

**Impact of antiretroviral therapy on risky sexual behaviour in people living with  
HIV and AIDS (PLWHA) in Lusaka District of Zambia**

by

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## **DECLARATION**

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## ABSTRACT

The aim of the study was to investigate to what extent the availability of antiretroviral treatment has influenced sexual risk behavior practices in people living with HIV and AIDS (PLWHA) in order to provide suggestions to improve HIV prevention messages.

The study was conducted among adult HIV patients on ART aged 18 and above and affiliated to the Network of Zambian People Living with HIV/AIDS (NZP+) in Lusaka District. A purposive sampling method was used to select study units and a sample of 40 was selected. Data was collected from participants using a self-administered questionnaire. SPSS version 20 software computer package was used to analyze data. Chi-square was used to measure associations between dependent variables (risky sexual behavior and initiation of ART) and the independent variable (duration of time on ART). With the confidence interval set at 95%, the P value was used to ascertain the degree of significance by using the decision rule which rejects the null hypothesis if P value is equal or less than 0.05.

The findings revealed that the participant's mean age was  $2.8 \pm 1.3$  SD. More than half (68%, n=27) of the participants had adequate knowledge on HIV prevention while 90% (n=36) of participants had a good (positive) attitude towards ART. 82.5% (n=33) of the participants on ART had sexual intercourse in the last 6 month, and 21.2% (n=7) of these did not use a condom for secondary prevention. There was no significant correlation between being on ART and having sexual intercourse, condom usage or number of sexual partners OR (P value of 0.45 and 0.85), (P values 0.37 and 0.5) and (P value 0.34 and 0.57) respectively. In multivariable analysis, the majority of the respondents (35.5%, n=11) indicated that continued sensitization would improve HIV prevention messages to support communities affected. Few (29%, n=9) stated that: "promoting abstinence among the youths or use of a condom for those that are sexually active and intensifying VCT campaign would reduce HIV transmission" and 7% (n=2) of the respondents suggested that; "involving the families and communities affected, civic, religious, and traditional leaders to educate both the young and adult citizens in schools, colleges and churches to support PLWH and fight against HIV-related stigma and discrimination.

A significant association was not found between an increase in risky sexual behavior or an upsurge in the occurrence of unprotected sex, initiation of ART and duration of being on ART. The majority (83%, n=15) of the respondents on ART for less than sixty months had protected sexual intercourse and 73% (n=11) on ART for sixty months and above also used protection. This association was statistically not significant (Chi-square value 2.95. P value > 0.05). However; other studies need to explore these subjective interpretations further.

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## **CHAPTER 1: BACKGROUND**

### **1.1. Interventions to prevent HIV/AIDS infection and transmission**

The HIV prevalence in Zambia is 13% according to the Demographic Health Survey of 2013-14 (CSO,MOH & ICL, 2014).The National AIDS Strategic Framework for 2011 - 2015 indicated that its main goal was to reduce the incidence rate in 2009 which was 82,000 to 40,000 in 2015 (UNGASS, 2014).The interventions put in place to reduce the transmission of HIV included condom marketing and distribution, HIV counselling and Testing (HCT), Blood safety, prevention of sexually transmitted infections, Post Exposure Prophylaxis, Voluntary Medical Male Circumcision (VMMC), prevention of mother to Child Transmission (PMTCT) and Social and Behavior Change (SBC). Implementing partners with support from the National HIV/AIDS/STI/TB Council and Ministry of Health were carrying out these interventions countrywide.

### **1.2. Antiretroviral therapy (ART) and high risk behaviour**

The Government of Zambia in the year 2002 embarked on the provision of antiretroviral therapy countrywide. In the initial phase U\$ 3 million was allocated for the treatment of 10,000 people living with HIV and AIDS. Later on in 2005, the government decided to make antiretroviral therapy free of charge at public health institutions. The introduction of antiretroviral treatment has brought hope in prolonging the lives of those living with HIV and AIDS. However, it was reported that the availability of antiretroviral drugs had resulted in some individuals resorting to high risk behaviors. With treatment available some individuals feel that it is acceptable to indulge in high risk behaviors after all if infected with HIV, they will receive medication and be able to lead a normal life. Thus the perception has been that some people are engaging in high risk behavior practices due to the availability of antiretroviral treatment.

### **1.3. Research problem**

Only one known study similar in nature has been conducted in Zambia. In other countries similar researches were conducted on homogenous groups such persons living with HIV and AIDS as well as men who had sex with their fellow men (MSM).

The number of people living with HIV/AIDS in Zambia was estimated at 1,100,000 (UNAIDS, 2013) and the disease has continued to rob Zambians of their social and economic security. Like many other countries in sub-Saharan Africa, high-risk sexual behavior, poverty, fear of stigma and discrimination and sexually transmitted diseases are major causes of the high HIV/AIDS prevalence in Zambia. Not much is known as to what extent the availability of antiretroviral treatment has influenced sexual behavior practices in people living with HIV and AIDS in Zambia particularly those who are on antiretroviral therapy.

#### **1.4. Research Question**

To what extent does the availability of antiretroviral therapy (ART) affect sexual risk behavior practices in people living with HIV and AIDS (PLWHA) in order to provide suggestions to improve HIV prevention message

#### **1.5. Aim**

To investigate to what extent the availability of antiretroviral treatment has influenced sexual risk behavior practices in people living with HIV and AIDS (PLWHA) in order to provide suggestions to improve HIV prevention messages.

#### **1.6. Objectives**

1. To determine knowledge about HIV prevention measures.
2. To determine knowledge and attitude of antiretroviral treatment.
3. To determine whether embarking on antiretroviral therapy has contributed towards sexually risky behavior.
4. To provide guidelines on how to improve HIV prevention messages to support communities affected.

#### **1.7. Significance of the study**

The study will make a contribution to the field of HIV and AIDS by analyzing the current situation on treatment, prevention and risky sexual behavior and provide guidelines on how to improve on HIV prevention messages to all affected communities in Zambia.

The beneficiaries of this study will be HIV and AIDS program implementers, NGOs and National AIDS council. Current information will be obtained and this will be incorporated with their work to improve HIV and AIDS programing.

Program implementers in the HIV and AIDS field will be able to evaluate their work against the study and thus fine-tune their work. The study will also help the Health Ministry in designing policies in the area of HIV and AIDS in Zambia.

## CHAPTER 2: LITERATURE REVIEW

### 2.1. Introduction

HIV/AIDS has been reported as one of the most significant social problems affecting people from all walks of life as outlined in the introduction section. The review is aimed at establishing what is already known about the topic and to identify gaps in the existing literature. Several authors have written on many aspects of HIV/AIDS, its treatment with antiretroviral drugs and high risk sexual behaviors brought about due to the availability of these drugs. Some of these studies were done in Western countries and so the findings cannot be generalized to African countries since the prevalence of HIV infections is high in sub-Saharan Africa and Zambia (13%) in particular (CSO,MOH & ICL, 2014).

### 2.2. Antiretroviral therapy and its benefits to patients

According to UNAIDS in 2004 antiretroviral therapy was introduced in 1996 in developed countries and in 2004 in Sub-Saharan Africa. There has been an increase in the administration of highly active antiretroviral treatment in sub Saharan Africa over the past decade due to the concerted effort from the international community in the fight against the HIV scourge.

According to the UNAIDS report on the access to antiretroviral therapy in Africa, it is stated in their status report on progress towards the 2015 targets that antiretroviral therapy does the following:

- Life Saving -Approximately 5.5 million lives were saved between 1996 and 2012 in low and middle income countries. The majority of lives that were saved were from the sub-Saharan African region. Antiretroviral therapy averts new HIV infections- Transmission risk of HIV is reduced by up to 96% as a result of antiretroviral therapy.

One such similar study done by Cambiano et al (2011) reported that taking ART averts illness- HIV treatment increases immunity and thus in turn reducing the chances on one having opportunistic infections. This improves the quality of life of people infected and living with HIV.

It was further reported in this study that the risk of tuberculosis among people living with HIV is reduced by 65% as a result of antiretroviral therapy.

- Saves finances and encourages development- Within a period of five years financial savings are generated as a result of HIV treatment. Expenditure on antiretroviral therapy also increases economic returns on initial investment.
- Maintains production -People of productive age are able to return to work and continue being productive as a result of antiretroviral therapy which improves their health.

### **2.3 Guidelines on the use of antiretroviral drugs**

The World Health Organization in 2013 published guidelines on the uses of antiretroviral drugs. These were as follows:

- The initiation of antiretroviral therapy in all adult patients should be that of CD4 count of equal to or less than 500 cells per mm<sup>3</sup>. This includes symptomatic patients who are at WHO clinical stage 3 and 4 of the disease. Those patients who have a CD4 count of equal to 350 cells/mm<sup>3</sup> or less should be treated as top priority.
- Any HIV patient irrespective of his or her CD4 count who is diagnosed with active TB should be commenced on antiretroviral therapy. There is no need to wait until TB treatment is complete before commencement of ART.
- Those HIV positive patients with active hepatitis B and with indication of severe liver disease should be commenced on ART irrespective of their CD4 count. This helps to prevent death in those HIV positive patients infected with hepatitis B. This is because scientific evidence has shown that some ARVs are active against the hepatitis B virus (e.g. a NRTI lamivudine).
- Women who are HIV positive and are expecting or breastfeeding should be commenced on ART irrespective of their CD4 count or WHO clinical stage. This prevents mother to child transmission (MTCT) of HIV as well as through sexual contact
- Those who are in sero-discordant relationships and are infected with HIV should be commenced on ART irrespective of the CD4 count. Evidence has shown that ART can prevent the transmission of HIV among sero-discordant couples

As of December 2012 Africa was leading globally in the administration of antiretroviral therapy which included 7.6 million people on treatment in the sub-Saharan region.

Between 2006 and 2012 countries in southern and east Africa had doubled in scaling up the uptake of ART in people living with HIV and AIDS. There is also an increase in scaling up of uptake of ART in Central and Western Africa although the pace is slower. According to the WHO 2010 report on access to ART, It was reported that 80% or more of adults eligible for ART had been reached in at least 10 countries which include South Africa, Rwanda, Swaziland, Zambia, Eritrea, Kenya, Namibia, Zimbabwe, Botswana and Cape Verde. Noteworthy is the fact that more people were expected to have access to ART following the introduction of the 2013 WHO guidelines on access to ART.

#### **2.4 Antiretroviral therapy and risky sexual behaviors**

The success of ART has however gone along with many subjective interpretations of an upsurge in the occurrence of risky sexual behavior and unprotected sex. Whilst these interpretations are unconfirmed they can be said to be consistent research which have indicated that there might be an increase in the risky sexual behavior as a result of the availability of HAART in people living with HIV and AIDS (Bouhnik et al, 2002). Another similar study done by Kennedy et al, 2007 indicated that for example, as a result of the improvement of the quality of life of people living with HIV and AIDS due to the availability of HAART there is a likelihood of them being encouraged to recommence sexual activities which includes unprotected sex.

The leading notion relating to insights of disease vulnerability and threat which argues that a change in the observed threat of HIV may result in the reduction in the concern about HIV, reduction of care in sexual practices and an increase in sexually transmitted infections and unprotected sex, was evidenced by the findings of three concurrent studies (Bouhnik et al, 2002; Stephenson et al, 2003; Stolte et al, 2006).

A significant relationship between sexual behavior and HAART is not evident according to studies conducted in both industrialized and emerging countries (Crepaz, Hart & Marks, 2004) (Kennedy, O'Reilly, Medley & Sweat, 2007). Of the three studies that have been conducted in developing countries, two of them have been in Uganda. It has become critical to review the hypothesized association between HAART and sexual behavior as treatment becomes more widely available.

A study was conducted in Uganda between 2003 and 2004 which was aimed at making an assessment in variation of risky sexual behaviors as well as transmission of HIV in those persons infected and on ART for a minimum of six months. The results indicated that out of the total 926 HIV infected adults who had since been enrolled in a home-based ART program, there was a significant reduction of sexual behavior by 70% (n=648) six months after commencing ART. Of the sexual acts that were risky 85% occurred in those couples that were married.

Furthermore the study also reported a decline in the projected risk of HIV transmission by 98%, from 45.7 to 0.9 per 1000 person years. It was thus concluded that the provision of ART together with voluntary counselling and testing alongside continued emphasis on HIV prevention modalities was related to the reduction of high risk sexual behavior and HIV transmission for those on treatment for the first six months. (Bunnell et al, 2006)

A study amongst men who had sex with their fellow men was conducted with the objective of assessing the effect of highly active antiretroviral therapy (HAART) on their sexual behavior. This comprised of a HAART effect study which looked at unprotected sex practices which were anogenital as well as STI and sexual behavior trends. The study drew participants from the Amsterdam Cohort Studies (ACS) on men having sex with men which began in 1984. The subjects comprised of those both HIV negative and positive.

Of the 365 subject who were HIV positive, were on HAART. The results of the study indicated that after the introduction of HAART unprotected sex was increasingly practiced as well as an increase in the cases of gonorrhoea. There was also an increase in the number of unprotected sex with casual partners by those men who were HIV positive. It was concluded from this study that there was need to reinforce messages on safe sex on both HIV negative and positive individuals.

A cross sectional study in the United States of America was conducted with the objective to investigate whether unprotected anal sex amongst men who have sex with men was associated to the attitudes towards antiretroviral treatment. The participants were 547 men who have sex with men. Of these men 329 were HIV negative and 218 were positive.

The results obtained from this study indicate that more than 50 percent of the subjects who had anal sex and recently had unprotected receptive anal sex. Those respondents who agreed with the fact that HAART reduced transmission were more likely to have unreported unprotected receptive anal sex.

A cross sectional study conducted in Mombasa, Kenya, which was aimed at revealing HIV disclosure to partners, condom usage and knowledge of partners HIV status, had interviewed 179 participants who were infected with HIV and on HAART for at least six months and 143 who were infected and were also receiving preventive therapy (PT) for at least a period of five months.

The key findings of this study revealed the following:

- 45% (n=145) of all those who participated in the study were sexually active in the last six months.
- Compared to those subjects on PT those who were on HAART indicated that they were unlikely to have sex with their single or multiple partners.
- Those who were on HAART reported increased condom usage with their regular partners
- Those that were on PT had a four times higher chance of having unprotected sex than ones who were receiving HAART.

Thus it can be concluded from the findings of the study that there was a lower chance of those on HAART indulging in risky behavior than those subjected to preventative therapy (PT). One can also conclude that there is no evidence that the commencement of HAART leads to increase of risky sexual behavior. (Sarna et al, 2005).

A retrospective cohort study was conducted by Abby Makukula in 2008 at Mansa General Hospital in Mansa, Zambia as well as the University Teaching Hospital. The main objective of the study was to determine the impact of antiretroviral therapy on the risky sexual behavior practices of PLWHA on ART. The study population comprised of two groups. The first involved persons living with HIV and AIDS and on antiretroviral therapy. The second group comprised of people living with HIV and AIDS but not on antiretroviral

therapy. The sample size comprised of 119 PLWHA on ART and 111 not on ART. The results obtained on the comparison of risky sexual behavior outcomes were that there was a significant difference in the sexual activity pattern of the two groups. Those on ART were recorded to be more sexually active than those who were not on ART. Most subjects on ART experienced fewer admissions and were of better health. On risky behavior involving sexual intercourse with different types of partners the two study groups showed no statistical differences. The study failed to show whether there was higher risky sexual behavior when you compare the two groups under investigation.

Recently in Togo at a regional hospital in Sokode between May and July 2013, an analytical cross-sectional survey was conducted to assess sexual risky behavior among people living with HIV and AIDS. These 291 research participants had been on antiretroviral therapy for a period of at least three months. The key findings of this research were that 74.6% were sexually active since initiation of antiretroviral treatment. Risky sexual relations amounted to 34.6%. The research thus concluded that unsafe sex amongst people living with HIV and AIDS who were receiving antiretroviral therapy was relatively high. The factors that contributed to high sexual risk behavior were named as non-adherence to ART; low levels of education; high consumption of alcohol prior to sex and during antiretroviral treatment.

These high statistics were attributed to a reduction in the access to secondary prevention such as condoms and the desire for people living with HIV and AIDS to have children. (Yaya et al, 2014)

Efforts have been made to explain the relationship between those who are on antiretroviral therapy and sexual behavior that is risky. The following factors have been explained as some of the reasons:

#### **I. Enhanced health and purposeful status combined with prolonged existence**

Antiretroviral treatment is said to enhance health and purposeful status of those persons living with HIV and AIDS. It may be said that the unintentional effect of antiretroviral treatment may be an upsurge in risky sexual behavior. Scheer et al in 2001 mentions that

this could be as a result of reduced fear about HIV transmission. Those persons who were on ART are said to have greater challenges in maintaining safer sex practices than those who are HIV positive and not on antiretroviral treatment. It is however stated that a person who displays symptoms of HIV infection as well as side effects from the drugs may experience loss of libido.

## **II. Insights about antiretroviral therapy**

Rosenstock et al, 1994 in their Health Belief Model stress that the degree to which a disease is perceived to be severe has an influence on behavior change. The less a disease is perceived to be severe the less likely one is motivated to prevent transmission. Before the introduction of antiretroviral therapy there was great fear amongst people and much caution was taken in preventing the spread of the virus. HIV was seen as a condition that could not be treated and thus contracting the virus would mean an end to someone's life.

The introduction of antiretroviral therapy which has led to containing the virus and improving the quality of lives of individuals has changed the whole perception about HIV. With increasing knowledge that antiretroviral drug reduce the transmission of HIV much precaution towards safer tends to decrease.

## **III. Facilities associated to ART**

Not much has been said about the influence that support services that have been provided to those people living with HIV has on risky sexual behaviors. Persons living with HIV may have access to services such as counselling, awareness programs and support groups. Through the counselling and support, correct and updated information is provided by experts and thus people are kept abreast on how to prevent HIV transmission. Thus the amount of support given to people living with HIV and AIDS is said to have an influence on the sexual behavior of those who have been affected.

Therefore the study was undertaken in order to build upon the existing knowledge that has been gathered through previous research mentioned on the relationship between HAART and risky sexual behavior. From the reviewed literature on studies conducted in

both developed and developing countries one would observe that the sample consisted of mainly homogenous groups namely people living with HIV and AIDS as well as men who have sex with men. Not much research similar in nature was conducted in Zambia. Therefore there was need to carry out a similar study on the perception and sexual behaviors in the HAART availability context in Zambia as there is little existing knowledge about this.

## **CHAPTER 3: METHODOLOGY**

### **3.1. Introduction**

This chapter focuses on a number of aspects concerning the methodology, such as the research design, the nature of the sample, and the procedure. Furthermore, ethical matters, data management and analysis and finally methodological limitations.

### **3.2. Study type and design**

The study under question was quantitative in nature. Quantitative methods are objective, formal and systematic and make use of numerical data to acquire information about phenomena (Cormack, 1991). The method can be easily replicated thus making it have a reliability that is high (Aiken, 2003).

### **3.3. Study population and research setting**

The study was conducted amongst individual members affiliated to the Network of Zambian People Living with HIV/AIDS (NZP+) in Lusaka District. The network consists of about 50 community groups with each consisting 15 members. Thus the estimated total population was 750 members. Participants to this study that met the eligibility criteria were selected from the total population.

### **3.4. Sample selection**

A non-probability purposive sampling method was used to come up with the sample in this study. This method allows the researcher to intentionally select subjects deemed to be pertinent to the subject under study (Patton, 1990). Thus the sample chosen was able to furnish the researcher with the required information.

Fifty (50) individuals who met the criteria for this study were drawn from all Zambian People Living with HIV/AIDS in Lusaka District. From this target population, a sample of 40 participants was then selected. 40 participants were considered to be representative and therefore reducing on sampling bias as the researcher was confident that results could reflect the characteristics of the target population.

### **3.5. Data collection tool**

A self-administered questionnaire in which the contents were arranged according to the major variables of interest as reflected in the specific objectives was used in this study to collect the information from the respondents. Questionnaires are less costly and able to generate results at a quick pace (Sarantakos, 1998). Apart from being convenient to the respondent they offer a great assurance of anonymity, wide coverage as well as enhanced objectivity. The questionnaire used in this study was semi- standardized containing both closed and open ended questions. This was done to enable expression of views when answering open ended questions as well as contrasts amongst respondents of closed ended questions.

### **3.6. Data collection technique**

The following Procedure was used to collect data:

- The purpose of the study was explained to the participants
- Permission was sought from the participants so that they could answer the questionnaire
- Confidentiality was maintained by ensuring that no names were written on the questionnaire instead numbers were used. Participants were asked to respond to the questions in the same order and the same set of options was provided for their response. The central topics that were explored included the following: Participants level of knowledge about HIV and AIDS prevention measures, knowledge and attitude towards antiretroviral therapy (ART), if embarking on ART has contributed to high risk sexual behaviours and guidelines to improve HIV prevention messages. Knowledge levels were measured using cut of points as shown in table 1 below.

Table: 1 Variables and cut off points

<b>Variables</b>	<b>Cut off points</b>	<b>Indicators</b>
Knowledge on HIV prevention and ART	Adequate knowledge	Scores 8-12 correct on questions of knowledge
	Low Knowledge	Scores 3-7 correct
	Not knowledgeable	Scores 0-2 on questions assessing knowledge
Attitude of patients on ART	Positive	Scores 3-5 correct on questions of attitude
Towards risk sexual behaviors	Negative	Scores 0-2 on questions of attitude

### 3.7. Data analysis and presentation

To analyze the data collected in this study, survey questionnaires were edited for completeness, uniformity, accuracy and consistency and then labelled. The responses from closed-ended questions were coded and then entered on the data spread sheet created in SPSS while responses from open-ended questions were processed by reading through the data in entirety to identify and group answers that belong together and then categorized according to major themes. The groups were then assigned numerical codes (1, 2, 3, 4...) and then entered on a data spread sheet and subjected to descriptive analysis using SPSS computer software version 20. This process allows for raw data to be summarized in form of percentages, frequencies, measures of central tendencies and measures of variability which include standard deviation, range and variance. Data from the findings was analyzed based on the target population of 50. Conclusion and generalizations were thus based on the target population and not the entire Network of Zambian People Living with HIV and AIDS in Lusaka District.

The findings from this study were presented according to the sequence of questions and sections in the questionnaire (i.e. Section A, B, C, D and E) using frequency tables, pie charts and bar Graphs.

The use of graphs and pie charts in the presentation of findings made work presentable and easy to both read and understand. The frequency tables summarized the findings in meaningful ways thus giving understanding. Summaries of the points illustrated in the tables, pie charts and graphs were indicated.

### **3.8. Inclusion Criteria**

The prospective research participants were;

- Zambians Living with HIV and AIDS and receiving ART consistently based on the eligibility criteria which were issued by the World Health Organization (WHO) in June 2013 outlined in literature review.
- On treatment for at least a minimum of 12 months.
- Not in any form of distress
- Above the age of 18 years
- Able to read and write in English

### **3.9. Ethical considerations**

Clearance to carry out this research was obtained from relevant authorities: Stellenbosch University Research Ethics Committee and the Faculty of Economic and Management Science. An individual informed consent was obtained from the participant prior to commencement of the study. The individual participants were availed with the necessary information concerning the study and a decision was arrived at without having been subjected to intimidation, inducement or undue influence. Confidentiality and anonymity were maintained to the participants in that no names appeared on the questionnaires and their identity was not made public.

They were assured that the information obtained from them was solely to be used for the purpose of the study and for statistical purposes. Furthermore the information obtained would also be of benefit to the individual, the organization as well as other stakeholders as it may provide solutions in mitigating the impact of HIV and AIDS.

After completion, all questionnaires were put under lock and key in a cabinet to limit access to and ensure that the information obtained was only used by the researcher.

The discomfort and embarrassment arising as a result of questions asked about sexual behavior were addressed by emphasizing confidentiality and anonymity of the study. The questionnaire was also self-administered and did not involve face-to-face responses to the researcher. This also minimized on the risk of discomfort and embarrassment.

To ensure that the research does not lead to openings of stigma, discrimination and judgment, language that does not communicate stigma was used. Participants were also respected and their autonomy, rights and dignity were protected.

## CHAPTER 4: RESULTS AND DATA ANALYSIS

### Section A: 4.1. Socio-demographic characteristics of the respondents

4.1.1 TABLE 2; Respondent's demographic data

		Frequency	Percentages (%)
Age (Years)	18-29	9	22.5%
	30-39	6	15.0%
	40-49	17	42.5%
	50-59	1	2.5%
	60 and above	7	17.5%
	<b>Total</b>	<b>40</b>	<b>100%</b>
Marital status	Single	8	20.0%
	Married	25	62.5%
	divorced	0	0.0%
	Widowed	7	17.5%
	<b>Total</b>	<b>40</b>	<b>100%</b>
Education level	Primary	2	5.0%
	Secondary	13	32.5%
	Tertiary	20	50.0%
	None	5	12.5%
	<b>Total</b>	<b>40</b>	<b>100%</b>
Gender	Male	11	27.5%
	Female	29	72.5%
	<b>Total</b>	<b>40</b>	<b>100%</b>

The majority of the respondents (42.5%, n=17) were between the ages 40– 49 years while 23% (n=9) were between the ages of 18-29 years. 62.5% (n=25) of the respondents were married, with only 50% (n=20) had tertiary education and 72.5% (n=29) were females.

## Section B: 4.2. Level of knowledge about HIV prevention measures

### 4.2.1. Table 3. Respondent's knowledge on HIV prevention

<b>Knowledge about HIV prevention N=40</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Adequate knowledge	27	67.5%
Low knowledge	13	32.5%
Not knowledgeable	0	0.0%
<b>Total</b>	<b>40</b>	<b>100%</b>

The majority of the respondents (68%, n=27) had adequate knowledge on HIV prevention with 33% (n=13) having low knowledge

#### 4.2.2. Respondent's Knowledge on HIV transmission prevention (N= 40)

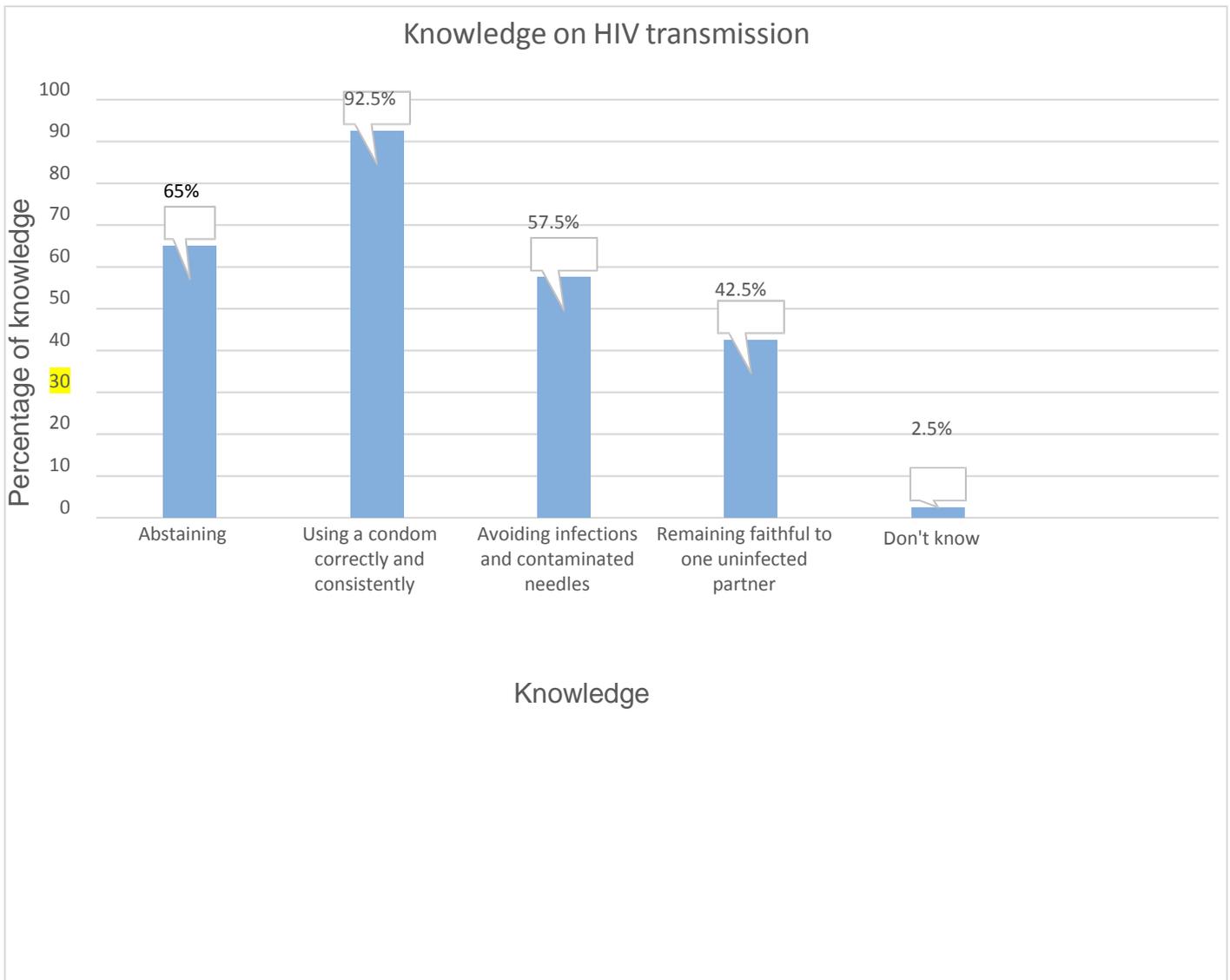


Figure 1: Knowledge on HIV prevention

The majority of respondents (92.5%, n=37) stated that HIV transmission could be prevented by using a condom when having sex, while 65% (n=26) said it could be prevented by abstaining. 57.5% (n=23) of the respondents indicated that it can be prevented by avoiding infections and contaminated needles with 42.5% (n=17) saying by remaining faithful to one uninfected partner.

## Section C: 4.3. Knowledge and attitude towards antiretroviral therapy

### 4.3.1. Table 4: Knowledge on antiretroviral therapy (N=40)

		Responses		Percent of Cases
		N	Percent	
Knowledge on antiretroviral therapy	Cure HIV/AIDS	6	3.8%	15.0%
	Increase sickness	2	1.3%	5.0%
	Slow the progression of AIDS	23	14.6%	57.5%
	Decrease the amount of virus in the body	24	15.2%	60.0%
	Improve immune system	26	16.5%	65.0%
	Reduce opportunistic infections	24	15.2%	60.0%
	Prolongs life of people living with HIV and AIDS	26	16.5%	65.0%
	Kill people		1.6%	2.5%
	Increase the CD4 count	25	15.8%	62.5%
	Don't know		1.6%	2.5%
<b>Total</b>		<b>158</b>	<b>100.0%</b>	<b>395.0%</b>

Table 3 shows that the majority (65%, n=26) of the respondents knew that ART improves immune system and prolongs life of people living with HIV and AIDS. 62.5% (n=25) of respondents said ART increase the CD4 count, 60.0% (n=24) indicated that ART decrease the amount of virus in the body and reduce opportunistic infections while 57.5% (n=23) said it slows the progression of AIDS.

### 4.3.2 Knowledge on when to start taking ARVs

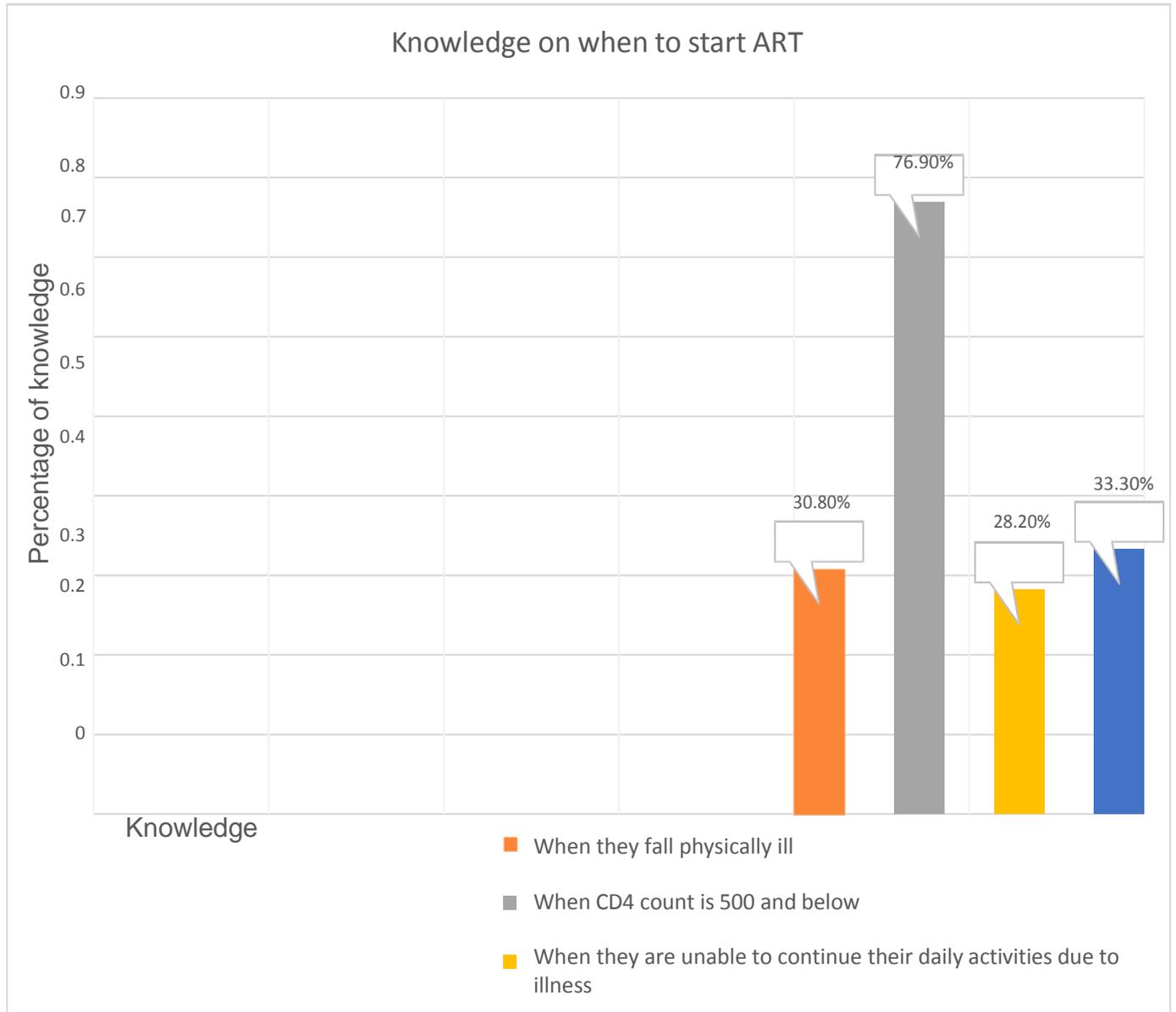


Figure 2: The majority of the respondents (76.9%, n=31) were knowledgeable as they stated that ARVs should be started when CD4 count is  $\leq 500$  and 33.3% (n=13) indicated that not all positive people need to commence on ARVs.

**4.3.1. Table 5: Attitude of the patients on ART towards risky sexual behavior**

<b>Attitude about ART</b>	<b>Correct response (Disagree to)</b>	<b>Wrong response (Agree to)</b>	<b>Totals</b>
A person on ART cannot transmit HIV	(85% ,n=34)	(15%, n=6)	(100%, N=40)
Patients on ART need not to use a condom	(88%, n=35)	(12%, n=5)	(100%, N=40)
See no need to use a condom with uninfected sexual partners	(85%, n=34)	(15%, n=6)	(100%, N=40)
Sex with a person on ART does not result in transmission of the virus	(90%,n=36)	(10%, n=4)	(100%, N=40)

Table 4 shows that the majority of the respondents had a good (positive) attitude with 90% (n=36), stating that sex with a person on ART can still result in transmission of the HIV virus, 88% (n=35) indicating that patients on ART need to use a condom and 85% (n=34) stated that a condom should be used even with an uninfected partners.

**Section D: 4.4. To determine whether embarking on antiretroviral therapy has contributed towards sexual risk behavior**

**4.4.1. Participant on ART who had sexual intercourse in the last 6 months. (N=40)**

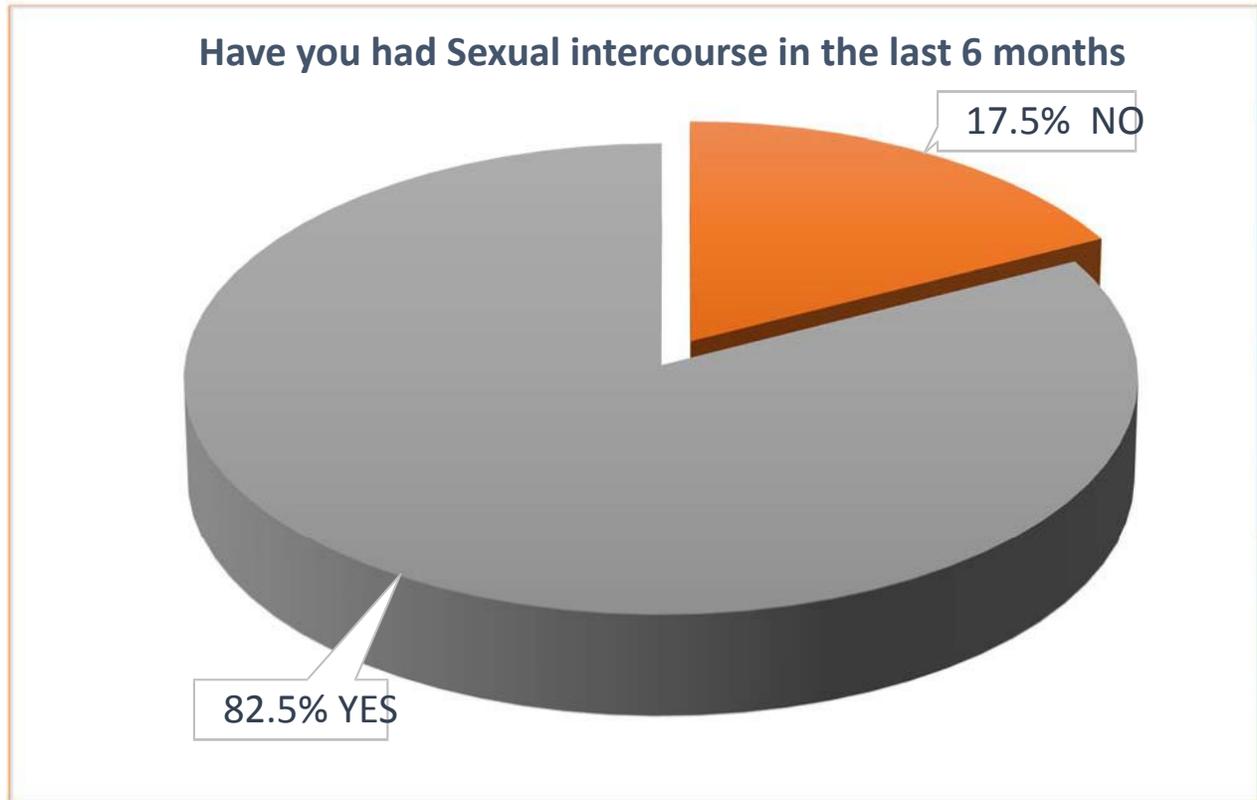


Figure 3: Of the 40 respondents who were on ART, the majority (82.5%, n=33) had sexual intercourse in the last 6 month. Only 17.5% (n=7) of the respondents did not have sexual intercourse.

**4.4.2. Table 6: Condom usage when having sex (N=33)**

		Frequency (n)	Percent (%)	Valid Percent
Valid	Yes	26	65.0%	78.8%
	No	7	17.5%	21.2%
	Total	33	82.5%	100.0%
Missing	12		7	17.5%
Total		40	100.0%	

Table 5 Shows that of the 33 respondents who had sexual intercourse with partners in the last 6 months, the majority (78.8%, n=26) used a condom while 21.2% (n=7) did not use a condom.

#### 4.4.3. Reasons for using a condom with a sexual partner (N=26)

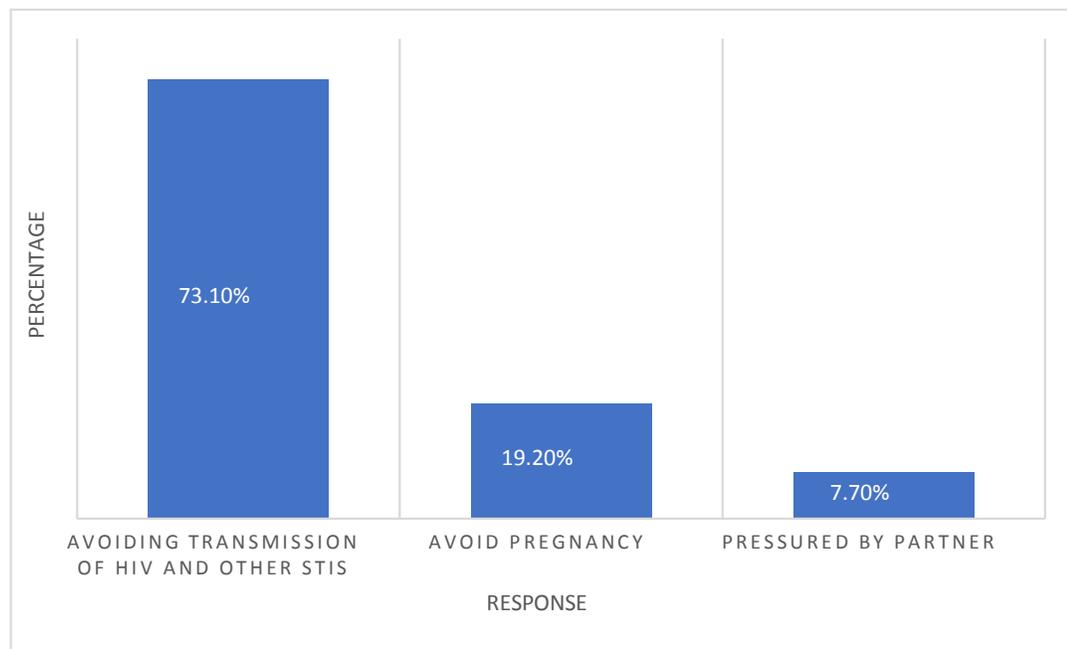


Figure 4: Of the 26 respondents who used a condom, the majority (73.1%, n=19) stated that they used a condom in order to avoid transmission of the HIV virus and other STIs, 19.20% (n=5) indicated that it was important to use a condom in order to avoid unplanned pregnancy and 7.7% (n=2) said they were pressured their partners to use a condom.

#### 4.4.4: Reasons for not using a condom (N=7)

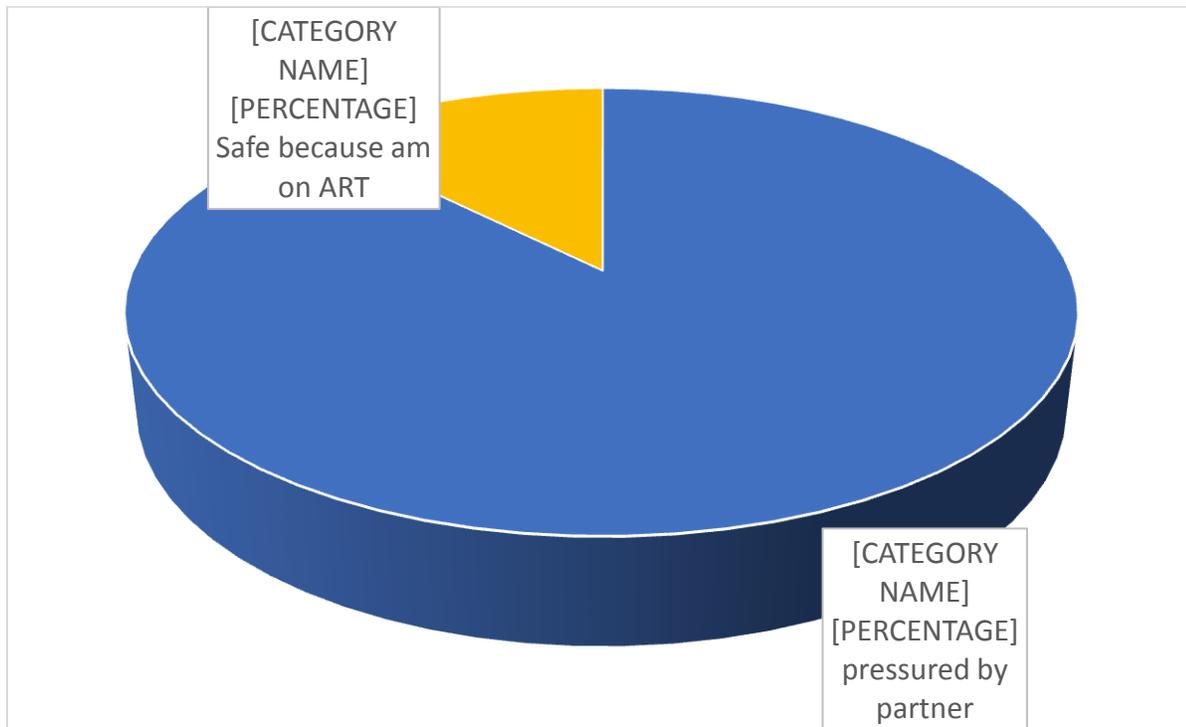


Figure 5: Of the 7 respondents who did not use a condom, majority (88%, n=6) said were pressured by their partners not to use a condom while 12% (n=1) indicated that they were safe not to use a condom as they were on ART

**Table 7. Association between the duration of time the participant had been on ART and having sexual intercourse**

	Have you ever had sexual intercourse in the last 6 months		Total	P value
	Yes	No		
Participants who have been on ARVs for less than 60 months	18 (85.7%)	3 (14.3%)	<b>21 (100.0%)</b>	0.86
Participants who have been on ARVs for 60 months and longer	15 (78.9%)	4(21.1%)	<b>19 (100.0%)</b>	0.45

There was no association between the duration of time the participant had been on ART and having sexual intercourse ( $p > 0.05$ ). P value of 0.45 and 0.86 respectively (Not significant). The majority (85.7%,  $n=18$ ) of the respondents on ART for less than 60 months had sexual intercourse during the last 6 months.

**4.4.6 Table 8. Association between duration of being on ART and condom usage when had sexual intercourse**

	Condom usage when had sexual intercourse		Total	P value
	Yes	No		
Participants who have been on ARVs for less than 60 months	15 (83%)	3 (17%)	<b>18 (100.0%)</b>	0.37
Participants who have been on ARVs for 60 months and longer	11 (73%)	4(27%)	<b>15 (100.0%)</b>	0.57

Results indicate no association ( $p > 0.05$ ) between the duration of time the participants had been on ART and whether they used a condom for secondary prevention. The majority (83%,  $n=15$ ) of the respondents on ART for less than sixty months had protected sexual intercourse and 73% ( $n=11$ ) on ART for sixty months and above also used a condom. P values 0.37 and 0.57 respectively (Not significant).

**4.4.7. Table 9. Association between duration of being on ART and the number of partners the participant had sexual intercourse with**

	How many partners have you had sex with in the last 6 months		Total	P value
	1 partner	2 partners		
Participants who have been on ARVs for less than 60 months	16 (88.9%)	2 (11.1%)	<b>18 (100.0%)</b>	0.34
Participants who have been on ARVs for 60 months or longer	12 (80%)	3(20%)	<b>15 (100.0%)</b>	0.57

Table 14 shows no association between duration of being on ART and number of partners the respondent had sex with. The Majority (80%, n=12) of the respondents on ART for 60 months and above had one sexual partner. It was also found that 18 (88.9%) of the respondents who had been on ART for less than 60 months had one sexual partner. Chi- square value 12.61. P value 0.34 and 0.57 respectively (Not significant).

**Section E: 4.5. To provide guidelines on how to improve HIV prevention messages to support communities affected.**

4.6.1 Improvement of HIV prevention messages to support communities affected

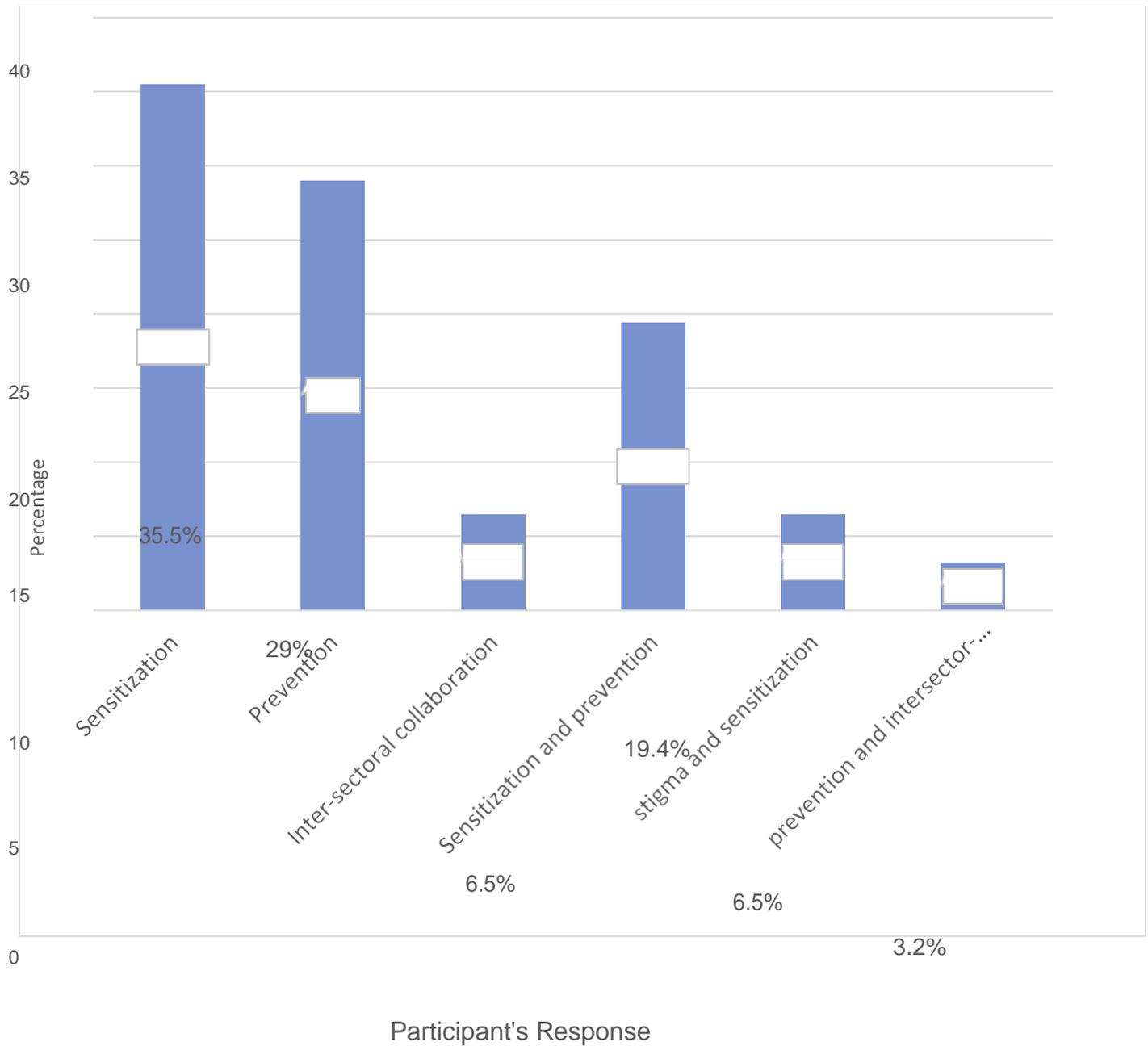


Figure 6 shows that the majority of the respondents (35.5%, n=11) indicated that continued sensitization would improve HIV prevention messages to support communities affected.

This was expressed in the statement *“Lack of knowledge on HIV/AIDS-related issues in the community is one of the factors contributing to a rapid transmission of the disease especially among young and illiterate citizens.”*

Few participants (29%, n=9) stated that: *“promoting abstinence among the youths or use of a condom for those that are sexually active and intensifying VCT campaign would reduce HIV transmission”*

Other participants (19.4%, n=6) indicated that both sensitization and prevention are vital and potential to fight the spread of HIV/AIDS.

7% (n=2) of the respondents suggested that; *“involving the families and communities affected, civic, religious, and traditional leaders to educate both the young and adult citizens in schools, colleges and churches to support and fight stigma and discrimination against people living with HIV would help.”*

## CHAPTER 5: DISCUSSION AND INTERPRETATION OF RESULTS

### 5.1 Introduction

This chapter interprets and discusses the findings of the study. The purpose of the discussion is to state and interpret the findings, give opinions and explain the implications of findings, and make suggestions for future research. Its main function is to answer the questions posed in the introduction, explain how the results support the answers and, how the answers fit in with existing knowledge on the topic. The findings were discussed according to the layout of the study objectives as follows;

### 5.2 To determine knowledge about HIV prevention measures

The findings showed that the majority of the respondents (68%, n=27) had heard about HIV/AIDS and had adequate knowledge on HIV prevention. This implies that the health workers are active in giving health education and sensitizing the community about HIV/AIDS. It can also be deduced that people living with HIV and AIDS interact with the health workers when seeking healthcare and it is likely that information is provided to them. It is noteworthy that these findings agree with the Zambia Demographic Health Survey 2013-14 which indicated that the knowledge about HIV and AIDS and its awareness among women and men remains very high at 99% and 100% respectively (CSO, MOH & ICL, 2014).

The majority of respondents (92.5%, n=37) stated that HIV transmission can be prevented by correctly and consistently using a condom when having sex, while 65% (n=26) said it could be prevented by abstaining. 57.5% (n=23) of the respondents indicated that it can be prevented by avoiding infections and contaminated needles with 42.5% (n=17) saying this could be achieved by remaining faithful to one uninfected partner. Currently HIV/AIDS has no cure, which means that the world community has to look for possible prevention methods to mitigate its negative impact. Therefore the high level of knowledge exhibited by the participants on correct interventions of HIV prevention is a good beginning, as it is

often said that an individual knowledgeable about something is more likely to make informed choices and decisions than a person who has inadequate knowledge.

Therefore it is inevitable to assume by extrapolating from these findings that the future ultimately is that we will have an informed society taking stringent precautions on issues of HIV/AIDS provided there is continued education and sensitization on HIV prevention.

### **5.3 To determine knowledge and attitude of antiretroviral treatment.**

#### **5.3.1 Knowledge on antiretroviral therapy**

Knowledge on antiretroviral therapy (ART) was assessed by asking the participants on what ARVs do. The study results showed that all except one had adequate knowledge with the majority (65%, n=26) of the respondents indicating that ART improves the function of the host's protective immune system and prolongs life of people living with HIV and AIDS. A total of 60.0% (n=24) indicated that ART decrease the amount of virus in the body and reduce opportunistic infections.

In Zambia like any other countries in the sub-Saharan African region, there are low literacy levels, however, given this comprehensive understanding of the pharmacological effects of ARVs shown by the respondents, one can postulate that the opposite can also be true. UNAIDS (2004) reported similar findings stating that antiretroviral therapy is lifesaving as they cited that approximately 5.5 million lives on ART were saved between 1996 and 2012 in low and middle income countries. One such study done by Cambiano et al (2011) on the effects of ARVs also reported similar findings. This study showed that ART given for the treatment of HIV increases immunity and thus in turn reducing the chances on one having opportunistic infections.

#### **5.3.2 Knowledge on guidelines regarding commencement of patients on ART**

When assessed on the commencement of ARVs, the majority of the respondents (76.9%, n=31) stated that ARVs should be started when CD4 count is  $\leq 500$  cells/mm<sup>3</sup>. These findings are in conformity with the eligibility criteria for HAART initiation in specific populations which state that; ART in all adult patients should be initiated when CD4 count falls less or equal to 500 cells per mm<sup>3</sup>. This includes symptomatic patients who are at

WHO clinical stage 3 and 4 of the disease. Those patients who have a CD4 count of less or equal to 350 cells/mm<sup>3</sup> should be treated as top priority (WHO, 2013).

### **5.3.3 Attitude of the patients towards antiretroviral treatment**

Results showed that the majority of the respondents had a positive (good) attitude with 90% (n=36), stating that sex with a person on ART can still result in transmission of the HIV virus, 88% (n=35) indicating that patients on ART need to use a condom and 85% (n=34) stated that a condom should be used even with uninfected partners.

### **5.4 To determine whether embarking on antiretroviral therapy has contributed towards sexual risk behavior.**

To assess a hypothesis reviewed in this study that there is a significant association between the availability of antiretroviral therapy and an upsurge in the occurrence of risky sexual behavior and unprotected sex, the period of time the participant had been on ART were cross tabulated with the number of sexual partners and condom usage. The study results revealed that the majority (82.5%, n=33) of respondents had sexual intercourse in the last 6 months. Only 17.5% (n=7) of the respondents did not have sexual intercourse. From the results, it could be assumed that the HIV seropositive status of the respondents did not translate into a decline in sexual relations. One possible reason for this trend could be attributed to the desire for people living with HIV and AIDS to have children. These findings are in agreement with what was reported by Makukula (2007) in Mansa Zambia as well as the University Teaching Hospital that patients on ART were more sexually active than those who were not on ART. Kennedy et al, (2007) also reported that, as a result of the improvement of the quality of life of people living with HIV and AIDS due to the availability of HAART there is a likelihood of them being encouraged to recommence normal aspects of life such as sexual activities. It is noteworthy that the more than half (78.8%, n=26) of the respondents who had sexual intercourse with partners in the last 6 months adhered to secondary prevention by using a condom. When asked the reasons for using a condom, the majority (73.1%, n=19) stated that they wanted to avoid transmission of the HIV virus and other STIs. These responses were not in agreement with the findings of three concurrent studies Bouhnik et al, (2002); Stephenson et al,

(2003); and Stolte et al, (2006). Which reported that due to the availability of HAART, there is an upsurge in sexually transmitted infections and unprotected sex.

This study has also revealed that there is no significant relationship between the period of time the participant had been on ART and having sexual intercourse, condom usage and the number of sexual partners. Similar findings were reported by a study conducted in Mombasa, Kenya by Sarna et al in 2005 that there is no evidence to conclude that the commencement of HAART leads to increase of risky sexual behavior.

While it is accepted that the introduction of antiretroviral treatment has brought hope in prolonging the lives of those living with HIV and AIDS, careful thought must be taken before accepting the hypothesis that availability of antiretroviral drugs in some circles of society has brought about some negative thoughts in that some individuals have resorted to high risk behaviors. This is because sufficient evidence to confirm this notion is lacking.

### **5.5 To provide guidelines on how to improve HIV prevention messages to support communities affected**

Finally, the respondents were asked to give suggestions on how to improve HIV prevention messages to support communities affected. In this study, most respondents (36%, n=11) commended that continued sensitization would improve HIV prevention messages to support communities affected. And further stating that the current efforts are satisfactory and that they should be continued. This implies that health promoters are providing good services. Few participants (29%, n=9) stated that: *“promoting abstinence among the youths or use of a condom for those that are sexually active and intensifying VCT campaign would reduce HIV transmission”*.

It is noteworthy that 7% (n=2) of the respondents suggested that; *“involving the families and communities affected, civic, religious, and traditional leaders to educate both the young and adult citizens in schools, colleges and churches to support and fight stigma and discrimination against people living with HIV would help.”* An assumption is that this would translate to an increase in the number of counselors. A further 4% went on to state that available counselors should be motivated, another 4% stated there was need to increase VCT mobile sites and 2% stated that doctors, tutors and HIV patients should be

trained as counselors. HIV positive counselor would encourage utilization of VCT services as she/he may lead by example.

Others stated that money that is utilized on HIV/AIDS seminars given, as allowances to workers should be directed to HIV/AIDS Patients who are the intended beneficiaries. These suggestions made by study Participants are some of the factors that influence the utilization of VCT services that need to be addressed in order to make HIV prevention in the community a reality.

## **5.6 Limitations of the study**

**5.6.1** Lack of scientific research findings on the relationship between sexual behavior and HAART made it difficult to have some of the findings supported.

**5.6.2** The sample comprised of HIV-positive participants on ART from Lusaka district only and hence this makes it difficult to generalise the findings to other settings and the entire country.

**5.6.3** The data collection tool used only targeted participants able to speak and write in English hence limiting those who could have given information in local language.

## **5.7 Conclusions and recommendations**

### **5.6.1 Conclusions according to stated research objectives**

The study was carried out to investigate a relationship between sexual behavior and HAART. The study revealed that there is no significant relationship between the availability of HAART and risky sexual behavior amongst the study population. The subjective interpretations of an upsurge in the occurrence of risky sexual behavior and unprotected sex following successful ART though maybe consistent, there is need for more evidence to confirm this hypothesis. There was adequate knowledge on HIV and AIDS, its prevention and ART. It was also revealed that People living with HIV and AIDS have a good attitude towards antiretroviral treatment in this study.

### **5.6.2 Recommendations**

- The health sector in collaboration with other stakeholders such as the Ministry of Education, religious and traditional leaders to educate people in the communities on the consequences of HIV/AIDS so as to foster a reduction in high risky behavior practices.

### **5.6.3 Recommendations for further research**

- There is need for the study to be duplicated in other geographical areas of the country to enable generalization of the results.
- The study should also be conducted among participants using a data collection tool in local language.

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## APPENDICES

### Appendix 1; Tables

Table1. participants who have been on ARVs for less than 60 months and whether had protected sex or not

		er had protected sex or not			
		Yes	No		
Participants who have been on ARVs for less than 60 months	20-39 months	Count	15	4	19
		% within Participants who have been on ARVs for less than 60 months	78.9%	21.1%	100.0%
	40-59 months	Count	5	3	8
		% within Participants who have been on ARVs for	62.5%	37.5%	100.0%
Total		Count	20	7	27
		% within Participants who have been on ARVs for less than 60 months	74.1%	25.9%	100.0%

### Chi-Square Tests

			ct Sig. (2- sided)	ct Sig. (1- sided)
Pearson Chi-Square	.793 <sup>a</sup>	1	.372	
Continuity Correction <sup>b</sup>	.168	1	.682	
Likelihood Ratio	.761	1	.383	
Fisher's Exact Test				.633
Linear-by-Linear Association	.764	1	.382	
N of Valid Cases <sup>b</sup>	27			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.07.

b. Computed only for a 2x2 table

Table 2: Participants who have been on ARVs for 60 months or longer \* whether had protected sexual intercourse

Crosstab

		Had protected sex or not		
		Yes	No	
Participants who have been on ARVs for 60 months or longer	Count	4	0	4
	% within Participants who have been on ARVs for	100.0%	.0%	100.0%
100-119 months	Count	1	0	1
	% within Participants who have been on ARVs for 60 months or longer	100.0%	.0%	100.0%
120-139 months	Count	5	2	7
	% within Participants who have been on ARVs for	71.4%	28.6%	100.0%
140-159 months	Count	1	0	1
	% within Participants who have been on ARVs for	100.0%	.0%	100.0%
180-200	Count	1	1	2
	% within Participants who have been on ARVs for 60 months or longer	50.0%	50.0%	100.0%
Total	Count	12	3	15
	% within Participants who have been on ARVs for 60 months or longer	80.0%	20.0%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.946 <sup>a</sup>	4	.627
Likelihood Ratio	3.864	4	.425
Linear-by-Linear Association	1.920	1	.166
N of Valid Cases	15		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is .20.

Table 3. Less than 60 months on ARV drugs and how many sexual partners

**Cross tabulation**

		How many partners have you had sex with in the last 6 months			
		1	2		
Participants who have been on ARVs for less than 60 months	20-39 months	Count	17	2	19
		% within Participants who have been on ARVs for less than 60 months	89.5%	10.5%	100.0%
	40-59 months	Count	8	0	8
		% within Participants who have been on ARVs for less than 60 months	100.0%	.0%	100.0%
Total		Count	25	2	27
		% within Participants who have been on ARVs for less than 60 months	92.6%	7.4%	100.0%

**Chi-Square Tests**

		df	Asymp. Sig. (2- sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	.909 <sup>a</sup>	1	.340		
Continuity Correction <sup>b</sup>	.022	1	.882		
Likelihood Ratio	1.472	1	.225		
Fisher's Exact Test				1.000	.487
Linear-by-Linear Association	.876	1	.349		
N of Valid Cases <sup>b</sup>		27			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .59.

b. Computed only for a 2x2 table

Table 4: 60 Months or longer on ARVs drugs and number of sexual partners

Crosstab

		How many partners have you had sex with in the last 6 months		
		1	2	
Participants who have been on ARVs for 60 months or longer	Count	3	1	4
	% within Participants who have been on ARVs for 60 months or longer	75.0%	25.0%	100.0%
100-119 months	Count	1	0	1
	% within Participants who have been on ARVs for 60 months or longer	100.0%	.0%	100.0%
120-139 months	Count	7	0	7
	% within Participants who have been on ARVs for 60 months or longer	100.0%	.0%	100.0%
140-159 months	Count	1	0	1
	% within Participants who have been on ARVs for 60 months or longer	100.0%	.0%	100.0%
180-200	Count	2	0	2
	% within Participants who have been on ARVs for 60 months or longer	100.0%	.0%	100.0%
Total		14	1	15
		93.3%	6.7%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.946 <sup>a</sup>	4	.567
Likelihood Ratio	2.849	4	.583
Linear-by-Linear Association	1.892	1	.169
N of Valid Cases	15		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is .07.

Table.5. Less than 60 Months on ARV drugs and whether had sexual intercourse in the last six months

**Crosstab**

		Have you ever had sexual intercourse in the last 6 months			
		Yes	No		
Participants who have been on ARVs for less than 60 months	20-39 months	Count	19	4	23
		% within Participants who have been on ARVs for less than 60 months	82.6%	17.4%	100.0%
	40-59 months	Count	8	2	10
		% within Participants who have been on ARVs for less than 60 months	80.0%	20.0%	100.0%
Total		Count	27	6	33
		% within Participants who have been on ARVs for less than 60 months	81.8%	18.2%	100.0%

**Chi-Square Tests**

		df	Asymp. Sig. (2- sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	.032 <sup>a</sup>	1	.859		
Continuity Correction <sup>b</sup>	.000	1	1.000		
Likelihood Ratio	.031	1	.859		
Fisher's Exact Test				1.000	.605
Linear-by-Linear Association	.031	1	.860		
N of Valid Cases <sup>b</sup>		33			

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.82.

b. Computed only for a 2x2 table

Table 6: 60 Months or longer on ARV drugs and whether had sexual intercourse in the last six months

Crosstab

		Have you ever had sexual intercourse in the last 6 months		
		Yes	No	
Participants who have been on ARVs for 60 months or longer	Count	4	0	4
	% within Participants who have been on ARVs for 60 months or longer	100.0%	.0%	100.0%
100-119 months	Count	1	1	2
	% within Participants who have been on ARVs for 60 months or longer	50.0%	50.0%	100.0%
120-139 months	Count	7	1	8
	% within Participants who have been on ARVs for 60 months or longer	87.5%	12.5%	100.0%
140-159 months	Count	1	1	2
	% within Participants who have been on ARVs for 60 months or longer	50.0%	50.0%	100.0%
180-200	Count	2	1	3
	% within Participants who have been on ARVs for 60 months or longer	66.7%	33.3%	100.0%
Total	Count	15	4	19
	% within Participants who have been on ARVs for 60 months or longer	78.9%	21.1%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.708 <sup>a</sup>	4	.447
Likelihood Ratio	4.164	4	.384
Linear-by-Linear Association	1.130	1	.288
N of Valid Cases	19		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is .42.

## Appendix 2: Study Permission Letter



NETWORK OF ZAMBIAN PEOPLE LIVING WITH HIV AND AIDS (NZP+)

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Promoting Support, Information and Representation of People Living with HIV and AIDS

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29 January 2015

Mr. Patrick M. Chilufya  
14 Luombwe St.  
Thornpark  
Lusaka.

Dear Mr. Chilufya

**RE: Application to conduct a research at Network of Zambian People Living with HIV/AIDS (NZP+)**

Reference is made to your request to conduct a research with our organisation on The Impact of Antiretroviral Therapy on Risky Sexual Behaviour in People Living with HIV and AIDS (PLWHA) in Zambia. We are pleased to inform you that we have granted you the permission to conduct the study. The organisation will provide you the necessary support needed. We wish you success in the underlined assignment.

Yours sincerely,

  
**Richard Sikananu**  
Executive Director

All correspondences must be addressed to: The Executive Director, NZP+ Secretariat Ground Floor,  
Kwacha House Annex, Cairo Road, P.O Box 32717, 10100 Lusaka  
Telephone: +260-211-238085, 238086, 238087 E-mail: [napnzp@zamnet.zm](mailto:napnzp@zamnet.zm)

## APPENDIX 3: RESPONDENTS QUESTIONNAIRE

Ethics reference # SU-HSD-000293

Questionnaire code #

### Self-completion Questionnaire

**The Impact of Antiretroviral Therapy on Risky Sexual Behaviour in People Living with HIV and AIDS (PLWHA) in Lusaka District of Zambia**

#### INSTRUCTIONS

Thank you for participating in this study. The questionnaire is divided into section A, B, C and D. Please follow the instructions clearly and complete the questionnaire in privacy. Please answer the questions honestly and to the best of your personal knowledge and opinion. The information you provide will be anonymous and confidential.

#### **SECTION A: Social demographic Characteristics**

(Please tick✓)

1. Age group (years)

18-29

30-39

40-49

50-49

50+

2. Sex
- Female
- Male

3. Marital status
- Single
- Married
- Divorced
- Widowed

4. Education
- Primary
- Secondary
- Tertiary
- None

5. Occupation
- Employed
- Unemployed

**Access to Antiretroviral Therapy (ART)**

6. Are you on ART? YES  NO
7. How many months have you been on ART?

**SECTION B: Knowledge about HIV prevention measures**

8. HIV transmission can be prevented by? (please tick  multiple responses allowed)
- i) Abstaining
- ii) Using a condom correctly and consistently
- iii) Every time you have sex
- iv) Remaining faithfully to one uninfected partner
- v) Avoiding infections and contaminated needles

- vi) Don't know
- vii) Other (specify) .....

**SECTION C: Knowledge and attitude towards**

**ART Knowledge about Antiretroviral**

**(therapy ART)**

9. What do ARVs do? (please tick, multiple responses allowed)

- i) Cure HIV/AIDS
- ii) Increase sickness
- iii) Slow the progression of AIDS
- iv) Decrease the amount of virus in the body
- v) Improve immune system
- vi) Reduce opportunistic infections
- vii) Increase the CD 4 count
- viii) Prolongs life of people living with HIV and AIDS
- ix) Kill people
- x) Don't know
- xi) Other (specify) .....

10. When should a person with HIV and AIDS start taking ARVs?

- i) When they fall physically ill
- ii) When CD4 count is 500 and below
- iii) When they are unable to continue their daily activities due to illness
- iv) Not all positive people need to commence on ARVs
- v) Don't know
- vi) Other (specify).....

**Attitude about ART and Sexual behavior** (please tick  $\surd$  single response)

- 11. People who are on ART are less likely to transmit the HIV virus
- i) Strongly disagree

- ii) Disagree
- iii) Agree
- iv) Strongly agree
- v) I don't know

12. Now that I am on ART I see no need of using condoms

- i) Strongly disagree
- ii) Disagree
- iii) Agree
- iv) Strongly agree
- v) I don't know

13. A person on ART cannot transmit HIV

- i) Strongly disagree
- ii) Disagree
- iii) Agree
- iv) Strongly agree
- v) I don't know

14. I see no need of using condoms with my sexual partners

- i) Strongly disagree
- ii) Disagree
- iii) Agree
- iv) I strongly agree
- v) I don't know

15. If you have sex with someone who is on ART you cannot contract HIV

- i) Strongly disagree
- ii) Disagree
- iii) Agree
-

- iv) Strongly agree
- v) I don't know

**Risky Sexual Behaviour Outcomes** (please tick  $\checkmark$ )

16. Have you ever had sexual intercourse in the last 6 months YES  NO

17. If **YES** to Q16 how many partners have you had in the last 6 months?

18. Of these partner you have had how many are your

- i) Spouse
- ii) Girl/boy friend
- iii) Casual partner
- iv) Sex worker

19. Which of you said partners did you last have sex with?

- i) Spouse
- ii) Girl/boy friend
- iii) Casual partner
- iv) Sex worker

20. Did you use a condom when having sexual intercourse with your partner(s)

YES  NO

21. If **YES** to Q20 what was the reason(s) for using a condom?

- i) Avoid transmission & HIV and other STIs
- ii) Avoid pregnancy
- iii) Pressured by partner
- iv) Others (specify).....

22. If no to Q20 what was the reason (s) for not using a condom?

- i) Trusted partner
- ii) Increased pleasure
- iii) Pressured by partners
- iv) Other (specify).....

**SECTION D**

23. Suggest ways on how to improve HIV prevention messages to support communities affected.

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

-----**Thank you very much for participating in the study**-----

## APPENDIX 4: INDIVIDUAL CONSENT FORM



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY  
jou kennisvenoot • your knowledge partner

### STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

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#### THE IMPACT OF ANTIRETROVIRAL THERAPY ON RISKY SEXUAL BEHAVIOUR IN PEOPLE LIVING WITH HIV AND AIDS (PLWHA) IN LUSAKA DISTRICT OF ZAMBIA

You are asked to take part in a research study conducted by Patrick Mukuka Chilufya a Master of Philosophy in HIV/AIDS Management student, from the Africa Centre for HIV/AIDS Management at Stellenbosch University. The results will be added to a long essay involving personal research by the mentioned student. You were selected as a possible contributor in this study because you meet the standards which include being HIV positive and on antiretroviral therapy for a minimum of one year.

#### 1. PURPOSE OF THE STUDY

The reason for the study is to find out to what level the ease of use of antiretroviral treatment has had an effect on sexual risk behaviour practices in people living with HIV and AIDS (PLWHA) in order to provide ideas to improve HIV prevention messages.

#### 2. PROCEDURES

If you volunteer to take part in this study, we would ask you to do the following things:

- i. You will be required to fill in a question paper about issues related to HIV treatment and your sexual experiences.
- ii. The distribution and filling in of the question sheet will be conducted within Network of Zambian People Living with HIV and AIDS approved premises.
- iii. The length of taking part in the study is 2 months.
- iv. It will take about 45 minutes to complete the question paper.

#### 3. POSSIBLE RISKS AND WORRIES

- i. One worry might be that of confidentiality of information collected. This will be dealt with by letting you know that the study is nameless and your identity will not be made public. Research records will be stored away in a safe place which will not be accessed by other people other than the person conducting the

research.

- ii. Some level of worry and feeling of shame may arise as a result of questions asked about sexual behaviour. This issue will be dealt with by giving special importance on confidentiality and secrecy of the study. The question paper will also be answered by yourself and will not involve you responding face-to-face to the researcher. This will also reduce on the possibility of worry and embarrassment and the feeling of shame.
- iii. The research might lead to openings of a mark of shame, unfair treatment and punishment. This will be dealt with by the use of language that does not lead to shame and worry. There will be respect and protection for the freedom, rights and self-respect of you the participant. The participation in this study must be out of your own free will and based on your permission to carry out the study.
- iv. With information shared by the participant will there be any help that may be given on any issues relating to HIV and AIDS as well as others if there is need. There is need to refer or link the participants to support services available in the community under study. The Network of Zambian People living with HIV and AIDS conducts support and referral to a number of individuals and organisations that provide various services to its members ranging from psychosocial counselling, health services as well as other individual needs. The researcher will use the referral system that the organisation is currently using. The organisation will also refer to a named clinic if there is need. Clinics have Network of Zambian People Living with HIV and AIDS members present who can assist with any help needed. If there is referral need outside the clinic set up the District coordinator will facilitate the process. For Lusaka District the Coordinator is Mr. Eddie Fundanga; Cel: 0955/0965 648657; Email:eddiefundanga@gmail.com

#### **4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

You will be able to benefit from the research in that with the information provided will help in mitigating the spread of the HI virus at a personal level. The findings of the study will be made available to all participants' part of the network by means of a report or brochure whose identifying particulars have been removed.

Others who will benefit from this study will be those who will implement HIV and AIDS programs, NGOs and National AIDS council. Up-to-date information will be obtained and this will be combined with their work to improve HIV and AIDS programs.

Those who implement HIV and AIDS programs will be able to compare their work against the study and therefor make improvements. The study will also help the Health Ministry in planning programs in the area of HIV and AIDS in Zambia.

#### **5. PAYMENT FOR PARTICIPATION**

You will **not** receive any payment for taking part in the study as its main purpose is for educational achievement.

## **6. CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be made known only with your permission or as required by law. Confidentiality will be kept by means of:

- i. Storing research records in a secure place which include secure secret code on the computer and locked filing cabinet.
- ii. Controlled right to use the information which is gathered.
- iii. Proper throwing away of records used such as question forms.
- iv. Having a system of signals used to represent letters or numbers and making information secret collected so that research participants are not known.

If any information will be released it will have to be the research supervisor who is providing guidance to the investigator to complete the study. The type of the information shared will not contain the personal details of the participant.

The researcher will print out results of study in form of a long essay presentation. Confidentiality will be kept by not publishing personal details of the research participant(s)

## **7. PARTICIPATION AND WITHDRAWAL**

You can choose whether to be in this study or not. If you volunteer to be in this study, you may pull out at any time without punishments of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so. Conditions under which the subject's participation may be ended by the investigator without considering the subject's consent may include not being in the right frame of mind to answer the questions. This might also include bodily illness.

The investigator may also withdraw participation if the participant does not abide to the set rules and guidelines of the study.

## **8. IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about the research, please feel free to contact Principal Investigator: Patrick Chilufya Cell# 0967 746022 or 0977 746022;

Supervisor: Dr. Greg Munro, Stellenbosch University, Tel: +27 21 808 3006 | Fax: +27 21 808 3015; Email: [gmunro@aidsalliance.org](mailto:gmunro@aidsalliance.org)

## **9. RIGHTS OF RESEARCH SUBJECTS**

You may withdraw your agreement at any time and stop taking part without punishment given. You are not giving up any legal entitlements, rights or remedies because of your participation in this research study. If you

have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

**SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE**

The information above was described to me by Mr. Patrick Chilufya in English and I am in understanding of this language or it was reasonably translated to me. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

- **Name of Subject/Participant** \_\_\_\_\_

**Name of Legal Representative (if applicable)** \_\_\_\_\_

- **Signature of Subject/Participant or Legal Representative** \_\_\_\_\_ **Date** \_\_\_\_\_

**SIGNATURE OF INVESTIGATOR**

I declare that I explained the information given in this document to \_\_\_\_\_ [name of the subject/participant] and/or [his/her] representative \_\_\_\_\_ [name of the representative]. [He/she] was encouraged and given ample time to ask me any questions. This conversation was conducted in English/Bemba/Nyanja and [no translator was used/this conversation was translated into \_\_\_\_\_ by \_\_\_\_\_].

- **Signature of Investigator** \_\_\_\_\_ **Date** \_\_\_\_\_

## **APPENDIX 5: RESEARCH ETHICS COMMITTEE APPROVAL LETTER**

### **Approval Notice**

#### **Response to Modifications- (New Application)**

22-Jun-2015 Chilufya, Patrick PM Proposal #: SU-HSD-000293 Title:  
THE IMPACT OF ANTIRETROVIRAL THERAPY ON RISKY SEXUAL BEHAVIOUR IN PEOPLE LIVING  
WITH HIV AND AIDS (PLWHA) IN LUSAKA DISTRICT OF ZAMBIA

Dear Mr Patrick Chilufya,

Your Response to Modifications - (New Application) received on 17-Apr-2015, was reviewed by members of the Research Ethics Committee: Human Research (Humanities) via Expedited review procedures on 15-Jun-2015 and was approved. Please note the following information about your approved research proposal:

Proposal Approval Period: 15-Jun-2015 -14-Jun-2016

Please take note of the general Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

Please remember to use your proposal number (SU-HSD-000293) on any documents or correspondence with the REC concerning your research proposal.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Also note that a progress report should be submitted to the Committee before the approval period has expired if a continuation is required. The Committee will then consider the continuation of the project for a further year (if necessary).

This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the Guidelines for Ethical

Research: Principles Structures and Processes 2004 (Department of Health). Annually a number of projects may be selected randomly for an external audit.

National Health Research Ethics Committee (NHREC) registration number REC-050411-032.

We wish you the best as you conduct your research.

If you have any questions or need further help, please contact the REC office at 218089183.

Included Documents:

DESC Report - Davis, Herbert

REC: Humanities New Application Sincerely,

Clarissa Graham REC Coordinator Research Ethics Committee: Human Research (Humanities)