses were then created based on their similarities and this was constituted into a coding sheet for the open ended questions. The open ended responses were finally coded into the main questionnaire as right answer, wrong answer or correct but incomplete answer or no answer. Numerical values on the open ended question coding sheet were the same as those that appeared on the final code book of the questionnaire (Bowling 2002:341); which is presented as appendix E. The questionnaire with items and responses to the items served as a reference document called the code book (Bowling 2002:339).

3.3.3.2.2 Assigning numerical values to the responses

The code book was used to assign numerical values to all responses provided to the items by the respondents. The numerical values/codes were entered into boxes on the right side columns labelled as “for official use only”. This eased data capturing (Bowling 2002:340). (See appendix D).

3.3.3.2.3 Creation of a spread sheet

A data entry file was created using the Statistical Package for the Social Sciences (SPSS version 15). The file was created as a spread sheet with columns and rows forming cells in which the applicable data were entered. Each variable was assigned to a column and respondents' responses read across lines or rows with cells representing the intersection between the two. The number of rows thus equalled the number of respondents (questionnaires returned), the columns equalled the number of variables and items and the cells the number of possible data units gathered from respondents.

3.3.3.3 Entering of data

Data were captured manually by the researcher; directly from the questionnaires, a process referred to as data transfer or transcription (Aday & Cornelius 2006:345; Hulley et al 2007: 261). Each questionnaire had a different serial number for identification and each row in the spreadsheet had an identification (ID) number that corresponded to the serial number for easy identification later. The numerically coded data was entered into cells on the spread sheet; the intersections between rows and columns

3.3.3.4 Cleaning and editing the data

Data cleaning is the process undertaken before analysis is done (Armitage, Berry & Mathhews 2002:17). The process involves organising, sorting, filtering or viewing the data; viewing the data also helps in identifying outliers which are defined as extremely large or small values on a given variable if compared with the rest of the cases (Aday & Cornelius 2006:354).

3.3.3.4.1 Justification of data cleaning

During data entry into the computer a number of unintentional errors occurred. If these were not corrected before analysis, false results could have been generated and false conclusions drawn. While undertaking data cleaning, missing values and outlier values were identified and original records in the questionnaires checked (Hulley et al 2007: 266-7). According to Aday and Cornelius (2006:348-9), data cleaning using data analysis program takes on two forms namely; range and consistency checks.

In this research range checking was the only data cleaning option done; the spread sheet was checked for outliers by establishing frequencies of numerical codes for each variable and looking at values that were outside the range obtained from the rest of the data. Armitage et al (2002:44) defines outlier values as observations affected by error either during measurement or recording. This then results in an observation which is distant from other comparable observations. Outlier values are defined by Altman (1999:126) as variables which are not in range with the rest of the data. In the current research outlier values were discovered in the spreadsheet and these were mainly due to typing errors during data entry. The values were then crosschecked against the original questionnaires and corrected; this was done in conjunction with the statistician.

3.3.3.5 Analysing the data

The data was analysed by a statistician using the Statistical Package for the Social Sciences (SPSS Version 15). A declaration by the statistician including his credentials is attached as appendix I. Actual analysis of data concentrated on descriptive and relational statistics as discussed below in section 3.3.3.5.2.

3.3.3.5.1 Reason for data analysis

According to Altman (1999:19) there is need for analysis because in any given group of individuals there is a natural variability between the subjects and most times the cause of the variability is due to random factors. According to Fletcher and Fletcher (2005:21-22), variations can occur due to biological, economic, literacy and social differences in individuals over time and according to location, called internal factors. The other cause for variations is due to external factors like biases in the measuring instrument used, human errors resulting in a lack of internal validity and reliability of the measuring instruments leading to measurement errors. The other reason for data analysis is to summarise data so as to present statistical information in the form of a report and journal articles (Armitage et al 2002:8).

3.3.3.5.2 Statistical methods used to analyse the data

The collected data were at the nominal and categorical levels of measurement and required non parametric techniques which are defined by Campbell (2006:1) as statistics based on rankings of the variables. These statistics involve the use of

relatively easy mathematical procedures. According to the University of Pretoria [sa: 3-5], non parametric statistics does not involve the estimation of population parameters in order to describe the distribution of the variables of interest. Some of these statistics include measures of location like mean, mode, median and tests of association like cross tabulation. Specifically, the non parametric techniques involved in the current research, required descriptive analysis (statistics) in which the variables of interest were organised, summarized and described. The statistical calculations involved, though not necessarily pertinently reported on in the presentation of data, included:

i. Measures of central tendency: These are measures that define the centre in any distribution of items in a data set (Lynch 2005:1, Eliason 2006:1). Daniel (2005:36) defines them as average values in a set comprising of a number of values. These measures include the mean, mode, and median. The measures used in this study were mostly the mean and mode. There were useful because they provided a summary measure of the data set generated.

ii. Measures of dispersion: The measure used in the analysis was the range and the purpose was to find the difference between the highest and lowest age. Range is defined as the difference between the largest and smallest value in a given set of observations (Daniel 2005:39). Armitage et al (2002:37) define the range as the difference between maximum and minimum values in a data set. Bowling (2002:435) defines it as a measure of dispersion which takes into account the lowest and highest values and then the difference of the two values is calculated.

iii. Frequency analysis (distribution): This is a statistical tool that describes the distribution of a single statistic in a given data set. It is one of the basic analytical tools in quantitative data analysis (Surveyz 2006). Frequency distributions summarise the distribution of different variables or their ranges with the corresponding number of observations [frequencies] (Aday & Cornelius 2006:369. Bowling (2002: 432) defines a frequency distribution as “the number of observations of each of the values within a variable. Frequencies were calculated for the demographic items in section A of the

questionnaire, and for the individually ranked Likert scale responses in the other sections.

iv. Bivariate analysis: This is the study of any association that exists between two different variables. In this type of analysis, cross tabulations and correlations are calculated (Aday & Cornelius 2006:373). Bowling (2002: 348) describes bivariate analysis as "an analysis of the association between two variables." In the current research analysis concentrated on cross tabulation using contingency tables. According to Surveyz (2006) cross tabulation is used to analyse the relationship and distribution of a characteristic between two or more categories of a variable. Use is made of contingency tables which display the spread of a characteristic across the categories of the variables; the spread is displayed as a frequency or percentage. As an example, education level as a characteristic can be spread across different gender categories. In each category there will be a number of people with a given educational level. This number of people will be displayed as a frequency or a percentage. Across that characteristic will be a total figure, which is the sum of the individuals with that characteristic displayed as frequencies or percentages. In some instances the distributions of the characteristic forms a pattern. To find out if the pattern discovered occurs by chance (independent) or not (dependent), the Chi-square test is used The Chi-square test is defined by Maben ([sa]:1) as one that is used to determine whether an observed association or difference between the variables is dependent on or independent of a chance happening. This is determined by calculating the value of significance. The lower the value of significance, the lower the probability that the association was due to a chance happening. The chi square test of independence is used to measure an association between two variables that are of a categorical nature (Chi Square [sa]:1; Surveyz 2006).

v. Testing for associations and internal consistency existing in a given set of items using multivariate scale analysis was done by testing several combinations of items meant to measure a concept and coming up with a set that gave the highest ratio of association. The ratio obtained refers to the Cronbach's alpha coefficient which ranges from 0 to 1. According to Bowling

(2002: 149) items that had an inter class correlation (e.g. Cronbach alpha) of 0.7 and above had internal consistency and thus reliably measured the key conceptual domains in the questionnaire. Those with ratios less that 0.7 had a low internal consistency and could not reliably measure the concept of interest. The combination of items with the highest ratio was finally used to measure and come up with several summative descriptive statistics for the conceptual domains during the current research.

3.3.3.6 Presentation of results

After the analysis of the data, the information obtained was displayed in ways that made it possible to be read and comprehended easily by the end users. (Armitage et al 2002:9-11; DHS [sa] c: 62-69). The information was summarised and displayed as described in section 3.3.3.6.1-2.

3.3.3.6 1 Frequency Distribution diagrams

Frequency Distribution diagrams summarised the distribution of different variables or values in a variable and their corresponding number of observations [frequencies] (Aday & Cornelius 2006:369). For variables that had more than 10 distinct values, grouping of these was done and the frequencies of the groups determined (Sim & Wright 2000:174-176). These diagrams included:

a) Bar Diagrams: These are charts in which information is displayed in the form of bars. These can take on either a horizontal or a vertical shape, normally do not touch each other if they display discrete data; have equal width and varying heights or lengths. They are used to display data that is of categorical nature. The variables were labelled along the X axis while the Y axis bore the numerical scale the variables assumed. However if the diagrams display continuous data then they touch each other and are then referred to as histograms (Hassall [sa]:2)..

b) Pie charts: This is also a frequency diagram but it is in a circular form (like a pie) and is suitable if frequencies are expressed as percentages. The various variables were calculated but presented as frequencies divided into slices (angles) of a circle (Hassall [sa]:2).

c) Frequency tables (see 3.3.3.6.2).

3.3.3.6 2 Tables

Tables are two dimensional structures with horizontal rows and vertical columns, intersecting to form cells. Tables help to assess trends in information presented in them. The larger tables become the more complex they become and the more difficult they are to read. (DHS [sa] c: 62-69; Hulley et al 2007:257). The tables used in the current research report include:

a) Frequency tables: In these tables variables and their associated variables are presented in the form of spread sheets. They assisted the researcher in making a comparison of the distribution of the variables involved (Hassall [sa]:1).
b) Contingency tables were for the calculation of chi squares and are discussed in section 3.3.3.5.2 (iv)

3.4 MEASURES TO ENSURE VALIDITY AND RELIABILITY

In order to ensure that the results obtained from a research study are of a high quality, there are some aspects of the data collecting instrument and the data that need to be assessed; namely validity and reliability.

3.4.1 Validity

Data and data collection instruments are valid if they measure and represent what they are meant to measure. Validity is thus a prerequisite if inferences are to be drawn from data (Sim & Wright 2002:123). According to Kumar (2005:153) validity is about the accuracy of the data collecting instrument and the results of the study. It is the ability of a data collection instrument to measure what it was formulated to measure. Bernard (2002:50-53) defines validity as being about how accurate the tools used to collect data are and how trustworthy the findings are. To get valid data, there is need to have a proper collection tool. Validity has two aspects to it, namely; internal and external

3.4.1.1 Internal Validity

According to Bowling (2002:150) internal validity refers to aspects relating to the testing of the data collection instrument in the population. Most books describe

validity in terms of internal validity. Internal validity is described to have been achieved when the results obtained from a research or study are a true reflection of the characteristic being measured; and have not been influenced by interfering factors (Chapter 8:1). Gordis (2000:120) defines internal validity as a situation where a study or research will have been conducted without major drawbacks as to affect the main outcome. There are four aspects to internal validity as outlined below. The application of these aspects during the current research is stated after the discussion of the theory.

3.4.1.1.1 Face validity

Face validity means that there is a logical association between the questions in the measuring instrument and the objectives of the study (Kumar 2005:153-155). According to Bernard (2002: 50-53) face validity depends on a researcher's opinion that the instrument is measuring what it set out to measure. In face validity the investigator has to make a "subjective" evaluation of how the questions have been presented in the measuring instrument and how relevant and reasonable they are to the objectives (Bowling 2002: 150). Sim and Wright (2002:72) define face validity as how well the tool will measure the concepts or variables of interest in a given research or study. The researcher's opinion was informed by the literature reviewed as part of this study

3.4.1.1.2 Content validity

With content validity, all the issues and aspects of the characteristic being measured are fully covered and balanced with adequate questions to cover them. However this can only be judged by other experts and or researchers (Kumar 2005:153-155). Content validity has to do with the content in the questionnaire that has been developed for measuring an aspect or characteristic (Bernard 2002: 50-53). In this type of validity judgements are made by experts about the extent, scope and logic of the characteristic that the instrument sets out to measure (Bowling 2001: 151).

3.4.1.1.3 Criterion validity

In undertaking criterion validity, comparisons of the data collection instrument are made with a standard and approved tool where one is available (Bernard 2002: 50-53). According to Bowling (2002:151) in criterion validity one is correlating what an

instrument measures with another with another measure which has been accepted as being valid. Criterion validity considers whether scores in a measuring instrument are in agreement with a defined “gold” standard instrument that covers the same theme. Criterion validity is applied during the development of a new measuring instrument. (McDowell 2006:31).

3.4.1.1.4 Construct validity

In construct validity, proof has to be made that the instrument measures the concepts it set out to measure (Bowling 2002:151). In construct validity there has to be a measure of an assumed relationship between two constructs (theories) and this relationship also has to be exhibited when data has been analysed. (Sim & Wright 2002:129-130).

3.4.1.1.5 How internal validity was secured in the current research

Two aspects of internal validity were assessed and achieved in this study and these are face and content validity. Face validity was achieved by proper development, review and perfection of the questionnaire basing on the literature review and objectives of the study.

Content validity was achieved with guidance of the University of South Africa, Department of Health supervisors. The content in the questionnaire was judged and perfected with the guidance of supervisors based on their expertise in the research area that the researcher was studying. The questionnaire was also compared to other questionnaires used in some surveys like the Uganda demographic and health survey and the contents were found to be similar, to a big extent.

Criterion and construct aspects of internal validity were not assessed however; as there was no standard questionnaire to compare it to in the case of criterion validity.

3.4.1.2 External validity

According to Altermatt (2009:1) external validity refers to how confident the researcher is in generalizing results or findings across people, situations, and times which were originally not part of the study. With external validity one is concerned with how the results of the research will get generalised to the population of interest.

This can be achieved in a number of ways like a proper sample selection, ensuring a high response rate to the questionnaires, adopting a good research design (Bowling 2002: 182). Gordis (2000:120) refers to external validity as how the findings of a given study will be extrapolated to the wider general population. In this current research, current research it was endeavoured to obtain external validity by having probability sampling incorporated into systematic multi stage sampling so that the sample reflected the characteristics of the population as closely as possible. The second aspect involved selecting a research design that suited the objectives of the study. This is discussed in section 3.2.2.5.

3.4.2 Reliability

Reliability is defined by Kumar (2005:156-159) in relation to the measuring instrument as the degree to which the results it produced are stable or consistent. The more stable an instrument is the more predictable and accurate the results produced; and so the instrument becomes a reliable data collection tool. Reliability is affected by wording of the questions and mood of respondents at the time of data collection.

According to Bernard (2002:50-53) one talks of reliability if a researcher gets the same answers when he or she undertakes different measurements at different times and different samples with the same instrument. Bowling (2002:147) defines reliability as the “reproducibility and consistency of the instrument”.

3.4.2.1 Testing for reliability of the data collection instrument

In the current research one aspect of reliability was tested and this was internal consistency (see section 3.3.3.5.2).

TABLE 3.3 RESULTS OF RELIABILITY TESTING OF THE DATA COLLECTION INSTRUMENT.

Section	Items	Cronbach's Alpha coefficient
Whole questionnaire	88	0.618
Section B HIV knowledge	8, 11	0.483
Section C HIV transmission	13, 14, 16, 17,19 ,21 and 22	0.71
Section D Condom knowledge	25 to 28	0.806
Section E Condom use	37 and 38	0.784
Section F Attitudes to condoms	55, 59 and 60	0.782
Section G Knowledge of Antiretroviral drugs (ARVs)	62, 63, 70 71 and 73	0.723
Section H. Perception towards Antiretroviral drug	74,75,76 77 and 78	0.301
Section I. Condom use and ARVs	79 and 80	0.212

Reliability testing for internal consistence of the data collection instrument produced a Cronbach's alpha coefficient of 0.618. Bowling (2002:149) reports that scientists do not have consensus over the accepted minimum standard for reliability. Some consider 0.5 as the minimum while others consider 0.7 as the minimum. In the current research the value adopted was 0.7; this implied that the data collection instrument had a slightly lower internal consistency than the accepted minimum.

3.5 ETHICAL CONSIDERATIONS RELATING TO THE STUDY

During the current research a number of factors relating to ethics were considered and adopted as follows indicated in the rest of this section.

3.5.1 Research ethics

According to Regan (sa:1) research ethics is about putting into consideration aspects of ethics as they relate to the research process from beginning to the end. Hulley et al (2007:225) report that there are basic ethical principles in research which have to be considered.

The first principle is respect and autonomy of persons where there is need for consent from participants, protecting vulnerable groups and ensuring confidentiality regarding all aspects of the research. The British Psychological Society adds that participants must also be protected from deception by the researcher (BPS 2007). The autonomy of the researcher was also observed as he was not subjected to undue influence or manipulation while conducting this study.

The second principle is one of beneficence where the research should produce more benefits than risks to participants or volunteers. The researcher's general aim was for the research to be beneficial to the target population and the research community.

The third principle is that risks and or benefits resulting from any research should not be distributed in a biased way with one group either having the entire risk or benefit; this is the principle of justice. The current research did not entail possible "entire risk or benefit" being placed on a section of the sample as no interventions or control and experimental groups were used.

The fourth principle is one of non maleficence where no harm should be subjected to the research participants or the general public (Sim & Wright 2002:42). Although the research was conducted to benefit the target population eventually, the researcher acknowledges the fact that the questionnaire content might at least have caused a feeling of unease in respondents.

3.5.2 Considerations relating to the respondent

Considerations that were made in respect to the respondents are presented according to Neuman (2006:413-414) and Babbie (2007:61-62). The ethical

principles that applied to the respondent were respect and autonomy, beneficence and non maleficence as outlined in section 1.6.2 and in section 3.5.1.

The identified household members (respondents) were briefed about the intention of the study through an introductory letter that was part of the questionnaire as presented in appendix B. All the information necessary for them to make an informed decision to participate in the study was provided and they were allowed their right to opt out at any time (Aday & Cornelius 2006:4). The respondents were given opportunity and liberty to ask questions with regard to the study and the researcher and his involvement in the research. Thereafter the identified household members were requested to participate in the research. Those who agreed to participate signed a consent form which indicated that their participation was informed and voluntary (Hulley et al 2007:229). A sample consent form is attached as part of the questionnaire as presented in appendix C. This fitted in with the principle of respect and autonomy of persons.

Respondents identified as being in a vulnerable category (like children below 15 years, the disabled persons, persons considered not to be of sound mind) were not selected to participate in the study. However children between the ages of 15 to 18 years of age were eligible to be included in this study. For these, permission was sought from the parents or legal guardians to be interviewed (Children's act 1997:7; Hulley et al 2007:231-232). The ethical principle considered both autonomy and non maleficence.

In a household only one spouse filled out the questionnaire and this was done in confidentiality unless he or she wished the other spouse to be present. This fitted in well with the principle of autonomy, non maleficence and justice.

Respondents were not subjected to any harm, either of physical or psychological nature; indeed the population in general was not subjected to any harm during the current research (Aday & Cornelius 2006:5). No condemning attitudes or remarks were passed by the field workers despite respondents' responses. Thus, respondents reserved the right not to answer certain questions that they deemed

either too personal or too revealing; this was the principle of non maleficence and autonomy.

All data obtained were treated as confidential and names or homes of the respondents were not used on the questionnaires, reports or any document arising out of this study. Only the researcher and the data analyst had access to the whole set of data. Data were kept safely all the time and away from any access by the general public. Permission to use this data to publish the results was sought from the respondents (Hulley et al 2007:231).

No incentives were handed over or promised to respondents as a result of participating in the research as this has been proven not to increase on the participation levels of participants (Aday & Cornelius 2006:5). While undertaking data collection, the respondents were treated with utmost respect and no deception to them occurred. Respondents provided answers on a voluntary basis and were not coerced or remunerated in any way; this was based on the principle of respect and autonomy.

3.5.3 Considerations relating to the researcher

The researcher did not alter or falsify any answers provided by the respondents. He also did not plagiarise any ideas, or words from other people's works. Where any scholarly work was used due credit was given to the authors by acknowledging them (Hulley et al 2007:232-233). The declaration following the title page of this dissertation endorses this.

The researcher had no conflict of interest in the current research; it was conducted for academic achievement only; no reward, physical or financial as received (Hulley et al 2007:234).

The research was conducted in a way that ensured a high quality of results and keeping the integrity of the both the researcher and the institutions involved (The Economic and Social Research Council [Sa]:23); this was in line with the principle of beneficence and non maleficence. Data were used only towards attaining the

research purpose and objectives as stated in the original research proposal (Burgess 2004:14).

The researcher trained the field workers (data collectors) before the process of data collection and actively supervised them during data collection (Bryman 2001:113-122). In addition, this report (dissertation) was read and edited by a professional English language editor and a certificate to this effect is attached as appendix J

3.5.4 Considerations relating to the institutions

The University of South Africa, Department of Health Studies' Research and Ethics Committee reviewed and approved the research proposal. Further clearance to conduct this study was sought and got from the university ethics committee (Hulley et al 2007:227) attached as appendix F.

Permission was also sought from the Uganda National Council for Science and Technology (UNCST) to enable the researcher to undertake this study in Uganda (Hulley et al 2007:226). This is attached as appendix G. UNCST clearance was also obtained from the President's Office (Bowling 2002:157) attached as appendix H.

The area where the sampling took place was clearly defined and permission was sought and obtained from the local leadership of Budondo Sub County and the Jinja district representation of the president's office, to access the areas under their jurisdiction and to interact with the people in the area (Hulley et al 2007:226). This is attached as appendix H.

Values and standards of the University of South Africa and other regulatory institutions that relate to conducting research were upheld at all times during the conduct of this study (Hulley et al 2007:227).

3. 6 CONCLUSION

This chapter (chapter 3) provided an overview of the research design; a quantitative descriptive survey design. Attention was given to: the sampling approach and technique, development of the data gathering instrument (questionnaire), data

gathering and analysis, reliability and validity issues; and ethical principles relating to the current research. In the next chapter (Chapter 4) data are presented.

CHAPTER 4

ANALYSIS, PRESENTION AND DESCRIPTION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION

In this chapter, the results of the data analysis are presented. The study had an overall aim of determining knowledge, attitudes and practices of condom use in a time of highly active antiretroviral therapy in a rural area in Uganda. The results are presented in line with the specific objectives which were to:

- determine respondents' knowledge of HIV, its transmission, antiretroviral therapy (ARV) and condoms
- describe respondents' attitudes to condoms and sexual practices in relation to HIV/AIDS, ARVs and condom use
- relate respondents' responses with regard to HIV/AIDS, ARVs and condoms using statistical methods so that patterns of perceptions or behaviours can be determined.

The chapter begins with an overall summative descriptive statistics report on the different sections of the questionnaire namely: demographic data, HIV knowledge, HIV transmission, condom knowledge, condom use, attitudes to condoms, knowledge of antiretroviral drugs, perception towards antiretroviral drugs (ARVs), condom use and ARVs. Results related to the specific objectives are presented in the subsequent sections. The results relating to objective three are embedded in these sub sections of objective one and two. Results related to objective three were obtained after having undertaken bivariate analysis; specifically cross tabulation using contingency tables and chi squares as described in section 3.3.3.5.2.

4.2 VARIATION IN THE NUMBER OF RESPONSES

A total of 133 respondents (N=133) participated in the current research. The respondents had the freedom not to answer questions if they didn't feel comfortable doing so (refer to questionnaire information sheet). This led to variations in the number of responses (n) to an individual variable (e.g. knowledge of HIV). In addition

there is variation in responses to item which in this report are indicated as frequencies (*f*). Values were rounded off to the nearest tenth position (Banfill 2009).
In the text that follows, numerical figures, if not indicated differently pertains to frequencies (*f*) and (n) to the number (sometimes also in a sense frequencies) that served as the common denominator from which percentages were calculated. Thus the concepts of (n) and (*f*) are fluid depending on the subdivision of association made among variables.

4.3 DEMOGRAPHIC DATA

A total of 133 respondents who met the inclusion criteria set out in section 3.3.1.3.6 were selected for the current study. The demographic characteristics considered were gender, age, marital status and education attainment. The results are presented in tables 4.1 through 4.3 and discussions relating to the individual characteristics follow in subsequent sub sections.

4.3.1 Gender

There were 70 (52.6%) females compared to 63 (47.4%) males as indicated in table 4.1 and figure 4.1 below. Jinja district's specific gender ratio was 96 males to 100 females whereas the national gender ratio in Uganda stood at 95 men to 100 females according to the national census of 2002 (UBOS 2005: 11).

TABLE 4.1 DISTRIBUTION OF RESPONDENTS BY GENDER (n=133).

GENDER	FREQUENCY (f)	PERCENTAGE (%)
Females	70	52.6
Males	63	47.4
TOTAL (n)	**133**	**100**

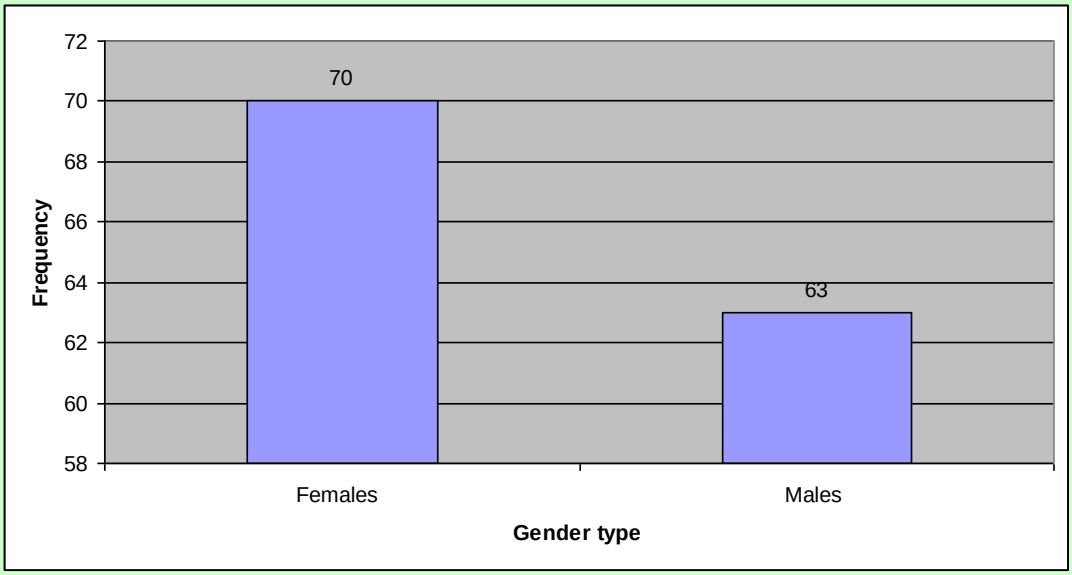


Figure 4.1: Distribution of male and female respondents (n=133).

4.3.2 Age distribution

The respondents' ages ranged from 16 to 50 years (a range of 34). The mean age was 33.2 years and the mode was 30 years. The ages were grouped and frequencies of the age groups are presented in table 4.2. The highest number of respondents were in the 21 to 30 age group with 48 respondents (37%), age group 31 to 40 with 40 (30.8%) respondents followed by age group 41 to 50 with 31 (23.8%) respondents. The 15 to 20 age group had the lowest frequency of 11 (8.4%) respondents.

TABLE 4.2: AGE DISTRIBUTION OF RESPONDENTS IN THE STUDY (n=130).

CATEGORY	FREQUENCY (f)	PERCENTAGE (%)
15 – 20	11	8.4
21 – 30	48	37
31 – 40	40	30.8
41 – 50	31	23.8
TOTAL (n)	**130**	**100**

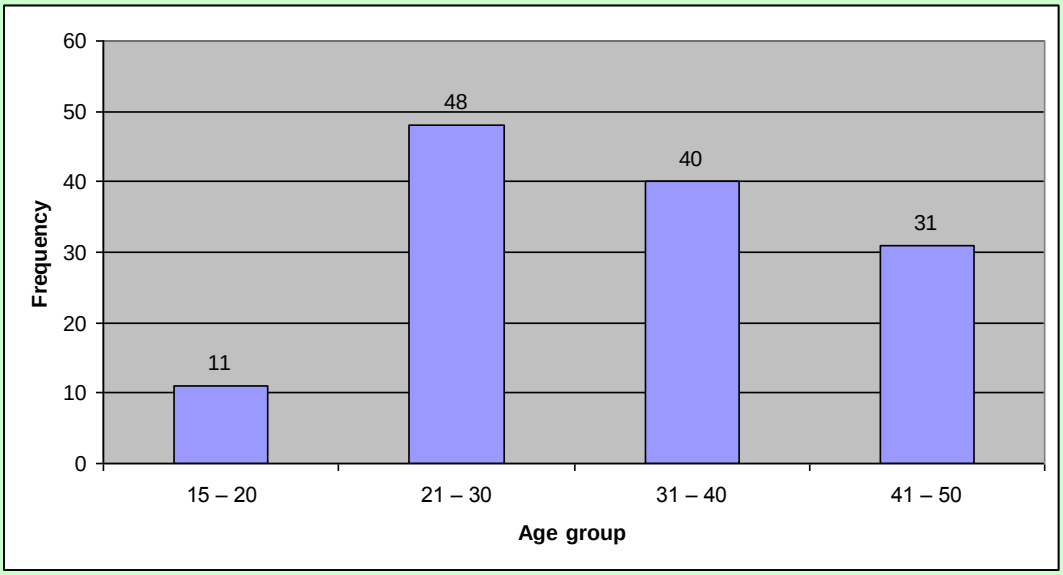


Figure 4.2: Age distribution of the respondents (n=130).

4.3.3 Marital status

Ninety one (91) (68.4%) of the respondents (n=133) were married, 9 (6.7%) were cohabiting, 26 (19.5%) were single, 4 (3.0%) were divorced or separated and 3 (2.3%) were widowed as presented in table 4.3 and figure 4.3. In the Uganda HIV/AIDS sero-behavioural survey of 2004—2005, it was reported that 58.5% of respondents were married formally or informally, 30.7% were single, 7.3% separated or divorced and 3.6% widowed (MOH 2006{b}:29). In the current study, the youngest married female participant was 18 years of age while the youngest married male participant was 20 years old. The youngest age at which respondents were widowed was 38 years and all were females.

TABLE 4.3: DISTRIBUTION OF RESPONDENTS IN THE STUDY BY MARTIAL STATUS (n=133).

CATEGORY	FREQUENCY (f)	PERCENTAGE (%)
Married	91	68.4
Co-habiting	9	6.7
Single	26	19.5
Divorced/Separated	4	3
Widowed	3	2.3
TOTAL (n)	**133**	**100**

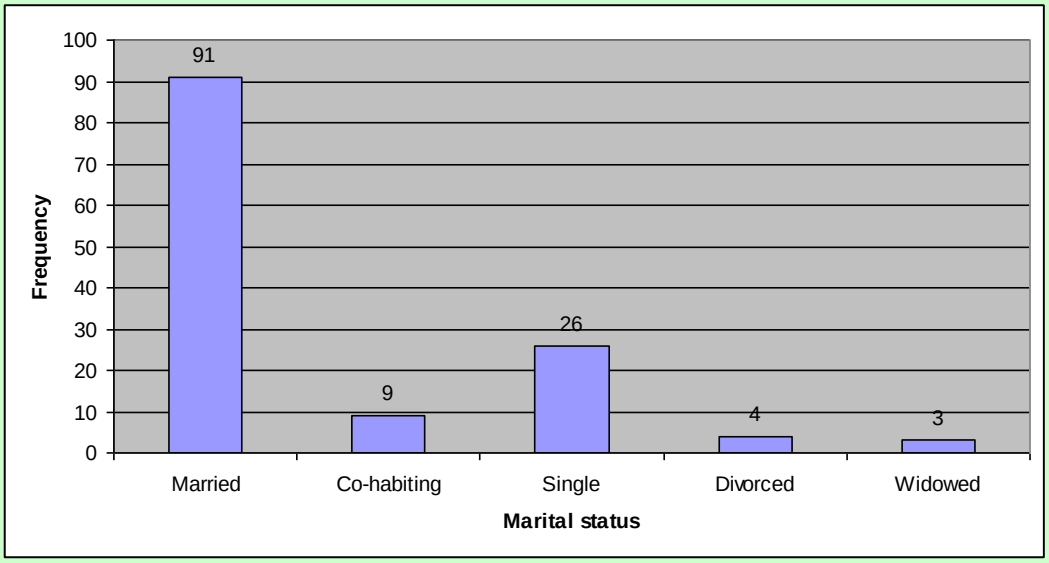


Figure 4.3: Marital status of respondents (n=133).

4.3.4 Educational status

Fifty (50) (37.6%) of the respondents (N=133) attained education up to primary level, 63 (47.4%) studied up to ordinary secondary level, 3 (2.3%) attained an advanced secondary level and 17 (12.8%) attained a tertiary level of education. According to the 2002 Uganda Population and Housing Census, 43% of children aged 15 and above had attained an education up to primary level. In the Uganda HIV/AIDS sero-behavioural survey of 2004—2005, educational attainment of a comparable age group was 58.9% for primary level education and 25.3% for secondary level and higher education (MOH 2006:26-27). This means that the educational attainment of the respondents appears to be generally better than the national indicators. Although the respondents that studied up to primary level were less than national average those who studied up to secondary level were more. This could be due to the close proximity of the respondents to a major urban area which is about 15 km away from the research site so that many opportunities existed for advancing their education. Table 4.4 and figure 4.4 exhibit the data.

The formal educational system in Uganda has two tracks. The first one is a direct track from the preschool to tertiary level education. It has the preschool section (commonly referred to as nursery section), primary section (from primary one to seven); secondary section which has a lower section (Ordinary (O) level) and higher secondary section (advanced (A) level). The last section for the first track is the

tertiary section (which has various institutions offering Diplomas and universities). The second track involves pupils branching off from track one and joining vocational schools. This commonly occurs after the ordinary level section onwards. Such vocational schools are not classified as tertiary level institutions (United Nations Educational, Scientific and Cultural Organization [sa: 1]). In comparison preschool section is equivalent to grade R (south Africa). Primary section is equivalent to grade 1 to 7 (South Africa). Lower secondary (ordinary) section is equivalent to grade 8 to 11 (South Africa) higher (advanced) section is equivalent to NQF level (South Africa). Tertiary education is equivalent to South Africa's first diploma to Doctors degree (Brand South Africa Media Service 2010).

TABLE 4.4: EDUCATIONAL STATUS OF RESPONDENTS WHO TOOK PART IN THE STUDY (n=133).

CATEGORY	FREQUENCY (f)	PERCENTAGE (%)
Primary	50	37.6
Ordinary level	63	47.4
Advanced level	3	2.3
Tertiary	17	12.8
TOTAL (n)	**133**	**100**

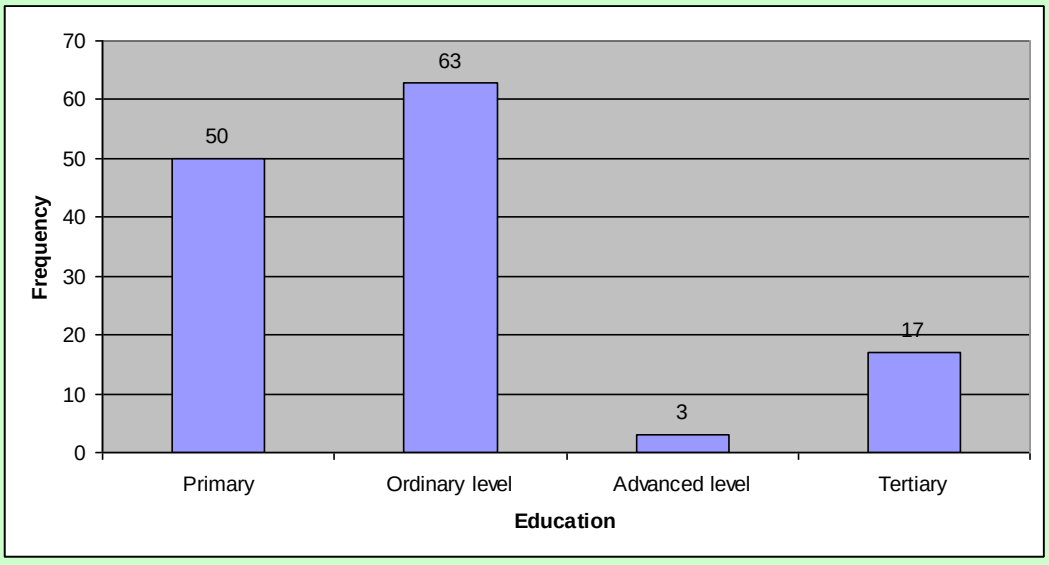


Figure 4.4: Educational attainment by the respondents (n=133).

4.4 AWARENESS AND KNOWLEDGE OF HIV/AIDS

In this section awareness and respondents' knowledge of HIV/AIDS is presented. As discussed in section 2.2.2, this knowledge and awareness could determine a person's behaviour and attitude relating to HIV/AIDS.

4.4.1 Awareness of HIV/AIDS

Respondents' awareness about HIV/AIDS was determined as indicated by the contents of table 4.5

TABLE 4.5: RESPONDENTS' AWARENESS ABOUT HIV/AIDS (n=132).

VARIABLE	RESPONSE OPTION	FREQUENCY (f)	PERCENTAGE (%)
Have you ever heard of HIV/AIDS	Yes	127	96.2
	No	5	3.8
	TOTAL	**132**	**100**

One hundred and twenty (n=127) (96.2%) of the respondents (f=132) were aware of HIV and AIDS whereas 5 (3.8%) claimed not to have heard about the two conditions. This is further illustrated in figure 4.5.

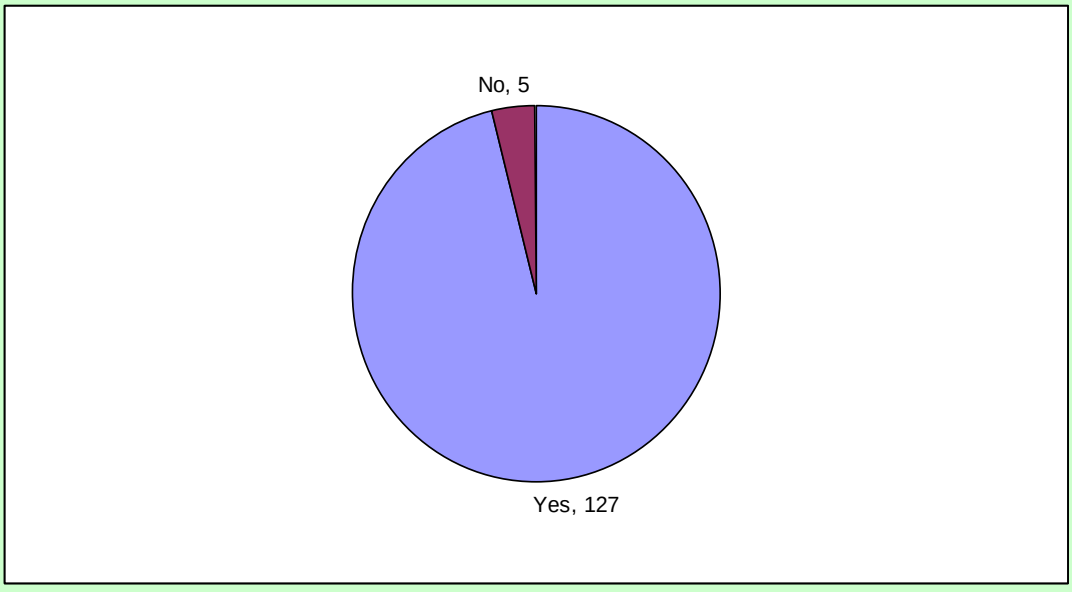


Figure 4.5: Respondents' awareness of HIV (n=132).

4.4.2 Distinguishing between HIV and AIDS

Respondents were asked whether HIV and AIDS differed from one another and, if it did, what the difference was. Table 4.6 and figure 4.6 exhibit respondents' perception of the difference between HIV and AIDS

TABLE 4.6: RESPONDENTS' PERCEPTION OF THE DIFFERENCE BETWEEN HIV AND AIDS (n=128).

ITEM	RESPONSE OPTION	FREQUENCY (f)	PERCENTAGE (%)
Is HIV different from AIDS?	Yes	61	47.7
	No	67	52.3
	TOTAL	**128**	**100**

Sixty one (61) (47.7%) of the respondents (n=128) knew there was a difference between HIV and AIDS.

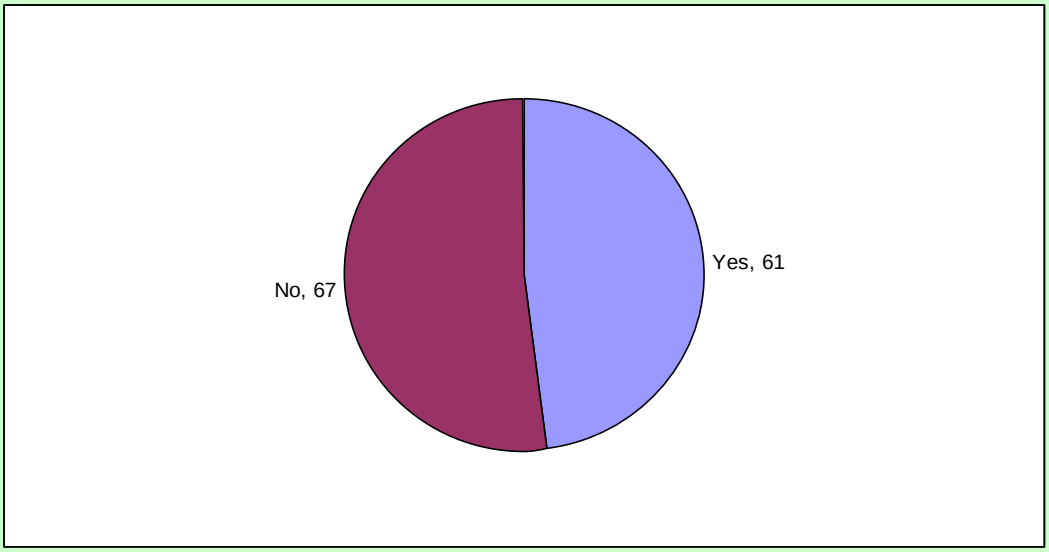


Figure 4.6: Respondents who could tell that HIV is different from AIDS (n=128).

Although only 61 (47.7%) of the respondents indicated that there was a difference between HIV and AIDS, 62 answered the question as to what the difference is.

TABLE 4.7: RESPONDENTS' QUALIFICATION OF THE DIFFERENCE BETWEEN HIV AND AIDS (n=62).

ITEM	RESPONSE OPTION	FREQUENCY (f)	PERCENTAGE (%)
What is the difference?	Correct answer	42	67.7
	Wrong answer	17	27.4
	No answer	3	4.8
	TOTAL (n)	**62**	**100**

Of the 62 respondents that answered the question relating to the difference between HIV and AIDS, 42 (67.7%) gave a correct answer while 17 (27.4%) gave a wrong answer. Table 4.7 and figure 4.7 visualise these findings.

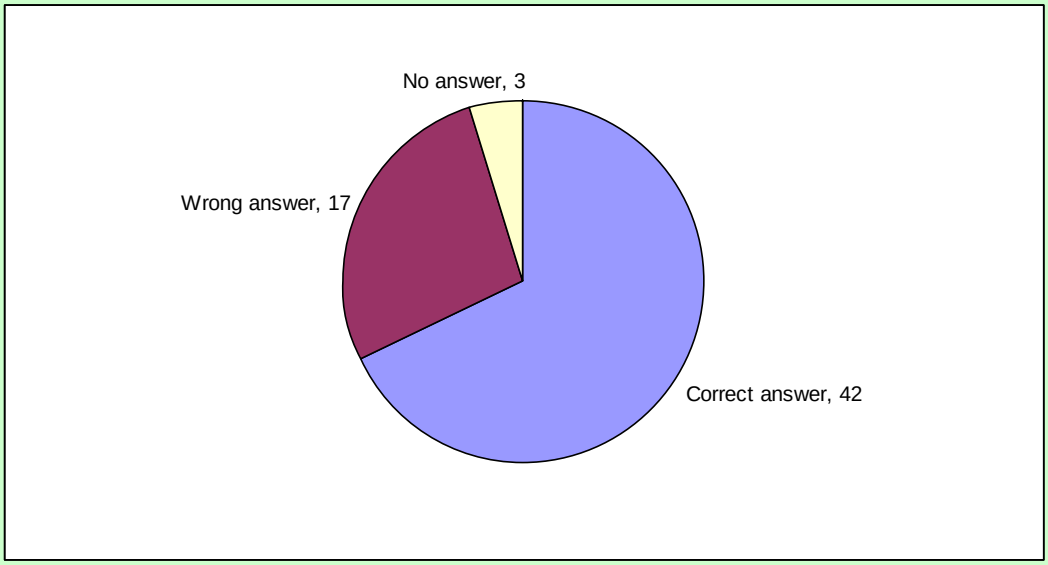


Figure 4.7: Respondents' qualification of the difference between HIV and AIDS (n=62).

4.4.3 Knowledge of general aspects relating to HIV/AIDS

The respondents were also asked a series of questions on some general aspects of HIV; their responses represent their knowledge of HIV/AIDS and are presented in table 4.8

TABLE 4.8: RESPONDENTS' KNOWLEDGE OF GENERAL ASPECTS OF KNOWLEDGE OF HIV.

ITEM	YES		NO		TOTAL	
	(f)	(%)	(f)	(%)	(n)	(%)
HIV/AIDS is due to witchcraft	11	8	121	92	**132**	**100**
HIV/AIDS is a threat	110	85	20	15	**130**	**100**
You cannot contract HIV unless you have bad luck	29	22	103	78	**132**	**100**
Traditional medicine /Herbs can cure HIV/AIDS	8	6	125	94	**133**	**100**
It is not possible for a person to be HIV positive and the spouse to be HIV negative if they engage in regular unprotected sex	54	40.6	76	58.4	**130**	**100**
HIV infection is a severe disease	114	88	16	12	**130**	**100**

One hundred and twenty one (121) (92%) respondents (n=132) knew that HIV is not due to witchcraft; and 110 (85%) knew that it was a threat to the communities. However, the respondents (n=130) expressed little knowledge on the existence of discordance for HIV among couples as 76 (58.4%) thought it was not possible. This misconception about discordance was also reported by the Uganda HIV/AIDS sero - behavioural survey of 2004-2005, where only 10% knew of the existence of discordance for HIV among couples (MOH 2006:51; Bunnell et al (2005:1002- 5).

4.4.4 Knowledge of HIV transmission

A summary of respondents' knowledge of several aspects relating to HIV transmission is presented in table 4.9.

TABLE 4.9: RESPONDENTS' KNOWLEDGE ON HIV TRANSMISSION.

ITEM	YES		NO		TOTAL	
	(f)	(%)	(f)	(%)	(n)	(%)
HIV is contracted through bad luck	29	22	103	78	**132**	**100**
A person cannot be HIV positive and spouse be negative	54	41.5	76	58.5	**130**	**100**
HIV can be transmitted through unprotected sex with an HIV/AIDS infected partner not taking ARVs	113	86.3	18	13.7	**131**	**100**
HIV is contracted through blood transfusion	100	76.9	30	23.1	**130**	**100**
HIV is transmitted from infected mother to unborn baby	106	80.3	26	19.7	**132**	**100**
HIV is contracted through unsterilised skin piercing instruments	128	97	4	3	**132**	**100**
Unprotected sex with infected partner taking ARVS could result in contracting HIV	125	94	8	6	**133**	**100**
An infected mother can transmit HIV to a child during breastfeeding	120	91.6	11	8.4	**131**	**100**
Engaging in protected sex, with an infected partner on ARVs can result in HIV transmission	43	32.6	89	67.4	**132**	**100**
Engaging in protected sex, using a condom but partner is infected and taking ARVs can result in HIV transmission	30	25	90	75	**120**	**100**

One hundred (100) (76.9%) respondents (n=130) reported that HIV can be transmitted through blood transfusion. One hundred and six (106) (80.3%) of the respondents (n=132) reported that an infected mother can transmit HIV to her unborn baby; 89 (67.4%) respondents (n=132) knew that one could not get infected with HIV if that person engaged in protected sexual intercourse with an infected partner. Ntozi (2003:110) reported that the respondents in his research had thorough knowledge about the transmission of HIV especially through unprotected sexual intercourse and sharing of skin piercing objects. It was also reported in the Uganda HIV/AIDS sero - behavioural survey of 2004—2005 that knowledge of HIV transmission including mother to child infection was high among the respondents (MOH 2006:44-46). From table 4.9, and according to the items reflected, the level of knowledge of HIV transmission among the respondents appears to be good.

4.5 ISSUES RELATING TO CONDOM USE

In this section issues relating to responses to items about condom use are presented.

4.5.1 Definition of condoms

Sixty eight (68) (51.1%) respondents (N=133) gave a correct definition of condoms as opposed to 65 (48.9%) who either gave an incomplete or wrong or no answer. This is indicated in table 4.10 and figure 4.8. The definition of condoms on which the correctness of the answer was based was presented in section 1.8.1. The responses given by respondents from which judgement was made whether they were correct or wrong are presented in appendix E.

TABLE 4.10: RESPONDENTS' DEFINITIONS OF CONDOMS (n=133).

DEFINITION OF CONDOMS	FREQUENCY (f)	PERCENTAGE %
Correct answer	68	51.1
Wrong answer	5	3.8
Correct but incomplete answer	44	33.1
No answer	16	12.0
Total (n)	**133**	**100**

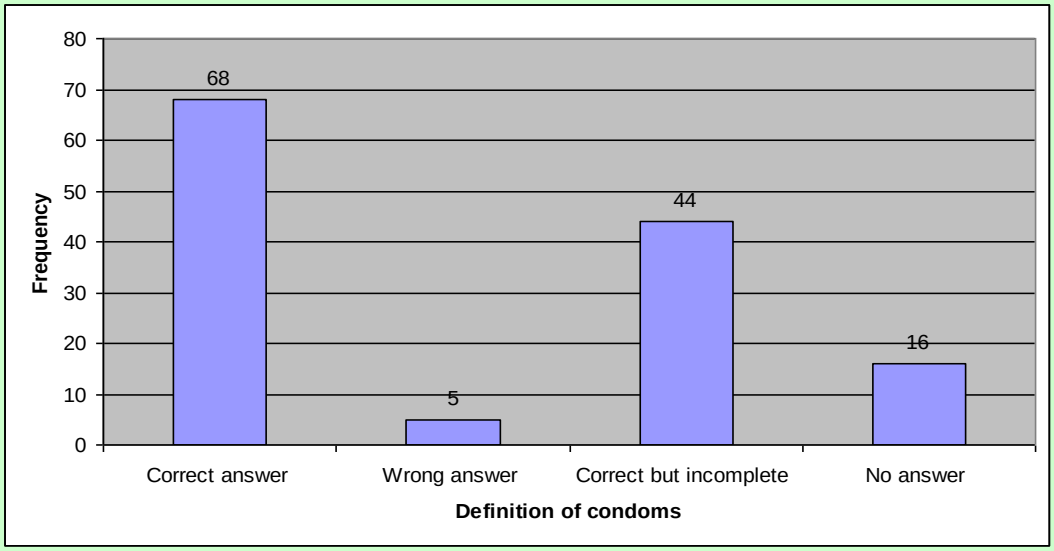


Figure 4.8: Distribution of respondents' definition of condoms (n=133).

4.5.2 Effect and effectiveness of condoms

Respondents' knowledge of condoms is presented in table 4.11

TABLE 4.11: PERSONAL ISSUES RELATED TO KNOWLEDGE OF CONDOMS.

ITEM	YES		NO		TOTAL	
	(f)	(%)	(f)	(%)	(n)	(%)
Condoms will prevent HIV	129	97.7	3	2.3	**132**	**100**
Condoms will prevent sexually transmitted infections	129	97.7	3	2.3	**132**	**100**
Condoms will prevent pregnancy	130	100	0	0	**130**	**100**
Condoms reduce chance of HIV infection	128	97	4	3	**132**	**100**
Condoms can be used after 10 yrs of storage	24	18.5	106	81.5	**130**	**100**
Condoms cannot be re-used	104	78.8	28	21.2	**132**	**100**
I have attended a session demonstrating using a condom	74	57.4	55	42.6	**129**	**100**
Condoms have holes in which HIV will pass	37	28.2	94	71.8	**131**	**100**
Condoms cannot disappear in a woman's vagina	67	51.9	62	48.1	**129**	**100**
HI-viruses cannot pass through a condom	102	77.2	30	22.7	**132**	**100**

One hundred and twenty nine (129) (97.7%) respondents (n=132) expressed the opinion that condoms prevent HIV and sexually transmitted infections. One hundred and six (106) (81.5%) respondents (n=130) knew condoms cannot be safely used after 10 years of storage; 104 (78.8%) respondents (n=132) knew condoms are not re-usable; 94 (71.8%) of respondents (n=131) disagreed that condoms have holes on their surfaces. However, the most unexpected finding was a misconception among some of the respondents that condoms can disappear in a woman's vagina; 62 (48.1%) respondents (129) thought so.

4.5.3 Issues relating to condom use and availability

Responses on the use of condoms and subsequent sexual intercourse were sought from the respondents; the results are presented in the following sub sections.

4.5.3.1 General aspects relating to condom use

The respondents' general knowledge on condom use is presented in table 4.12.

TABLE 4.12: RESPONSES RELATED TO USE OF CONDOMS.

ITEM	YES		NO		TOTAL	
	(f)	(%)	(f)	(%)	(n)	(%)
I have never used a condom	39	29.8	92	70.2	**131**	**100**
I always use a condom	49	38.9	77	61.1	**126**	**100**
Using a condom does not give sexual pleasure	65	52.4	59	47.6	**124**	**100**
I am able to get a condom if I need one	109	85.1	19	14.8	**128**	**100**
I can demonstrate the fitting of a condom to a friend	109	85.1	19	14.8	**128**	**100**
Condoms should not be put on if the penis is not erect	114	89.1	14	10.9	**128**	**100**
A condom can be used more than once	9	7	120	93	**129**	**100**
I do not use condoms, I trust my spouse	76	58.4	54	41.5	**130**	**100**
I am confident, I know how to use a condom	102	79.1	27	20.9	**129**	**100**
I can apply petroleum jelly on a condom	11	8.6	117	91.1	**128**	**100**

Thirty nine (39) (29.8%) of the respondents (n=131) reported that they had never used a condom; Forty nine (49) (38.9%) (n=126) reported always using a condom. Seventy six (76) (58.4%) of the respondents (n=130) did not use condoms because they trusted their partners. One hundred and nine (109) (85.1%) of the respondents (n=128) were able to get a condom if they needed one and could demonstrate correct use. The level of consistent condom use among the respondents was low although 92 (70.2%) (n=131) reported ever having used one. In conclusion, knowledge of fitting and using condoms was high among the respondents, but actual use was low either because of trust for spouses or because of reduced pleasure**.**

4.5.3.2 Condom use at last sexual encounter

The respondents were asked about their use of condoms during their last sexual experience. The results are presented in table 4.13 and illustrated in figure 4.9.

TABLE 4.13: PERSONAL USE OF CONDOMS AMONG THE RESPONDENTS (n=133).

CONDOM USE AT LAST SEXUAL EPISODE	FREQUENCY (f)	PERCENTAGE %
Yes	58	43.6
No	75	56.4
TOTAL (n)	**133**	**100**

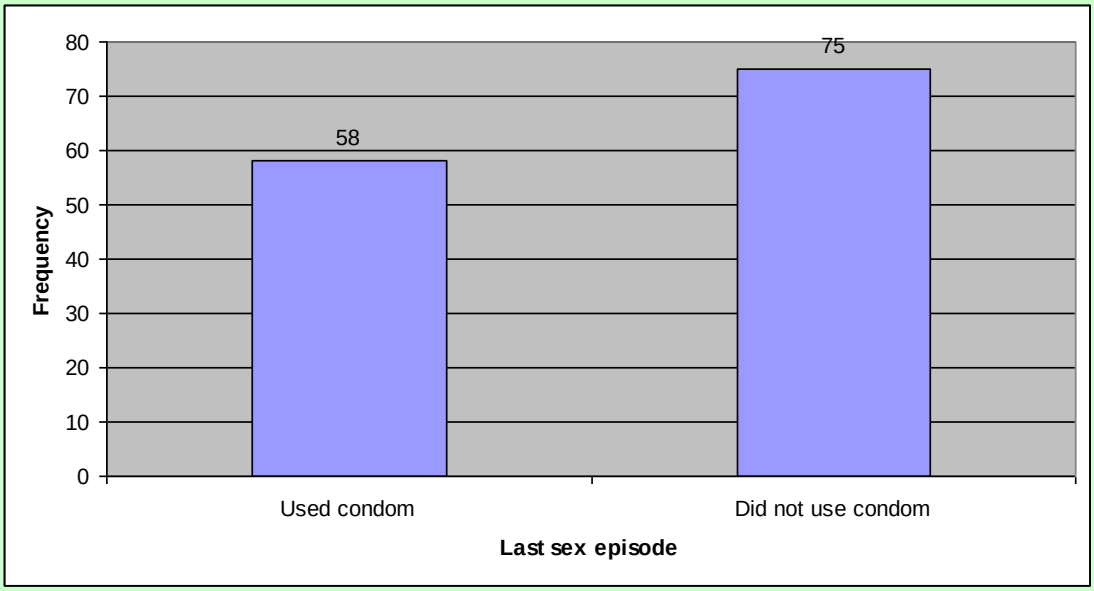


Figure 4.9: Condom use at last sexual episode (n=133).

Fifty eight (58) (43.6%) of the respondents (n=133) reported condom use at the last sexual episode as opposed to 75 (56.4%) who did not use one. The reasons for using the condom at the last sexual encounter are presented in table 4.14; a respondent could indicate more than one reason for using a condom. The percentages portrayed in this table are based on n=133. A total of 220 responses were given.

TABLE 4.14: REASONS FOR CONDOM USE AT LAST SEXUAL EPISODE.

REASON FOR CONDOM USE AT LAST EPISODE	USED CONDOM	
	FREQUENCY (f)	PERCENTAGE %
Prevent HIV	62	46.6
Prevent STI	56	42.1
Family planning	47	35.3
Adventure	10	7.5
Partner insisted	19	14.3
Health education program advised us to use them	23	17.3
Other (reasons were not specified by the respondents	3	2.3

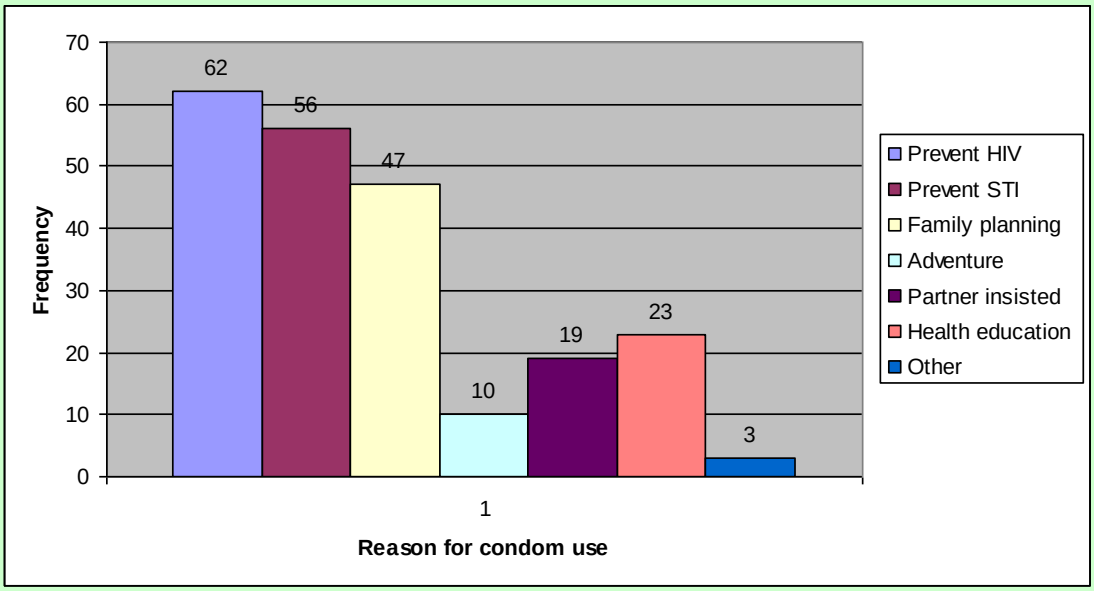


Figure 4.10: Respondents' reasons for condom use at last sexual episode.

From table 4.14 and figure 4.10, condoms were mainly used for guarding against HIV 62 (46.6%), sexually transmitted infections (STI) 56 (42.1%) and family planning, 47 (35.3%). Those who had the lowest use of condoms did so because of adventure 10 (7.5%) or their partners insisted 23 (17.3%). This indicates that the respondents had taken on the HIV preventive messages seriously but also guarding against other sexually transmitted diseases as well as unwanted pregnancy.

4.5.3.3 Attitudes to condoms

Respondents' attitudes towards condoms are presented in table 4.15. One hundred and five (105) (84.0%) of the respondents (n=125) talked to their sexual partners on issues relating to condom use; 69 (53.1) of the respondents (n=130) reported that condoms were talked about freely by the public; one hundred and fourteen (114) (85.7%) of the respondents (n=133) were not offended if condoms were displayed openly; ninety five (95) (71.4%) of the respondents (n=133) were comfortable if children in the age ranges 12 to 14 could be taught about condoms. Opinions on condom acceptance were almost equally divided. There were however some negative opinions where respondents felt that condoms could lead to infidelity and also lead to reduction in sexual pleasure.

TABLE 4.15: RESPONDENTS' ATTITUDES TO CONDOMS.

ITEM	YES		NO		TOTAL	
	(f)	(%)	(f)	(%)	(n)	(%)
I can talk to my sexual partner about using condoms	105	84	20	16	**125**	**100**
People in this village talk freely about condom use	69	53.1	61	46.9	**130**	**100**
Condoms should be displayed openly	114	85.7	19	14.3	**133**	**100**
Children 12-14 years should be taught about using condoms	95	71.4	38	28.6	**133**	**100**
People in this village have accepted condoms	65	48.9	68	51.1	**133**	**100**
Sexual intercourse with a condom is as good as without a condom	46	37.1	78	62.9	**124**	**100**
Because of condoms people are unfaithful	87	65.4	46	34.6	**133**	**100**
Sexual pleasure is not reduced when using condom	61	50	61	50	**122**	**100**
I will feel guilty if I infect others with HIV	99	75.6	32	24.4	**131**	**100**
I shall not feel guilty if I infect others with HIV	34	25.8	98	74.2	**132**	**100**
I would be more worried about (my partner) getting pregnant than contracting or transmitting HIV	25	18.8	108	81.2	**133**	**100**

4.6 GENERAL ASPECTS RELATING TO ANTIRETROVIRALS

As discussed in section 2.4, ARVs are now widely available and discussed in various forums; in Uganda an active rollout program exists. The respondents were thus

asked questions about ARVs and the results are presented in the sub sections that follow.

4.6.1 Knowledge of antiretroviral drugs (ARVs)

One hundred and twenty (120) (92.3%) of the respondents (n=130) knew that ARVs do not cure HIV/AIDS. Ninety three (93) (71.5%) respondents (n=130) knew that the drugs could be obtained in their sub county; one hundred and nine (109) (82.6%) respondents (n=132) knew that people taking ARV drugs could lead normal lives and also have active sexual lives again. A number of respondents disagreed that people taking ARVs were less likely to transmit the disease; could get re-infected; could stop taking medications once they felt better. Most respondents also disagreed with the idea that it was safe to have unprotected sex with a partner taking ARVs; details of these responses are exhibited in table 4.16.

TABLE 4.16: RESPONDENTS' KNOWLEDGE OF ANTIRETROVIRAL DRUGS.

ITEM	YES		NO		TOTAL	
	(f)	(%)	(f)	(%)	(n)	(%)
Antiretroviral drugs cure HIV/AIDS	10	7.7	120	92.3	130	**100**
ARVs can be used for preventing HIV infection	30	22.9	101	77.1	131	**100**
People taking ARVs suffer fewer episodes of illness	104	80	26	20	130	**100**
ARVs can be obtained from Budondo Sub County	93	71.5	37	28.5	130	**100**
People taking ARVs can lead normal lives again	109	82.6	23	17.4	132	**100**
People on ARVs can have active sexual relations again	95	72	37	28	132	**100**
People on ARVs are less likely to transmit the HI- virus to their sexual partners during sexual intercourse without a condom	27	20.5	105	79.5	132	**100**
People on ARVs are less likely to re-infect themselves	29	22.5	100	77.5	129	**100**
People on ARVs can stop taking ARVs when they get well	17	13.3	111	86.7	128	**100**
People on ARVs are cured from AIDS	23	17.4	109	82.6	132	**100**
It is safe to have unprotected sex with someone on ARVs	10	7.6	121	92.3	131	**100**
ARVs can kill the HI-virus that causes AIDS	19	14.7	110	85.3	129	**100**
It is safe to practice unprotected sex with a person taking ARVs	4	3	128	97	132	**100**

One hundred and twenty (120) (92.3%) of the respondents (n=130) knew that ARVs do not cure HIV/AIDS. One hundred and five (105) (79.5%) of the respondents (n=132) knew that a person taking ARVs can transmit HIV to another person. Atuyambe et al (2008:15-18) reported on the concern regarding people taking ARVs

engaging in unsafe sexual practices. In this regard, 128 (97%) of the respondents (n=132) considered it unsafe to practice unprotected sex with a person on ARV's. The positive effects of ARVs were also acknowledged by the respondents; 104 (80%) of the respondents (n=130) reported a reduced frequency of illness among HIV infected people taking ARVs. Most respondents knew of the existence of ARVs in their sub county and this was further evidence of the awareness about these drugs.

4.6.2 Perception regarding antiretroviral drugs (ARVs) and sexual practice

One of the concerns relating to the current research and which is discussed in the background to the current study is the possibility that patients on ARV's (ART), and others similar medication, might consider persons on ART as being cured of the HI-virus. This might lead to unprotected sexual intercourse and a spiral of primary HI-virus infection and re infections. The findings indicate a concern among most respondents that people would engage in risky sexual practices with the advent of ARVs. Most respondents showed awareness that despite a person taking ARVs, the potential for HIV transmission to others was not diminished and that such a person should not stop taking the drugs. A number of respondents also acknowledged that HIV/AIDS is still a big problem in Uganda despite the advent and rollout of ARVs.

TABLE 4.17: RESPONDENTS' PERCEPTIONS TOWARDS ANTIRETROVIRAL DRUGS.

ITEM	YES		NO		TOTAL	
	(f)	(%)	(f)	(%)	(n)	(%)
People taking ARVs tend to engage in risky sexual practices	83	64.3	46	35.7	**129**	**100**
A person taking ARVs cannot transmit the HI-virus to an uninfected partner	13	9.9	118	90.1	**131**	**100**
If an HIV/AIDS patient taking ARVs becomes well he/she can stop taking the ARVs	16	12.1	116	87.9	**132**	**100**
Because ARVs are available people could again engage in unprotected sex	24	18.2	108	81.8	**132**	**100**
HIV/AIDS is still a problem despite the availability of ARVs in Uganda	115	87.8	16	12.2	**131**	**100**
Some people taking ARVs have engaged in unprotected sex	103	79.2	27	20.8	**130**	**100**
It is safe to practice unprotected sex with a person taking ARVs	4	3	128	97	**132**	**100**

One hundred and three (103) (79.2%) of the respondents (n=130) agreed that some people taking ARVs had engaged in unprotected sexual acts; 128 (97.0%) disagreed that it was safe to engage in unprotected sex with a person taking the drugs. Other responses with regard to items relating to sexual behaviour in relation to ARVs (ART) are exhibited in table 4.17. It is evident that people taking ARVs are engaging in risky sexual behaviours probably out of the belief that they cannot transmit the HI-virus. Despite that the seriousness of the infection is acknowledged.

4.7 RESPONDENTS' KNOWLEDGE OF HIV, ANTIRETROVIRAL DRUGS AND CONDOMS

In this section, results of the analysis of respondents' knowledge of HIV, antiretroviral drugs and condoms are presented. Patterns of perception and knowledge that answer objective three are also presented under the respective sub sections. Results related to objective three, (relating respondents' responses with regard to knowledge of HIV/AIDS, ARVs and condoms using statistical methods so that patterns of perceptions or behaviours can be determined) were obtained after undertaking bivariate analysis as described in section 3.3.3.5.2 iv.

4.7.1 Knowledge of HIV

Cronbach's alpha coefficient analysis of items 7 to 11 in the questionnaire was <0.7 for all the combinations attempted. The best combination was for items 8 and 11 which produced a coefficient of 0.483 (see section 3.4.2.1*)*. This means that no conclusive information about respondents' knowledge of HIV could be obtained from these items. Assessment of knowledge was also based on items 5 and 6 of the questionnaire as presented in table 4.5 and 4.6. Of the respondents (n=132), 127 (96.2%) were aware of HIV/AIDS; of these 68 (53.5%) were males while 59 (46.5%) were females. The awareness among the respondents was similar to what Ntozi (2003:109-112) reported. Similar levels of knowledge were also reported in the Uganda HIV/AIDS sero - behavioural survey of 2004—2005, where 98% respondents were reported to be aware of HIV/AIDS (MOH 2006:43). UNAIDS (2008:127, 200) reported that 40% of males and 36% of females in 64 countries had "accurate and comprehensive" knowledge of HIV/AIDS although this fell short of the intended target. The high awareness level of HIV in the current study was however contrasted by the fact that 67 (52.3%) of the respondents (n=128) could not distinguish HIV from AIDS. This could be explained by the fact that most literature refers to both terms concurrently, and sometimes wrongly, like in the Uganda HIV/AIDS sero - behavioural survey of 2004—2005 report where there is a sub heading reading: "Rejection of Misconceptions about AIDS Transmission" (MOH 2006:47). The interpretation from this statement would be that "AIDS" can be transmitted yet the intended meaning was probably transmission of HIV. Of the respondents (n=130), 110 (85%) knew that HIV/AIDS is a threat to the community in the sub county of Budondo. One hundred and fourteen (114) (88%) of the

respondents (n=130) also acknowledged that HIV was a severe infection (see table 4.8). These results correspond with the results reported by Ntozi (2003:109-112), where the respondents knew that many people had died from the disease and that there was no specific or curative treatment.

4.7.1.1. Age category of respondents versus knowledge of the difference between HIV and AIDS

Knowledge of the difference between HIV and AIDS was highest in the age group of 15-20 years. The 7 responses in this category make up 63.6% of the age group responses (n=11). The lowest percentage of responses 12 (30.8%) appeared in the 31 to 40 age group (n=39) with this group of respondents indicating that there is a difference between HIV and AIDS. Lack of awareness of the difference between HIV and AIDS was highest in the 31 to 40 age group with 27 (69.2%) respondents (n=39) Being between the ages 31 to 40 was thus associated with not being able to tell the difference. However, the Pearson's chi square coefficient P=0.52 at a 5% significance level, suggests that age was not a significant associated factor for knowing the difference between HIV and AIDS. These details are presented in table 4.18 and illustrated in figure 4.11.

TABLE 4.18: AGE OF RESPONDENTS VERSUS AWARENESS THAT HIV IS DIFFERENT FROM AIDS (n=125).

			AGE GROUP				TOTAL
			15-20	**21-30**	**31-40**	**41-50**	
HIV is different from AIDS	Yes	Count	7	26	12	16	**61**
		%	63.6%	57.8%	30.8%	53.3%	**48.8%**
	No	Count	4	19	27	14	**64**
		%	36.4%	42.2%	69.2%	46.7%	**51.2%**
Total		**Count (n)**	11	45	39	30	**125**
		%	**100%**	**100.0 %**	**100.0%**	**100.0%**	**100.0%**

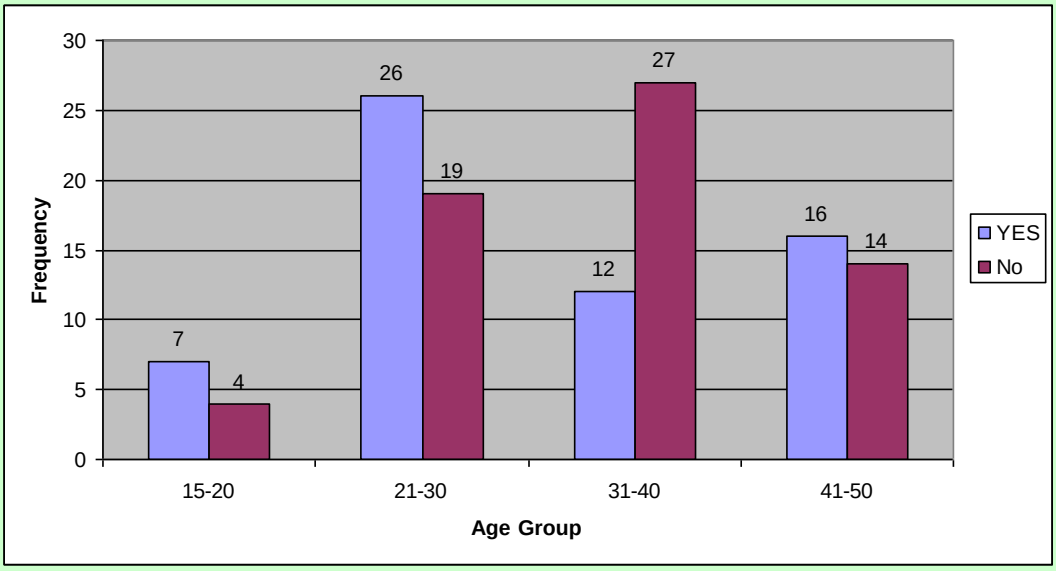


Figure 4.11: Distribution of respondents' age versus awareness that HIV is different from AIDS (n=125).

4.7.1.2 Education level of respondents versus knowledge of the difference between HIV and AIDS

Thirty five (35) (74.5%) of the respondents (n=47) who attained a primary level education could not tell that HIV is different from AIDS. The highest percentage of those who knew the difference was among those who attained an advanced level of education with 2 (100%) respondents, followed by those with a tertiary level of education with 11 (64.7%) respondents. Details appear in table 4.19 and figure 4.12. Respondents with a primary level of education were more likely not to know the difference between HIV and AIDS. With a Pearson's chi square coefficient P=0.001, this finding was significant at the 5% level.

TABLE 4.19: EDUCATION LEVEL OF RESPONDENTS VERSUS AWARENESS THAT HIV IS DIFFERENT FROM AIDS (n=128).

			EDUCATIONAL LEVEL				TOTAL
			PRIMARY	ORDINARY LEVEL	ADVAN-CED LEVEL	TERTI-ARY	
HIV is different from AIDS	Yes	Count	12	36	2	11	61
		%	25.5%	58.1%	100.0%	64.7%	47.7%
	No	Count	35	26	0	6	67
		%	74.5%	41.9%	.0%	35.3%	52.3%
TOTAL		COUNT (n)	47	62	2	17	128
		%	100.0%	100.0%	100.0%	100.0 %	100.0%

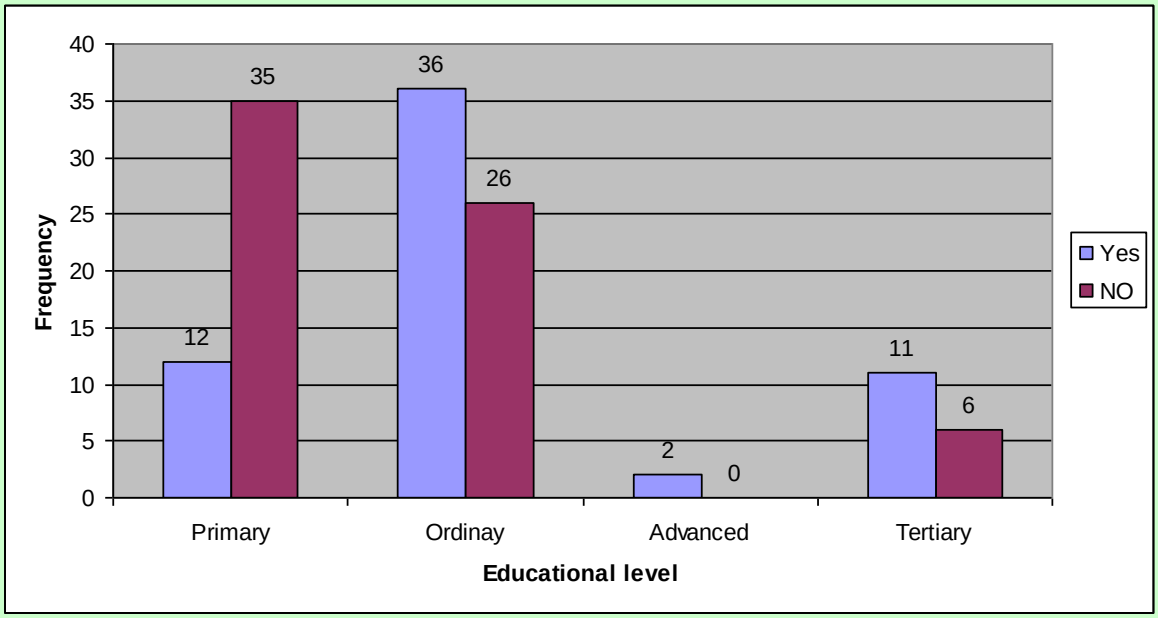


Figure 4.12: Distribution of respondents' education level versus awareness that HIV is different from AIDS (n=128).

4.7.2 Knowledge of HIV transmission

A combination of seven items measuring the respondents' level of knowledge of HIV transmission (items 13, 14, 16,17,19,21 and 22) in the questionnaire was found to have a Cronbach's alpha coefficient of 0.71 (see section 3.4.2.1); these items were used to determine the respondents' level of knowledge of HIV transmission in association with other factors.

4.7.2.1 Marital status of respondents versus knowledge that HIV transmission can occur through blood transfusion

There was agreement across all the marital categories that blood transfusion can result in HIV transmission. This knowledge was highest among married respondents (n=89) (f=73) (82.1%) and least among divorced respondents (n=4) (f=2) (50.0%). Details are contained in table 4.20 and figure 4.13. Being married was associated with having a higher level of knowledge of HIV transmission through blood transfusion and it was statistically significant at a 5% level with a Pearson's chi square coefficient of P=0.048.

TABLE 4.20: MARITAL STATUS OF RESPONDENTS VERSUS KNOWLEDGE THAT HIV TRANSMISSION CAN OCCUR THROUGH BLOOD TRANSFUSION (n=130).

			MARITAL STATUS					TOTAL
			MARRIED	COHABITING	SINGLE	DIVORCED	WIDOWED	
HIV transmission occurs through blood transfusion	Strongly agreed	Count	24	0	10	0	1	**35**
		%	27.0%	.0%	40.0%	.0%	33.3%	**26.9%**
	Agreed	Count	49	5	8	2	1	**65**
		%	55.1%	55.6%	32.0%	50.0%	33.3%	**50.0%**
	Disagreed	Count	13	2	7	1	1	**24**
		%	14.6%	22.2%	28.0%	25.0%	33.3%	**18.5%**
	Strongly disagreed	Count	3	2	0	1	0	**6**
		%	3.4%	22.2%	.0%	25.0%	.0%	**4.6%**
		COUNT (n)	**89**	**9**	**25**	**4**	**3**	**130**
		%	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

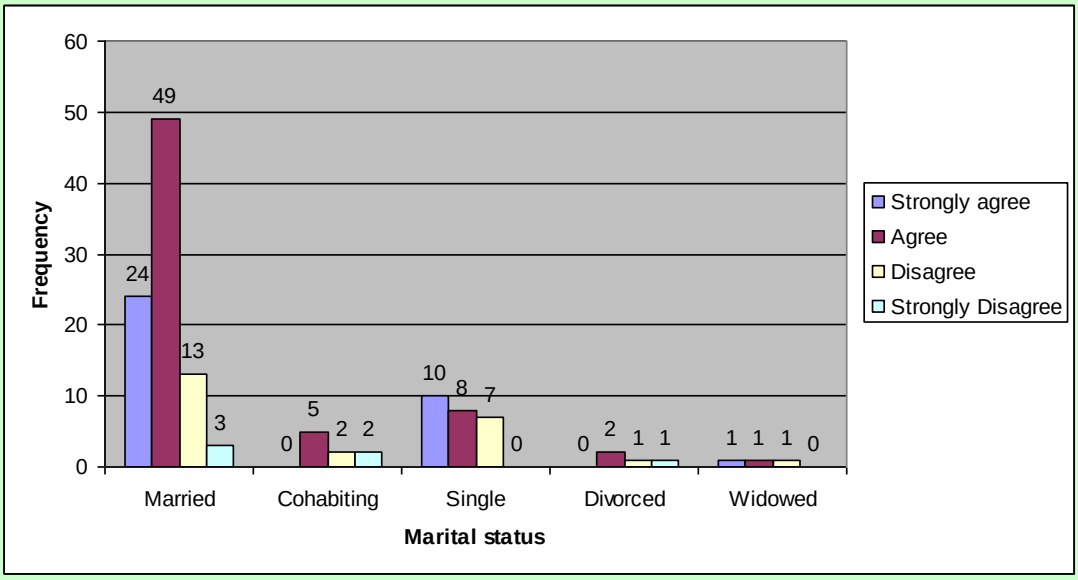


Figure 4.13: Distribution of marital status versus knowledge that HIV transmission can occur through blood transfusion (n=130).

4.7.2.2 Education level of respondents versus knowledge of transmission of HIV when partner is taking ARVs and wearing condoms

Respondents with a primary education (n=41) (f=26) (63.4%), ordinary level education (n=59) (f=50) (84.7%) and tertiary level education (n=17) (f=13) (76.5%) agreed that HIV transmission could not occur when an infected partner was taking ARVs and practicing protected sex; however of those with an advanced level of education two (2) respondents (n=3) (66.6%) thought that HIV transmission could occur. Details of these are contained in table 4.21 and figure 4.14. Respondents with an advanced level of education were thus more likely not to trust the potential of condoms in preventing HIV transmission. At a Pearson's chi square coefficient of P=0.036, this finding was statistically significant at the 5% level.

TABLE 4.21: EDUCATION LEVEL OF RESPONDENTS VERSUS KNOWLEDGE OF TRANSMISSION OF HIV WHEN PARTNER IS TAKING ARVS AND WEARING CONDOMS (n=120).

			EDUCATIONAL LEVEL				TOTAL
			PRIMARY	O-LEVEL	A-LEVEL	TERTIARY	
Engaging in protected sex, using a condom but partner is infected and taking ARVs can result in HIV transmission	Strongly agreed	Count	6	0	1	0	**7**
		%	14.6%	.0%	33.3 %	.0%	**5.8%**
	Agreed	Count	9	9	1	4	**23**
		%	22.0%	15.3 %	33.3 %	23.5 %	**19.2 %**
	Dis-agreed	Count	20	37	1	11	**69**
		%	48.8%	62.7 %	33.3 %	64.7 %	**57.5 %**
	Strongly disagreed	Count	6	13	0	2	**21**
		%	14.6%	22.0 %	.0%	11.8 %	**17.5 %**
TOTAL		**COUNT (n)**	**41**	**59**	**3**	**17**	**120**
		%	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**

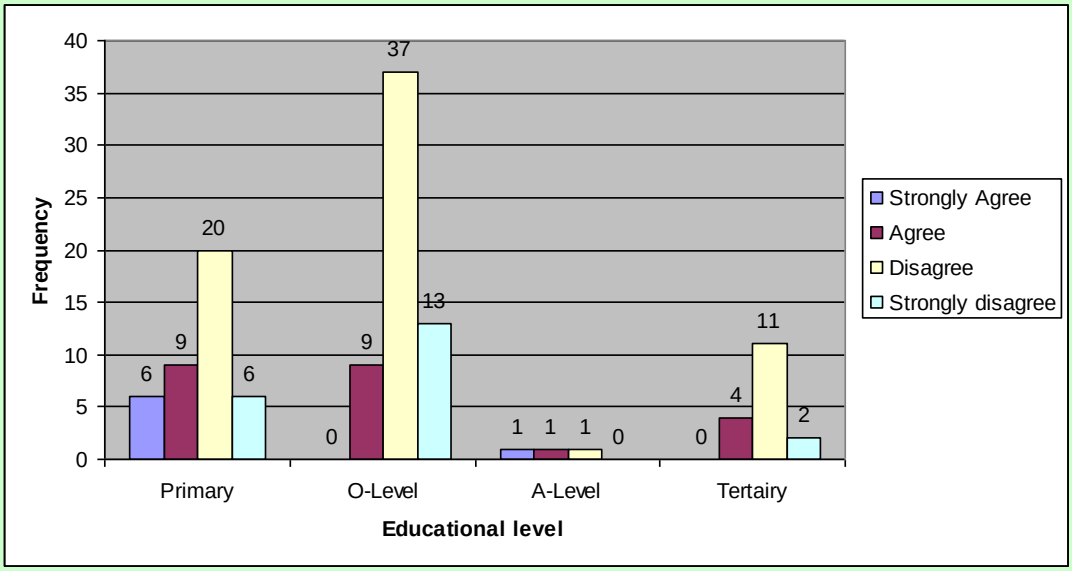


Figure 4.14: Distribution of respondents' education attainment versus knowledge of transmission of HIV when partner is taking ARVs and using condoms (n=120).

4.7.3 Knowledge of condoms

A combination of four items measuring the respondents' level of knowledge of condoms (items 25, 26, 27 and 28) in the questionnaire was found to have a Cronbach's alpha coefficient of 0.806 (see section 3.4.2.1); these items were used to determine the respondents' level of knowledge on condoms and its association with other variables. Sixty eight (68) (51%) of the respondents (n=133) gave a correct definition of condoms based on the technical definition as presented in section 1.8.1. Bankole et al (2007: 209-210) reported levels of knowledge of correct definitions of condoms were less than 50%. Referring to table 4.11, the potential for condoms to prevent transmission of HIV and other sexually transmitted diseases was acknowledged by 129 (97.7%) of the respondents (n=132) for both cases. One hundred and thirty (130) (100%) respondents agreed that condoms do prevent pregnancy. Musinguzi et al (2003:34) reported levels of knowledge of condoms at 80% for men and 55% for females; UNAIDS also reported in Namibia, that the levels of knowledge on condoms was 60% (UNAIDS 2008:98 – 99). This shows a high level of knowledge. Therefore the results from this study indicate an improvement in the level of knowledge.

4.7.3.1 Knowledge of condoms and its association with other variables

In this sub section results related to objective number three (relating respondents' responses with regard to knowledge of condoms using statistical methods so that patterns of perceptions or behaviours can be determined) are presented with a view of establishing patterns of perceptions or behaviour among the respondents related to knowledge of condoms.

4.7.3.1.1 Educational level of respondents versus knowledge that condoms can prevent HIV transmission

There was agreement across all the educational levels that condoms prevent HIV transmission (details are presented in table 4.22 and illustrated in figure 4.15). The level of knowledge expressed as a percentage of the respondents in any educational group, was highest among respondents with an ordinary level of education, 63 (100%) and respondents with advanced level education 3 (100%) and tertiary (17) (100%). In this study a better level of knowledge about condoms was found than in

the studies indicated above. it was however not statistically significant at the 5% level with the Pearson's chi square coefficient P= 0.247.

TABLE 4.22: EDUCATIONAL LEVEL OF RESPONDENTS VERSUS KNOWLEDGE THAT CONDOMS CAN PREVENT HIV TRANSMISSION (n=132).

			EDUCATIONAL LEVEL				TOTAL
			PRIM-ARY	ORDINARY LEVEL	ADVANCED LEVEL	TERTIARY	
Correct use of condoms will prevent HIV transmission	Strongly agreed	Count	20	21	1	9	51
		%	40.8%	33.3%	33.3%	52.9%	38.6%
	Agreed	Count	26	42	2	8	78
		%	53.1%	66.7%	66.7%	47.1%	59.1%
	Dis-agreed	Count	3	0	0	0	3
		%	6.1%	.0%	.0%	.0%	2.3%
TOTAL		**COUNT (n)**	**49**	**63**	**3**	**17**	**132**
		%	**100%**	**100%**	**100%**	**100%**	**100%**

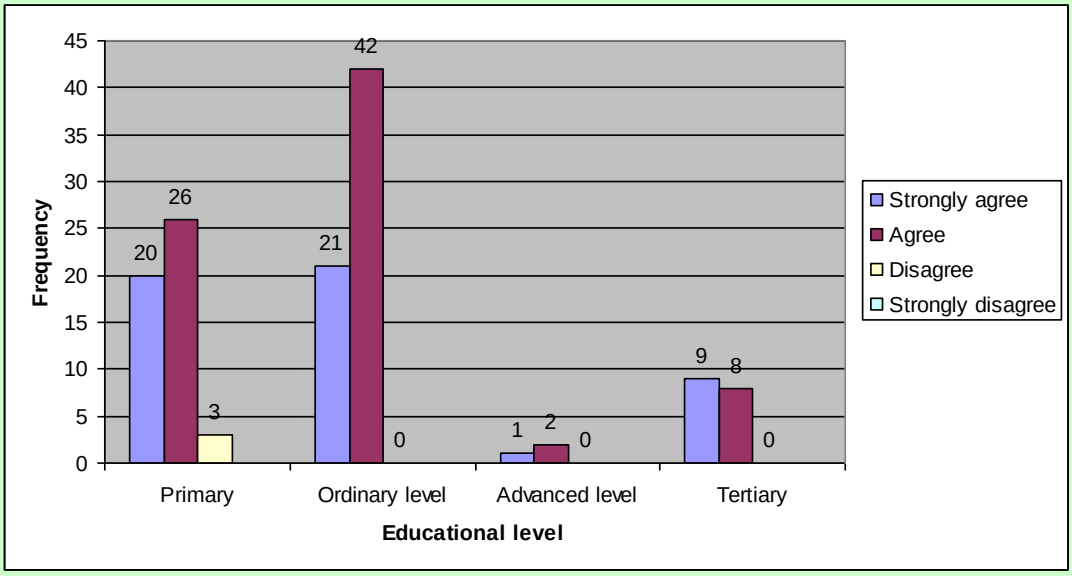


Figure 4.15: Respondents' educational level versus knowledge that condoms can prevent HIV transmission (n=132).

4.7.3.1.2 Educational level of respondents versus knowledge that condoms can prevent sexually transmitted infections

There was over 90% agreement across all the educational levels among the respondents that condoms can prevent sexually transmitted infections. Agreement was highest among respondents with a tertiary level education (17) (100%) and advanced level education (3) (100%). The details are presented in table 4.23 and figure 4.16. Knowledge of prevention of sexually transmitted infections by use of condoms was high among the respondents, however, this was not statistically significant at the 5% level with a Pearson's chi square coefficient P= 0.409. Nonetheless, the high awareness exhibited by the respondents in the sub county was consistent with what was reported by AYA [sa: 8 – 10, Morris et al (2000:737) and Musinguzi, et al (2003:34) as reflected in section 2.3.1.3.

TABLE 4.23: EDUCATIONAL LEVEL OF RESPONDENTS VERSUS KNOWLEDGE THAT CONDOMS CAN PREVENT SEXUALLY TRANSMITTED INFECTIONS (n=132).

			EDUCATIONAL LEVEL				TOTAL
			PRIMARY	O-LEVEL	A-LEVEL	TERTIARY	
Condoms can prevent sexually transmitted infections	Strongly agree	Count	18	21	0	10	**49**
		%	36.7%	33.3%	.0%	58.8%	**37.1%**
	Agree	Count	30	40	3	7	**80**
		%	61.2%	63.5%	100.0%	41.2%	**60.6%**
	Disagree	Count	1	2	0	0	**3**
		%	2.0%	3.2%	.0%	.0%	**2.3%**
TOTAL		**COUNT (n)**	**49**	**63**	**3**	**17**	**132**
		%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

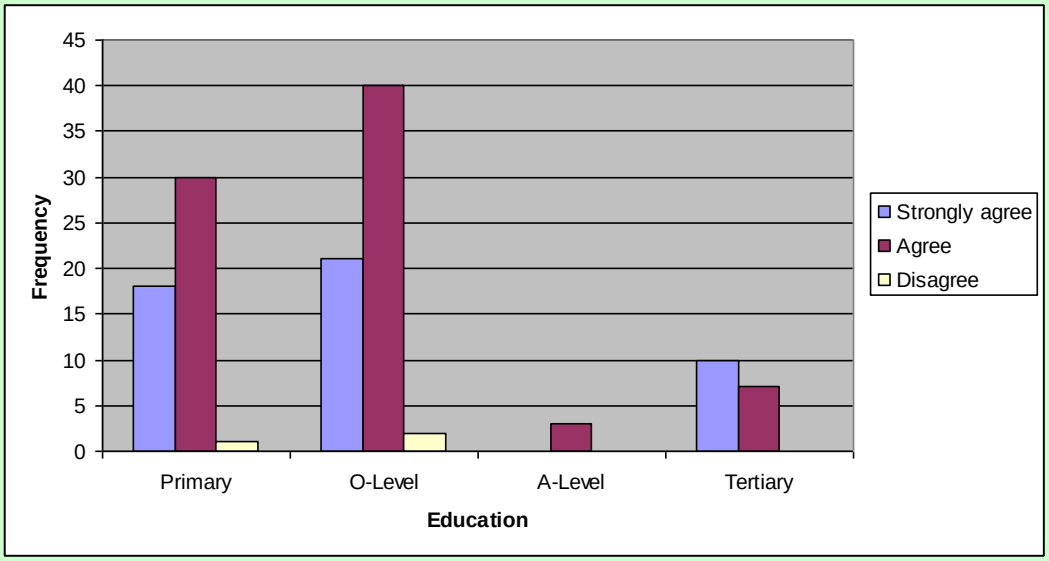


Figure 4.16: Respondents' educational level versus knowledge that condoms can prevent sexually transmitted infections (n=132).

4.7.3.1.3 Educational level of respondents versus knowledge that condoms can prevent pregnancy

There was overall agreement among respondents across all the educational levels that condoms could prevent pregnancy. Details are presented in table 4.24 and figure 4.17. There is evidence that knowledge of the potential of condoms to prevent pregnancy was high among the respondents; this finding was however not statistically significant at the 5% level with a Pearson's chi square coefficient P= 0.176. This level of knowledge was also reported by researchers as presented in section 2.3.2.2 in which abstinence, behavioural change and condom use (ABC) was promoted as an earlier strategy for HIV prevention.

TABLE 4.24: EDUCATIONAL LEVEL OF RESPONDENTS VERSUS KNOWLEDGE THAT CONDOMS CAN PREVENT PREGNANCY (n=130).

			EDUCATIONAL LEVEL				TOTAL
			PRIMARY	O-LEVEL	A-LEVEL	TERTIARY	
Condoms can prevent pregnancy	Strongly agree	Count	28	31	1	13	**73**
		%	59.6%	49.2 %	33.3%	76.5%	**56.2%**
	Agree	Count	19	32	2	4	**57**
		%	40.4%	50.8 %	66.7%	23.5%	**43.8%**
TOTAL		**COUNT (n)**	**47**	**63**	**3**	**17**	**130**
		%	100.0 %	100.0 %	100.0 %	100.0 %	**100.0 %**

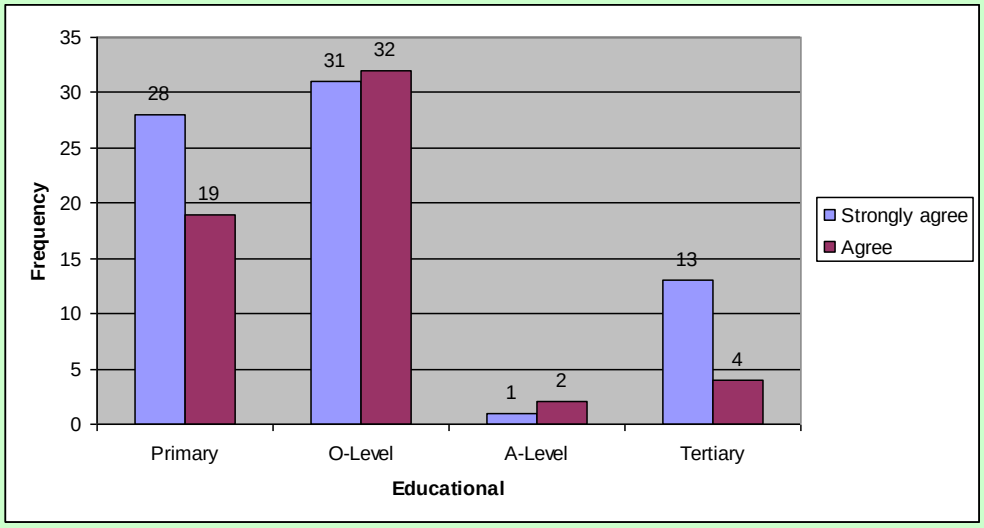


Figure 4.17: Respondents' educational level versus knowledge that condoms can prevent pregnancy (n=130).

4.7.4 Knowledge of antiretroviral drugs (ARVs)

A Cronbach's alpha coefficient value of 0.723 was obtained from a combination of five items that measured knowledge on ARVs; these were items number 62,63,70,71 and 73 in the questionnaire (see section 3.4.2.1). Referring to table 4.16, one hundred and twenty (120) (92.3%) of the respondents (n=130) knew that antiretroviral drugs (ARVs) do not cure HIV/AIDS. There was little knowledge on the

potential of ARVs to prevent HIV infection as 101 (77.1%) respondents disagreed that ARVs can prevent infection. This contrasted findings by Atuyambe et al (2008:15-18) who reported unsafe sexual practices among people, believing that ARVs could weaken the virus. As to whether people could stop taking ARVs once they felt better, 111 (86.7%) of the respondents disagreed. This is similar to the personal testimonies of patients taking ARVs which were reported in sections 2.4.3. One hundred and ten (110) (85.3%) of the respondents (n=129) also disagreed that ARVs could kill the virus that causes AIDS. This was in contrast to what Lu (2008) reported, namely that some people with HIV had the belief that ARVs can cure them.

4.7.4.1 Age of respondents' versus their knowledge that ARVs do not cure HIV/AIDS.

There was overall disagreement across all the age groups that ARVs cure HIV/AIDS. In all the age categories, the level of disagreement was 80.0% and more. Disagreement was highest in the 41 to 50 age group with 30 (100%) respondents disagreeing, and least in the 21 to 30 age group with 47 (89.4%) respondents disagreeing that ARV's cure of HIV/AIDS. These findings were however not statistically significant as at the 5% level with the Pearson's chi square coefficient P=0.542. This finding is in contrast to what was reported by Lu (2008), where PLWAs had the perception that ARVs can cure them of AIDS. Table 4.25 contains the age category/knowledge of ARVs' curative potential cross tabulation and it is illustrated in figure 4.18.

TABLE 4.25: AGE OF RESPONDENTS' VERSUS THEIR KNOWLEDGE THAT ARVS DO NOT CURE HIV/AIDS (n=127).

			AGE CATEGORY				TOTAL
			15-20	21-30	31-40	41-50	
Antiretroviral drugs cure HIV/AIDS	Strongly agree	Count	0	2	1	0	3
		%	.0%	4.3%	2.6%	.0%	2.4%
	Agree	Count	1	3	3	0	7
		%	9.1%	6.4%	7.7%	.0%	5.5%
	Disagree	Count	3	25	16	17	61
		%	27.3%	53.2%	41.0%	56.7%	48.0 %
	Strongly disagree	Count	7	17	19	13	56
		%	63.6%	36.2%	48.7%	43.3%	44.1 %
TOTAL		**COUNT (n)**	**11**	**47**	**39**	**30**	**127**
		%	100.0%	100.0%	100.0 %	100.0%	100.0 %

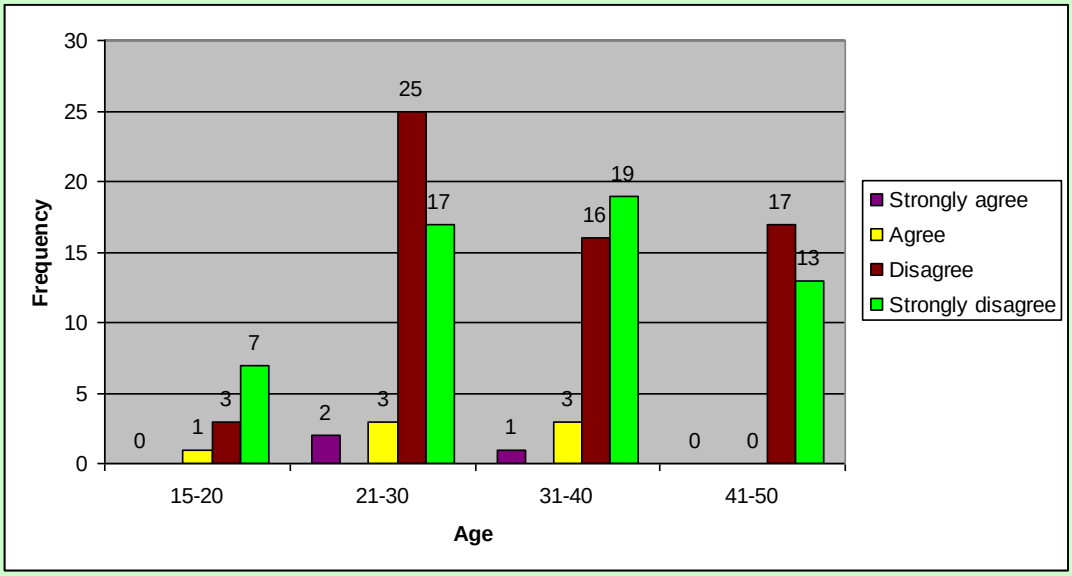


Figure 4.18: Distribution of age categories versus knowledge that ARVs do not cure HIV/AIDS (n=127).

4.7.4.2 Education level of respondents versus their knowledge that ARVs do not kill HIV.

There was disagreement across all the education levels that ARVs destroy the HI-virus. The disagreement was highest among tertiary level education respondents (14) (87.0%) and least among the advanced level education respondents (2) (66.0%). Table 4.26 represents the cross tabulated detail and it is illustrated in figure 4.19. Education was associated with knowledge that ARVs do not kill HIV. This finding was however not statistically significant at the 5% level with the Pearson's chi square coefficient P= 0.73.

TABLE 4.26: EDUCATIONAL LEVEL OF RESPONDENTS' VERSUS THEIR KNOWLEDGE THAT ARVS DO NOT KILL HIV (n=129).

			EDUCATIONAL LEVEL				TOTAL
			PRIMARY	ORDINARY LEVEL	ADVANCED LEVEL	TERTIARY	
ARVs can kill the HIV germ that causes AIDS	Strongly agreed	Count	2	0	1	0	**3**
		%	4%	.0%	33%	0%	**2%**
	Agreed	Count	7	7	0	2	**16**
		%	14%	12%	0%	13%	**12%**
	Dis agreed	Count	20	24	1	6	**51**
		%	40%	40%	33%	37%	**40%**
	Strongly disagreed	Count	21	29	1	8	**59**
		%	42%	48%	33%	50%	**46%**
TOTAL		**COUNT (n)**	**50**	**60**	**3**	**16**	**129**
		%	**100%**	**100%**	**100%**	**100 %**	**100%**

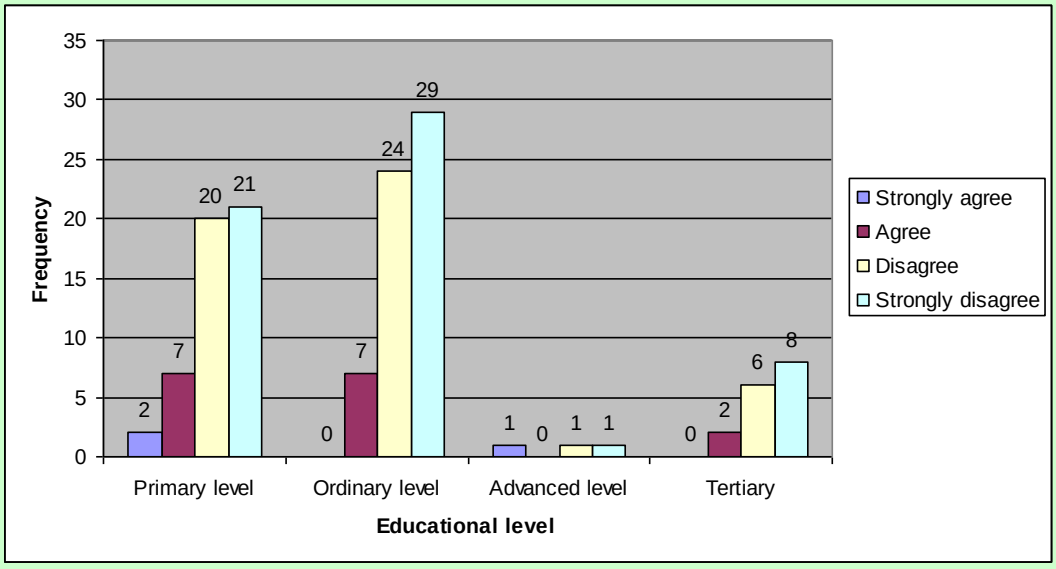


Figure 4.19: Educational level of respondents' versus their knowledge that ARVs do not kill HIV (n=129).

4.7.4.3 Respondents' educational level versus their knowledge that ARVs do not cure HIV/AIDS.

There was disagreement across all the educational levels that ARVs do cure HIV/AIDS. The disagreement was higher among those with an advanced level of education with 16 (94.1%) respondents and least among those with an advanced level of education with only 2 (66.7%) respondents. Table 4.27 contains the cross tabulated details. Educational level was associated with knowledge that ARVs do not cure HIV/AIDS. At a significance level of 5%, this finding was however not statistically significant with the Pearson's chi square coefficient P= 0.076.

TABLE 4.27: EDUCATIONAL LEVEL OF RESPONDENTS VERSUS KNOWLEDGE THAT ARVS DO NOT CURE HIV/AIDS (n=130).

			EDUCATIONAL LEVEL				TOTAL
			PRIMARY	O-LEVEL	A-LEVEL	TERTIARY	
Antiretroviral drugs cure HIV/ AIDS	Strongly agree	Count	2	0	0	1	3
		%	4.1%	.0%	.0%	5.9%	2.3%
	Agree	Count	2	4	1	0	7
		%	4.1%	6.6%	33.3%	.0%	5.4%
	Disagree	Count	21	35	2	5	63
		%	42.9%	57.4%	66.7%	29.4%	48.5%
	Strongly disagree	Count	24	22	0	11	57
		%	49.0%	36.1%	.0%	64.7%	43.8%
TOTAL		**COUNT (n)**	**49**	**61**	**3**	**17**	**130**
		%	**100%**	**100%**	**100%**	**100%**	**100%**

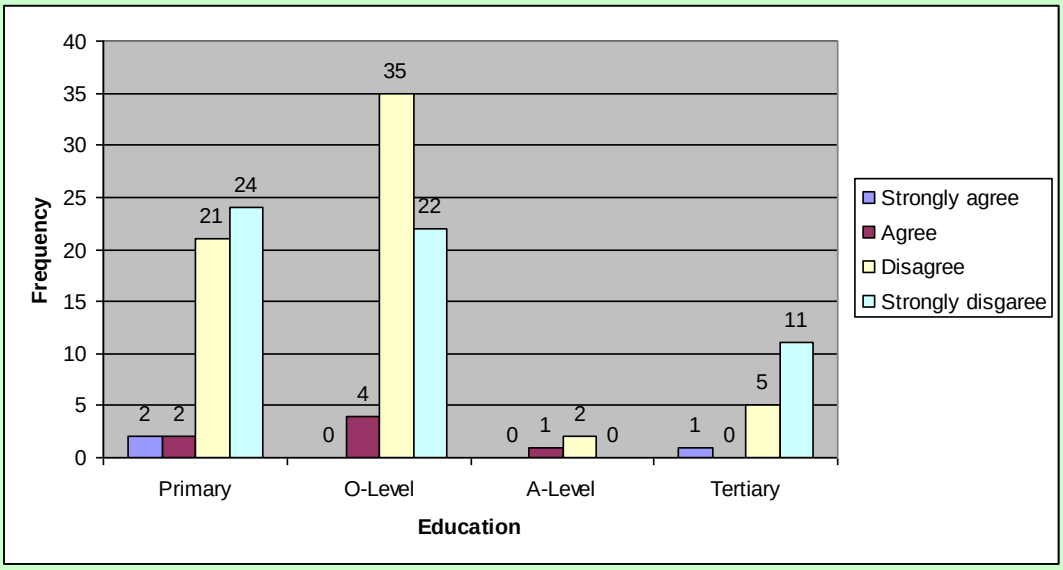


Figure 4.20: Educational level of respondents versus knowledge that ARVs do not cure HIV/AIDS (n=130).

4.8 DESCRIPTION OF RESPONDENTS' ATTITUDES TO CONDOMS AND SEXUAL PRACTICES IN RELATION TO HIV/AIDS, ARVS AND CONDOM USE.

4.8.1 Number of sexual acts of the respondents.

The respondents were asked about their sexual acts in the month preceding data collection and the results are presented in the following sections. The number of sexual acts was sought with a view of relating it to the rate of condom use among the respondents

4.8.1.1 Marital status of respondents versus number of sexual acts in month preceding data collection.

Sexual acts were categorised in groups as presented in table 4.28 and figure 4.21. Ninety one (91) (72.8%) respondents (n=125) reported engaging in up to 9 sexual acts in the month preceding data collection; 23 (18.4%) reported 10 to 19 acts. Of the 0 to 9 acts category, 55 (66.3%) were in the married group; 5 (55.6%) were cohabiting; 25 (96.2%) were single; 4 (100%) were divorced/separated (n=4) and 2 (66.7%) were widowed. This indicates those in the divorced status engaged relatively more in sexual acts compared to the other marital statuses of the same category (0-9 times), although in absolute terms they engaged in fewer acts. These findings are significant at the 5% level as Pearson's chi square coefficient (P) = 0.019.

TABLE 4.28: RESPONDENTS' MARITAL STATUS AND NUMBER OF SEXUAL ACTS IN the MONTH PRECEEDING DATA COLLECTION (n=125).

			MARITAL STATUS					TOTAL
			MARRIED	COHABITING	SINGLE	DIVORCED	WIDOWED	
How many times have you had sex during the last month?	0-9 times	Count	55	5	25	4	2	91
		%	66.3%	55.6%	96.2%	100.0 %	66.7 %	72.8 %
	10-19 times	Count	21	1	0	0	1	23
		%	25.3%	11.1%	.0%	.0%	33.3 %	18.4 %
	20-29 times	Count	7	2	0	0	0	9
		%	8.4%	22.2%	.0%	.0%	.0%	7.2%
	30-39 times	Count	0	1	1	0	0	2
		%	.0%	11.1%	3.8%	.0%	.0%	1.6%
TOTAL		**COUNT (n)**	**83**	**9**	**26**	**4**	**3**	**125**
		%	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

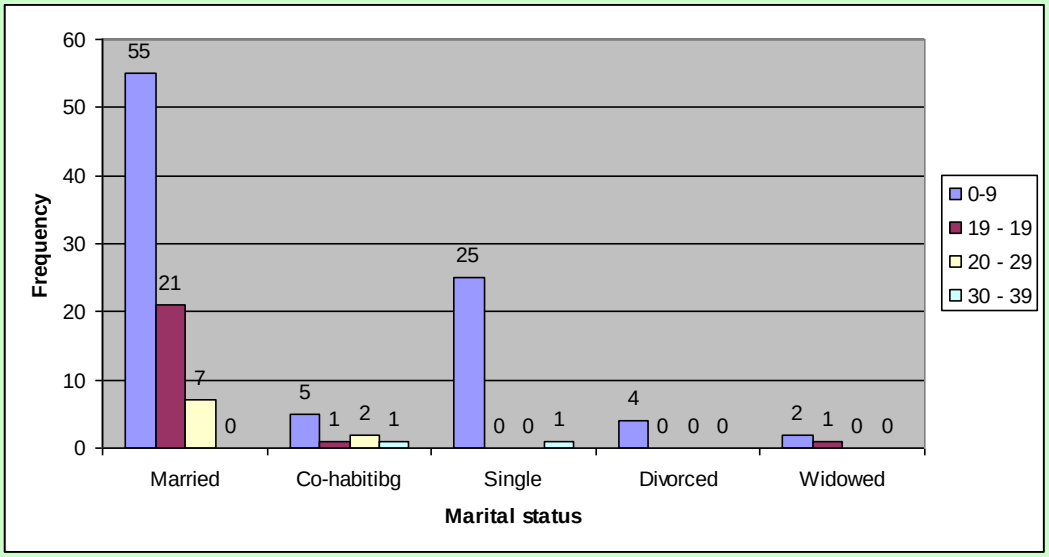


Figure 4.21: Distribution of sexual acts in the month preceding the study among the marital categories (n=125).

4.8.2 Attitudes to condoms.

A Cronbach's alpha coefficient of 0.782 was obtained for a combination of three items that measured attitudes to condoms; these are items number 55, 59 and 60 in the questionnaire (see section 3.4.2.1).

4.8.2.1 Patterns of perceptions or behaviours associated with attitudes to condoms usage.

In this subsection results related to objective number three (relating respondents' responses with regard to attitudes to condoms using statistical methods so that patterns of perceptions or behaviours can be determined) are presented with a view of establishing patterns of perceptions or behaviour among the respondents related to attitudes to condoms.

4.8.2.1.1 Gender of respondents versus condom acceptance.

There was agreement among 34 (54.0%) of the female respondents that condoms had been accepted by the people in the community as part of their daily life, as opposed to 31 (44.2%) males who agreed. Being female was associated with greater belief of acceptance of condoms by the community; however this finding was not significant at the 5% level with a Pearson's chi square coefficient P= 0.546.

TABLE 4.29: GENDER TYPE OF RESPONDENTS VERSUS ACCEPTANCE OF CONDOMS (n=133).

			GENDER TYPE		TOTAL
			MALES (f)	FEMALES (f)	
People in this village accepted condoms as part of their daily life	Strongly agree	Count	5	7	12
		%	7.1%	11.1%	9.0%
	Agree	Count	26	27	53
		%	37.1%	42.9%	39.8%
	Disagree	Count	29	24	53
		%	41.4%	38.1%	39.8%
	Strongly disagree	Count	10	5	15
		%	14.3%	7.9%	11.3%
TOTAL		**COUNT (n)**	**70**	**63**	**133**
		%	**100%**	**100%**	**100%**

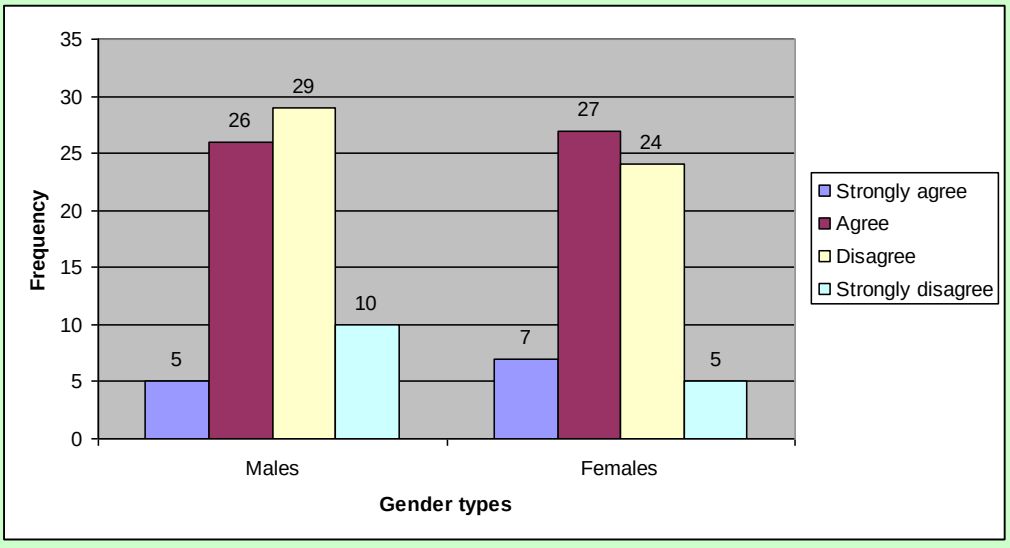


Figure 4.22: Distribution of gender type of respondents versus acceptance of condoms (n=133).

4.8.2.1.2 Age category of respondents versus condom acceptance.

Seven (7) (63.6%) respondents (n=11) in the 15 to 20 year age group and 21 (52.5%) (n=40) in the 31 to 40 age group agreed that condoms had been accepted

among people in the village. However 25 (52.1%) respondents in the 21 to 30 age group and 17 (54.8%) in the 41 to 50 age group disagreed. Respondents in the 21 to 30 and 41 to 50 age groups seem more likely not to accept condoms. This was however not statistically significant at the 5% level with a Pearson's chi square coefficient P= 0.795. Table 4.30 contains the supportive cross tabulation of the variables involved and it is illustrated in figure 4.24.

TABLE 4.30: AGE CATEGORY OF RESPONDENTS VERSUS ACCEPTANCE OF CONDOMS (n=130).

			AGE GROUP				TOTAL
			15-20	21-30	31-40	41-50	
People in this village accepted condoms as part of their daily life	Strongly agree	Count	1	5	5	1	12
		%	9.1%	10.4 %	12.5 %	3.2%	9.2%
	Agree	Count	6	18	16	13	53
		%	54.5 %	37.5 %	40.0 %	41.9 %	40.8%
	Disagree	Count	2	21	15	12	50
		%	18.2 %	43.8 %	37.5 %	38.7 %	38.5%
	Strongly disagree	Count	2	4	4	5	15
		%	18.2 %	8.3%	10.0 %	16.1 %	11.5%
Total		**Count (n)**	**11**	**48**	**40**	**31**	**130**
		%	**100%**	**100%**	**100%**	**100%**	**100%**

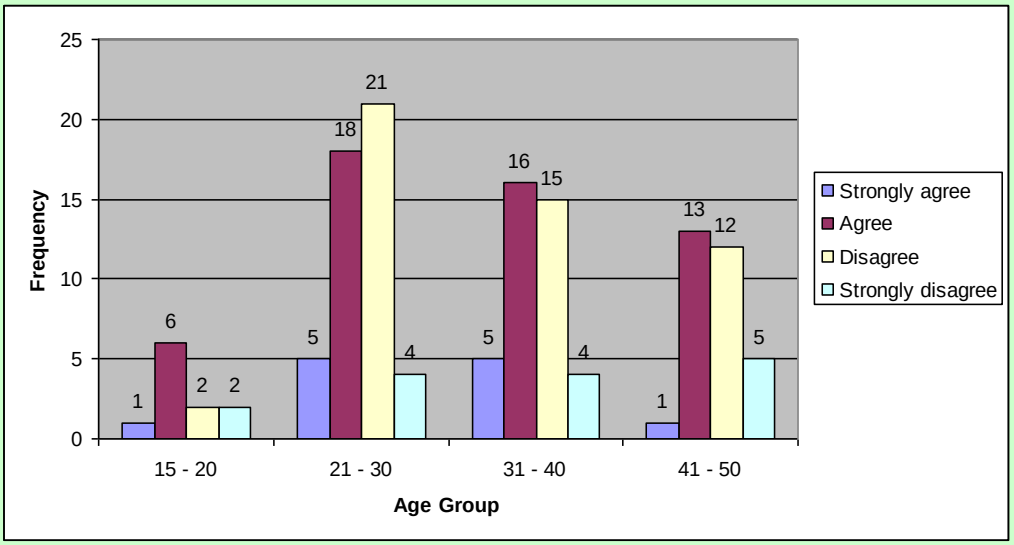


Figure 4.23: Distribution of age category of respondents versus acceptance of condoms (n=130).

4.8.2.1.3 Marital status of the respondents versus condom acceptance.

A mixed pattern of condom acceptance among the marital categories was revealed. Of the respondents, 49 (53.9%) married (n=91); 5 (55.5%) co-habiting (n=9) and 2 (66.7%) widowed (n=3), were of the opinion that condoms had been accepted in the village; while among the single respondents 17 (65.4%) (n=26) and of the divorced respondents 4 (100%) (n=4), disagreed in this regard. Details are presented in table 4.31 and figure 4.25. The single and divorced respondents appears not likely to accept condoms; this finding was statistically significant at the 5% level with a Pearson's chi square coefficient P= 0.005.

TABLE 4.31: MARITAL STATUS VERSUS ACCEPTANCE OF CONDOMS (n=133).

			MARITAL					**TOTAL**
			MAR-RIED	**CO-HABITING**	**SINGLE**	**DIVORCED**	**WIDOWED**	
People in this village have accepted condoms as part of their daily life	Strongly agree	Count	7	4	1	0	0	**12**
		%	7.7%	44.4%	3.8%	.0%	.0%	**9.0%**
	Agree	Count	42	1	8	0	2	**53**
		%	46.2 %	11.1%	30.8 %	.0%	66.7%	**39.8 %**
	Disagree	Count	32	3	15	2	1	**53**
		%	35.2 %	33.3%	57.7 %	50.0%	33.3%	**39.8 %**
	Strongly disagree	Count	10	1	2	2	0	**15**
		%	11.0 %	11.1%	7.7%	50.0%	.0%	**11.3 %**
TOTAL		COUNT (n)	91	9	26	4	3	**133**
		%	100%	100%	100%	100%	100%	**100%**

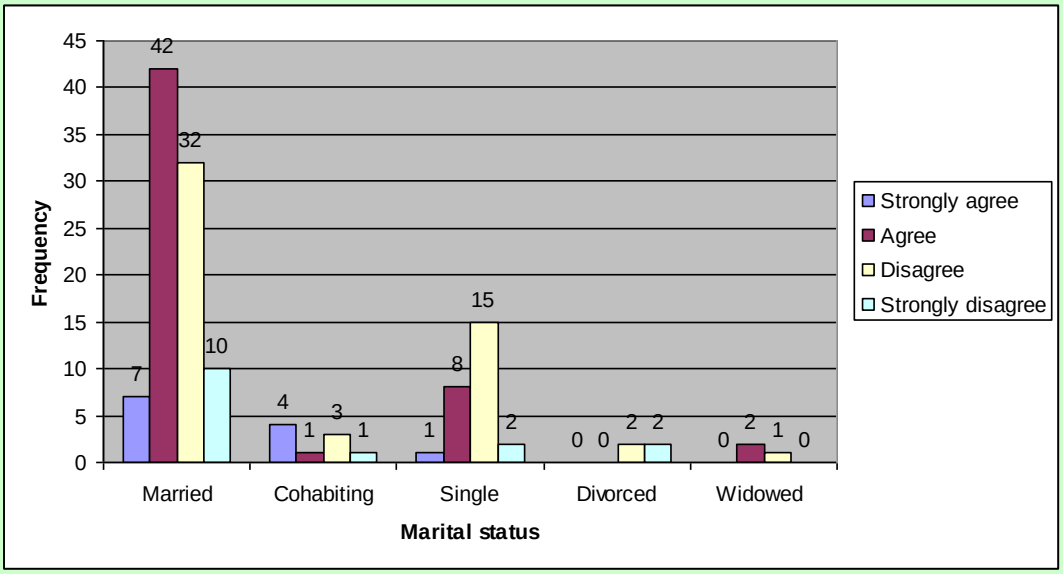


Figure 4.24: Distribution of marital status versus acceptance of condoms (n=133).

4.8.2.1.4 Gender of respondents versus feelings of guilt if they were to infect other people with HIV.

Both genders (n=131) expressed feelings of guilt if they were to infect others with HIV; 52 (74.3%) (n=70) male and 47 (77%) (n=61) female respondents indicated that they would feel guilty. Table 4.32 exhibits the cross tabulated details. There was no statistically significant relationship found between gender and feeling guilty at the 5% level, with a Pearson's chi square coefficient P= 0.312.

TABLE 4.32: GENDER CATEGORY OF RESPONDENTS VERSUS FEELINGS OF GUILT IF THEY INFECT OTHER PEOPLE WITH HIV (n=131).

			GENDER TYPE		TOTAL
			MALES	FEMALES	
I will feel guilty if I should infect someone else with HIV	Strongly agree	Count	16	16	**32**
		%	22.9%	26.2%	**24.4%**
	Agree	Count	36	31	**67**
		%	51.4%	50.8%	**51.1%**
	Disagree	Count	7	10	**17**
		%	10.0%	16.4%	**13.0%**
	Strongly disagree	Count	11	4	**15**
		%	15.7%	6.6%	**11.5%**
TOTAL		**COUNT (n)**	**70**	**61**	**131**
		%	**100.0%**	**100.0%**	**100.0%**

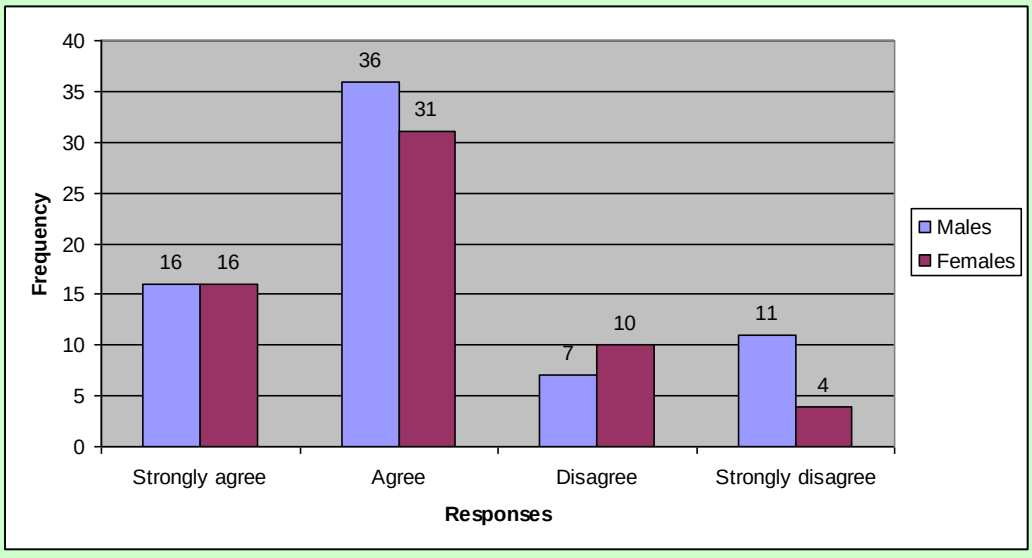


Figure 4.25: Gender category of respondents versus feelings of guilt if they infect other people with HIV (n=131).

4.8.2.1.5 Age category of respondents versus feelings of guilt if they infect other people with HIV.

Respondents (n=128) across all age categories would not knowingly infect others with HIV as they would feel guilty. Feelings of guilt were highest in the 41 to 50 year

age group (26) (83.9%) (n=31) and least in the 15 to 20 year age group (7) (63.7%) (n=11). The Pearson's chi square coefficient P= 0.146 yielded no statistically significant relationship at the 5% level. Table 4.33 contains the cross tabulated results pertaining to the variables of feeling guilty and age.

TABLE 4.33: AGE CATEGORY OF RESPONDENTS VERSUS FEELINGS OF GUILT IF THEY INFECT OTHER PEOPLE WITH HIV (n=128).

			AGE CATEGORY				TOTAL
			15-20	**21-30**	**31-40**	**41-50**	
I will feel guilty if I should infect some one else with HIV	Strongly agreed	Count	4	15	7	6	**32**
		%	36.4%	31.9%	17.9%	19.4%	**25.0%**
	Agreed	Count	3	21	20	20	**64**
		%	27.3%	44.7%	51.3%	64.5%	**50.0%**
	Dis-agreed	Count	1	4	9	3	**17**
		%	9.1%	8.5%	23.1%	9.7%	**13.3%**
	Strongly Dis-agreed	Count	3	7	3	2	**15**
		%	27.3%	14.9%	7.7%	6.5%	**11.7%**
TOTAL		**COUNT (n)**	**11**	**47**	**39**	**31**	**128**
		%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

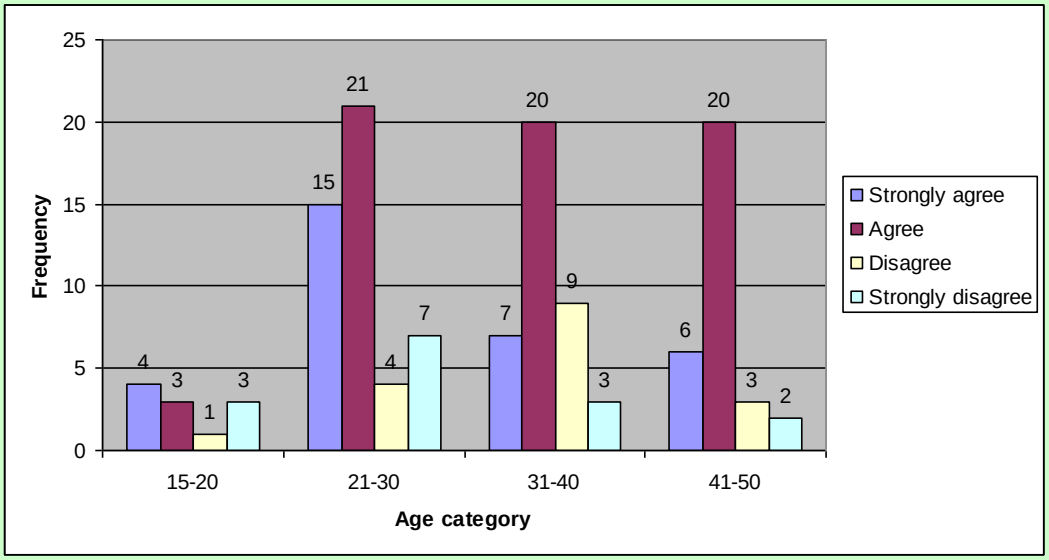


Figure 4.26: Age category of respondents versus feelings of guilt if they infect other people with HIV (n=128).

4.8.3 Condom use

A Cronbach's alpha coefficient of 0.784 was obtained with a combination of two items that measured condom use; these were items number 37 and 38 (see section 3.4.2.1). Forty nine respondents (49) (38.9%) reported that they always use a condom during sexual intercourse (see table 4.12). The main reasons stated for the use of condoms are presented in table 4.14. Pool et al (2006:482-483) reported that of the 76% respondents who reported condom use, the main purpose was to protect against HIV and pregnancy. This finding was corroborated by Najjumba, et al [Sa]: 72) who reported that condoms were used mainly to protect against pregnancy and sexually transmitted diseases.

4.8.3.1 Patterns of behaviours associated with condom use

In this subsection results related to objective number three (relating respondents' responses with regard to condom use using statistical methods so that patterns of behaviours can be determined) are presented with a view of establishing patterns of behaviour related to condom use among the respondents.

4.8.3.1.1 Number of sexual acts reported by respondents versus condom use in the month preceding data collection.

Respondents were asked about the number of times they had engaged in sexual intercourse in the month preceding data collection and on how many of those acts a condom was used. Noteworthy is the fact that condom use in the past month was reported mainly among those who reported a frequency of use of up to nine (0 - 9) times. Among these eighty seven (87) (75.0%) (n=116) engaged in 0 – 9 sex acts, this was followed by those who reported 10-19 sexual acts with 21 (18.1%); followed by 20-29 sexual acts category who were 8 (6.9%); details are in table 4.34 and figure 4.28. These findings indicate that the more sexual acts a respondent engaged in, the less likely he/she was to have used a condom. This finding was significant at 5% level, as Pearson's chi square coefficient (P) value was 0.000.

TABLE 4.34: NUMBER OF RESPONDENTS' SEXUAL ACTS VERSUS CONDOM USE IN THE MONTH PRECEEDING DATA COLLECTION (n=119).

			FREQUENCY OF CONDOM USE				TOTAL
			0-9	10-19	20-29	30-39	
How many times have you had sex during the last month?	0-9	Count	87	0	0	0	87
		%	75.0 %	.0%	.0%	.0%	73.1%
	10-19	Count	21	1	0	0	22
		%	18.1 %	100.0%	.0%	.0%	18.5%
	20-29	Count	8	0	1	0	9
		%	6.9%	.0%	100.0 %	.0%	7.6%
	30-39	Count	0	0	0	1	1
		%	.0%	.0%	.0%	100.0%	.8%
TOTAL		**COUNT (n)**	**116**	**1**	**1**	**1**	**119**
		%	**100**	**100%**	**100%**	**100%**	**100%**

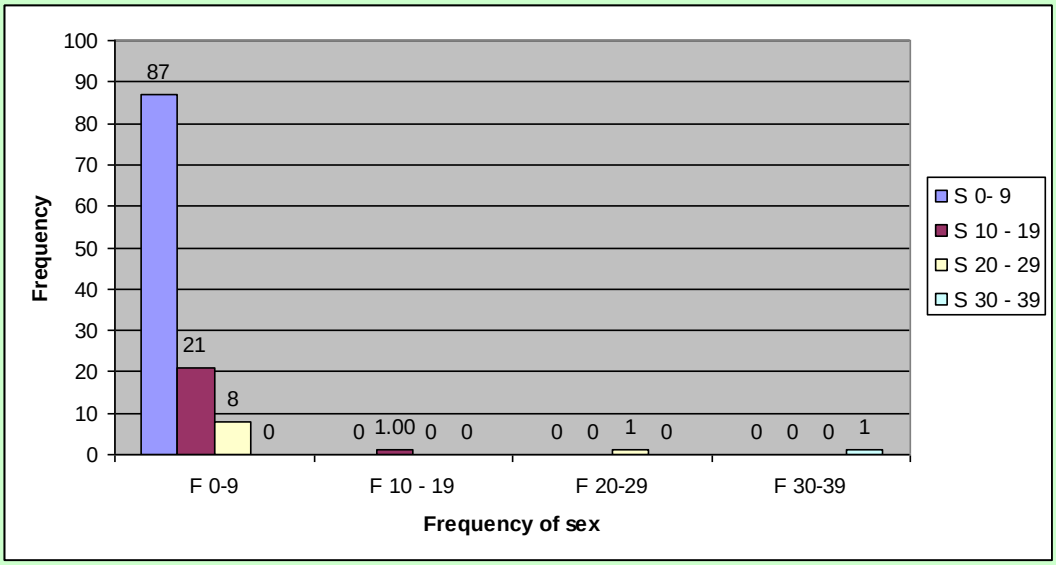


Figure 4.27: Distribution of respondents' sexual acts versus condom use in the month prior to data collection (n=119).

4.8.3.1.2 Gender type of respondents versus always using a condom

Among the respondents (n=126), 30 (45.5%) males and 19 (31.7%) females reported always using condoms during sex; the percentage of non- use was higher among the females (n=60) at 41 (68.4%) compared to males (n=66) at 36 (54.5%). Being female seems to be associated with a greater probability of not using a condom; this notion was however not statistically significant at the 5% level with a Pearson's chi square coefficient of P= 0.414. Ntozi (2003: 112-113) reported that female sex workers use or non-use of condoms was situational; sometimes customers would force them to have sex without them or in other instances customers paid extra for non condom use. Kibombo et al (2008:12, 15) reported that females in one urban and one rural area of Uganda had little or no negotiation power when it came to condom use. Wong et al (2003: 163) reported similar findings of low condom use among female sex workers in China.

TABLE 4.35: GENDER VERSUS RESPONDENTS ALWAYS USING A CONDOM (n=126).

			SEX		TOTAL
			MALES	FEMALES	
I always use a condom during sex	Strongly Agree	Count	12	6	18
		%	18.2%	10.0%	14.3%
	Agree	Count	18	13	31
		%	27.3%	21.7%	24.6%
	Disagree	Count	27	31	58
		%	40.9%	51.7%	46.0%
	Strongly Disagree	Count	9	10	19
		%	13.6%	16.7%	15.1%
TOTAL		**COUNT (n)**	**66**	**60**	126
		%	**100%**	**100%**	**100%**

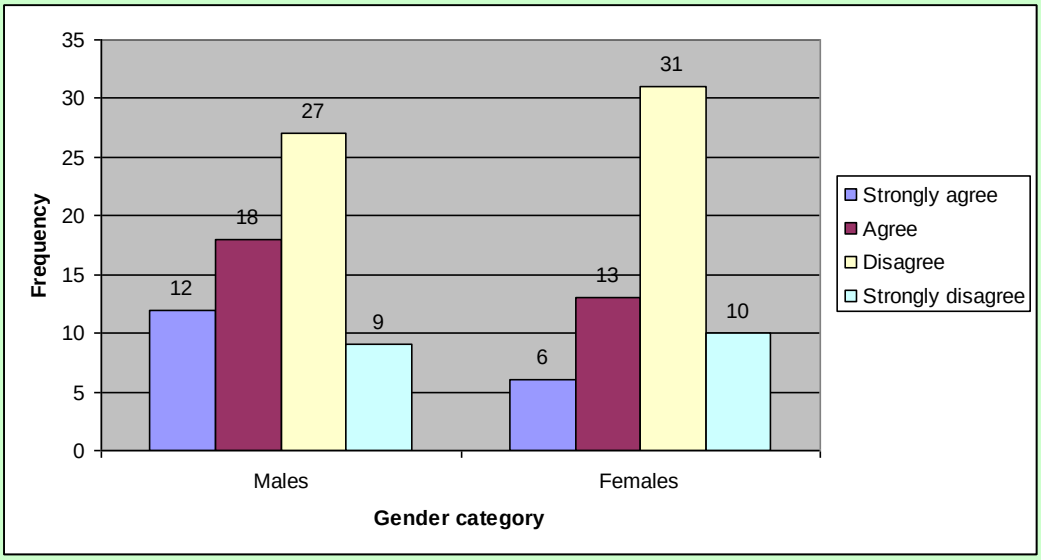


Figure 4.28: Distribution of gender and respondents always using condoms (n=126).

4.8.3.1.3 Age of respondents versus always using a condom

With regard to age, disagreement as to always using a condom was highest in the 15 to 20 age group (n=11) with 8 (72.8%) respondents stating that they did not always use a condom. This was followed by the 31 to 40 age group (n=36) with 22

(61.1%) respondents in disagreement. Disagreement was percentagewise (proportionally) least in the 21 to 30 age group (n=45) with 26 (57.8%). These findings are presented in table 4.36 and illustrated in figure 4.30. These findings suggest that respondents across all age groups did not regularly use condoms. With a Pearson's chi square coefficient of P= 0.162, there was however no statistically significant association between the variables of age and inconsistent condom use at the 5% level. The low usage of condoms among the respondents is similar to what Kibombo et al (2008:12 & 15) and Bunnell et al (2008:621) reported.

TABLE 4.36: AGE OF RESPONDENTS VERSUS ALWAYS USING CONDOM (n=123)

			AGE CATEGORY				**TOTAL**
			15-20	**21-30**	**31-40**	**41-50**	
I always use a condom during sex	Strongly Agree	Count	2	7	5	4	**18**
		%	18.2%	15.6%	13.9%	12.9%	**14.6%**
	Agree	Count	1	12	9	9	**31**
		%	9.1%	26.7%	25.0%	29.0%	**25.2%**
	Disagree	Count	4	25	14	12	**55**
		%	36.4%	55.6%	38.9%	38.7%	**44.7%**
	Strongly Disagree	Count	4	1	8	6	**19**
		%	36.4%	2.2%	22.2%	19.4%	**15.4%**
TOTAL		**COUNT (n)**	**11**	**45**	**36**	**31**	**123**
		%	**100.0%**	**100.0 %**	**100.0 %**	**100.0 %**	**100.0 %**

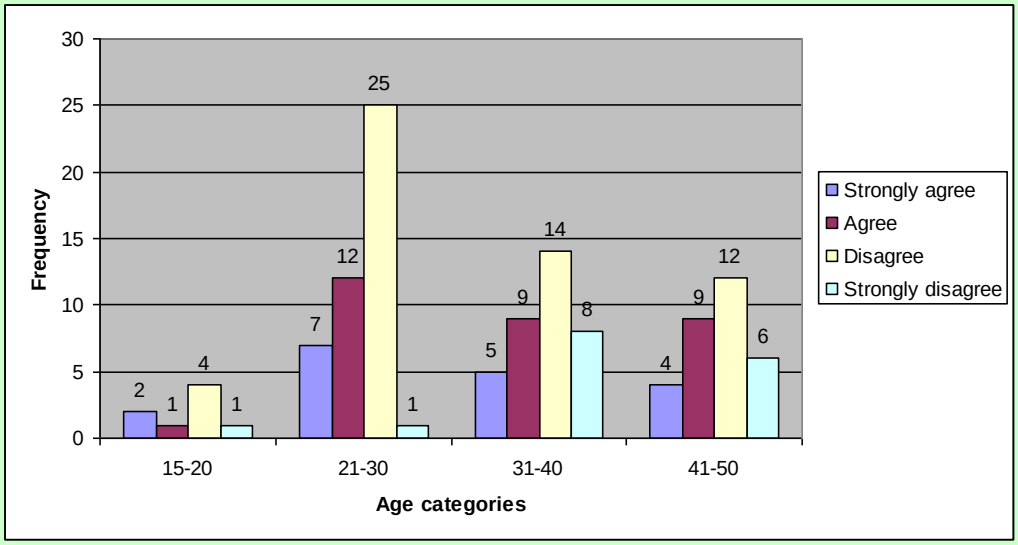


Figure 4.29: Age of respondents versus always using condom (n=123)

4.8.3.1.4 Marital status of respondents versus always using a condom

Married respondents 55 (63.2%) (n=87) and cohabiting respondents 7 (77.7%) (n=9) reported the least consistent use of condoms. Of the single respondents 13 (52%) (n=25) reported proportionally the highest consistent use of condoms. It thus appears that being in a married or cohabiting situation was associated with a high chance of not using a condom during sex, however, this conclusion was not statistically supported with a Pearson's chi square coefficient of P= 0.589 at the 5% level. Ntozi et al (2003:111) mentioned non condom use among married couples and the reason given was trust, especially from the female partners towards their male partners. Pool et al (2006: 486) reported that using a condom in a stable relationship was considered "taboo" and could be one of the many reasons condoms were not used. However, there was a contradiction among the singles category in that they reported a low condom acceptance as presented in section 4.8.2.1.3. Table 4.37 contains the cross tabulated information on marital status versus consistent use of condoms.

TABLE 4.37: MARITAL STATUS OF RESPONDENTS VERSUS THEIR ALWAYS USING CONDOM (n=126).

			MARITAL					TOTAL
			MAR-RIED	CO-HABI TING	SIN GLE	DIVO RCED	WIDO WED	
I Always use a con-dom During sex	Stron-gly Agr-Eed	Count	12	2	4	0	0	**18**
		%	13.8%	22.2%	16.0%	.0%	.0%	**14.3%**
	Ag-Reed	Count	20	0	9	1	1	**31**
		%	23.0%	.0%	36.0%	33.3%	50.0%	**24.6%**
	Dis-agreed	Count	44	4	8	1	1	**58**
		%	50.6%	44.4%	32.0%	33.3%	50.0%	**46.0%**
	Stro-ngly Dis-agreed	Count	11	3	4	1	0	**19**
		%	12.6%	33.3%	16.0%	33.3%	.0%	**15.1%**
TOTAL		**COUNT (n)**	**87**	**9**	**25**	**3**	**2**	**126**
		%	**100.0%**	**100.0%**	**100.0 %**	**100.0%**	**100.0%**	**100.0%**

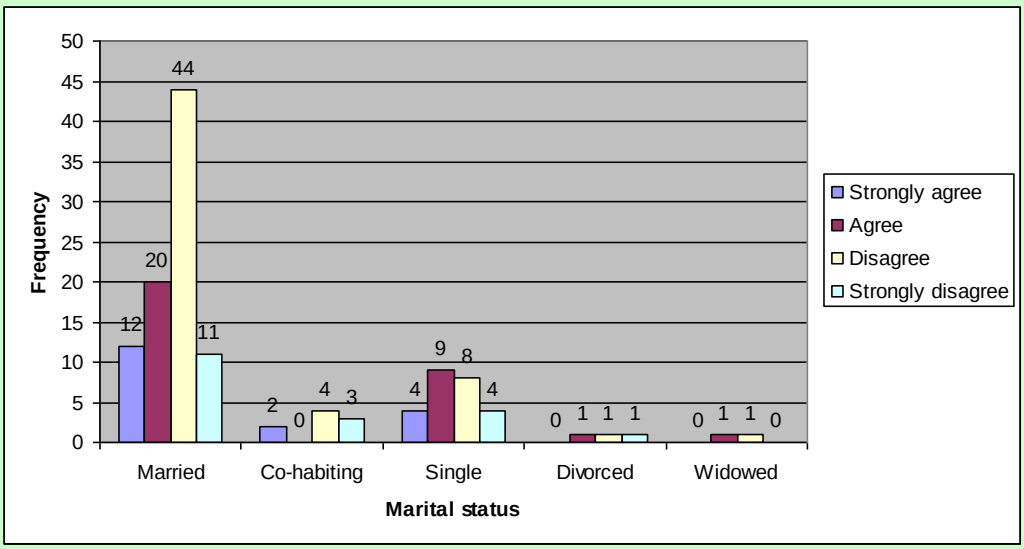


Figure 4.30: Marital status of respondents versus their always using condoms (n=126).

4.8.3.1.5 Education level of respondents versus their always using a condom

Of the respondents (n=126); 27 (57.5%) with primary level of education (n=47) and 43 (70.1%) with ordinary level of education (n=61), did not always use condoms. However 2 (66.7%) respondents of those with an advanced level education (n=3) and 9 (60%) with a tertiary level of education (n=15) reported always using condoms. It therefore appeared that having a higher educational level was associated with a higher chance of always having used a condom in the month prior to data collection. This notion was however not statistically significant at the 5% level with a Pearson's chi square coefficient of P=0.108. It was also reported in the Uganda HIV/AIDS sero - behavioural survey of 2004—2005, that youths with a higher education were more likely to use condoms than other educational level respondents (MOH 2006:83).

TABLE 4.38: EDUCATION LEVEL OF RESPONDENTS VERSUS THEIR ALWAYS USING CONDOM (n=126).

			EDUCATIONAL LEVEL				TOTAL
			PRIMARY	ORDINARY LEVEL	ADVANCED LEVEL	TERTIARY	
I always use a condom during sex	Strongly Agreed	Count	10	5	0	3	18
		%	21.3%	8.2%	.0%	20.0%	14.3%
	Agreed	Count	10	13	2	6	31
		%	21.3%	21.3%	66.7%	40.0%	24.6%
	Dis-agreed	Count	17	34	1	6	58
		%	36.2%	55.7%	33.3%	40.0%	46.0%
	Strongly Dis-agreed	Count	10	9	0	0	19
		%	21.3%	14.8%	.0%	.0%	15.1%
TOTAL		**COUNT (n)**	**47**	**61**	**3**	**15**	**126**
		%	**100%**	**100%**	**100%**	**100%**	**100%**

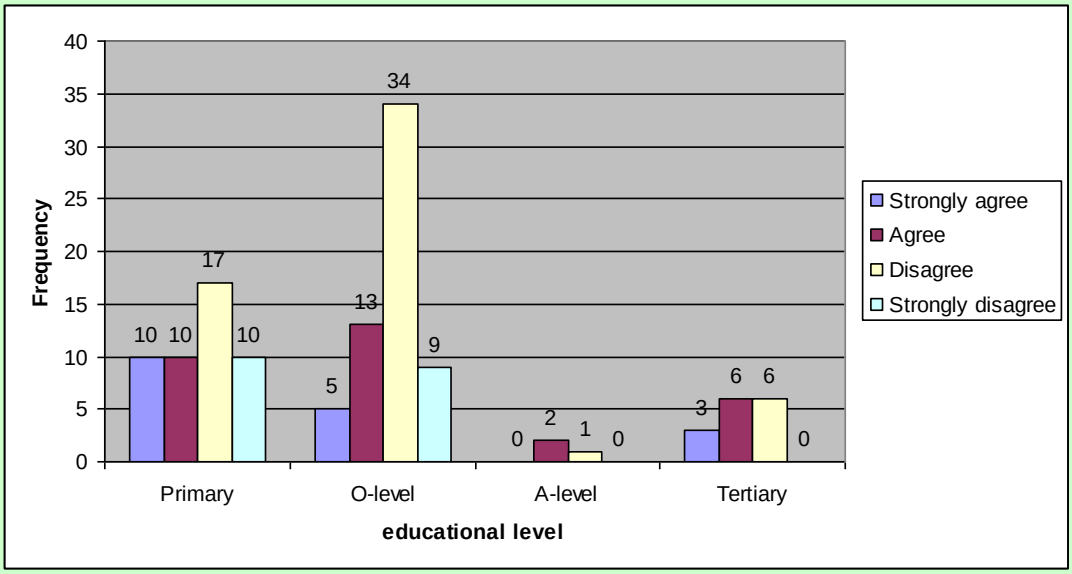


Figure 4.31: Distribution of educational level of respondents and their always using condoms (n=126).

4.8.3.1.6 Gender of respondents versus condom use at last sexual encounter

Forty (40) (63.5%) female respondents (n=63) and 35 (50%) male respondents (n=70) of a total of 133 respondents reported not having used a condom during the last sexual encounter. Being female therefore seemed to be associated with the likelihood of not having used a condom at the last sexual encounter; this was however not statistically significant at 5% with a Pearson's chi square coefficient P= 0.117. In the Uganda HIV/AIDS sero - behavioural survey of 2004—2005, 43% of males and 56% of females in the 15 – 49 age group reported condom use at last sexual exposure (MOH 2006{b}:66). This finding is also consistent with reports by Kibombo, et al (2008:12 & 15), Kajubi et al (2005:81) and Bunnell et al (2008:621) as discussed in section 2.3.2.2. Table 4.39 exhibits detail relating to the cross tabulation for the Pearson chi square calculation.

TABLE 4.39: GENDER TYPE OF RESPONDENTS VERSUS USE OF CONDOMS AT LAST SEXUAL ENCOUNTER (n=133).

			GENDER TYPE		TOTAL
			MALES	FEMALES	
The last time you had sexual intercourse, was a condom used?	Yes	Count	35	23	58
		%	50.0%	36.5%	43.6%
	No	Count	35	40	75
		%	50.0%	63.5%	56.4%
TOTAL		**COUNT (n)**	**70**	**63**	**133**
		%	**100.0 %**	**100.0%**	**100.0%**

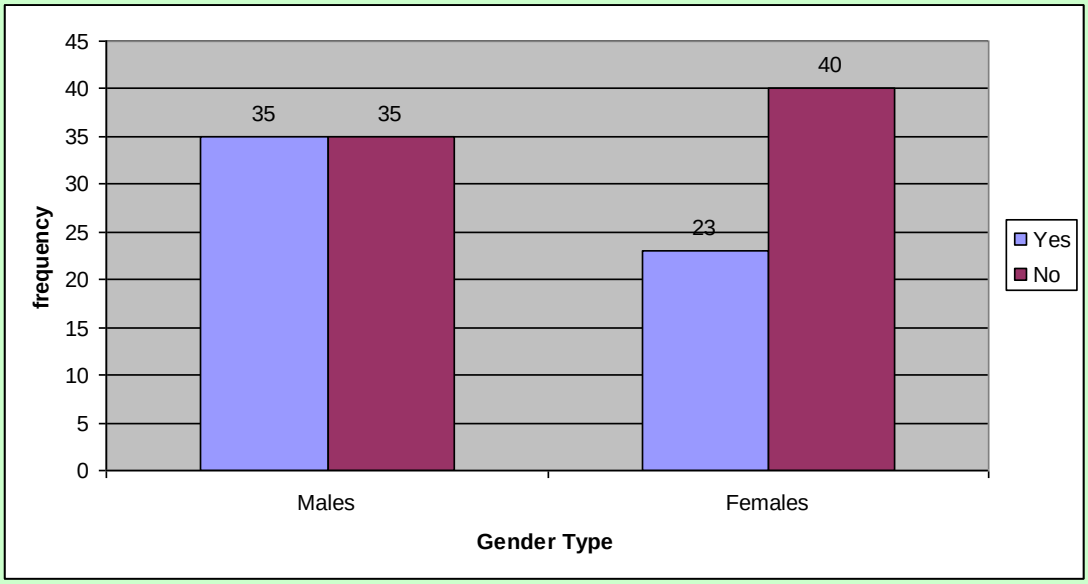


Figure 4.32: Distribution of gender type of respondents and use of condoms at last sexual encounter (n=133).

4.8.3.1.7 Marital status of respondents versus condom use at last sexual encounter

A higher incidence of the non-use of condoms at the last sexual encounter was reported among the married category 56 (61.5%) (n=91); cohabiting category 6 (66.7%) (n=9) and the divorced category 3 (75.0%) (n=4). Condom use was reported among 17 (65.4%) (n=26) single and 2 (66.7%) (n=3) widowed respondents. This

implies that married, cohabiting and divorced respondents seem less likely to have used a condom at their last sexual encounter. This was however not statistically significant at the 5% level with a Pearson's chi square coefficient of P=0.108. Bunnell et al (2008:621) found an 83% level of non condom use in marriage and cohabiting situations among those who were HIV positive.

TABLE 4.40: MARITAL STATUS OF RESPONDENTS VERSUS CONDOM USE AT LAST SEXUAL ENCOUNTER (n=133).

			MARITAL STATUS					TOTAL
			MARR-IED	COHA-BITING	SING-LE	DIVOR-CED	WIDO-WED	
The last time you had sexual intercourse, was a condom used?	Yes	Count	35	3	17	1	2	**58**
		%	38.5 %	33.3%	65.4 %	25.0%	66.7 %	**43.6%**
	No	Count	56	6	9	3	1	**75**
		%	61.5 %	66.7%	34.6 %	75.0%	33.3 %	**56.4%**
TOTAL		**COUNT (n)**	**91**	**9**	**26**	**4**	**3**	**133**
		%	**100%**	**100%**	**100 %**	**100%**	**100%**	**100%**

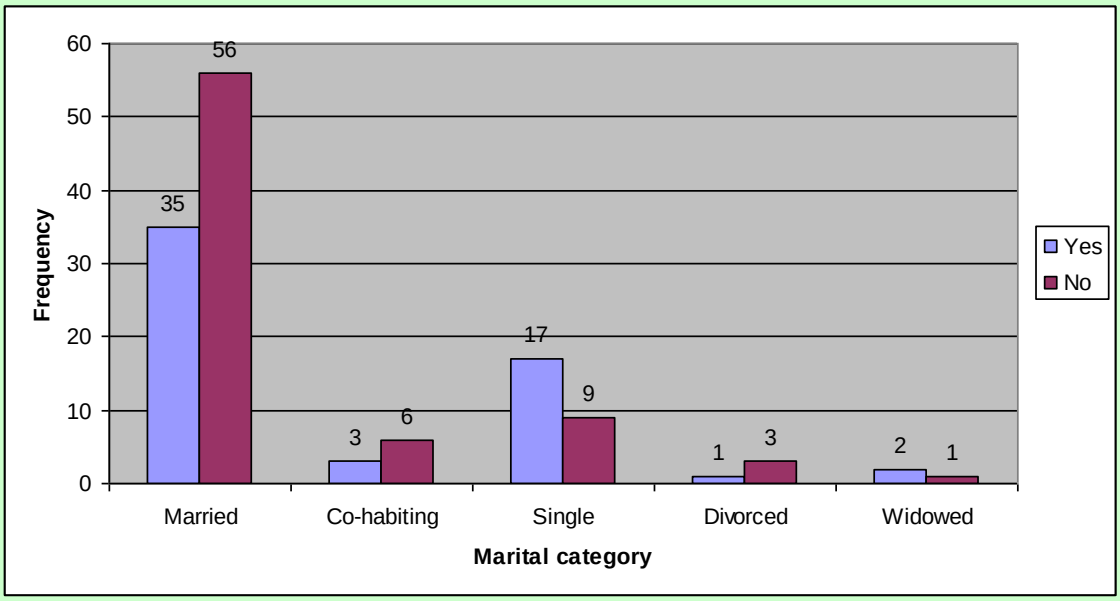


Figure 4.33: Distribution of marital category of respondents and use of condoms at last sexual encounter (n=133).

4.8.3.1.8 Educational level of respondents versus condom use at last sexual encounter

Two (2) (66.7%) (n=3) respondents with an advanced level and tertiary level 9 (52.9%) (n=17) reported using a condom during their last sexual encounters. Twenty two (22) (44.0%) of respondents with a primary level education (n=63) and 25 (39.7%) with ordinary level education (n=63) used a condom at their last sexual encounters. Respondents with a higher educational achievement therefore seem more likely to have used a condom at their last sexual encounters. This was however not statistically significant at the 5% level with a Pearson's chi square coefficient of P= 0.648.

TABLE 4.41: EDUCATIONAL LEVEL OF RESPONDENTS VERSUS CONDOM USE AT LAST SEXUAL ENCOUNTER (n=133).

			EDUCATIONAL LEVEL				TOTAL
			PRIMARY	O-LEVEL	A-LEVEL	TERTIARY	
The last time you had sexual intercourse, was a condom used?	Yes	Count	22	25	2	9	**58**
		%	44.0%	39.7%	66.7%	52.9%	**43.6%**
	No	Count	28	38	1	8	**75**
		%	56.0%	60.3%	33.3%	47.1%	**56.4%**
TOTAL		**COUNT (n)**	**50**	**63**	**3**	**17**	**133**
		%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

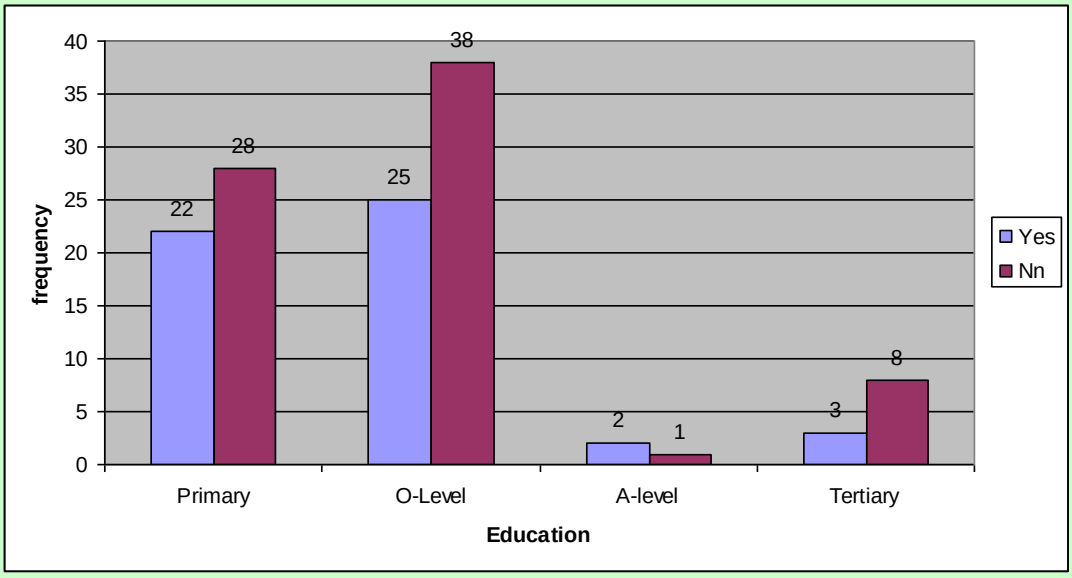


Figure 4.34: Educational level of respondents versus condom use at last sexual encounter (n=133).

4.8.3.1.9 Age of respondents versus condom use at last sexual encounter

Twenty eight (28) (58.3%) of the respondents (n=48) in the 21 to 30 age group reported using a condom during their last sexual encounter. The non use of condoms at their last sexual act was reported by 7 (63.6%) among the 15 to 20 age group (n=11),; from the 31 to 40 age group, 26 (65.0%) (n=40) and 20 (64.5%) of the 41 to 50 age group (n=31) (see table 4.42 and figure 4.27). This implies that condom use during their last sexual act was more likely to occur in the 21 to 30 age group. This notion was however not statistically supported by a Pearson's chi square coefficient of P=0.090 at the 5% level. The high percentage of non condom use among the 15 to 20 age group is in contrast to findings that 72.8% of respondents in the same age group reported using a condom during the month preceding the data collection.

TABLE 4.42: AGE OF RESPONDENTS VERSUS CONDOM USE AT LAST SEXUAL ENCOUNTER (n=130).

			AGE GROUP				TOTAL
			15-20	21-30	31-40	41-50	
The last time you had sexual intercourse, was a condom used?	Yes	Count	4	28	14	11	57
		%	36.4%	58.3%	35.0 %	35.5 %	43.8%
	No	Count	7	20	26	20	73
		%	63.6%	41.7%	65.0 %	64.5 %	56.2%
TOTAL		**COUNT (n)**	**11**	**48**	**40**	**31**	**130**
		%	**100%**	**100%**	**100%**	**100%**	**100%**

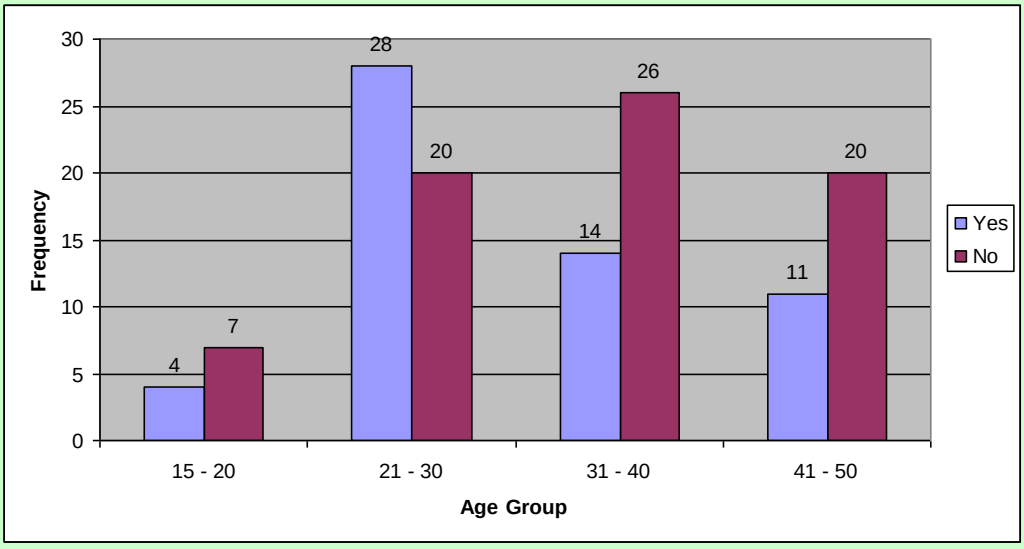


Figure 4.35: Distribution of age of respondents versus condom use at last sexual encounter (n=130).

4.8.4 Condom use and antiretroviral drugs

Cronbach's alpha coefficient for items 79 and 80 in the questionnaire, meant to measure condom use and antiretroviral drugs was low at 0.212 (see section 3.4.2.1).

They had a very low internal consistency and so could not reliably measure the two concepts. Nonetheless relational statistics were calculated to establish a relationship among different variables.

4.8.4.1 Patterns of behaviours associated with condom use and antiretroviral drugs

In this sub section results related to objective number three (relating respondents' responses with regard to condom use and ARVs, using statistical methods so that patterns of behaviours can be determined) are presented, with a view of establishing patterns of behaviour among the respondents related to condom use and antiretroviral drugs. Details are discussed in section 4.7.

4.8.4.1.1 Gender of respondents versus suggestion that it is safe to practice unprotected sex with a person taking ARVs

There was overall disagreement across both genders to the suggestion that they could engage in unprotected sex with a person taking ARVs. Among the male respondents 60 (88.2%) (n=68) disagreed; while for the females 61 (96.9%) (n=63) also disagreed. These respondents would thus not willingly expose themselves to the danger of HIV infection. This was however not statistically significant with a Pearson's chi square coefficient P= 0.259 at the 5% level. UNAIDS 2004:2, Okware et al (2005:627) and Emasu (2006) expressed fears and concerns that with the advent of ARVs peoples' attitudes and practices in regard to safe sex behaviours would be discarded, but this finding disproves those fears at least up to this study's point in time . The cross tabulated detail of the variables involved is shown in table 4.43 and figure 4.28.

TABLE 4.43: RESPONDENTS' GENDER TYPE VERSUS THEIR OPINION THAT IT IS SAFE TO PRACTICE UNPROTECTED SEX WITH A PERSON TAKING ARVS (n=131).

			GENDER TYPE		TOTAL
			MALES	FEMALES	
It is safe to practice unprotected sex with someone on ARVs	Strongly agreed	Count	2	0	**2**
		%	2.9%	.0%	**1.5%**
	Agreed	Count	6	2	**8**
		%	8.8%	3.2%	**6.1%**
	Disagreed	Count	31	34	**65**
		%	45.6%	54.0%	**49.6%**
	Strongly disagreed	Count	29	27	**56**
		%	42.6%	42.9%	**42.7%**
TOTAL		**COUNT (n)**	**68**	**63**	**131**
		%	**100.0 %**	**100.0%**	**100.0 %**

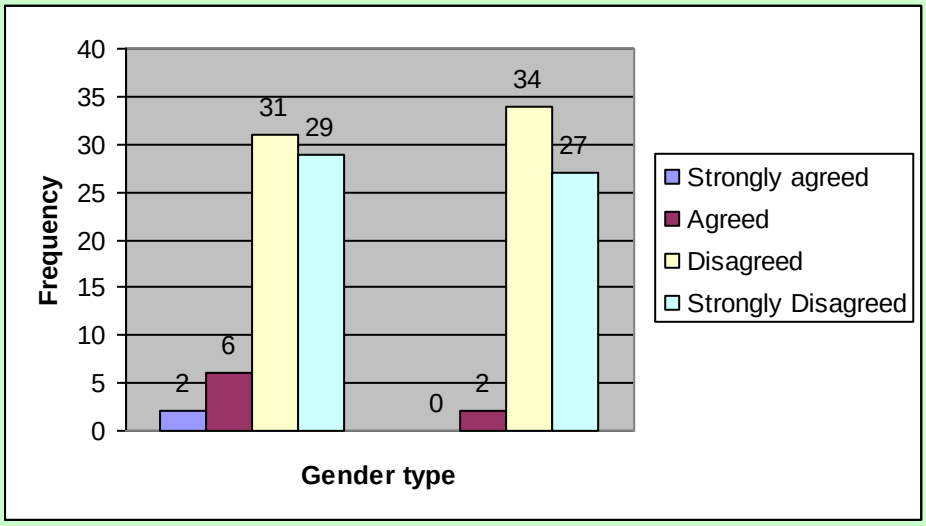


Figure 4.36: Distribution of respondents' gender type versus their opinion that it is safe to practice unprotected sex with a person taking ARVs (n=131).

4.8.4.1.2: Age category of respondents versus suggestion that it was safe to practice unprotected sex with a person taking ARVs

There was disagreement across all the age groups to the suggestion that it was safe to practice unprotected sex with a person taking ARVs. Disagreement was highest in the 15 to 20 age group at 100% (n=11), followed by the 38 (95%) in the 31 to 40 age group (n=40). The details are exhibited in table 4.44 and figure 4.29. This implies that the respondents in all age groups would not practice unprotected sex despite the partner being on ARVs because the dangers of HIV transmission were known. However, with a Pearson's chi square coefficient P= 0.557, no statistical significance at the 5% level was observed.

TABLE 4.44: AGE CATEGORY OF RESPONDENTS VERSUS SUGGESTION THAT IT IS SAFE TO PRACTICE UNPROTECTED SEX WITH A PERSON TAKING ARVS (128).

			AGE GROUP				TOTAL
			15-20	21-30	31-40	41-50	
It is safe to practice unprotected sex with a person taking ARVs	Strongly agreed	Count	0	2	0	0	**2**
		%	.0%	4.3%	.0%	.0%	**1.6%**
	Agreed	Count	0	2	2	4	**8**
		%	.0%	4.3%	5.0%	13.3%	**6.3%**
	Disagreed	Count	5	22	21	15	**63**
		%	45.5%	46.8%	52.5%	50.0%	**49.2%**
	Strongly disagreed	Count	6	21	17	11	**55**
		%	54.5%	44.7%	42.5%	36.7%	**43.0%**
TOTAL		**COUNT (n)**	**11**	**47**	**40**	**30**	**128**
		%	**100%**	**100%**	**100%**	**100%**	**100%**

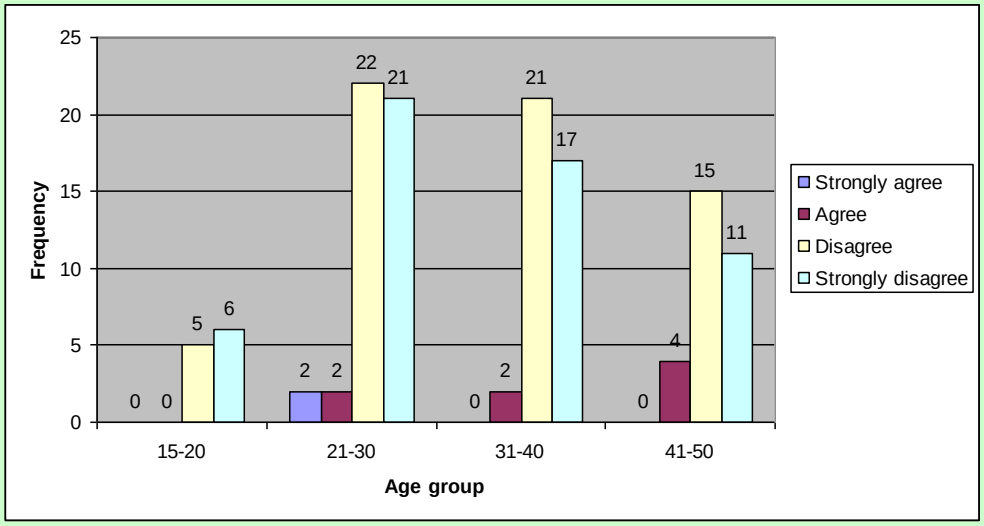


Figure 4.37: Distribution of age groups of respondents and suggestion that it was safe to practice unprotected sex with a person taking ARVs (n=128).

4.8.4.1.3: Marital status of respondents versus suggestion that some people taking ARVs have engaged in risky sexual practices

There was agreement among the married 71 (79.8%) (n=89), co-habiting 8 (100%) (n=8), single 19 (73.1%) (n=26) and the divorced 4 (100%) (n=4) respondents, that there had been risky sexual behaviour among people taking ARVs. However there was disagreement among the widowed by 2 (66.7%) (n=3) that there had been risky sexual behaviour among people taking ARVs. Details are contained in table 4.45 and figure 4.30. This implies that people on ARVs could have engaged in irresponsible sexual acts that could result in further transmission of the virus. This notion by respondents was however not statistically significant at the 5% level with a Pearson's chi square coefficient P= 0.13. Bunnell et al (2006:90) reported risky sexual behaviours among couples taking ARVs in the eastern part of Uganda. Atuyambe et al (2008:15-18) reported that unsafe sexual practices were reported among people believing that ARVs could weaken the HI-virus and that some HIV infected women even conceived voluntarily. Kalichman et al (2007:372-3) also reported risky sexual acts among people taking ARVs in Botswana.

TABLE 4.45: MARITAL STATUS OF RESPONDENTS VERSUS SUGGESTION THAT SOME PEOPLE TAKING ARVS HAVE ENGAGED IN RISKY SEXUAL PRACTICES (n=130).

			MARITAL STATUS					TO-TAL
			MARRIED	COHABITING	SINGLE	DIVORCED	WIDOWED	
Some people taking ARVs have engaged in unprotected sex	Strongly agreed	Count	16	5	6	1	0	**28**
		%	18.0%	62.5%	23.1%	25.0%	.0%	**21.5%**
	Agreed	Count	55	3	13	3	1	**75**
		%	61.8%	37.5%	50.0%	75.0%	33.3%	**57.7%**
	Disagreed	Count	13	0	6	0	2	**21**
		%	14.6%	.0%	23.1%	.0%	66.7%	**16.2%**
	Strongly Disagreed	Count	5	0	1	0	0	**6**
		%	5.6%	.0%	3.8%	.0%	.0%	**4.6%**
TOTAL		**COUNT (n)**	**89**	**8**	**26**	**4**	**3**	**130**
		%	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

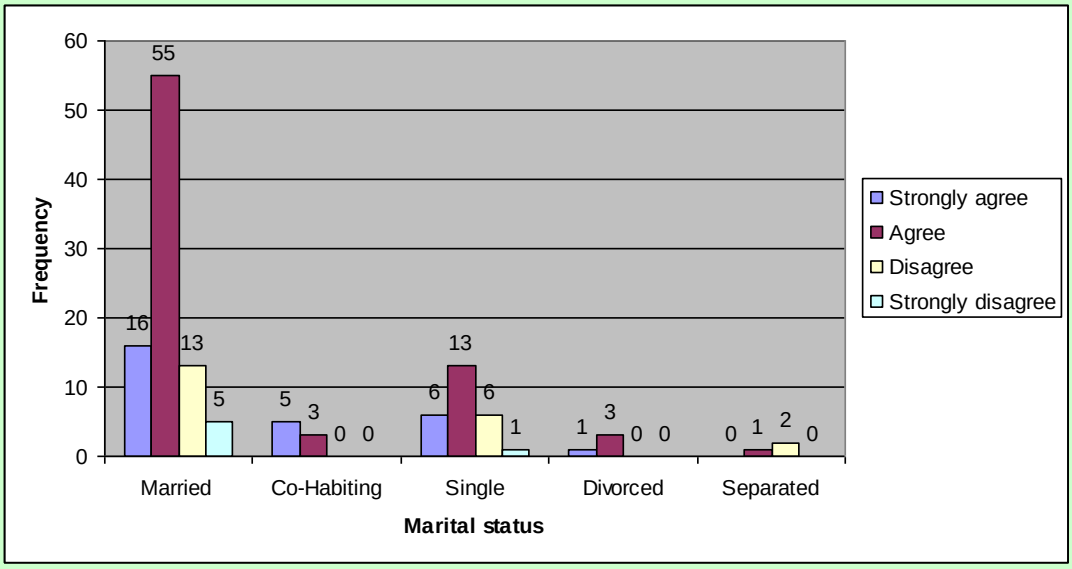


Figure 4.38: Distribution of marital status of respondents and suggestion that it was safe to practice unprotected sex with a person taking ARVs (n=130).

4.9 OVERVIEW OF RESEARCH FINDINGS

A number of respondents expressed high level of knowledge about HIV and AIDS; many knew the ways in which the virus could be transmitted, they knew about condoms and their potential to protect against a range of diseases and conditions; they knew what ARVs are, their actions and limitations. Most of the respondents had been sexually active in the month preceding the data collection. Condoms were accepted in the village but overall use was below 50%. Those with a higher educational level had used condoms more regularly. Condom use was low in the married and cohabiting relationships. Understanding of antiretroviral drugs was high among the respondents; many felt the need to practice protected sex despite the availability of ARVs.

4.10 CONCLUSION

In this chapter results from analysis of data collected for the study have been produced. In the next chapter a summary and interpretation of the research findings, conclusions and recommendations from the study, contributions and limitations of the study will be presented.

CHAPTER 5

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter an interpretation of research findings is given with conclusions and recommendations. The research process that was followed is briefly reiterated and contributions that this study could make are reflected upon.

5.2 RESEARCH DESIGN AND METHOD

The design of this study was quantitative, descriptive and cross sectional. The population for this study was all the people living in Uganda; it included target and accessible populations. The target population was all the people living in Jinja district, and it had homogeneity in many aspects. The accessible population comprised of all the people living in Budondo sub county, Jinja District. The sample was drawn from the accessible population. The study was conducted in all the five parishes of the sub county. Sampling was done using probabilistic methods and involved both multistage and random sampling methods. The parishes constituted the primary sampling frames, villages the secondary sampling frames and households were the tertiary sampling frames. At all these stages, simple random sampling was carried out, which resulted in the selection of a representative sample size of 133 respondents. An inclusion criterion was set for selecting the respondents and this was strictly followed. Data were collected using a self designed questionnaire that contained both structured and open ended questions. Data collection was done by field workers in close collaboration with the researcher. Data were cleaned, coded, entered on a spreadsheet and analysed by a statistician in conjunction with the researcher. Analysis was done using the Statistical Package for the Social Sciences (SPSS) version 15. In accordance with the research design, data analysis was conducted at the descriptive level of analysis

5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS

The study was set to assess knowledge, attitudes and practices of condom use in a rural area, in a period in which antiretroviral drugs (therapy) were widely available in

the country (Uganda). The interpretation of the findings of the data analysis that follows is according to the specific objectives set for the study, namely to:

- determine respondents' knowledge of HIV, its transmission, antiretroviral therapy (ART) and condoms
- describe respondents' attitudes to condoms and sexual practices in relation to HIV/AIDS, ARVs and condom use
- relate respondents' responses with regard to HIV/AIDS, ARVs and condoms using statistical methods so that patterns of perceptions or behaviours can be determined.

5.3.1 Knowledge of HIV, HIV transmission, antiretroviral therapy and condoms

The findings, interpretations and conclusion presented in this section pertain to objective one of the study; to determine respondents' knowledge of HIV, its transmission, antiretroviral therapy (ART) and condoms

5.3.1.1 Findings

The respondents (n=132) demonstrated high levels of knowledge of HIV, with 127 (96.2%) having heard about it; 114 (88%) of respondents (n=130) acknowledged that HIV was a serious infection. Despite the high awareness, only 61 (47.7%) of the respondents (n=128) knew that HIV was different from AIDS; among those who knew the difference 42 (67.7%) stated a correct difference. The higher the level of education a respondent had the more knowledgeable they appeared to be about these differences. Those with an advanced level of education had the highest level of knowledge 100% (n=2), while those with a primary level of education had the least at 25% (n=12).

The level of awareness of HIV transmission among the respondents was also high; 103 (78%) knew that to get infected with HIV was not related to bad luck; 113 (86.3%) knew that unprotected sex with an HIV infected person may lead to HIV infection; one hundred (100) (76.9%) of the respondents (n=130) knew that blood transfusion can lead to HIV infection; 106 (80.3%) knew that an infected mother can transmit the HI-virus to her unborn baby; however 89 (67.4%) of respondents (n=132) did not believe that protected sexual intercourse could prevent HIV infection.

Knowledge of transmission of HIV through blood transfusion was highest among the married with 73 (82.1%) respondents and least among the divorced with 2 (50%).

Sixty eight 68 (51.1%) of the respondents (n=133) gave a correct definition of condoms, according to the technical definitions. Those who knew that condoms prevent HIV transmission were 129 (97.7%); the same numbers knew that condoms prevent sexually transmitted infections; all respondents (n=130) (100%) knew that condoms prevent pregnancy. Seventy four (74) (57.4%) of the respondents (n=129) had attended a session on condom demonstration. There was knowledge that condoms could not disappear in a woman's vagina, 67 (51.9%).

Awareness of the actions and effects of antiretroviral therapy was high despite the recent introduction of these drugs on the Ugandan scene. One hundred and twenty (120) (92.3%) of the respondents (n=130) knew that ARVs do not cure HIV; ninety three (93) (71.5%) respondents (n=130) knew that the drugs could be obtained in their sub county. One hundred and nine (109) (82.6%) respondents (n=132) knew that people taking the drugs could lead normal lives and also have active sexual lives again, 110 (85.3%) knew that the drugs will not kill HIV and this was known across all educational levels; 111 (86.7%) knew that once a person started taking these drugs, one could not stop taking them despite getting better. However 101 (77.1%) of the respondents (n=131) exhibited little knowledge that ARVs could be used to prevent HIV infection. Respondents in all the age groups knew that ARVs do not cure HIV/AIDS.

5.3.1.2 Conclusion

Knowledge and awareness of HIV, its transmission, condoms and antiretroviral drugs was high among the respondents of Budondo Sub County. However, there is concern about some respondents' ability to differentiate between the concepts HIV and AIDS. Nonetheless, the programmes meant to educate the population about HIV, its transmission, prevention and antiretroviral therapy seemed effective. It is also concluded that as far as the Bubondo village is concerned, community information programmes on ARV's and ART seem to have been successful.

5.3.1.3 Recommendations

The HIV/AIDS prevention programmes should continue with their efforts at providing information to the public. More information should be provided in the area of differences between HIV and AIDS, and the use of ARVs in preventing HIV infection. This is particularly important in situations of mother to child transmission of HIV, rape and defilement. Such information should be provided to people of low social economic status whose knowledge is likely to be deficient (UBOS & Macro 2006:225). There should also be deliberate efforts to teach children at all levels in schools about the facts of HIV as this will close the gaps in knowledge of HIV. This is because not all children will be able to achieve the higher levels of education that are associated with having sufficient knowledge of HIV and AIDS. So if one acquires sufficient knowledge at an early age, then perceptions and behaviours related to HIV can be modified leading to fewer new infections.

5.3.2 Attitudes to condoms and sexual practices in relation to HIV/AIDS, antiretroviral therapy and condom use

The findings, interpretations and conclusion presented in this section pertain to objective two of the study namely to describe respondents' attitudes to condoms and sexual practices in relation to HIV/AIDS, ARVs and condom use

5.3.2.1 Attitudes towards condoms

5.3.2.1.1 Findings

Sixty one (61) (50%) of the respondents (n=122) reported a reduction in sexual pleasure with condoms; 68 (51.1%) disagreed that condoms had been accepted in the village as part of daily life. However, segments of the respondents had differing patterns of acceptance. Female respondents had a higher belief of community acceptance of condoms (34) (54%) (n=63) than males ((31) (44.2%) (n=70). The female 15 to 20 age group (n=11) had the highest acceptance of condoms with 7 (63.6%). According to marital status, the married 49 (53.9%); co-habiting 4 (55.5%) and widowed 2 (66.7%) accepted condoms; the divorced category had total rejection of condom with 4 (100%).

5.3.2.1.2 Conclusion

There was an overall low acceptance of condoms among the population of Budondo. This non acceptance was highest among the divorced and single respondents. This could imply that in the groups where unstable sexual relationships are more probable than in marriage and cohabitating relationships, and in which more positive orientation towards condoms should exist, the opposite is the case.

5.3.2.1.3 Recommendations

Effort should be increased into public health campaigns that are aimed at promoting acceptance of condoms by changing peoples' negative perception towards them. These condom efforts should be directed more at those who are divorced and single; those groups more likely to be involved in casual sexual relationships. These educational efforts could eventually bring about the desired behavioural change and thus lead to a decrease in new infections of HIV.

5.3.2.2 Sexual practices in relation to condom use

5.3.2.2.1 Finding

Condoms were used mainly to prevent HIV, 62 (46.6%); prevent other sexually transmitted infections, 56 (42.1%) and for family planning, 47 (35.3%). Condom use in the past month was highest amongst those who reported 0 to 9 sexual acts with 110 (97.4%) respondents (n=119). Regular condom use was reported by only 49 (38.9%) of the respondents (n=126). Such regular use was reported by those with an advanced level of education at 2 (66.7%) and those with a tertiary level of education at 9 (60%). The age group 15 to 20 reported the highest level of not always using a condom with 8 (72.8%) respondents (n=11), followed by the 31 to 40 age group (n=36) with 22 (61.1%) respondents. Overall, respondents across all age groups did not regularly use condoms.

Being in a married 55 (63.2%) or cohabiting 7 (77.7%) situation was associated with a high chance of not using a condom during sex. Forty (40) (63.5%) female respondents (n=63) and 35 (50%) male respondents (n=70) of a total of n=133 respondents reported not having used a condom during the last sexual encounter. Being female therefore seemed to be associated with a higher likelihood of not having used a condom at the last sexual encounter. The married, cohabiting and

divorced respondents seem more unlikely to have used a condom at their last sexual encounter.

With regard to condom use at the last sexual encounter, 2 (66.7%) (n=3) respondents with an advanced level and tertiary level 9 (52.9%) (n=17) reported using a condom during their last sexual encounters. With regard to age groups, condom use during the last sexual act was more likely to occur in the 21 to 30 age group than in the other age groups.

5.3.2.2.2 Conclusion

Overall use of condoms by sections of the population was low and inconsistent. The level of non use is more exhibited among the married and those in cohabiting relationships. Being a female was also associated with limited use of condoms. These findings also suggest a contradiction between attitude toward condoms and the actual use of condoms.

5.3.2.2.3 Recommendations

Efforts aimed at encouraging behavioural change directed at increased use of condoms are needed both at policy and program level. There is a need to incorporate condom education in secondary level schools' health programmes, so that young people beginning their sexually active lives get to know, accept and use condoms. It may also be worth health educators' to ascertain commitment to the use of condoms among members of the population as well as pointing out to members of the public that reason based on scientific knowledge should reign over attitude and even group pressure when it comes to the use of condoms in an era of HIV/AIDS and higher availability of ARV's.

5.3.2.3 Sexual practices in relation to antiretroviral therapy

5.3.2.3.1 Finding

Eighty two percent (82%) (n=108) of the respondents reported that they would not engage in unprotected sex with people infected by HIV even though such people were taking ARVs. No respondents across educational levels and age groups would engage in unprotected sexual intercourse despite the partner taking ARVs. In addition, of respondents who were married 80% (n= 71), cohabiting 100% (n= 8),

single 73% (n= 18) and the divorced 100% (n= 4) had a feeling that risky sexual behaviours occurred among people taking ARVs.

5.3.2.3.2 Conclusion

It is unlikely that the respondents would intentionally engage in risk taking by engaging in unprotected sex with an HIV infected partner even when taking ARVs. However, the notion among respondents that risky sexual behaviours occur where persons on ARV's are involved should not be taken as complete urban myth.

5.3.2.3.3 Recommendations

There is need to continue with sensitisation of the people as they seem to be taking on the HIV preventive messages. A concerted effort should also be directed towards persons on ARV's and ART, as part of the orientation of persons on enrolment in the role out programme for ARV's to emphasise misconceptions as to what ARV's are able to bring about and what not.

5.3.3 Relating respondents' responses with regard to HIV/AIDS, ARVs and condoms

The findings, interpretations and conclusion presented in this section pertain to objective three of the study. This objective aimed at establishing relationships in the responses to HIV/AIDS, ARVs and condoms using statistical methods so that patterns of perceptions or behaviours could be determined.

5.3.3.1 Relating responses about HIV/AIDS and condoms

5.3.3.1.1 Findings

The larger percentage of condom users 62 (46.6%) did so to guard against HIV (n=220). Respondents with an advanced level of education were more likely not to trust the potential of condoms in preventing HIV transmission. At a Pearson's chi square coefficient of P=0.036, this finding was statistically significant at the 5% level. There was agreement across all the educational levels that condoms prevent HIV transmission. This level of knowledge expressed as a percentage of the respondents (n=132) in any educational group, was highest among those with an ordinary level of education, 63 (100%) and 3 (100%) respondents with advanced level of education and 17 (100%) with tertiary education; this finding was however not statistically

significant at the 5% level with the Pearson's chi square coefficient P=0.247. There was agreement among 34 (54.0%) of the female respondents (n= 63) that condoms had been accepted by the people in the community as part of their daily life, as opposed to 31 (44.2%) males who agreed. This finding was however not significant at the 5% level with a Pearson's chi square coefficient P= 0.546. Respondents in the 21 to 30 and 41 to 50 age groups seemed more likely not to accept condoms. This was however not statistically significant at the 5% level with a Pearson's chi square coefficient P= 0.795. The single and divorced respondents appeared not likely to accept condoms; this finding was statistically significant at the 5% level with a Pearson's chi square coefficient P= 0.005. Both genders (n=131) expressed feelings of guilt if they were to infect others with HIV; 52 (74.3%) (n=70) male and 47 (77%) (n=61) female respondents indicated that they would feel guilty. The more sexual acts a respondent engaged in, the less likely one seemed to have used a condom. This finding was significant at 5% level, as Pearson's chi square coefficient (P) value was 0.000. Among the respondents (n=126), 30 (45.5%) males and 19 (31.7%) females reported always using condoms during sex; being a female seems to be associated with a greater probability of not using a condom; this notion was however not statistically significant at the 5% level with a Pearson's chi square coefficient of P= 0.414. With regard to age, disagreement as to always using a condom was highest in the 15 to 20 age group (n=11) with 8 (72.8%) respondents stating that they did not always use a condom. This was followed by the 31 to 40 age group (n=36) with 22 (61.1%) respondents in disagreement. Disagreement was percentage wise (proportionally) least in the 21 to 30 age group (n=45) with 26 (57.8%).

These finding suggests that respondents across all age groups did not regularly use condoms, there was however no statistically significant association between the variables of age and inconsistent condom use at the 5% level. There was disagreement between married respondents 55 (63.2%) (n=87) and cohabiting respondents 7 (77.7%) (n=9) with regard to consistent use of condoms. Being in a married or cohabiting situation was associated with a high chance of not using a condom during sex, however, this conclusion was not statistically supported with a Pearson's chi square coefficient of P= 0.589 at the 5% level. Having a higher educational level was associated with a higher chance of always having used a condom in the month prior to data collection. This notion was however not

statistically significant at the 5% level with a Pearson's chi square coefficient of P=0.108. Forty (40) (63.5%) female respondents (n=63) and 35 (50%) male respondents (n=70) of a total of 133 respondents reported not having used a condom during the last sexual encounter. Being female therefore seemed to be associated with the likelihood of not having used a condom at the last sexual encounter; this was however not statistically significant at 5% with a Pearson's chi square coefficient P= 0.117. A higher incidence of the non-use of condoms at the last sexual encounter was reported among the married category 56 (61.5%) (n=91); cohabiting category 6 (66.7%) (n=9) and the divorced category 3 (75.0%) (n=4). This implies that married, cohabiting and divorced respondents seem less likely to have used a condom at their last sexual encounter. This was however not statistically significant at the 5% level with a Pearson's chi square coefficient of P=0.108. Respondents with a higher educational achievement seem more likely to have used a condom at their last sexual encounters. This was however not statistically significant at the 5% level with a Pearson's chi square coefficient of P= 0.648. Condom use during their last sexual act was more likely to occur in the 21 to 30 age group. This notion was however not statistically supported by a Pearson's chi square coefficient of P=0.090 at the 5% level.

5.3.3.1.2 Conclusion

Having a low education level; being in the age group of 15 to 20 years; being married and in a co-habiting relationship; being female were all associated with low levels of condom use.

5.3.3.1.3 Recommendations

HIV infection prevention efforts and programmes therefore need to be specifically directed at these groups in society, especially for sub groups where the variables involved (gender, age and education) coincide, to encourage their increased use of condoms.

5.3.3.2 Relating responses about HIV/AIDS and ARVs

5.3.3.2.1 Findings

There was overall disagreement across all the age groups that ARVs cure HIV/AIDS. Across all the age categories, the level of disagreement was 80.0% and more. Disagreement was highest in the 41 to 50 age group with 30 (100%) respondents and least in the 21 to 30 age group with 47 (89.4%). This finding was however not statistically significant as at the 5% level with the Pearson's chi square coefficient P=0.542. There was disagreement across all the educational levels that ARVs destroy the HI-virus. The disagreement was highest among tertiary level education respondents (14) (87.0%) and least among the advanced level education respondents (2) (66.0%). This finding was however not statistically significant at the 5% level with the Pearson's chi square coefficient P= 0.73. There was disagreement across all the educational levels that ARVs do cure HIV/AIDS. The disagreement was higher among those with a tertiary level of education with 16 (94.1%) respondents and least among those with an advanced level of education with only 2 (66.7%) respondents. At the 5% level this finding was however not statistically significant with the Pearson's chi square coefficient P= 0.076. There was agreement among the married 71 (79.8%) (n=89), co-habiting 8 (100%) (n=8), single 19 (73.1%) (n=26) and the divorced 4 (100%) (n=4) respondents, that there had been risky sexual behaviours among people taking ARVs. This notion by respondents was however also not statistically significant at the 5% level with a Pearson's chi square coefficient P= 0.13.

5.3.3.2.2 Conclusion

The respondents knew the most important information about the actions and limitations of ARVs. This then influenced their patterns of behaviours. Information about these drugs seem therefore to have been sufficiently provided to the community where the respondents were selected.

5.3.3.2.3 Recommendations

Programmes and efforts aimed at providing health information to the public should continue and be strengthened as knowledge and practices may change over time.

5.3.3.3 Relating responses about ARVs and condoms

5.3.3.3.1 Findings

Respondents with a primary education (n=41) (f=26) (63.4%), ordinary level education (n=59) (f=50) (84.7%) and tertiary level education (n=17) (f=13) (76.5%) agreed that HIV transmission could not occur when an infected partner was taking ARVs and practicing protected sex. At a Pearson's chi square coefficient of P=0.036, this finding was statistically significant at the 5% level of significance. There was overall disagreement across both genders (male respondents 60 (88.2%) (n=68) disagreed; while for the females 61 (96.9%) (n=63) to the suggestion that they could engage in unprotected sex with a person taking ARVs. This was however not statistically significant with a Pearson's chi square coefficient P= 0.259 at the 5% level. There was disagreement across all the age groups to the suggestion that it was safe to practice unprotected sex with a person taking ARVs. Disagreement was highest in the 15 to 20 age group at 100% (n=11), followed by the 38 (95%) in the 31 to 40 age group (n=40). This implies that the respondents in all age groups would not practice unprotected sex despite the partner being on ARVs because the dangers of HIV transmission were known. However, with a Pearson's chi square coefficient P= 0.557, no statistical significance at the 5% level was observed.

5.3.3.3.2 Conclusions

Based on statistically significant findings, a greater proportion (*f*=117) of the respondents agreed that HIV transmission is reduced by taking ARVs and practicing safe sexual relations. However despite the agreement of reduced HIV transmission, respondents deemed it unsafe to practice unprotected sex with a person who is HIV positive and taking ARVs.

5.3.3.3.3 Recommendations

Over time, the HIV prevention activities and programs should continue to strengthen the knowledge base of the population about HIV transmission, effects of antiretroviral drugs and safe sexual practices.

5.4 CONTRIBUTIONS OF THE STUDY

HIV/AIDS is a disease that had been controlled and had attained nearly stable prevalence levels in Uganda (UAC 2006:4). Overtime however a resurgence of new infections was observed and this was noted in a particular group of people (the married). The reasons for the observed resurgence were not clearly spelt out. This study made a contribution towards the control of HIV/AIDS infection in Uganda by showing that knowledge of HIV, its transmission, condoms and ARVs is high in the Budondo sub county, It has also been shown that condom acceptance and indeed use is low in the sub county. It has also been shown that the respondents would not engage in risky sexual behaviours despite availability of ARVs. The information should thus be used as a contribution to the reinforcement of public health education and policy approaches in relation to HIV/AIDS before more people can get infected due to complacence. Most important however this study will act as a base upon which more studies will be undertaken.

5.5 LIMITATIONS OF THE STUDY

There were limitations to this study. The first was the small size of the sample. Due to logistical constraints only a small sample size was selected and studied. This sample was only limited to one sub county, in one district in Uganda. This means that the results and conclusions reached cannot be generalised to the rest of the population of Uganda. The second limitation was that the study was descriptive in nature and thus did not test hypotheses.

5.6 CONCLUDING REMARKS

This study was inspired by the writings of two great scientists. On the need to have an academic achievement, James Maxwell (1831-1879) a physicist wrote “We owe all our great advances in knowledge to those who endeavour to find out how much there is for anything.” On the need to become a good scientist, Lord Kelvin (1824-1907) wrote “One’s knowledge of science begins when he can measure what he is speaking about and express it in numbers.” The researcher thus set out to achieve both and these were met by undertaking this study.

REFERENCES

Aday, LA & Cornelius, LJ. 2006. *Designing and conducting health surveys.* 3rd edition. San Francisco. Jossey –Bass publications.

African Youth Alliance (AYA), [sa]. *Adolescent sexual and reproductive health in Uganda results of the AYA baseline survey.* From: http://www.ayaonline.org/CDWebDocs/AYAResources/Toolbox/EoP_Reports/Baselines/UG-Baseline-Brief.pdf. (accessed on 13/06/2008).

Altman, DG. 1999. *Practical statistics for medical research*. 1st edition. London. Chapman and Hall/CRC.

Altermatt, B. 2009. *External Validity*. From: http://psych.hanover.edu/classes/ResearchMethods/Readings/External_Validity.pdf (accessed on 24/4/2010)

Agha, S, Kusanthan, T, Longfield, K, Klein, M & Berman, J. 2002. *Reasons for non-use of condoms in eight countries in sub-saharan Africa*. From: http://www.aidsmark.org/resources/pdfs/sub-saharanafrica.pdf (accessed on 27/08/08).

Anabwani, G & Navario, P. 2005. Nutrition and HIV/AIDS in sub-Saharan Africa: an overview. *Nutrition*. 21:96–99.

Anne F. Maben AF [sa]. *Chi-Square Test*. From: http://www.enviroliteracy.org/pdf/materials/1210.pdf (accessed on 18/01/2010).

Armitage, P, Berry, G & Matthews, JNS. 2002. Statistical methods in medical research. 4th edition. Blackwell science.

Atuyambe, L, Neema, S, Otolok-Tanga, E, Wamuyu-Maina, G, Kasasa, S & Wabwire-Mangen, F. 2008. The effects of enhanced access to antiretroviral therapy: a qualitative study of community perceptions in Kampala city, Uganda *African Health Sciences.* 8(1): 13-19.

Auvert B, Males S, Puren A, Taljaard D, Caraël M & Williams B. 2004. Can highly active antiretroviral therapy reduce the spread of HIV? A study in a township of South Africa. *Journal of Acquired Immune Deficiency Syndrome*. 1; 36(1):613-21

Babbie, E. 2007. *The practice of social research*. 11th edition. Belmont. Wadsworth.

Bailey, KD. 1994. *Methods of social research.* 4th edition. The Free Press. New York.

Bamuturaki, M. 2008. Uganda edges closer to AIDS treatment for all .*Bulletin of the World Health Organization.* 86 (6): June, 417-496.

Banfill, J. 2009. Place Values of Decimals. From: http://www.aaaknow.com/dec51bx2.htm (accessed on 1/12/2010)

Bankole, A, Ahmed, FH, Neema, S, Ouedraogo, C & Konyani, S. 2007. Knowledge of correct condom use and consistency of use among adolescents in four countries in sub-Saharan Africa. *African Journal of Reproductive Health*. 11(3): 197–220.

Berg, A. [sa]. *Discrete Random Variables*. From: http://www.stat.ufl.edu/~berg/sta5325/files/sta5325-6.pdf (accessed on 18/10/2010).

Bartlett, JG. 2001. Effects of HAART and structured treatment interruption. *The Johns Hopkins HIV report*. From: http://www.hawaii.edu/hivandaids/Hopkins%20HIV%20Report,%20May%202001.pdf (accessed on 24/02/2009)

Bateganya, M, Colfax, G, Shafer, LA, Kityo, C, Mugyenyi, P, Serwadda, D, Mayanja, H & Bangsberg, D. 2005. Antiretroviral therapy and sexual behavior: a comparative study between antiretroviral- naive and -experienced patients at an urban HIV/AIDS care and research center in Kampala, Uganda. *AIDS Patient Care and STDs,* 19 (11): 760-768.

Berg, BL. 2001. Qualitative Research methods for the social sciences 4th edition. Michigan. Pearson Education.

Bernard, HR. 2002. *Research methods in anthropology; qualitative and quantitative approaches*. 3rd edition. Alta Mira press.

Berry, S & Noble, R. 2008. *HIV and AIDS in Uganda*. From: http://www.avert.org/aidsuganda.htm. (accessed on 25/04/2008).

Bessinger, R, Katende, C & Gupta, N. 2003. Multi-media campaign exposure effects on knowledge and use of condoms for STI and HIV/AIDS prevention in Uganda. Carolina Population Center. University of North Carolina.

Bowling, A. 2002. *Research methods in health*. 2nd edition. Philadelphia. Open University Press.

Brand South Africa Media Service. 2010. Education in South Africa. From http://www.mediaclubsouthafrica.com/index.php?option=com_content&view=article&id=84:education-in-south-africa&catid=34:developmentbg#threebands (accessed on 3/12/2010)

British psychological society (BPS) 2007. *Ethical Principles for conducting Research with Human Participants*. From: http://www.bps.org.uk/the-society/ethics-rules-charter-code-of-conduct/code-of-conduct/ethical-principles-for-conducting-research-with-human-participants.cfm (accessed on 27/06/2007).

Bryman, A. 2001. *Social research methods*. New York. Oxford University press.

Bunnell, R, Nassozi, J & Marum, E. 2005. Living with discordance: knowledge, challenges, and prevention strategies of HIV-discordant couples in Uganda. *AIDS care*, 17(8):999-1012.

Bunnell, R, Ekwaru, JP, Solberg, P, Wamai, N, Bikaako- Kajura, W, Were, W, Coutinho, A, Liechty, C, Madraa, E, Rutherfold, G & Mermin, J. 2006. Changes in sexual behavior and risk of HIV transmission after antiretroviral therapy and prevention interventions in rural Uganda. *AIDS,* 20(1):85-92.

Bunnell, R, Opio, A, Musinguzi, J Kirungi, W, Ekwaru, P, Mishra, V, Hladik, W, Kafuko, J, Madraa, E & Mermin, J. 2008. HIV transmission risk behavior among HIV-infected adults in Uganda: results of a nationally representative survey. *AIDS,* 22 (5):617-24.

Burgess, TF. 2004. *A general introduction to the design of questionnaires for survey research.* From: http://www.leeds.ac.uk/iss/documentation/top/top2.pdf. (accessed on 20/07/2007).

Cambridge advanced learner's dictionary. 2010. 3rd edition. Cambridge University Press. From: http://dictionary.cambridge.org/dictionary/british/ (accessed on 10/07/2010).

Campbell, MJ. 2006. *Teaching non-parametric statistics to students in health sciences*. From: http://www.ime.usp.br/~abe/ICOTS7/Proceedings/PDFs/InvitedPapers/3F3_CAMP.pdf (accessed on 24/4/2010).

Centers for Disease Control and Prevention (CDC) 2010. Couples HIV Counseling and Testing, Module One: Background and Discordance.Participant's manual. From: http://www.cdc.gov/globalaids/Resources/prevention/chct.html (accessed on 2/12/2010).

Chapman, AD. 2005. Principles and Methods of Data Cleaning – Primary Species and Species-Occurrence Data. From: http://www2.gbif.org/DataCleaning.pdf (accessed on 18/01/2010).

Chapter 8: [sa]. *Internal and external validity.* From: http://www.socialresearchmethods.net/research/epp89/Davis.pdf (accessed on 19/01/2010).

Chi Square [sa]. Chi Square. From: http://otel.uis.edu/yoder/chi_h.pdf (accessed on 18/01/2010).

Children's act, Uganda. 1997. From: http://www.ugandaembassy.com/The_Children_Act.pdf (accessed on 26/10/2009).

Cohen & VandeKieft. 2003. *Highly active antiretroviral therapy (HAART) and hospice.* From: http://www.eperc.mcw.edu/FastFactPDF/Concept%20102.pdf (Accessed on 21/02/2009).

Commission of the European Communities (EC). 2004. *Coordinated and integrated approach to combat HIV/AIDS within the European Union and in its neighborhoods.* From: http://europa.eu.int/comm/health/ph_threats/com/aids/docs/ev_20040916_rd01_en.pdf. (accessed on 5/6/2007)

Crowe, D. 2006. *Adverse effects, in general*. From: http://www.aras.ab.ca. Alberta Reappraising AIDS Society. (accessed on 21/06/2008).

Daniel, WW. 2005. *Biostatistics. A foundation for analysis in the health sciences*. 8th Edition. Hoboken, New Jersey. Wiley Classics Library.

Department of Health studies (DHS), 2007. *Tutorial letter 301/2007. MNUALL-L.* University of South Africa.

Department of health studies (DHS), [sa]. Measures of disease frequency. *ActivEpi CD. Section 4.4. MPHHMI-H/MPHHM2-J.* University of South Africa.

Department of health studies (DHS), [sa]. Using information for action: A manual for health workers at facility level. The Equity Project. Pretoria. *MPHHMD-N CD.* University of South Africa.

Diamond, C, Richardson, JL, Milam, J & Stoynoff, S. 2005. Use of and adherence to antiretroviral therapy is associated with decreased sexual behavior in HIV clinic patients. *Journal of Acquired Deficiency Syndrome,* 39(2): 211-8.

Eliason, S. 2006. *SOC 3811 Basic Social Statistics*. From: http://www.soc.umn.edu/~eliason/index_files/CentralTendencies.pdf (accessed on 20/06/2007).

Emasu, A. 2006. Boost ABC approach with financial empowerment – Study. *The New Vision*, Kampala – Uganda, August 28. Online version. From: http://www.aegis.com/news/nv/2006/NV060825.html. (accessed on 27/06/2007).

Epstein, O, Perkin, CD, Cookson, J & Bono, DP. 2003. *Clinical examination.* 3rd edition. London. Mosby.

Erbelding, EJ, 2001. Addressing Sexual Risk Behavior in HIV Clinical Practice. *The Hopkins HIV report*. From: http://www.hawaii.edu/hivandaids/Hopkins%20HIV%20Report,%20May%202001.pdf (accessed on 11/02/2007).

Fletcher, RH & Fletcher, SW. 2005. *Clinical epidemiology- the essentials*. 4th edition.Philadelphia. Lippincott Williams & Wilkins.

Genuis, SJ & Genuis, SK. 2005. HIV/AIDS prevention in Uganda: why has it worked? *Postgraduate Medical Journal,* (81):615-617.

Gordis, L. 2000. *Epidemiology.* 2nd edition. WB Saunders Company.

Green, (sa). *HAART: Where we've come, and where we're going.* From: http://www.hivguidelines.org/admin/files/ce/slide-presentations/haart.ppt. (accessed on 16/02/2007).

Harms G, Schulze K, Moneta I, Baryomunsi C, Mbezi P & Poggensee G. 2005. Mother-to-child transmission of HIV and its prevention: awareness and knowledge in Uganda and Tanzania. *Journal of Social Aspects of HIV/AIDS.* 2 (2):258-266

Hassall, J. [sa]. *Dealing with data.* From: http://www.macmillandictionaries.com/about/School/SS2-4.pdf (accessed on 22/10/2010).

Haub, C. & Kent, MM. 2009. *2009 World Population Data Sheet*. Population Reference Bureau. Washington. From: http://library.health.go.ug/jla/index.php?option=com_wrapper&view=wrapper&Itemid=6 (accessed on 22/01/2010)

Heath, G. 2002. *Basic immunology.* London. City University. From: http://www.optometry.co.uk/articles/docs/976f2dd6af2042a7ec6326f4b524b41c_heath20020208.pdf. (accessed on 15/02/2009).

Hecht, FM. 2001. Approaches to HIV prevention among sero positive patients in the clinical care setting. *Topics in HIV Medicine.* From: http://hivinsite.ucsf.edu/InSite?doc=md-04-01-17&page=md-04-01-02. (accessed on 5/6/2007)

Hogle, JA, Green, E, Nantulya, V, Stoneburner, R, & Stover, J. 2002. What happened in Uganda? Declining HIV prevalence, behavior change, and the national response. From: http://www.usaid.gov/our_work/global_health/aids/Countries/africa/uganda_report.pdf. (accessed on 5/6/2007).

Hulley, BH, Cummings, SR, Browner, SW, Grady, GG & Newman, TB. 2001. *Designing clinical research*. 2nd edition. Philadelphia. Lippincott Williams and Wilkins.

Hulley, BH, Cummings, SR, Browner, SW, Grady, GG & Newman, TB. 2007. *Designing clinical research*. 3rd edition. Philadelphia. Lippincott Williams and Wilkins.

Human Rights Watch. 2005. *Restrictions on Condoms*. New York. Human Rights Watch. From: http://hrw.org/reports/2005/uganda0305/7.htm (accessed on 2/07/2007).

Hunter, JAA, Haslett, C, Chilvers, ER, Boon, NA & Colledge, NR. 2002. *Davidson's principles and practices of Medicine*. 19th edition. Churchill Livingstone.

Hutchinson, S. 2004. Introducing HAART in africa. *The Horizons Report: 7-10.* From: http://www.popcouncil.org/pdfs/horizons/hrptjun04.pdf (accessed on 02/07/2007).

Isreal, GD. 2009. Determining sample size. University of Florida. From: http://edis.ifas.ufl.edu/pd006 (accessed on 15th July 2009).

Kajubi, P, Kamya, MR, Kamya, S, Chen, S, McFarland, W & Hearst, N. 2005. Increasing condom use without reducing HIV risk: results of a controlled community trial in Uganda. *Journal of Acquired Immune Deficiency Syndromes*, 40(1):77-82.

Kalichman, SC, Ntseane, D, Nthomang, K, Segwabe, M, Phorano, O, Simbayi, LC. 2007. Recent multiple sexual partners and HIV transmission risks among people living with HIV/AIDS in Botswana. *Sexually Transmitted Infections*, 83:371–375.

Kamali, A, Carpenter, LM, Whiteworth, JAG, Ruberantwati, A & Ojwiya, A. 2000. Seven year trends in HIV – 1 infection rates and changes in sexual behavior among adults in rural Uganda. *AIDS* 14: 427 -434.

Kan, S. 2005. Take measurement, reliability and validity seriously. From http://www.compaid.com/caiInternet/casestudies/kanarticle1.pdf (accessed on 18/01/2010).

Kanabus, A & Noble, R. 2006. *The ABC of HIV prevention*. From: http://www.avert.org/abc-hiv.htm (accessed on 6/6/2007).

Kebba, A. 2003. Antiretroviral therapy in sub-Saharan Africa: myth or reality? *Journal of Antimicrobial Chemotherapy,* 52: 747–749.

Kibirige, V. 2005. *The female condom – Uganda experience.* From: http://www.path.org/files/gcfc2005/UGANDA.pdf. (accessed on 02/07/2007).

Kibombo, R, Neema, S, Moore, AM & Ahmed, FH. 2008. Adults' perceptions of adolescents' sexual and reproductive health qualitative evidence from Uganda. *Occasional Report*, No. 35 New York: Guttmacher Institute.

Kinsman, J, Nakiyingi, J, Kamali, A & Whitworth, J. 2001. Condom awareness and intended use: gender and religious contrasts among school pupils in rural Masaka, Uganda. *AIDS Care,* 13(2):215-20.

Konde-Lule, JK, Sewankambo, N & Morris, M. 1997. Adolescent sexual networking and HIV transmission in rural Uganda. *Health transition review,* Supplement. 7: 89-100.

Kumar, R. 2005. *Research methodology. A step by step guide for beginners*. New Delhi. Sage Publications.

Lawn, SD, Myer, L, Bekker, G & Wood, R. 2006. CD4 cell count recovery among HIV-infected patients with very advanced immunodeficiency commencing antiretroviral treatment in sub-Saharan Africa. *BMC Infectious Diseases.* 6:59. From: http://www.biomedcentral.com/1471-2334/6/59. (accessed on 31/05/2007).

L'Heureux, J. 2006. *Anemia. Nutrition Education Fact Sheet*. From: http://www.apla.org/programs/nutrition/FactSheets/Anemia.pdf. (accessed on 23/01/2010).

Lu, A. 2008. *Complacency, extramarital affairs pushing up Ugandan HIV infection rate.* From: http://www.google.co.ug/search?hl=en&q=PERSONAL+testimonies,haart,uganda&start=50&sa=N (accessed on 21/06/2006).

Lynch, SM. 2005. *Summarizing Data: Measures of Central Tendency and Dispersion*. From: http://www.princeton.edu/~slynch/SOC_301/soc301_notes6.pdf (accessed on 20/06/2007).

Ma, S, Dukers. NH TM, van den Hoek, A, Yuliang, F, Zhiheng, C, Jiangting, F, Lina, Z & Xiuxing, Z. 2003. Decreasing STD incidence and increasing condom use among Chinese sex workers following a short term intervention: a prospective cohort study. *Sexually Transmitted Infections.* 78:110–114.

Maben [sa. Chi-Square test. From: http://www.enviroliteracy.org/pdf/materials/1210.pdf. (accessed on 18/01/2010).

Macaluso, M, Lawson, ML, Hortin, G, Duerr, A, Hammond, KR, Blackwell, R & Bloom, A. 2003. Efficacy of the female condom as a barrier to semen during intercourse. *American Journal of Epidemiology* 157(4):289–297.

Macro International. (sa). Trends in sexual behavior in the nineties. From: www.mapnetwork.org/docs/bessinger_pres_map.ppt (accessed on 16/02/2007).

Madge, S, Matthews, P, Singh, S & Theobald, N. 2005. HIV in primary care. London. Medical Foundation & Sexual Health. BMA House.

Maharaj, P & Cleland, J. 2005: Risk perception and condom use among married or cohabiting couples in KwaZulu-Natal, South Africa. *International Family Planning Perspectives,* 31(1):24-29.

Marcus, R. 1993. *Gender and HIV/AIDS in sub saharan africa: the cases of uganda and malawi.* Centre for Development studies. University of Sussex. From: http://www.bridge.ids.ac.uk//bridge/Reports/re13c.pdf
(accessed on 12/01/2009).

McCormick, AW, Walensky, RP, Lipsitch, M, Losina, E, Hsu, H, Weinstein, MC, Paltiel, D, Freedbergand, KA & Seage, GR. 2007. The effect of antiretroviral therapy on secondary transmission of HIV among men who have sex with men. *Clinical Infectious Diseases.* 44:1115–1122.

McDowell I 2006. *Measuring Health*. 3rd Edition. New York Oxford University Press.

Médecins Sans Frontières (MSF). 2006. *Testimonies from HIV/AIDS treatment patients in arua, uganda*. From: http://www.dwb.org/news/article.cfm?id=1298&cat=voice-from-the-field
(accessed on 21/20/2009).

Ministry of Health, (MOH {a}) Uganda, ORC Macro, & John Snow Inc. (JSI)/DELIVER 2003. *Uganda health facilities survey 2002*. Calverton, Maryland and Arlington, Virginia, USA.

Ministry of Health (MOH {b}), Uganda. 2003. *Policy for reduction of the mother-to-child HIV transmission in Uganda*. Kampala.

Ministry of Health (MOH {c}), Uganda 2003. *Antiretroviral treatment policy for Uganda*. Kampala.

Ministry of Health (MOH) Uganda & ORC Macro. 2006. *Uganda HIV/AIDS sero-behavioural survey 2004-2005.* Calverton, Maryland, USA: Ministry of Health and ORC Macro.

Ministry of Health (MOH), Uganda. 2008. *Health infrastructure.* From: http://www.health.go.ug/health_units.htm (accessed on 19/11/2008).

Morris, M, Wawera, MJ, Makumbi, F, Zaviscac, JR & Sewankambo, N. 2000. Condom acceptance is higher among travelers in Uganda. *AIDS*. 14(6): 733-741.

Mpiima, S, Wangalwa, S, Mugisha, K, Namusoke, DM, Dambya ,I , Okongo, B. 2004. *Increased demand for VCT services driven introduction of HAART in masaka district*. Abstract presented at the International Conference on AIDS. Jul 11-16; 15: abstract no. ThPeE7940. From: http://www.iasociety.org/abstract/show.asp?abstract_id=2167206 (accessed on 5/03/2007).

Mufune, P. 2005. Myths about condoms and HIV/AIDS in rural northern Namibia. *International Social Science Journal.* 57(186):675-686.

Murdoch, MM, Venter, WDF, Van Rie, A & Feldman, C. 2007. Immune reconstitution inflammatory syndrome (IRIS): review of common infectious manifestations and treatment options. *AIDS Research and Therapy*, 4:9. From: http://www.aidsrestherapy.com/content/4/1/9. (accessed on 24/02/2009).

Musinguzi, J, Kirungi, W, Opio, A, Madraa, E, Biryahwaho, B, & Mulumba, N. 2003. *STD/HIV/AIDS Surveillance report - 2003.* Kampala. Ministry Of Health. From http://www.health.go.ug/docs/hiv0603.pdf (accessed on 2/7/2007).

Mutimura, E, Stewart, A & Crowther, NJ. 2007. Assessment of quality of life in HAART-treated HIV-positive subjects with body fat redistribution in Rwanda. *AIDS Research and Therapy*. 4:19. From: http://www.aidsrestherapy.com/content/4/1/19 (accessed on 24/02/2009).

Najjumba, MI, Ntozi, J, Ahimbisibwe, EF, Odwee, J & Ayiga N. [sa]. Risk perception and condom use in Uganda. *African Population Studies.* 18(1). From: https://tspace.library.utoronto.ca/bitstream/1807/1257/1/ep03005.pdf. (accessed on 21/02/2009).

Neuman, WL. 2006. *Social research methods: qualitative and quantitative approaches.* 6th edition. Pearson international edition.

New Mexico AIDS education and training centre, 2006. *What is antiretroviral therapy (art)?* From: www.aidsinfonet.org/factsheet_detail.php?fsnumber=403 (accessed on 18/06/2007).

New Mexico AIDS Education and Training Center, 2009. *Anemia. Fact sheet number 552.* From: http://www.aidsinfonet.org/uploaded/factsheets/118_eng_552.pdf (accessed on 23/01/2010).

Nguyen, TH, 2009. Management of HIV-1 infection in adults. *Baylor University Medical Center Proceedings* 22,(1):62-68.

Noar, M & Morokoff , PJ. 2002. The relationship between masculinity ideology, condom attitudes, and condom use stage of change: a structural equation modeling approach. *International Journal of Men's Health,* 1(1): 43-58.

Ntozi, JPM, Mulindwa, IN, Ahimbisibwe, F, Ayiga, N, & Odwee, J. 2003. Has the HIV/AIDS epidemic changed sexual behaviour of high risk groups in Uganda? *African Health Sciences,* 3(3): 107 – 116.

Ogunbodede, EO. 2004. HIV/AIDS situation in africa.
International dental journal, 6 (1):352-60.

Okuonzi, SA. 2004. Learning from failed health reform in Uganda. *British Medical Journal*, 329:1173-1175.

Okware, S, Kinsman, J, Onyango, S, Opio, A, Kaggwa, P. 2005. Revisiting the ABC strategy: HIV prevention in Uganda in the era of antiretroviral therapy. *Post graduate Medical Journal*, 81(960):625-8.

Opio A, Mishra V, Hong R, Musinguzi J, Kirungi, W, Cross A, Mermin, J & Bunnell, R 2008. Trends in HIV-related behaviors and knowledge in Uganda, 1989–2005: evidence of a shift toward more risk-taking behaviors. *Journal of Acquired Immune Deficiency Syndrome.* 49(3):320-326

Oxford online dictionary. 2010. Oxford University Press.
http://oxforddictionaries.com/view/entry (accessed on 10/07/2010).

Pacheco, L, Guilford T, Kwyer, T, 2002 Bioactive, Cysteine-Rich Dietary Supplement Alleviates Gastrointestinal Side-Effects with Associated Weight Gain and Marked Improvement in HAART Adherence in AIDS Patients. *Journal of Human Virology* 5 (1):1-5. From: www.wheyoflife.org/news/hiv.pdf (accessed on 5/12/2010.

Phillips, G. 2001. *World atlas*. 11th edition. London. George Philips limited.

Piot, P, Kazatchkine, M , Dybul, M, Lob-Levyt, J. 2009. AIDS: lessons learnt and myths dispelled. The Lancet, Early Online Publication, 20 March 2009. From: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60321-4/fulltext? _eventId=login (accessed on 24/02/2009).

Pool, R, Hart, G, Green, G, Harrison, S, Nyanz,i S & Whitworth, J. 2000. Men's attitudes to condoms and female controlled means of protection against HIV and STDs in south-western Uganda. *Culture, Health and Sexuality,* 2(1): 197-212.

Pool, R, Kamali, A, & Whitworth, JAG. 2006. Understanding sexual behaviour change in rural southwest Uganda: a multi-method study. *AIDS Care*. 18(5): 479-488.

PPA 696 [sa]. *Research Methods*. Online. From: http://www.csulb.edu/~msaintg/ppa696/696preex.htm (accessed on 18/07/2007)

Prata, N, Morris, L, Mazive, E, Vahidnia, F & Stehr, M. 2006. Relationship between HIV risk perception and condom use: evidence from a population-based survey in Mozambique. *International Family Planning Perspectives*, 32(4):192-200.

Rang, HP, Dale, MM, Ritter, JM & Moore, P. 2003. *Pharmacology.* 5th Edition. Michigan, Churchill Livingstone.

Regan, T [sa]. *Research ethics: an introduction*. From: http://www.fis.ncsu.edu/Grad/ethics/modules/ethical_frameworks.pdf (accessed on 12-Jan-2009).

Remien, RH, Halkitis, PN, O'Leary, A, Wolitski, RJ & Gomez, GA. 2005. Risk perception and sexual risk behaviors among HIV-positive men on antiretroviral therapy. *AIDS and behaviour,* 9(2):167-76.

Rundell, M. 2006. *Macmillan English Dictionary for advanced learners*. International student edition. Macmillan Publishers Limited, Oxford.

Republic of Uganda. 2007. *Peace, recovery and development plan for northern* Uganda (PRDP) 2007-2010.

Reyes, MA. 2006. Management of febrile children 3-36 months of age in the post pneumococcal conjugated vaccine era: current trends. *International Pediatrics,* 21(4): 218-224.

Salit, IE, Sano, M, Boggild, AK & Kain, C. 2005. Travel patterns and risk behaviour of HIV-positive people traveling internationally. *Canadian Medical Association Journal*. 172(7):884-8.

Scheer, S, Lee, CP, Klausner ,JD, Katz, MH & Schwarcz, SK. 2001. Effect of highly active antiretroviral therapy on diagnoses of sexually transmitted diseases in people with AIDS. *Lancet.* 357: 432–35.

Sekaran, U. 2003. *Research methods for business. A skill building approach.* 4th edition. John Wiley and sons (Asia) Pte limited.

Sim, J & Wright, C. 2002. *Research in health care.* Stanley Thornes Limited.

Smith, N, 2009. "HIV Management in Resource-Limited Settings" From: http://missionarymedicine.net/2009/PDF/HIV%20management%20in%20resource%20limited%20settings.pdf (accessed on 2/12/2010).

Stammers, T. 2005. As easy as ABC? Primary prevention of sexually transmitted infections. *Postgraduate Medical Journal*, 81:273-5.

Surveyz, 2006. *The Use and Interpretation of the Cross-Tabulation.* From: http://www.surveyz.com (accessed on 20/6/2007).

The AIDS Education & Training Centers (AETC). 2006. *CD4 monitoring and viral load testing. Clinical manual for management of the HIV-Infected adult* From: http://www.aidsetc.org/aetc?page=cm-107_cd4_monitor (accessed on 31/5/2007).

The AIDS Education & Training Centers (AETC). 2006. *Antiretroviral therapy. clinical manual for management of the HIV-Infected adult .* From: http://www.aidsetc.org/aidsetc?page=cm-301_art (accessed on 18/06/2007).

The British Psychological Society (BPS) 2007. Ethical Principles for conducting Research with Human Participants. From: http://www.bps.org.uk/the-society/ethics-rules-charter-code-of-conduct/code-of-conduct/ethical-principles-for-conducting-research-with-human-participants.cfm (accessed on 27/06/2007).

The Center for Health and Gender Equity (CHANGE). 2005. *Ugandan condom crisis.* From: http://www.healthgap.org/press_releases/05/0805_CHANGE_HGAP_Timeline_Uganda_condoms.pdf (accessed 5/6/2007).

The Economic and Social Research Council (ESRC), [Sa]. *Research ethics framework*. Swindon. From: http://www.esrc.ac.uk/ESRCInfoCentre/Images/ESRC_Re_Ethics_Frame_tcm6-11291.pdf (accessed on 27/06/2007).

The Joint United Nations Programme on HIV/AIDS (UNAIDS) [a], 2004. *Position statement on condoms and HIV prevention.* From:

http://www.unfpa.org/upload/lib_pub_file/343_filename_Condom_statement.pdf (accessed 13/6/2008).

The Joint United Nations Programme on HIV/AIDS (UNAIDS)[b] 2004. Stepping back from the edge. *The pursuit of antiretroviral therapy in Botswana, South Africa and Uganda.* Geneva – Switzerland. From: http://data.unaids.org/publications/IRC-pub06/JC1012-SteppingBack_en.pdf (accessed on 21/06/2008).

The Joint United Nations Programme on HIV/AIDS (UNAIDS). 2005. Global summary of the AIDS epidemic December 2005. Geneva, Switzerland.

The Joint United Nations Programme on HIV/AIDS, (UNAIDS) & World Health Organization, (WHO). 2006. *Report on the global AIDS Epidemic.*

The Joint United Nations Programme on HIV/AIDS (UNAIDS) 2008*. Report on the global AIDS epidemic.* Geneva, Switzerland.

The Joint United Nations Programme on HIV/AIDS (UNAIDS) 2009*. Report on the global AIDS epidemic.* Geneva, Switzerland.

Tumushabe, J. 2006. The politics of HIV/AIDS in Uganda. Social policy and development programme. Paper Number 28. *United Nations Research Institute for Social Development.* From: http://64.233.183.104/search?q=cache:LKSdgQuVfeoJ:www.unrisd.org/unrisd/website/document.nsf/462fc27bd1fce00880256b4a0060d2af/86cb69d103fcf94ec125723000380c60/%24FILE/tumushabe-pp.pdf+CONDOM,+ACCEPTANCE,+UGANDA&hl=en&ct=clnk&cd=96&gl=ug (accessed on 13/06/2008).

Tumwesigye, MN, Madise, N & Holmes, D. 2003. Patterns of condom use and abstinence among unmarried youth aged 15-24 in Uganda: evidence from 1995 and 2000/01 Uganda demographic and health survey (UDHS) female data. *Reproductive health in Africa.* From. http://www.lse.ac.uk/collections/BSPS/annualConference/2003/reproductiveHealthInAfrica.htm (accessed on 16/02/2007).

Uganda AIDS Commission (UAC). 2006. *The Uganda HIV/AIDS status report. July 2004 – December 2005.* Kampala. Uganda Publishing and Printing Corporation, Republic of Uganda.

Uganda AIDS Commission (UAC). 2007. *Moving toward universal access: national HIV & AIDS strategic plan 2007/8 – 2011/12.* Uganda AIDS Commission, Republic of Uganda

Uganda Bureau of Statistics (UBOS) and ORC Macro. 2001. Uganda Demographic and Health Survey 2000-2001.Calverton, Maryland, USA: UBOS and ORC Macro.

Uganda Bureau of Statistics (UBOS). 2005. *2002 Uganda Population and Housing Census. Jinja District report.*

Uganda Bureau of Statistics (UBOS) and Macro International Inc. 2007. *Uganda Demographic and Health Survey 2006.* Calverton, Maryland, USA: UBOS and Macro International Inc

United Nations Educational, Scientific and Cultural Organization [sa: 1]. Information and monitoring sheet for statistical capacity building in education – Uganda. 2003-2005. From: http://www.uis.unesco.org/template/pdf/scb/StateReports/InformationAndMonitoringSheet/Uganda.pdf (accessed on 3/12/2010)

United States Department of Health and Human Services (DHHS) 2001. *Scientific review panel confirms condoms are effective against HIV/AIDS, but epidemiological studies are insufficient for other STDs* [press release]. From http://archive.hhs.gov/news/press/2001pres/20010720.html (accessed 5/6/2007).

United States Department of Health and Human Services (DHHS) 2005. Lactic acidosis. From www.aidsinfo.nih.gov/contentfiles/lactic%20acidosis_fs_en.pdf (accessed 10/07/2010).

University of Pretoria ([sa]:3). *Non Parametric Statistics*. From: http://upetd.up.ac.za/thesis/submitted/etd-06132002-085415/unrestricted/15appendix4.pdf (accessed on 18/01/2010).

Versteeg, M & Murray M. 2008. Condom use as part of the wider HIV prevention strategy: Experiences from communities in the North West Province, South Africa. *Journal of Social Aspects of HIV/AIDS.* 5 (2): 83-93.

Vincent, E, Bouhnik, A, Carrieri, MP, Rey, D, Dujardin, P, Granier, F, Fuzibet, JG, Obadia, Y, Moat,t JP & Spire B. 2004. Impact of HAART-related side effects on unsafe sexual behaviours in HIV-infected injecting drug users: 7-year follow up. *AIDS,* 18:1321-1325.

Voca, A, Blaauw, D & Knight, S. 2004. *Uses of health information in Public health.* CD Rom MPHHM1-H. University of Kwazulu Natal/ UNISA.

Waters, L, Stebbing, J, Jones, R, Michailidis, C, Sawleshwarkar S, Mandalia, S, Bower, M, Nelson, M & Gazza, B. 2004. A comparison of the CD4 response to antiretroviral regimens in patients commencing therapy with low CD4 counts. *Journal of Antimicrobial Chemotherapy,* 54: 503–507.

Wehmeier, S. 2000. *Advanced learner's dictionary of current English*. 6th edition. Oxford. Oxford University Press.

Weiss, RA, 2003. HIV and AIDS in relation to other pandemics. *European molecular biology organization.* 4. 10-14. Special issue.

Weller, S & Davis, K. 2003. Condom effectiveness in reducing heterosexual HIV transmission**.** Oxford. *The Cochrane Library*, Issue 2.

Wikipedia. 2007. *Cross tabulation*. From: http://en.wikipedia.org/wiki/Cross_tabulation Wikipedia, the free encyclopedia. (accessed on 20/6/2007).

Wikipedia. 2009. *Serology.* From: 15/02/2009. http://en.wikipedia.org/wiki/Serology Wikipedia, the free encyclopedia. (accessed on 20/6/2007).

Wong, ML, Lubek, I, Dy, BC, Pen, S, Kros, S & Chhit, M. 2003. Social and behavioural factors associated with condom use among direct sex workers in Siem Reap, Cambodia. *Sexually Transmitted Infections*, 79:163–165.

World Health Organization (WHO). 2004. *Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants. guidelines on care, treatment and support for women living with HIV/AIDS and their children in resource-constrained settings.* Geneva 27, Switzerland.

World Vision. 2005. *Attitudes, beliefs and knowledge about HIV prevention for children. Findings from Uganda and Zambia.* From: http://64.233.183.104/search?q=cache:Oq_MH6eLUgYJ:https://www.worldvision.org/resources.nsf/main/preventionfinal_OR_cd_vsn.pdf/%24file/preventionfinal_OR_cd_vsn.pdf%3FOpen%26lid%3Dattitudes%26lpos%3Dmain+condoms,ATTITUDES,+uganda+filetype:pdf&hl=en&ct=clnk&cd=2&gl=ug&lr=lang_en (accessed on 13/06/2008).

Wreford, J. 2008. Myths, masks and stark realities: traditional African healers, HIV/AIDS narratives and patterns of HIV/AIDS avoidance. Centre for Social Science Research University of Cape Town. From: http://www.commerce.uct.ac.za/Research_Units/CSSR/Working%20Papers/papers/JW209.pdf (accessed on 7/02/2009).

Youngerman-Cole S 2005. Risky sexual behaviour. From: http://health.yahoo.com/topic/sexualhealth/resources/article/healthwise/not58772 (accessed on 11/06/2007).

Zaccagnini, M. 2009. *HIV and AIDS in Uganda* From: http://www.avert.org/aidsuganda.htm (accessed on 24/02/2009).

Zellner, SL. 2003.Condom use and the accuracy of AIDS knowledge in Côte d'Ivoire. *International Family Planning Perspectives,* 29(1):41–47.

APPENDIX A: VILLAGES IN BUDONDO SUB COUNTY

PARISH		VILLAGE	SELECTED
1. NAMIZZI	1	NAMIZZI EAST	
	2	NAMIZZI WEST	
	3	NAMIZZI CENTRAL	
	4	BUYALA A	
	5	BUYALA B	
	6	BUYALA C	
	7	BUYALA T/C	
	8	KABOWA T/C	
	9	KABOWA KLA	
2. IVUNAMBA	10	IVUNAMBA T/C	
	11	KYABIRWA	
	12	BUDHAGALI	
	13	KIVUBUKA A	
	14	KIVUBUKA B	
	15	KAZINGA	
3. NAWANGOMA	16	NAWANGOMA	
	17	NSUBE	
	18	BUFUULA A	
	19	BUFUULA B	
	20	LUKOLO EAST	
	21	LUKOLO WEST	
4. KIBIBI	22	KIBIBI BWASE	
	23	NAMALEMBA	
	24	BUKOSE	
	25	BUWAIRAMA	
	26	KIZINGA	
	27	BUSUSWA	
	28	NAKANYONYI	
5. BUWAGI	29	BUWAGI	
	30	BULEEBA	
	31	IBUNGU EAST	
	32	IBUNGU WEST	
	33	KAGERA KIDIOPE	
	34	KAGERA CENTRAL	
	35	KAGERA VALLEY	
	36	KYOMYA WEST	
	37	KYOMYA CENTRAL	
	38	KYOMYA EAST	

APPENDIX B: RESEARCH INFORMATION SHEET

Serial Number……

Good morning/afternoon. My name is …. and I am helping Kabikira Fredrick who is undertaking a course with the University of South Africa. In order for him to qualify for the course he has to undertake a research exercise. This exercise will be done in this sub county. We are asking some people from this parish if they can participate in this exercise. The research will help in understanding some problems related to HIV/AIDS, condoms and antiretroviral drugs.

You are one of the people who have been selected at random from your community. Participation in this survey is voluntary. If you agree to participate, I will ask you some questions about yourself (for example, your age and your education). Other questions will be about your thoughts and behaviour related to condoms and their usage. Some questions will be about your personal sexual behaviour. Some questions may make you feel uncomfortable. You are free to refuse to answer any questions. You can also stop the interview at any time.
There are no direct benefits to you for choosing to participate in this interview. However, you will be helping me to add on knowledge that will help develop better programs to help Ugandans in the future. To help in the addition of knowledge, the results from this research will be published in form of a report which other people may access and read. Your name or home will not be mentioned in the report and all your answers will be kept strictly confidential.
This interview will take about 30 minutes

At this time, do you want to ask me anything about the survey? If you have any questions at any time, we want you to tell us. You can also speak to Fredrick Kabikira for whom we act on Telephone Number 0772-335282.

APPENDIX C: CONSENT FORM

Serial Number……

CONSENT FORM

I…… of ……parish, Budondo sub county do voluntarily agree to take part in this research process. I know that I will not be rewarded for taking part in this exercise.

Signature…… Date……

APPENDIX D: QUESTIONNAIRE WITH CODES

Questionnaire I

Individual respondents

Section A (Demographics)					For Office use only	
1.	State your gender [SEX]		1. Male			
			2. Female			
2.	State your age in years [AGE]	……. years				
3.	Marital status [MARITAL]		1.Married			
			2. Co- habiting			
			3. Single			
			4. Divorced/ Separated			
			5. Widowed			
4.	What is the highest level of education obtained? [EDUC]		1. Primary			
			2. Secondary O level			
			3. Secondary A level			
			4. Tertiary			
Section B (HIV Knowledge) Please fill in your understanding of the following terms or Tick one that best fits your response)						
5.	Have you ever heard of an illness called HIV/ AIDS? [EHEARD]		1. Yes			
			2. No			
6.	Is AIDS different from HIV? [HIVDIFF]		1. Yes			
			2. No			
	If Yes What is the difference between HIV and AIDS? [DIFF]		1. Right difference			
			2. Wrong difference			
			3. No answer			

Indicate your feeling about HIV/AIDS by ticking in the box below. SA = Strongly agree; A= agree; D= Disagree; SD = Strongly disagree							For Office use only	
		SA **1**	**A** **2**	**D** **3**	**SD** **4**			
7.	HIV/AIDS is due to witchcraft [WITCH]							
8.	HIV/AIDS is a threat to the community in Budondo Sub County [THREAT]							
9.	You cannot contract HIV unless you have bad luck [BLUCK]							
10.	It is not possible for a person to be HIV positive and the spouse to be HIV negative if they engage in regular unprotected sex [UPSEX]							
11	I believe that HIV infection is a severe disease [SEVERITY]							
Section C (HIV Transmission) Indicate the extent to which you agree or disagree to the following statements SA = Strongly agree; A= agree; D= Disagree; SD = Strongly disagree								
		SA **1**	**A** **2**	**D** **3**	**SD** **4**			
i. HIV can be transmitted by or through								
12.	Unprotected sex with an HIV/AIDS infected partner not taking ARVs [NARV]							
13.	Blood transfusion [BLTRANF]							
14.	Infected pregnant mother to her unborn baby [MTCTM]							
15.	Using or sharing unsterilised skin piercing instruments [SHARING]							
16.	Unprotected sex with a partner whose status you don't know [PUPSEX]							
17.	Protected sex (with) a condom with an HIV infected partner in some situations [CONDPSEX]							
18.	Unprotected sex with an HIV/AIDS infected partner taking ARVs. [SEXARVS]							
19	Mother to child during pregnancy [MTCDPREG]							
20.	Mother to child during breastfeeding [MCTBREAT]							
21.	Protected sex with an HIV infected partner taking ARVs [PSEXINF]							
22.	Engaging in protected sex, using a condom but partner is infected and taking ARVs can result in HIV transmission							

Indicate the extent to which you agree or disagree to the following statements SA = Strongly agree; A= agree; D= Disagree; SD = Strongly disagree									
		SA **1**	**A** **2**	**D** **3**	**SD** **4**				
ii. To what extent do you agree on the following statement?									
23.	Traditional medicine/herbs can cure HIV/AIDS, so a person taking such herbs cannot transmit HIV [CHERBS]								

Section D. Condom Knowledge						For Office use only
24.	What are condoms? [COND] (Please fill in your response)					
		1	Correct answer			
		2	Wrong answer			
		3	Correct but incomplete answer			
		4	No answer			

Indicate the extent to which you agree or disagree to the following statements SA = Strongly agree; A= agree; D= Disagree; SD = Strongly disagree									
		SA **1**	**A** **2**	**D** **3**	**SD** **4**				
i. Correct use of Condoms:									
25.	Will prevent HIV transmission [PTRASM]								
26	Will prevent sexually transmitted infections [PSTI]								
27.	Will prevent pregnancy [PPREG]								
28.	Can reduce people's chances of getting the HIV/AIDS virus [RCHANCE]								
ii. To what extent do you agree with the following statements?									
29.	Condoms can be stored and used even after 10 years [CSTORED]								
30.	Condoms cannot be used more than once [NREUSED]								
31.	I have ever attended a condom demonstration session [CDSESSION]								
32.	Condoms have holes in them that will allow HIV to pass through [HOLES]								
33	Condoms cannot disappear in a woman's vagina [DISAPPEAR]								
34.	Condoms have worms in them that result into rashes [WORMS]								
35.	The HIV virus cannot pass through a condom [VPASS]								

Section E. Condom use Indicate your feeling about HIV/AIDS by ticking in the box below.. SA = Strongly agree; A= agree; D= Disagree; SD = Strongly disagree								
		SA **1**	**A** **2**	**D** **3**	**SD** **4**			
36.	I have never used a condom [NCONDUSE]							
37.	I always use a condom during sex [CONDUSE]							
38.	My partner uses a condom during sex [PCOND]							
39.	Using a condom does not give sexual pleasure [SEXPL]							
40.	I am able to get a condom when I need one [CONDAV]							
41.	I am able to demonstrate to a friend proper condom use [CDEMO]							
42.	Condoms should not be put on when the penis is not erect [USEKNOW]							
43.	Condoms can be used more than once [REUSED]							
44.	I don't use a condom because I trust my spouse [PTRUST]							
45.	I am confident that I know how to use a condom correctly [CONFID]							
46.	I can apply petroleum jelly on a condom to increase lubrication [USEJELLY]							
Please answer yes or no to the question below								
		Yes **1**		**No** **2**				
47.	The last time you had sexual intercourse, was a condom used? [CLASTUSE]							
		State number of times						
48.	How many times have you had sex during the last month? [SEXACT]							
49.	How many times did you use a condom in the last month [FREQCOND]							
50.	Why did you use a condom the last time if you used one? (You can tick more than one option).							
		Ticked 1		Not Ticked 0				
A	Did not use a condom [DUSCOND]							
b.	Protection of HIV [PROTHIV]							
c.	Protection of other sexually transmitted infections [PROTSTI]							
d.	Family planning [FP]							
e.	Adventure [ADVENT]							

F	My partner insisted [PARTINST]							
G	The current health education programme insists on this [INSTHEDUC]							
	Other (Specify) [OTHER]							
	Section F Attitudes to Condoms Indicate you level of confidence regarding the following: **SA** = Strongly agree **A** = agree **D** = Disagree **SD** = Strongly disagree						For Office use only	
		SA 1	**A 2**	**D 3**	**SD 4**			
51.	I am confident that I can talk to my sexual partner(s) about using condoms? [CONDATT]							
52.	People in this village talk freely about condom use [CONDTALK]							
53.	Condoms should be openly displayed in places where persons can obtain them when they need them [DISPLAY]							
54.	Children age 12-14 should be taught about using a condom [CHILDKN]							
55.	People in this village have accepted condoms as part of their daily life? [CONDACPT]							
56.	Sexual intercourse with a condom feels as good as without a condom [NODIFF]							
57.	Because of condoms people are unfaithful to their partners/spouses [UNFAITH]							
58.	Sexual pleasure is not reduced when using a condom [SEXPLEA]							
59.	I will feel guilty if I should infect someone else with HIV due to non use of condom [GUILT]							
60.	I shall not feel guilty if I should infect someone else with HIV due to non use of condom [NGUILT] .							
61.	I would be more worried about pregnancy than contracting or transmitting HIV [WPREG]							
	Section G. Knowledge of Antiretroviral drugs (ARVs) Indicate the extent to which you agree or disagree on the following statements **SA** = Strongly agree **A** = agree **D** = Disagree **SD** = Strongly disagree						For Office use only	
		SA 1	**A 2**	**D 3**	**SD 4**			
62.	Antiretroviral drugs cure HIV/AIDS [ARVCURE]							
63.	ARVs can be used for preventing HIV infection [PREHIV]							
64.	People taking ARVs suffer fewer episodes of illnesses [ILLNESS]							

65.	ARVs can be obtained from Budondo Sub County. [ARVSAVIL]							
66.	People taking ARVs can lead normal lives again [NLIVES]							
67.	People on ARVs can have active sexual relations again [ACTVESEX]							
68.	People on ARVs are less likely to transmit the virus to their sexual partners during sexual intercourse without a condom [TRANSMIT]							
69.	People who take ARVs are less likely to re-infect themselves during sex without a condom [REINFECT]							
70.	People on ARVs can stop taking ARVs when they get well [STOPARVS]							
71.	People on ARVs are cured from AIDS [ACURED]							
72.	It is safe to have unprotected sex with someone on ARVs [Q72UPSEX]							
73.	ARVs can kill the HIV germ that causes AIDS [KILLHIV]							
	Section H. Perception towards Antiretroviral drugs (ARVs) Indicate the extent to which you agree or disagree on the following statements. Strongly Disagree **(SD)** Disagree **(D)** Agree **(A)** Strongly Agree **(SA)**							
		SA 1	**A 2**	**D 3**	**SD 4**			
74.	People taking ARVs tend to engage in risky sexual practices [RISKSEX]							
75.	A person taking ARVs cannot transmit the HIV virus to an uninfected partner [TRANIV]							
76.	When an HIV/AIDS patient taking ARVs becomes well he/she can stop taking the ARVs [STOPARV]							
77.	Because ARVs are available people could again engage in unprotected sex [Q77UPSEX]							
78	HIV/AIDS is still a problem despite the availability of ARVs in Uganda [HIVPROB]							
	Section I. Condom use and ARVs							
		SA 1	**A 2**	**D 3**	**SD 4**			
79.	Some people taking ARVs have engaged in unprotected sex [ENUPSEX]							
80.	It is safe to practice unprotected sex with a person taking ARVs [PSAFESEX]							

Section J. Personal risk for HIV infection Indicate the extent to which you agree or disagree on the following statements. Strongly Disagree **(SD)** Disagree **(D)** Agree **(A)** Strongly Agree **(SA)**								For Office use only	
			SA 1	**A 2**	**D 3**	**SD 4**			
81.	I am at a low risk for HIV infection because of condom use. [LOWRISK]								
82.	I cannot get infected with HIV when I engage in unprotected sex with an infected person taking ARVs. [HIVINF]								
83.	I'm less worried about HIV/AIDS because of the availability of ART [LWORRY]								

Thank you for spending your time responding to these questions!

APPENDIX E: RESPONSES TO OPEN ENDED QUESTIONS

<table>
<tr><td>Question</td><td>Section B Section B (HIV Knowledge)</td><td></td></tr>
<tr><td>6. b</td><td>What is the difference between HIV and AIDS?</td><td>classification</td></tr>
<tr><td></td><td>Key words were selected from the various responses and used to classify the differences. The key words were consistent with the technical definitions of the terms asked in the question
▪ HIV is a virus/germ (Key word was virus or germ)
▪ AIDS is a disease, sickness, signs and symptoms, state of immune deficiency
<table><tr><td>Key word</td><td>Number of respondents</td></tr><tr><td>Disease</td><td>22</td></tr><tr><td>Sickness</td><td>7</td></tr><tr><td>Signs and symptoms</td><td>4</td></tr><tr><td>Immune deficiency</td><td>11</td></tr><tr><td>Total</td><td>44</td></tr></table></td><td>Right difference (numerical code 1)</td></tr>
<tr><td></td><td><table><tr><td>Difference</td><td>Number of respondents</td></tr><tr><td>HIV is a bacteria</td><td>1</td></tr><tr><td>HIV are signs and symptoms</td><td>2</td></tr><tr><td>HIV is a disease</td><td>3</td></tr><tr><td>AIDS is an infection</td><td>5</td></tr><tr><td>HIV is transmitted through the virus</td><td>1</td></tr><tr><td>With HIV one looks normal and with AIDS signs and symptoms are seen</td><td>1</td></tr><tr><td>Total</td><td>16</td></tr><tr><td></td><td></td></tr></table></td><td>Wrong difference (numerical code 2)</td></tr>
</table>

<table>
<tr><td></td><td>Section D. Condom Knowledge</td><td></td></tr>
<tr><td>24</td><td>What are condoms? (Please fill in your response</td><td>classification</td></tr>
<tr><td></td><td>
<table>
<tr><th>Key words in definition</th><th>Number of respondents</th></tr>
<tr><td>Rubber / Polythene; worn by man or woman; put on penis/ male private part; during sex/sexual intercourse; to prevent STDs, Pregnancy, diseases, fluid mixing</td><td>41</td></tr>
<tr><td>Protective wear, devices, things, tubes, measures; used by men during sex,; to protect against AIDS, STDs, direct body to body contact</td><td>27</td></tr>
<tr><td>Total</td><td>68</td></tr>
</table>
</td><td>Correct answer (numerical code 1)</td></tr>
<tr><td></td><td>
<table>
<tr><th>Key words in definition</th><th>Number of respondents</th></tr>
<tr><td>Rubber material used by both partners</td><td>1</td></tr>
<tr><td>Like a balloon used by both partners</td><td>1</td></tr>
<tr><td>Life guards</td><td>1</td></tr>
<tr><td>Something used for playing sex with an infected person</td><td>1</td></tr>
<tr><td>Used to protect HIV/AIDS and unwanted pregnancy</td><td>1</td></tr>
<tr><td>Total</td><td>5</td></tr>
<tr><td></td><td></td></tr>
</table>
</td><td>Wrong answer (numerical code 2)</td></tr>
<tr><td></td><td>
<table>
<tr><th>Key words in definition</th><th>Number of respondents</th></tr>
<tr><td>Polythene, rubber, materials used to prevent/control transmission of /protect against; disease infections, HIV/AIDS, STDs, pregnancy</td><td>30</td></tr>
<tr><td>Protective wear, device put on while in sex by man/ partners in a sexual relationship</td><td>13</td></tr>
<tr><td>Safe guarding life, plastic membrane which cannot allow a virus to pass through</td><td>3</td></tr>
<tr><td>Total</td><td>46</td></tr>
</table>
</td><td>Correct but incomplete answer (numerical code 3)</td></tr>
</table>

UNIVERSITY OF SOUTH AFRICA
Health Studies Research & Ethics Committee
(HSREC)
College of Human Sciences

CLEARANCE CERTIFICATE

Date of meeting: 18 April 2009 **Project No:** 3592-754-2

Project Title: **Knowledge, attitudes and practices of condom use in a time of highly active anti-retroviral therapy in a rural area in Uganda**

Researcher: Kabikira Fredricks

Supervisor/Promoter: Dr DM van der Wal

Joint Supervisor/Joint Promoter: Not applicable

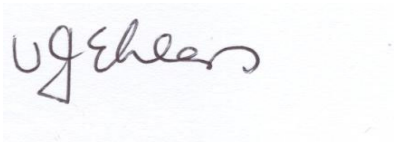
Department: Health Studies

Degree: MPH

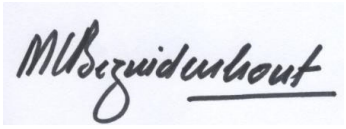
DECISION OF COMMITTEE

Approved [√] **Conditionally Approved** [ ]

Date: 13 March 2009



Prof VJ Ehlers
RESEARCH COORDINATOR: DEPARTMENT OF HEALTH STUDIES



Prof MC Bezuidenhout
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Uganda National Council For Science and Technology

(Established by Act of Parliament of the Republic of Uganda)

UNCST

Appendix G: Uganda National council for science and technology research clearance

Your Ref:**.....**

Our Ref:**.....SS.2213** ***Date:*****.....22/06/09..**

Mr. Fredrick Kabikira
Kyebando Central Zone
Kawempe Division
Kampala

Dear Mr. Kabikira,

RE: RESEARCH PROJECT, "KNOWLEDGE, ATTITUDES AND PRACTICES OF CONDOM USE IN A TIME OF HIGHLY ACTIVE ANTIRETROVIRAL THERAPY IN A RURAL AREA IN UGANDA"

This is to inform you that the Uganda National Council for Science and Technology (UNCST) approved the above research proposal on **May 08, 2009.** The approval will expire on **September 08, 2009.** If it is necessary to continue with the research beyond the expiry date, a request for continuation should be made in writing to the Executive Secretary, UNCST.

Any problems of a serious nature related to the execution of your research project should be brought to the attention of the UNCST, and any changes to the research protocol should not be implemented without UNCST's approval except when necessary to eliminate apparent immediate hazards to the research participant(s).

This letter also serves as proof of UNCST approval and as a reminder for you to submit to UNCST timely progress reports and a final report on completion of the research project.

Yours sincerely,

Leah Nawegulo
for: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

LOCATION/CORRESPONDENCE ***COMMUNICATION***
TEL: (256) 414-250499, (256) 414 705500

THE REPUBLIC OF UGANDA

OFFICE OF THE PRESIDENT

PARLIAMENT BUILDINGS P.O. Box 7168 KAMPALA. TELEPHONES: 254881/6, 343934, 343934, 343926, 343943, 233717, 344026, 230048. FAX: 235459/256143

ADM 154/212/01

June 15, 2009

The Resident District Commissioner,
Jinja District

This is to introduce to you **Dr. Kabakira Fredrick** as a Researcher who will be carrying out a research on **Knowledge, attitudes and practices of condom use in a time of highly active antiretroviral therapy in a rural area in Uganda** for a period of **03 (three)** months in your district.

He has undergone the necessary clearance to carry out the said project.

Please render him the necessary assistance.

Alenga Rose
FOR: SECRETARY, OFFICE OF THE PRESIDENT

DEPUTY RESIDENT DISTRICT COMMISSIONER
P. O. BOX 1551, JINJA
UGANDA

Deputy RDC-Jinja.
P'se offer him the necessary assistance.

APPENDIX I:Certification of statistical support

to

Kabikira Fredrick

Student No. 35927542

on

"Knowledge, attitudes and practices of condom use in a time of highly active anti retroviral therapy in a rural area in Uganda" study.

This is to certify that I **Richard Batamwita** offered data management and statistical support to Kabikira Fredrick in the above study between March 2010-June 2010, for the purpose of obtaining a Masters of Public Health (MPH) degree. I have a working experience of designing data studies, data management, and data analysis of epidemiological studies. I also have experience in writing research papers and abstracts for international conferences.

BATAMWITA RICHARD [International masters in Public Health: 2009. Hebrew University. B: Stat (MUK: 2003)]

Email: Richard.batamwita@mail.huji.ac.il

Appendix H: Clearance for president's office

RD 30/06/09.

THE REPUBLIC OF UGANDA

OFFICE OF THE PRESIDENT

PARLIAMENT BUILDINGS P.O. Box 7168 KAMPALA. TELEPHONES: 254881/6, 343934, 343934, 343926, 343943, 233717, 344026, 230048. FAX: 235459/256143

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Please render him the necessary assistance.

Alenga Rose
FOR: SECRETARY, OFFICE OF THE PRESIDENT

DEPUTY RESIDENT DISTRICT COMMISSIONER
30 JUN 2009
P. O. BOX 1551, JINJA
UGANDA

Deputy RDC-Jinja.
P'se offer him the necessary assistance.

APPENDIX J: Certification of Editing

I **Monica Kamya,** a lecturer of English Language Studies at the Makerere University Institute of Languages, certify that I have proof read, edited and duly corrected the work of **Kabikira Fredrick**, Reg. 359275422. The title of the work is **"Knowledge, attitudes and practices of condom use in a time of highly active antiretroviral therapy in a rural area in Uganda" study.**

……

Monica Kamya

Lecturer, English Language studies

Makerere University institute of Languages

Email: monjo80@yahoo.com

Mobile phone: +25677514745

Appendix K: Issues emphasized during the meeting with field workers

The researcher met with the field workers and briefed them on certain ethical issues they had to observe during the data collection exercise. The field workers had experience in field data collection but none the less the following points were emphasised:

1. Introduction of self and purpose of the visit to the home.
2. Seeking consent from the head of the house hold to conduct an interview with any of the house hold members under his/her care. To also seek consent from the person identified.
3. To conduct field visits during the day and permitting to hold the interviews in the open courtyards if the weather permitted.
4. To be non judgmental and show no emotional feelings to the replies given by the respondents.
5. To hold the interview and to keep the responses (forms) in confidentiality.
6. Together with the researcher, they read through the questionnaire and all concepts and words clearly explained.
7. How and where to record responses on the questionnaires

List of figures

Page

LIST OF TABLES

Page